AECOM Environment

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July 16, 2010

Five-Year Review Report

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July 16, 2010

Mr. Bill Evans
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Subject: Five-Year Review Report for the Holtz and Krause Landfill Site, Wausau, Wisconsin
AECOM Project No. 60139813

Dear Mr. Evans:

On behalf of the City of Wausau, please find enclosed a Five-Year Review Report for the referenced site, prepared by AECOM. This Report was prepared to provide information requested in the Wisconsin Department of Natural Resources (WDNR) electronic mail communication dated April 7, 2009. If you have any questions concerning the information contained herein, please feel free to contact us at your convenience.

Yours sincerely,

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Contents

List of Figures

List of Appendices

Executive Summary

On behalf of the Holtz and Krause Steering Committee, this document has been prepared by AECOM to provide a Five-Year Review Report for the Holtz and Krause Landfill site in Wausau, Wisconsin. This Report was prepared to provide information requested in the Wisconsin Department of Natural Resources (WDNR) electronic mail communication dated April 7, 2009. Specifically, the WDNR communication requested preparation of "a five year review similar to what is expected under NCP (National Contingency Plan) requirements." This Report also includes an update to the January 2003 Technical Justification for Record of Decision (ROD) Amendment for the Holtz and Krause Landfill.

Based on the 1991-1992 Remedial Investigation/Feasibility Study (RI/FS), the Baseline Risk Assessment (BRA), the comments received during the public comment period, and the Summary of Remedial Alternative Selection prepared by WDNR, the WDNR selected Modified Alternative 4 as the remedial action for Holtz and Krause. Modified Alternative 4 is outlined as the selected remedy in the July 22, 1992 ROD (Appendix A). All of the components of the ROD were complied with except the three components of the remedy associated with the phased groundwater/leachate extraction remedy. The WDNR approved implementation of the following ROD components on October 5, 1995:

1. Construction of a low-permeability landfill cap consistent with WAC Chapter NR 504;
2. An active gas extraction system containing thirty-five gas extraction wells, a blower house and a candlestick flare and a condensate collection system;
3. Installation of groundwater monitoring wells to complete the long-term groundwater monitoring network;
4. Operation and maintenance of all systems;
5. Long-term groundwater monitoring;
6. Abandonment of monitoring wells that did not conform to NR 141 WAC or were not necessary for long-term monitoring;
7. Disposal of investigative wastes generated during the RI and Remedial Action (RA) phases of the project; and
8. Institutional controls, deed restrictions and site controls.

Long-term groundwater and landfill gas monitoring was initiated in April 1996. The results of groundwater and landfill gas monitoring conducted since 1996 are summarized in annual monitoring reports, beginning with the "1996 Groundwater Monitoring Summary" that was submitted to the WDNR in March 1997. Investigative activities conducted since 2005 have included installation of four additional monitoring wells hydraulically downgradient (to the west-southwest) of the site, and continued semi-annual groundwater monitoring. The four additional monitoring wells are identified as MW-25C, MW-26C, MW-27C and MW-28C. These monitoring wells have been added to the monitoring wells currently subjected to semi-annual groundwater monitoring associated with the Holtz and Krause Landfill site.

With respect to groundwater quality, the primary and most significant line of evidence of natural attenuation, decreasing or stable concentrations of benzene, vinyl chloride and tetrahydrofuran concentrations over time, supports the conclusion that the overall plume is stable. Based on the results of groundwater monitoring conducted to date, natural attenuation is occurring and is a technically feasible remedial alternative that will continue to reduce concentrations of organic compounds to acceptable levels. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the contaminants of interest that were used in the baseline risk assessment other than that associated with arsenic, and there has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. Based on the evaluation of monitoring data as documented herein, the Holtz and Krause Landfill site remedy is functioning as intended by the ROD and relevant documents.

Based on our review, we have identified the following recommendations and follow-up actions:

1. Annual landfill gas emissions monitoring should continue, in conformance with the approved revised sampling plan included in the 1999 WDNR Annual Review letter dated May 19, 2000.

2. Semi-annual groundwater monitoring should continue, followed by preparation of an Annual Monitoring Report for submittal to the WDNR. Based on the absence of noteworthy concentrations of VOCs in groundwater samples collected from monitoring wells MW-4AR, MW-11B, MW-23 and MW-25D, AECOM recommends that these four monitoring wells be removed from the December semi-annual monitoring program. Monitoring wells MW-4AR, MW-11B, MW-23 and MW-25D would, however, continue to be sampled as part of the June annual monitoring program. In addition, monitoring well MW-3R located to the north of the Landfill is damaged (bent) and is no longer sampled as part of the groundwater monitoring program. As such, AECOM recommends abandonment of monitoring well MW-3R in conformance with Wisconsin Administrative Code (WAC) NR 141.

3. The primary and most significant line of evidence, decreasing or stable organic compound concentrations over time, supports the conclusion that natural attenuation is limiting the migration of constituents of interest in groundwater near the Holtz and Krause Landfill. Based on the results of groundwater monitoring to date, natural attenuation is occurring and is a technically feasible remedial alternative to continue to reduce concentrations of these constituents to acceptable levels. As such, on behalf of the Holtz and Krause Steering Committee, AECOM requests that the ROD be amended to document that the eight remedy components established to date, along with a natural attenuation remedy for groundwater, is the selected remedy. Assuming completion of such a ROD amendment, the groundwater component of the remedy will be met and the remedial action can be considered complete. Long term operations and monitoring (including groundwater monitoring) will continue after the ROD is amended

1.0 Introduction

On behalf of the Holtz and Krause Steering Committee, this document has been prepared by AECOM to provide a Five-Year Review Report for the Holtz and Krause Landfill site in Wausau, Wisconsin. This Report was prepared to provide information requested in the Wisconsin Department of Natural Resources (WDNR) electronic mail communication dated April 7, 2009. Specifically, the WDNR communication requested preparation of "a five year review similar to what is expected under NCP (National Contingency Plan) requirements." This Report also includes an update to the January 2003 Technical Justification for Record of Decision (ROD) Amendment for the Holtz and Krause Landfill.

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of such reviews are documented in the site-specific five-year review reports. In addition, five-year review reports identify issues or deficiencies, if any, found during the review process for the site, and provide recommendations to address or correct them.

2.0 Site Chronology

A chronology of historic events associated with the Holtz and Krause Landfill site is summarized as follows:

Event	Date
Site purchased for use as a sand/gravel pit by Rib Mountain Construction Company	1957
Site used by Rib Mountain Construction as sanitary landfill for solid waste disposal	1957-1980
WDNR photographs document landfill operation as an open dump	1966
WDNR received legislative authority to regulate solid waste facilities	April 1967
Completion of various site investigations, as documented in Section 3.2.1	1969-1974
Completion of WDNR aquatic survey	1975-1985
Completion of Becher-Hoppe Engineers Sanitary Landfill Site Report	Dec. 1975
Completion of Becher-Hoppe Engineers Landfill Site Final Abandonment Plan	Feb. 1980
Marathon County Planning Commission identified long-term Site care requirements	Sept. 1981
Completion of initial landfill cap construction	1982
Completion of Becher-Hoppe Engineers soil boring report of landfill cap integrity	April 1984
Completion of USEPA potential hazardous waste site assessment	Dec. 1985
Completion of USEPA potential hazardous waste site assessment	July 1986
Completion of Foth and Van Dyke hydrogeologic investigation/closure work plan	Aug. 1986
Completion of Geraghty & Miller Remedial Investigation/Baseline Risk Assessment	1989-1991
Completion of Geraghty & Miller Feasibility Study	1991-1992
Completion of WDNR Record of Decision (ROD)	July 1992
Completion of Consent Decree between WDNR and Landfill Settling Parties	Aug. 1994
Completion of Landfill cap, gas extraction system and monitoring well installation	1995
WDNR extensions to ROD granted based on acceptance of natural attenuation	1996

Chronology of historic events associated with the Holtz and Krause Landfill site (continued):

Event	Date
Commencement of long-term groundwater monitoring and annual reporting program	1996
Submittal of AECOM Technical Justification of ROD Agreement to the WDNR	Jan. 2003
Issuance of WDNR letter requesting completion of additional investigation	May 2003
Submittal of AECOM report of 2003-2004 investigation to the WDNR	Jan. 2005
Issuance of WDNR letter requesting completion of additional investigation	April 2006
Submittal of AECOM Work Plan for additional investigation to the WDNR	June 2006
Issuance of WDNR e-mail requesting piezometer installation and Five-Year Report	April 2009

3.0 Background

3.1 Site History

The history of the Holtz and Krause Landfill is based on information contained in the Remedial Investigation Report (Geraghty & Miller, 1991). The Rib Mountain Construction Company purchased a 57-acre parcel of land (the Holtz and Krause Landfill site) east of the City of Wausau in 1957 for use as a sand and gravel pit. At approximately the same time, the owners of the company, Otto Holtz and William Krause, executed contracts with several municipalities to use the site as a sanitary landfill for solid waste disposal. During the course of its operation, the site reportedly accepted over 1.4 million cubic yards of municipal, residential and industrial waste, until it was ordered closed in 1980.

Citizen complaints regarding operation of the Holtz and Krause Landfill have ranged from airborne dust and waste paper to contamination of potable water obtained from the adjacent and underlying shallow sand and gravel aquifers. Apparent groundwater contamination prompted officials from the WDNR to visit the site to observe landfill management methods and evaluate potential groundwater contamination. Photographs taken by the WDNR in 1966 document that the landfill was operated as an open dump and that solid waste was disposed of into areas where sand and gravel was excavated and the water table was exposed. The WDNR pursued legal action against Holtz and Krause, Inc. for willful operation violations. Operation of the landfill continued until December 1980, when the landfill ceased accepting waste. Becher-Hoppe Engineers, Inc. of Schofield, Wisconsin was subsequently retained by the landfill owners to conduct groundwater monitoring, site design and closure of the site.

3.2 Summary of Previous Investigations

A site chronology of project milestone events is summarized in Section 2, and a summary of project history information is provided below.

3.2.1 Investigative Activities Conducted Prior to Remedial Investigation

Several investigations/evaluations were conducted prior to initiation of the Remedial Investigation/Feasibility Study (RI/FS). A summary of documents/activities used to characterize site conditions at the Holtz and Krause Landfill is identified as follows:

- June 1969: Division of Environmental Protection; water samples collected.
- May to November 1969: Wisconsin District 4 Sanitation; water samples collected for bacteriological studies.
- August 1969: Wisconsin District 4 Sanitation; surface water samples collected near Holtz and Krause Landfill.
- November 1972: G. Fred Lee; Water Quality Report.
- July 1972: Bashew and Martin; surface and groundwater quality report.
- February 1973: Ronald G. Hennings; Water Quality and Hydrogeologic Assessment.
- September 1974: Lon C. Ruedisili and Donald Olson; Hydrogeologic Investigation of the Holtz and Krause Landfill.

- December 1974: James B. McDonald; Report of Investigations of WDNR, Wausau Dump.
- December 1975: Becher-Hoppe Engineers, Inc.; Holtz and Krause Sanitary Landfill Report.
- February 1979: Becher-Hoppe Engineers, Inc.; Holtz and Krause Landfill Abandonment Plan.
- February 1980: Becher-Hoppe Engineers, Inc.; Holtz and Krause Landfill Final Abandonment Plan (revised). This document was summarized in Technical Memorandum Number One (Geraghty & Miller, 1989).
- September 1981: Marathon County Planning Commission; closing, monitoring, and long-term care requirements of the Holtz and Krause Landfill.
- April 1984: Becher-Hoppe Engineers, Inc.; soil boring report of cap integrity.
- December 1985: USEPA; potential hazardous waste site assessment.
- July 1986: USEPA; potential hazardous waste site assessment.
- August 1986: Foth and Van Dyke; Work Plan submitted for hydrogeologic investigation and closure plan at Holtz and Krause Landfill site.

Periodic sampling of the monitoring wells installed on the site in 1974 was also conducted by the WDNR. The analytical results of collected groundwater samples indicated the presence of the following volatile organic compounds (VOCs) in site groundwater: alkalated benzenes, chlorofluoromethane, dichlorofluoromethane, hydrocarbons, toluene, trichloroethene (TCE), vinyl chloride, xylene and ethylbenzene.

A fish survey was also conducted by the WDNR during the mid-1970s to the mid-1980s. Fish, turtle, snail and clam tissue were analyzed for metals and pesticides; however, no elevated metals or pesticides were detected in any of these samples. Furthermore, a Wisconsin publication reported that the Eau Claire and Wisconsin Rivers near Wausau had not been impacted by the Holtz and Krause Landfill (WDNR, 1986).

3.2.2 Remedial Investigation

Geraghty & Miller, Inc. conducted the RI under contract with the WDNR and the Holtz and Krause Steering Committee through Holtz and Krause Contractors, Inc. beginning in September 1989 and ending in 1991. The objectives of the data collection activities were to characterize the site, define the migration pathways and describe methods used to evaluate the extent and magnitude of contaminant migration within those pathways, assess risk and provide data for the FS. The data collection scope of work consisted of the following activities: completion of shallow auger borings in the existing landfill cover material and geotechnical and laboratory analysis of the soil samples; collection and laboratory analysis of soil and waste samples from borings completed through and near the landfill; collection and analysis of geologic, geotechnical and hydrogeologic information from borings, water-table monitoring wells and piezometers; collection and laboratory analysis of two rounds of groundwater samples obtained from these monitoring wells; completion of air monitoring surveys near the perimeter of the landfill; collection and laboratory analysis of two rounds of surface water samples; collection and chemical analysis of sediment samples and resident aquatic biota; and, collection and chemical analysis of a leachate sample.

Consistent with the requirements of the National Contingency Plan (NCP), a Quantitative Baseline Risk Assessment (BRA) was performed on the RI data to evaluate the potential present and future risks to human health. The BRA, which was included as part of the RI Report, evaluated the following

two hypothetical future groundwater exposures: 1) potable use by a resident at the site, and 2) contact while showering. Both hypothetical groundwater exposure scenarios were within or below USEPA guidelines for acceptable risks based on the RI data. Because these risks are based on potential (as opposed to actual) exposures, they are conservative and the actual risks are considered much lower.

The major findings of the RI are contained in the June 1991 RI Report and are summarized below:

- Four geologic units were encountered at the site. The uppermost unit is a sand to silt topsoil unit, which includes the landfill cover material. The native unit underlying the topsoil is a fine to coarse, poorly sorted sand that contains traces of gravel. Underlying the sand is a silty fine sand which grades to stiff clay. This unit is apparently discontinuous across the site. Below this unit is granitic bedrock.
- Two major hydrostratigraphic units were reported to exist in the unconsolidated material at the site. The upper of these hydrostratigraphic units is the sand unit and the lower unit is the silty sand to clay that overlies the bedrock. Groundwater was encountered at depths of 4 to 46 feet below ground surface, at approximate elevations of 1,165 to 1,230 feet relative to mean sea level (msl). Groundwater flow was generally east to west, with a southern component of flow near the southern portion of the site.
- Soil samples collected from the landfill cover contained detectable concentrations of TCE (7 and 13 micrograms per kilogram [µg/kg]), toluene (2 µg/kg), polynuclear aromatic hydrocarbons (PAHs) (81 to 4,400 µg/kg), pesticides (9.1 to 360 µg/kg), polychlorinated biphenyls (PCBs) (140 to 360 µg/kg), and elevated concentrations of cobalt, copper, mercury and zinc. The distribution of samples containing detectable or elevated organic and inorganic constituents does not appear to correspond to any spatial pattern across the landfill.
- Subsurface soil samples were reported to contain detectable concentrations of VOCs (1 to 100 µg/kg), semi-VOCs (110 to 21,000 µg/kg), and the pesticide methoxychlor. Several of the semi-VOCs and methoxychlor were also detected in background soil samples.
- The waste samples generally contained a greater number of chemical constituents at higher concentrations than other media collected during the investigation. VOCs were detected in all but one waste sample at concentrations ranging from 0.002 to 41 milligrams per kilogram (mg/kg). Detected semi-VOCs were reported in concentrations ranging from 0.110 to 240 mg/kg. Dieldrin was detected in one waste sample at 0.031 mg/kg. PCBs were detected in six waste samples from 0.420 to 26.2 mg/kg. Elevated concentrations of cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, zinc and cyanide were also reported in the waste.
- Based on two rounds of groundwater analyses conducted in 1989 and 1990, VOCs, semi-VOCs, organochlorine pesticides, chlorinated herbicides and triazine pesticides were detected in the groundwater samples. The most frequently detected VOCs were aromatic hydrocarbons. The concentrations of total aromatic hydrocarbons (benzene, toluene, ethylbenzene, and xylenes) ranged from below the laboratory detection limit to 208 micrograms per liter (µg/L) across the site. Concentrations of semi-VOCs ranged from 2 to 11 µg/L. Pesticides and herbicides ranged in concentration from 0.4 to 1.1 µg/L. Statistically elevated concentrations of inorganic compounds included barium, iron and manganese. The highest concentrations of organic and inorganic compounds were detected in wells installed into the waste fill at the landfill.

- Surface water samples contained only one detection of organics (toluene at 1 µg/L, during one sample round). Iron was detected in several surface water samples at concentrations greater than 1 milligram per liter (mg/L).
- The only leachate sample that was collected contained no detectable organic compounds; however, the iron concentration exceeded 1 mg/L.
- Sediment samples collected from the surface water bodies adjacent to the landfill contained detectable concentrations of VOCs and PAHs. Elevated concentrations of inorganic compounds were not detected in the sediment samples.

3.2.3 Feasibility Study

Geraghty & Miller, Inc. was retained by the WDNR and the Holtz and Krause Steering Committee through Holtz and Krause Contractors, Inc. to complete a Feasibility Study (FS). The objective of the FS was to identify and evaluate alternatives for remediation of the landfill.

The FS resulted in compilation of seven alternative measures for the Holtz and Krause Site. The potential range of actions including no action, source control (waste containment), and groundwater remediation were considered and evaluated using the nine criteria from the National Contingency Plan (NCP). When considering all factors, Geraghty & Miller recommended Alternative 5. The FS identified Alternative 5 as follows: Soil Cap, Groundwater Interception and Discharge to the Eau Claire River.

Based on the RI/FS, the BRA, the comments received during the public comment period, and the Summary of Remedial Alternative Selection prepared by WDNR, the WDNR selected Modified Alternative 4 as the remedial action for Holtz and Krause. Modified Alternative 4 is outlined as the selected remedy in the July 22, 1992 ROD (as provided in Appendix A). The specific components of the selected remedy are outlined in Section 4 of this report.

3.3 Topography

The Holtz and Krause Site is located in the Great Lakes section of the Central Lowland Physiographic Province of Wisconsin, which is characterized by a gently rolling topography with poorly developed drainage patterns. The present physiography of the area is controlled by the top of the bedrock surface and has been modified by glacial erosion and deposition. The land surface is commonly between elevation 1,100 and 1,300 feet msl within the study area. The topography of the site was modified through the operation of a sand and gravel pit and subsequently by construction of the landfill.

Prior to construction of the landfill cover in 1995, the surface of the Holtz and Krause Landfill generally sloped to the southwest. The elevation of the site area ranges from approximately 1,228 feet above msl northeast of the intersection of Swanee Avenue and Northwestern Avenue, to approximately 1,160 feet msl at Pils Slough. The land surface in the site area generally slopes to the southwest from Northwestern Avenue toward Horseshoe, Pils and Cemetery Sloughs. Prior to re-covering, the landfill cover sloped to the southwest. An approximate 50-feet high ridge is located to the west of Cemetery Slough.

The landfill cap completed in 1995 has a 2 percent slope from north to south with the exception of approximately 259 feet in the middle of the landfill where the slope was modified to 1 percent to reduce contact with waste. The reworking and improvement of the landfill cover did not significantly change overall site grades, although the top of the cover generally slopes to the south, rather than the

previous slope to the southwest. Some site grading was also completed to create a handicap access path, the on-site roads and to improve and re-direct surface water drainageways; however, this grading has not altered the overall site profile.

3.4 Surface Hydrogeology

The Holtz and Krause Site is located within the northern part of the Central Wisconsin River Drainage Basin. The Wisconsin River, which is located to the west of the landfill, drains an area of approximately 12,280 square miles. Average discharge at Merrill, Wisconsin, approximately 20 miles upstream, is 2,687 cubic feet per second (cfs). High and low extremes in discharge at Merrill were 99,400 cfs on August 31, 1941 and 90 cfs on September 26, 1908. The Wisconsin River has several tributaries located near Wausau. Among them is the Eau Claire River (south of the site area), which flows east to west.

The Holtz and Krause Landfill is bounded on three sides by wetlands and other surface-water bodies. The wetlands consist of oxbow lakes and sloughs associated with the Eau Claire River. A small intermittent stream bounds the landfill on the east. A review of historical aerial photos indicates that prior to landfilling activities, oxbows and sloughs existed on the area now occupied by the landfill. In addition, the intermittent stream, now bounding the site on the east, previously trended through the area now occupied by the landfill. The topographically low areas bounding the landfill to the west and south are within the 500-year floodplain (FEMA, 1981).

Currently, surface water drainage is generally to the south/southwest across the site. The intermittent stream that trends along the east side of the landfill drains into Horseshoe Slough. Drainage from the landfill cover is toward Pils Slough and Horseshoe Slough.

The principal factors affecting surface water hydrology are precipitation in the area and the slope of the landfill cap. Surface soils, topography, and the upland and wetland vegetation also affect the surface water hydrology to a lesser extent. Precipitation causes the surface water drainage rate to be variable and dependent on seasonal and long-term climatic changes. The average annual precipitation in the Central Wisconsin River Basin was approximately 30 inches for the years 1931 to 1960, with evapotranspiration averaging about 20 inches per year (Devaul and Green, 1971).

3.5 Glacial and Bedrock Geology

Unconsolidated deposits of early Wisconsin or pre-Wisconsin age cover almost the entire area of Marathon County with the exception of the east-central and southeastern portions of the county. The unconsolidated deposits consist of ground moraine deposits, residual bedrock soils (saprolite), and undifferentiated alluvial and glaciofluvial deposits. The ground moraine deposits consist of clayey and stoney till that contain fragments of nearby bedrock. The ground moraine deposits are generally less than 50 feet thick in Marathon County, with exception of where they overlie channels in the bedrock.

In the general area around the site, the tills have been mapped as till of the Wausau Member of the Marathon Formation (Mickelson, et al., 1984). The Marathon Formation till is light gray, pale yellow or pale brown, depending on the degree of oxidation. The Wausau member till contains an average of 43 percent sand, 34 percent silt and 23 percent clay. Sand and gravel units are also present within the formation. The Wausau Member is frequently thin and found directly overlying bedrock, grussified bedrock, or saprolitic bedrock.

Large deposits of alluvial and glaciofluvial sands and gravels are found in the central portion of Marathon County along the Wisconsin River. Smaller deposits have also been mapped along the Eau

Claire River and a few of its tributaries. The undifferentiated alluvial and glaciofluvial deposits are described as noncalcareous silty sand, sand, and gravelly sand, which may contain and/or overlie glacial outwash deposits (Attig and Muldoon, 1989).

The bedrock in Marathon County is composed of Precambrian igneous and metamorphic rock, which is part of the southern margin of the exposed Precambrian Shield. Scattered outliers of Paleozoic-age sandstones that unconformably overlie the Precambrian-age rocks are also encountered in Marathon County (Laberge and Myers, 1983). Metamorphic green schist facies intruded by numerous granitic plutons underlie much of Marathon County. Radiometric dating indicates that these formations are from the early Proterozoic time (1.5 to 1.6 billion years ago).

The Holtz and Krause Landfill is situated on the fluvial sediments and Pleistocene-age outwash overlying the Precambrian-age bedrock. Bedrock adjacent to the landfill consists of felsic meta volcanic rocks (i.e., rhyolites to dacites). Soil surrounding the Holtz and Krause Landfill consists of well-drained loamy sands to sandy loams characterized by high permeability's and slopes of zero to 12 percent. Soil and sediment associated with the sloughs are mucky loamy sands with slopes of zero to one percent (Fiala, et. al., 1989).

Based on information contained in the RI (Geraghty & Miller, 1991), five geologic units are encountered at the site. The uppermost unit is topsoil or landfill cover material. The topsoil is generally 0.5 to 2 feet thick across the site and consists of black to tan silt and fine sand. Prior to placement of the new landfill cover, the landfill cover material was characterized as brown to tan, fine to medium sand with trace silt. The native unit underlying the topsoil is a gray to brown, fine to coarse, poorly sorted sand with trace gravel. This unit is the predominant unconsolidated unit encountered at the site. The sands generally contained greater than 85 percent quartz, with trace silt and angular granite fragments. Underlying the sand unit is a gray to tan silty fine sand. The silty sand grades to a discontinuous red to brown very stiff mottled clay containing trace silt and angular granite fragments. Underlying the silty sand and silty clay unit is granite bedrock (weathered at the surface). The unconsolidated sand at the site is Pleistocene-age outwash deposits and the bedrock is Pre-Cambrian in age. The silty sand to discontinuous silty clay unit overlying the bedrock is common in the Wausau area and is probably an erosional feature of the granite (Kendy and Bradbury, 1988).

The sand unit increases in thickness from approximately 7 feet east of Northwestern Avenue to over an estimated 125 feet thick west of Cemetery Slough, near monitoring wells MW-11A and B. The silty sand and discontinuous silty clay unit that underlies the sand is generally 7 to 10 feet thick (where present). However, the silty clay unit is at least 20 feet thick at monitoring well MW-17C. The silty clay unit was not encountered above the bedrock at monitoring wells MW-11C and MW-24C; however, the silty clay unit was encountered at monitoring MW-25D (17 feet thick) and MW-11D (2 feet thick) (monitoring well locations are illustrated on Figure 2).

The surface of the bedrock slopes to the southwest across the site. The highest bedrock elevation measured at the site is 1,217 feet msl near Northwestern Avenue. The bedrock elevations at the two new bedrock wells are 1,063 feet msl in MW-11D and 1,049 feet msl in MW-25D, which is consistent with the overall slope of the bedrock surface to the southwest.

3.6 Hydrogeology

The unconsolidated deposits overlying crystalline bedrock constitute the most important source of water in Marathon County. Wells completed in the unconsolidated deposits of the Wisconsin River Valley yield up to 1,000 gallons per minute. Relatively small amounts of water are produced from

wells completed within the fractured crystalline bedrock. The amounts of water produced in the crystalline bedrock vary with the degree of fracturing.

In Marathon County, groundwater flow is generally toward the Wisconsin River. Locally, groundwater discharges into springs, streams, lakes and wetlands. Typically, lakes and marshes interrupt the natural gradient of the water table where lakes and marshes lack surface inflow and outflow. In the Central Wisconsin River Basin, groundwater movement is typically from the sides of the basin toward the streams and from north to south. Local groundwater flow patterns in the area typically mimic surface water drainage patterns, discharging to local streams and tributaries of the Eau Claire River. Horizontal hydraulic gradients are typically about 30 to 70 feet per mile in the county, although gradients are steeper near the river valleys (Kendy, 1986).

The geologic information gathered during the RI indicates that two major hydrostratigraphic units are present in the unconsolidated material. The upper hydrostratigraphic unit consists of fine to coarse sand to silty sand with gravel. The lower unit consists of silty clay to clay, which directly overlies the igneous bedrock. Depth to ground water in the 38 wells installed during the investigation ranges from 46 feet below ground surface (bgs) in monitoring well MW-3A to approximately 4 feet bgs in MW-21A, as measured during the RI. The water table configuration generally follows the surface topography of the site and thus the groundwater flow direction was reported in the RI from northeast to southwest.

The RI reported horizontal hydraulic gradients of 0.04 to 0.08 ft/ft across the eastern portion of the site and 0.01 to 0.001 ft/ft in the western and southern portions of the site. Vertical hydraulic gradients were reported as generally downward in the upper portion of the sand hydrostratigraphic unit, ranging from 0.001 ft/ft at monitoring well MW-12A/B to 0.8 ft/ft at MW-3A/B. Vertical gradients were not observed at a few of the well locations during the November 1989 and June 1990 RI monitoring events. Vertical gradients were reported as upward between the silty clay hydrostratigraphic unit and the sand hydrostratigraphic unit at the two monitored well nests (MW-17B/C and MW-19B/A).

Hydraulic conductivity, as estimated from slug tests performed during the RI, ranged from 1.0×10^{-4} to 1.0×10^{-3} cm/sec in the sand hydrostratigraphic unit and 3.9×10^{-4} to 7.4×10^{-5} cm/sec in the silty clay unit. The average estimated linear horizontal groundwater flow velocity in the sand unit ranges from approximately 4,300 feet per year (ft/yr) in the eastern portion of the site to approximately 220 ft/yr in the southern and western portions of the site. The relatively high groundwater flow velocity estimated for the eastern portion of the site is associated with steeper measured hydraulic gradients. The average horizontal flow velocity in the silty clay is estimated in the RI to range from 106 ft/yr in the eastern portion of the site to 5 ft/yr in the southern and western portions of the site. The average groundwater flow velocities are based on the assumption that the horizontal hydraulic gradients at depth are the same as at the water table and that the silty clay has an effective porosity of 10 percent and an average hydraulic conductivity of 1.7×10^{-4} cm/sec.

Groundwater elevations measured in December 2009 were used to develop a site water table elevation contour map (Figure 2). Since 1996, the groundwater elevation data and inferred flow direction have been relatively consistent.

Water table elevation data were collected from monitoring wells maintained by the Steering Committee and several monitoring wells maintained by Union Pacific Railroad (UP-MW prefix). While analytical testing has reportedly been conducted by Union Pacific Railroad and Koch Refining on upgradient contaminated sites and that testing supports a conclusion that the petroleum related constituents (i.e., benzene and naphthalene) detected on-site may be the result in whole or in part to the upgradient sources, the results of that testing are not included in this report.

Consistent with previous data, the groundwater flow direction is generally from the east and northeast of the site toward the west and southwest. Some seasonal fluctuation in groundwater flow direction has been observed. The horizontal hydraulic gradient across the site varies from 0.35 to 0.05 ft/ft beneath the landfill to less than or equal to 0.001 ft/ft in the topographically lower, downgradient area west and southwest of the landfill.

While vertical gradients measured at the site exhibit slight temporal variations, the gradients are of such a small magnitude that places them within the error of the underlying measurements (e.g., elevation survey data and groundwater level measurements). Accordingly, groundwater is interpreted to flow horizontally through the monitored portion of the study area without measurable upward or downward flow components.

Observed horizontal hydraulic gradients along with the mean hydraulic conductivity for the sand aquifer obtained from the RI Report (geometric mean=1.8 x 10^{-2} cm/s) were used to estimate the average linear velocity in the sand aquifer above the bedrock. Beneath the landfill, the average linear velocity estimates range from 2,100 to 3,100 ft/yr while the velocity downgradient of the landfill ranges from 25 to 62 ft/yr. These estimates are comparable to those presented in the RI Report and in the post-1996 Groundwater Monitoring Summary Reports. The downgradient velocity of less than or equal to 62 ft/yr is representative of groundwater exiting the site.

3.7 Upgradient Sources

At least two adjacent upgradient sources of petroleum-related impacts to soil and groundwater have been identified. The two immediately adjacent sites include the Koch Refining Company (Koch) site located on the Holtz and Krause Real Estate Development property (also known as the former Gustafson Oil site), and the Union Pacific Railroad Company's (Union Pacific) Wausau Rail yard site located at 1235 East Junction Street. The Koch site was used as a distribution center for road oils by Gustafson Oil from the 1950s through the 1970s. During that period of time, road oils were blended and naphthalene added as an emulsifying agent. There were several above ground storage tanks used for storage and product was moved using an underground distribution system. Both of these sites have petroleum-related contamination and may have contributed, in part or in whole, to impacts observed at the Holtz and Krause Landfill site.

A full-scale soil vapor extraction (SVE) and bioventing system was installed in September 1996 on the Union Pacific site to remediate petroleum constituents in groundwater. This site was closed by the WDNR in 2003, with GIS Registries in place for soil and groundwater.

Free product was originally identified on the Koch site in monitoring well MW-3R. Free product has been periodically bailed from monitoring well MW-3R since August 1996. Three extraction wells were installed in September 1997 for the purpose of extracting free product. Since that time, free product has been extracted from two of the three extraction wells and monitoring well MW-3R. In November 1998, Koch requested case closure for their site. In February 1999, the WDNR granted case closure despite the continued presence of free product on the Koch site.

3.8 Identification and Assessment of Potential Exposure Pathways and Receptors

3.8.1 Direct Contact with Waste Mass

The landfill has a WAC NR 504 cover over the waste mass. Wastes are not exposed on the landfill surface. Leachate seeps have not been observed on the cap. Therefore, there is no potential for direct contact with the waste mass.

3.8.2 Underground Utilities

There are no underground utilities in the near vicinity of the landfill mass. Shallow groundwater in the area of surrounding residential homes has not been impacted. Therefore, there is no likelihood for subsurface utilities to be impacted by residual waste mass or shallow impacted groundwater.

3.8.3 Direct Contact with Groundwater and Surface Water

There are no on-site users of groundwater or surface water; therefore, there is no completed groundwater pathway associated with the site. The Baseline Risk Assessment (BRA) included as part of the June 1991 Geraghty & Miller RI Report, evaluated two hypothetical future groundwater exposures, including potable use by a resident at the site and contact while showering. Both hypothetical groundwater exposure scenarios were within or below USEPA guidelines for acceptable risks based on the RI data. It should be noted that concentrations of compounds of concern have decreased or remained steady since the RI; therefore, the BRA conclusion that there is no current pathway of potential exposure for groundwater at or in the near vicinity of the site continues to be supported.

Potential downgradient receptors include users of groundwater and surface water downgradient of the site. No public or private potable water supply wells are known to be located downgradient of the site. Therefore, the potential for human contact with the residual dissolved parameters through the public use of downgradient groundwater is low.

Surface water samples were collected during the RI in October 1989 and June 1990. The results of these samples were discussed in the subsequent Geraghty & Miller FS. In general, analytes identified in the FS were interpreted as being either below the method detection limit or artifacts of laboratory testing. The distribution of the benzene, chloromethane, and vinyl chloride concentrations and the interpreted groundwater flow paths show that residual dissolved organic compounds are not migrating into Cemetery Slough, Pils Slough, and Horseshoe Slough. Therefore, based on the information provided above, there is currently no completed groundwater pathway and the potential for human exposure to residual parameters of concern in groundwater associated with the Holtz and Krause Landfill is low.

3.8.4 Vapor Intrusion and Inhalation Pathway

Because shallow groundwater in the area of the residential homes is not impacted, vapor intrusion from groundwater does not pose a health risk to nearby residents.

4.0 Remedial Actions

4.1 ROD/Remedial Action Overview

The operational history of the site related to solid waste disposal dates from approximately 1957 to December 1980, at which time the site was closed. An initial cap was placed on the landfill between closure and 1982. Subsequent to the cap placement, the site was assessed in the mid-1980s. Based on these assessments, the cap did not meet current WDNR design standards and the results of groundwater monitoring indicated contamination above Wisconsin Administrative Code (WAC) NR 140 Enforcement Standard (ES) values.

Based on the 1991-1992 RI/FS, the Baseline Risk Assessment (BRA), the comments received during the public comment period, and the Summary of Remedial Alternative Selection prepared by WDNR, the WDNR selected Modified Alternative 4 as the remedial action for Holtz and Krause. Modified Alternative 4 is outlined as the selected remedy in the July 22, 1992 ROD (Appendix A). All of the components of the ROD were complied with except the three components of the remedy associated with the phased groundwater/leachate extraction remedy. The WDNR approved implementation of the following ROD components on October 5, 1995:

1. Construction of a low-permeability landfill cap consistent with WAC Chapter NR 504;
2. An active gas extraction system containing thirty-five gas extraction wells, a blower house and a candlestick flare and a condensate collection system;
3. Installation of groundwater monitoring wells to complete the long-term groundwater monitoring network;
4. Operation and maintenance of all systems;
5. Long-term groundwater monitoring;
6. Abandonment of monitoring wells that did not conform to NR 141 WAC or were not necessary for long-term monitoring;
7. Disposal of investigative wastes generated during the RI and Remedial Action (RA) phases of the project; and
8. Institutional controls, deed restrictions and site controls.

The three remaining phased groundwater/leachate extraction components of the selected remedy as outlined in the ROD include the following:

1. Phased groundwater/leachate extraction dependent on groundwater exceedances of NR 140 WAC standards;
2. Wastewater discharge to local surface waters if the groundwater extraction phase is triggered; and

3. On-site wastewater treatment required to the degree necessary to meet WPDES permit requirements (other than gas condensate to the local POTW).

According to the ROD, the groundwater/leachate extraction remedy at the site is to be approached in a phased manner and the need for those components of the remedy is dependent on the results of long-term groundwater monitoring initiated immediately after the completion of the cap and active gas extraction system. The 1992 ROD states the following as the criteria for implementation of the phased groundwater/leachate extraction component of the remedy: "If groundwater monitoring outside of the design management zone, one year after completion of the cap indicates the groundwater quality exceeds NR 140 WAC, a groundwater extraction system will be implemented".

Since the ROD was issued in 1992, the WDNR promulgated the NR 700 WAC series which was developed "to establish consistent, uniform standards and procedures that allow for site-specific flexibility, pertaining to the identification, investigation and remediation of sites and facilities which are subject to regulation under s.291.11, 292.15, 292.31 or 292.4, stats". Recognizing the applicability of the NR 700 WAC series (in particular the applicability of remediation by natural attenuation for the groundwater component of the remedy), as well as the WDNR's authority under the Consent Decree and ROD, WDNR has provided one-year extensions of the groundwater extraction system evaluations since 1997.

The need for implementation of the phased groundwater/leachate extraction remedy was to be based on: 1) the results of groundwater monitoring quality data collected since completion of the other eight remedy components; 2) associated risks to human health and the environment; and, 3) considerations of State soil and groundwater standards. Final determination of the need to implement a phased groundwater/leachate system will be made by WDNR after review of the long-term groundwater monitoring data. In the event that a phased groundwater/leachate collection system was deemed to be necessary in the future, such a system was to be designed to minimize declines in the water table at the locations of local wetlands.

Long-term groundwater and landfill gas monitoring was initiated in April 1996. The results of groundwater and landfill gas monitoring conducted since 1996 are summarized in annual monitoring reports, beginning with the "1996 Groundwater Monitoring Summary" that was submitted to the WDNR on March 7, 1997.

4.2 Final Cover System

The Holtz and Krause Landfill has a cover system that consists of 6 inches of topsoil with vegetative cover, 2.5 feet of soil, a 40 mil VLDPE geomembrane, and 2 feet of clay that overlies the base grade and former landfill cap that had been installed in 1982. The landfill has experienced differential settlement, which is reflected by the surface of the cap. The east and west portions of the landfill cap drain away from the landfill at slopes of up to 25 percent; however, the main portion of the cap was constructed to drain to the south at a 2 percent slope with a 1 percent grade for a length of about 250 feet within the central portion of the cover. These areas of relatively low relief have historically featured relatively low drainage rates, and the differential settlement has resulted in marginal drainage rates within isolated portions of the cap.

4.3 Gas Extraction System

The Holtz and Krause Landfill remedial gas extraction system was designed to treat landfill gases generated from the former municipal disposal area. The system design was developed in general conformance with Applicable Relevant and Appropriate Requirements (ARARs). The system is

currently maintained and operated by the City of Wausau under an agreement with the Steering Committee.

In general, landfill gases generated in the former disposal area are extracted under low negative pressure through a series of gas collection wells. The gas is conveyed to a landfill flare system for treatment prior to being exhausted to the atmosphere. The gas extraction system is comprised of 35 gas extraction wells. The extraction well network consists of six main extraction wells (EW-3, EW-5, EW-6, EW-20, EW-21, EW-27) located within the former waste mass area, and 29 extraction wells (EW-1 through EW-35, excluding wells previously referenced) located around the perimeter of the former waste mass, generally within the toe of the landfill waste area.

A compliance test program was completed in 1996 to screen for specific organic and inorganic constituents in the raw landfill gas prior to treatment with respect to NR 445 WAC standards. The testing was completed during four consecutive quarters and included analysis for the NR 445 WAC Table 3A indicator parameters benzene and vinyl chloride, and total gaseous non-methane organics. Testing completed during the December 1995 and July 1996 sampling events additionally included all NR 445 WAC Table 3B compounds, with the exception of aflatoxins, hydrazine sulfate, and pharmaceutical compounds. The completed landfill gas sampling results were submitted to the WDNR as they became available in 1995 and 1996. In general, the four quarters of analytical results indicated that the gas emissions met NR 445 WAC standards prior to combustion at the candlestick flare.

Emissions discharge monitoring subsequent to startup has included field screening of landfill gas concentrations at interior and perimeter extraction wells, and scheduled sample collection of system off-gases and extracted gas streams at the six interior gas extraction well locations for specific VOCs. Field screening of all of the gas extraction wells and the blended gas stream continues to be conducted for methane, oxygen and carbon dioxide on a regular basis by the use of a GEM 500 landfill gas analyzer meter. Samples of the blended system discharge from downstream of the blower, and from the six interior gas extraction wells, are regularly analyzed at an offsite laboratory for VOCs.

The number of VOCs included in the analysis at the blower location and the six interior gas extraction wells was expanded in 1998 from analysis of benzene and vinyl chloride only, to all VOCs listed in EPA Method 8260. The frequency of emissions testing was also modified in the approved revised sampling plan included in the 1999 WDNR Annual Review letter dated May 19, 2000. Emissions testing is currently completed on an annual basis.

Flow rate control modifications at remote gas extraction well locations were completed during 1999 to enhance the removal of vapor phase VOCs. In general, these modifications included installation of both a smaller diameter flexible connection hose between the distribution header and extraction well, and Landtech well head control valves at the 35 gas extraction well heads. The modifications were completed to reduce blockages due to condensate buildup in the design header/well connection, and to facilitate continuous extraction at perimeter gas extraction wells through operation at lower gas extraction rates.

5.0 Progress Since the Last Five-Year Review

This is the first five-year review for the Holtz and Krause Landfill site. However, investigative activities conducted since 2005 have included installation of four additional monitoring wells hydraulically downgradient (to the west-southwest) of the site, and continued semi-annual groundwater monitoring. The four additional monitoring wells are identified as MW-25C, MW-26C, MW-27C and MW-28C. The rationale for and installation methodology associated with the four additional monitoring wells are documented in Sections 5.1 and 5.2. An evaluation of groundwater monitoring data is provided in Section 5.3, and an evaluation of site-specific natural attenuation processes is provided in Section 5.4.

5.1 Installation of Monitoring Wells MW-25C and MW-26C

A WDNR letter dated April 4, 2006 to the Holtz Krause Steering Committee requested installation of a new monitoring well nest near the intersection of Kent Street and Grand Avenue. In response to WDNR's request for additional wells, AECOM submitted a brief work plan to the WDNR dated June 6, 2006, which proposed to install two additional monitoring wells, to be located downgradient of existing monitoring well nests MW-11 and MW-24. The AECOM work plan was subsequently approved by the WDNR.

The two new monitoring wells MW-25C and MW-26C were screened to terminate just into the top of the silty sand unit identified in the April 4, 2006 WDNR letter. Monitoring well MW-25C (Figure 2), which was installed on August 16, 2006, was nested with existing monitoring well MW-25D. This monitoring well, which was located downgradient of the MW-24 well nest, was screened from approximately 115 to 125 feet bgs such that it terminated just into the silty sand unit. Split-spoon soil samples were collected for soil classification purposes during installation of monitoring well MW-25C from the screen interval of the well (115.2 to 125.2 feet below ground surface); the remaining portion of the well was "blind-drilled", as it was located adjacent to deeper monitoring well MW-25D, from which split-spoon soil samples were obtained as part of its installation. Soils encountered from within the well screen interval consisted of brown fine to medium sand with trace fine to coarse gravel, which transitioned to brown silty fine to medium sand with trace fine to coarse gravel at a depth of 125 feet bgs.

Monitoring well MW-26C (Figure 2), which was installed on August 17, 2006, was located downgradient of the MW-11 well nest and was screened from approximately 110.4 to 120.4 feet bgs such that it terminated just into the silty sand unit. Split-spoon soil samples were collected at 5-foot intervals for soil classification purposes during installation of monitoring well MW-26C. Soils encountered during installation of monitoring well MW-26C generally consisted of brown fine to medium sand with trace fine to coarse gravel, which transitioned to brown silty fine to medium sand with trace fine to coarse gravel at a depth of 118 feet bgs.

Monitoring wells MW-25C and MW-26C were constructed with 2-inch diameter schedule 80 PVC casing and screens. The well screen slot sizes were 0.010 inch, and the wells were backfilled as follows: coarse filter pack sand to 2.4-2.5 feet above the top of screen, 2.0 to 2.2 feet of fine filter pack sand, 10.2 to 16.0 feet of bentonite chips, and bentonite slurry to less than 1 foot bgs. Both monitoring wells were completed with protective outer casings. Monitoring well boring logs, construction details and development forms are provided in Appendix B. These wells have been added to the wells currently subjected to semi-annual groundwater monitoring associated with the Holtz and Krause Landfill site.

5.2 Installation of Monitoring Wells MW-27C and MW-28C

A WDNR e-mail dated April 7, 2009 to the City of Wausau requested installation of new monitoring wells in order to comply with the ROD, as exceedances of NR 140 ES values were identified in the furthest downgradient monitoring wells. In response to WDNR's request for additional wells, AECOM submitted a work plan to the WDNR dated July 1, 2009, which proposed to install two additional monitoring wells, to be located downgradient of existing monitoring wells MW-25C and MW-26C. The AECOM work plan was approved by the WDNR in an e-mail dated July 2, 2009.

Monitoring well MW-27C (Figure 2), which was installed on July 15, 2009, was located downgradient of monitoring well MW-26C, was screened from approximately 130 to 140 feet bgs such that it terminated just into the silty sand unit. Split-spoon soil samples were collected at 5-foot intervals for soil classification purposes during installation of monitoring well MW-27C. Soils encountered during installation of monitoring well MW-27C generally consisted of brown fine to medium sand, which transitioned to brown silty sand at a depth of 135 feet bgs.

Monitoring well MW-28C (Figure 2), which was installed on July 20, 2009, was located downgradient of the MW-25 well nest, was screened 131 to 141 feet bgs such that it terminated just into the silty sand unit. Split-spoon soil samples were collected at 5-foot intervals for soil classification purposes during installation of monitoring well MW-28C. Soils encountered during installation of monitoring well MW-28C generally consisted of brown fine to coarse sand with trace fine to coarse gravel, which transitioned to brown silty fine to medium sand with trace fine to coarse gravel at a depth of 148.5 feet bgs.

Monitoring wells MW-27C and MW-28C were constructed with 2-inch diameter schedule 80 PVC casing and screens. The well screen slot sizes were 0.010 inch, and the wells were backfilled as follows: coarse filter pack sand to 1.5-2.0 feet above the top of screen, 1.8 to 2.2 feet of fine filter pack sand, 5.6 to 6.7 feet of bentonite chips, and bentonite slurry to ground surface. Both monitoring wells were completed with protective outer casings. Monitoring well boring logs, construction details and development forms are provided in Appendix B. These monitoring wells have been added to the monitoring wells currently subjected to semi-annual groundwater monitoring associated with the Holtz and Krause Landfill site.

5.3 Evaluation of Groundwater Monitoring Data

5.3.1 Groundwater Monitoring Frequency

Groundwater monitoring was conducted quarterly from 1996 through 1999 except for the second quarter of 1998. Samples were not collected during June 1998 due to the understanding that a semi-annual sampling schedule had been approved by the WDNR. However, following receipt of the WDNR September 4, 1998 letter, quarterly sampling events were re-established until December of 1999. After December of 1999, a semi-annual (June and December) groundwater monitoring frequency was initiated under WDNR approval.

5.3.2 Groundwater Flow

Groundwater elevation measurements are obtained as part of semi-annual (June and December) groundwater monitoring events. Water table elevation contours based on December 2009 groundwater elevation measurements are presented on Figure 2. The direction of groundwater flow is generally from the northeast to the southwest across the site, at a horizontal hydraulic gradient of approximately 0.045 ft/ft.

5.3.3 Summary of PAL and ES Exceedances

Groundwater monitoring results prior to 2008 were provided in previous Holtz and Krause Landfill "Annual Performance Evaluation Reports." The following parameters revealed WAC chapter NR 140 PAL and/or ES exceedances in 2008 and 2009:

Arsenic: During 2008, arsenic exceeded the PAL (1 µg/L) in eight monitoring wells (MW-4B, MW-8B, MW-8C, MW-12B, MW-21A, MW-22B, MW-24B and MW-24C). No exceedances of the arsenic ES value (10 µg/L) were observed during 2008. Arsenic was detected at concentrations up to 6.51 µg/L and has previously been interpreted to be naturally occurring at such a concentration. This interpretation is supported by the absence of an identified "plume" of arsenic-affected groundwater associated with the landfill.

During 2009, arsenic exceeded the PAL in seven monitoring wells (MW-4B, MW-8B, MW-8C, MW-12B, MW-22B, MW-24B, and MW-24C). One exceedance of the ES value was observed during 2009, at monitoring well MW-22B. Arsenic was detected at concentrations up to 13.0 µg/L.

Benzene: None of the detected benzene concentrations in 2008 or 2009 groundwater samples exceed 12.2 µg/L (detected in the groundwater sample from MW-25C in December 2008). The highest benzene concentrations were detected at piezometers MW-8C, MW-24C and MW-25C, which are located approximately 200 to 1,200 feet hydraulically downgradient (southwest) of the Holtz and Krause Landfill. This observation is expected, considering the age of landfill operations (1957 to 1980). The resulting 29 to 52 year timeframe has allowed for the subsurface migration of benzene to those piezometer locations. Monitoring wells/piezometers MW-11A, MW-11B, MW-11C, and MW-11D, MW-27C and MW-28C are located further downgradient of the affected piezometers MW-8C, MW-24C and MW-25C. The absence of elevated benzene concentrations in these downgradient monitoring wells/piezometers adequately defines the downgradient extent of benzene-affected groundwater.

With respect to specific NR 140 exceedances, benzene concentrations exceeded the PAL (0.5 µg/L) in 10 monitoring wells and exceeded the ES (5 µg/L) in five of those monitoring wells during 2008. During 2009, benzene concentrations exceeded the PAL in eleven monitoring wells and exceeded the ES in five of those wells.

Chloromethane: During 2008, chloromethane exceeded the PAL (0.3 µg/L) in one well (MW-23 at 0.65 µg/L), but did not exceed the ES (3 µg/L). During 2009, chloromethane exceeded the PAL in one well (MW-25D at 0.64 µg/L), but did not exceed the ES. Based on information obtained from a Wisconsin-certified laboratory, a possible source of the chloromethane is a reaction of the sample preservative (HCl) and dissolved carbon dioxide in the groundwater.

1,2-Dichloroethane: During 2008 and 2009, 1,2-dichoroethane exceeded the PAL (0.5 µg/L) in one well (MW-22B at 0.64 to 0.70 µg/L), but did not exceed the ES (5 µg/L).

Tetrachloroethene (PCE): PCE was not detected during 2008. During 2009, PCE exceeded the PAL (0.5 µg/L) and ES (5 µg/L) in new monitoring well MW-27C (at concentrations of 17.1 and 25.2 µg/L). Based on the absence of PCE in upgradient monitoring wells or piezometers, the PCE detected at monitoring well MW-27C is likely associated with another source.

Tetrahydrofuran: None of the detected tetrahydrofuran concentrations in 2008 or 2009 groundwater samples exceed 74.7 µg/L (detected in the groundwater sample from MW-25C in December 2008).

The highest tetrahydrofuran concentrations were detected at piezometers MW-24C, MW-25C and MW-26C, which are located approximately 500 to 1,500 feet hydraulically downgradient (southwest) of the Holtz and Krause Landfill.

With respect to specific NR 140 exceedances, tetrahydrofuran concentrations exceeded the PAL (10 µg/L) in seven monitoring wells and exceeded the ES (50 µg/L) in three of those wells during 2008. During 2009, tetrahydrofuran concentrations exceeded the PAL in nine monitoring wells and exceeded the ES in one of those wells.

Trichloroethene (TCE): TCE was not detected during 2008. During 2009, TCE exceeded the PAL (0.5 µg/L) in new monitoring well MW-27C (at concentrations of 2.27 and 2.70 µg/L); however, no exceedances of the TCE ES value (5 µg/L) were observed. TCE is a biodegradation product of PCE, which has also been detected in new monitoring well MW-27C. As indicated above, based on the absence of PCE in upgradient monitoring wells or piezometers, the TCE (as well as parent compound PCE) detected at monitoring well MW-27C is likely associated with another source.

Vinyl Chloride: None of the detected vinyl chloride concentrations in 2008 or 2009 groundwater samples exceeded 3.41 µg/L (detected in the groundwater sample from bedrock piezometer MW-24D in December 2008), which is located approximately 600 feet hydraulically downgradient (southwest) of the Holtz and Krause Landfill. As with detected benzene concentrations, this observation is expected, considering the age of landfill operations (1957 to 1980). The resulting 29 to 52 year timeframe has allowed for the subsurface migration of vinyl chloride to this piezometer location. Bedrock piezometer MW-25D is located further downgradient of affected bedrock piezometer MW-24D. The absence of vinyl chloride in MW-25D adequately defines the downgradient extent of vinyl chloride-affected groundwater in bedrock.

With respect to specific NR 140 exceedances during 2008, vinyl chloride exceeded the PAL (0.02 µg/L) and the ES (0.2 µg/L) in seven monitoring wells. During 2009, vinyl chloride concentrations exceeded the PAL in five monitoring wells and the ES in three monitoring wells.

5.3.4 Extent of Impacted Groundwater

Based on toxicity, concentration, and frequency of detection, the remaining constituents of interest in groundwater near the Holtz and Krause Landfill are benzene, vinyl chloride and tetrahydrofuran. The horizontal distributions of detected benzene, vinyl chloride and tetrahydrofuran concentrations based on groundwater samples collected in 2009 from shallow and deep monitoring wells are shown on Figures 3 through 8. Figures 9 through 14 illustrate June/August 2009 benzene, vinyl chloride and tetrahydrofuran concentrations in groundwater within two geologic cross-sections across the site.

As shown on Figure 3, none of the shallow groundwater samples revealed exceedances of the benzene ES (5 µg/L) or PAL (0.5 µg/L) in 2009. With respect to deeper groundwater samples, benzene concentrations slightly greater than the ES are present at monitoring wells MW-8C, MW-24B,C,D and MW-25C (at concentrations of 5.11 to 9.38 µg/L) (Figure 4). Figures 9 and 10 also illustrate the slight exceedances of the benzene ES at monitoring wells MW-8C, MW-24B,C,D and MW-25C. Monitoring wells/piezometers MW-26C, MW-27C and MW-28C are located further downgradient of the affected wells MW-8C, MW-24B,C,D and MW-25C. The absence of elevated benzene concentrations in these downgradient monitoring wells/piezometers adequately defines the downgradient extent of benzene-affected groundwater.

With respect to vinyl chloride concentrations in shallow groundwater (Figure 5), none of the monitoring well samples revealed detectable concentrations in 2009. Moreover, none of the monitoring wells identified on Figure 11 revealed detectable vinyl chloride concentrations. With respect to deeper groundwater samples, vinyl chloride concentrations greater than the ES are present at monitoring wells MW-24D, MW-25C and MW-28C (at concentrations ranging between 0.65 µg/L at MW-25C [Figure 12] and 2.84 µg/L at MW-24D [Figures 6 and 12]).

Historical vinyl chloride concentrations based on groundwater monitoring data obtained to date (since 1996) for monitoring wells located between the landfill and MW-28C (as depicted on Figure 12) are summarized as follows:

- Shallow monitoring wells MW-8A and MW-24A have not revealed detectable concentrations of vinyl chloride;
- Intermediate overburden well MW-8B has revealed between non-detect and 6 µg/L of vinyl chloride;
- Deep overburden well MW-8C has revealed between non-detect and 1.65 µg/L of vinyl chloride;
- Intermediate overburden well MW-24B has revealed between non-detect and 0.731 µg/L of vinyl chloride;
- Deep overburden well MW-24C has revealed between non-detect and 0.87 µg/L of vinyl chloride;
- Bedrock well MW-24D has revealed between 0.44 and 11.2 µg/L of vinyl chloride;
- Deep overburden well MW-25C has revealed between non-detect and 0.66 µg/L of vinyl chloride;
- Bedrock well MW-25D has not revealed detectable concentrations of vinyl chloride; and,
- Deep overburden well MW-28C (during 2009) has revealed between 1.50 and 1.78 µg/L of vinyl chloride.

Based on the historical vinyl chloride concentrations in groundwater summarized above, it can be concluded that the extent of vinyl chloride-impacted groundwater within bedrock downgradient of the landfill (as documented by the 0.44 to 11.2 µg/L of vinyl chloride previously detected at MW-24D) has been defined, based on the historical absence of detectable concentrations of vinyl chloride in bedrock well MW-25D (which is located downgradient of MW-24D).

With respect to the overburden, the only monitoring wells that have exceeded 1 µg/L of vinyl chloride are MW-8C (which is located approximately 200 feet downgradient of the landfill), and MW-28C (which is located approximately 2,200 feet downgradient of the landfill). Vinyl chloride concentrations in the overburden are observed to decrease with distance from the landfill based on historical data from overburden well nests MW-8, MW-24 and MW25; however, the vinyl chloride concentrations in the overburden at distant monitoring well MW-28 are apparently greater than those detected in the overburden monitoring wells in closer proximity to the landfill. It is therefore possible that the vinyl chloride detected at monitoring well MW-28C is partially or wholly related to a source other than the Holtz and Krause Landfill.

With respect to tetrahydrofuran concentrations, none of the shallow groundwater samples revealed exceedances of the tetrahydrofuran ES (50 µg/L) or PAL (10 µg/L) in 2009, as shown on Figure 7. Moreover, none of the monitoring wells identified on Figure 13 revealed exceedances of the ES for tetrahydrofuran (50 µg/L). With respect to deeper groundwater samples, tetrahydrofuran concentrations slightly greater than the ES are present at MW-25C (56.6 to 58.5 µg/L), as shown on Figure 14. Monitoring wells MW-27C and MW-28C are located further downgradient of the affected

monitoring well MW-25C. The absence of tetrahydrofuran concentrations greater than the ES value in these downgradient monitoring wells (Figure 8) adequately defines the downgradient extent of tetrahydrofuran-affected groundwater. The vertical extent of tetrahydrofuran-affected groundwater has also been defined, as none of the bedrock monitoring wells near the Holtz and Krause Landfill has to date revealed tetrahydrofuran concentrations greater than the ES value.

5.4 Evaluation of Natural Attenuation

Natural attenuation is a recognized final remedy for contaminated groundwater site closure. NR 726.05(2)(b), Wis. Admin. Code, sets forth the requirements for case closure of a site where natural attenuation is demonstrated to be effective. The criteria for closure approval using natural attenuation as a final remedy for groundwater are based on a characterization of the site's hydrogeology, temporal changes in constituent concentrations, and geochemistry.

5.4.1 Source Control

The Holtz and Krause Landfill comprises approximately 57 acres and reportedly contains 1.4 million cubic yards of municipal, residential, and industrial refuse. The operational history of the site for solid waste disposal dates from approximately 1957 to December 1980, at which time the site was closed. An initial cap was placed on the landfill between the closure date and 1982. Final closure of the site, excluding the phased groundwater/leachate extraction remedy, was completed in 1994 and 1995 in accordance with the July 22, 1992 ROD and the Consent Decree between the WDNR and the settling parties represented by the Holtz and Krause Steering Committee.

The current condition of the site reflects construction and installation of the cap and gas extraction system in 1994 and 1995, which included the following components relevant to source control:

- Construction of a low-permeable landfill cap consistent with the WAC NR 504;
- An active gas extraction system containing thirty-five gas extraction wells, a blower house, candlestick flare and a condensate collection system;
- Installation of groundwater monitoring wells to complete the long-term groundwater monitoring network; and,
- Institutional controls, deed restriction and site controls.

5.4.2 Primary Lines of Evidence – VOC Concentration Trends in Groundwater

For the VOCs of interest in groundwater near the Holtz and Krause site (benzene, vinyl chloride and tetrahydrofuran), AECOM evaluated concentration trends for groundwater samples from monitoring wells with ES exceedances by using the Mann-Kendall Statistical Test for Trends, combined with the Coefficient for Variation Test for Stability on Non-Trending Data, as recommended by the WDNR for evaluating natural attenuation processes. The WDNR has developed a spreadsheet (Form 4400-215) for general use to evaluate trends and stability in groundwater. AECOM utilized this spreadsheet to complete the trend analysis on the subject data sets (those data sets with a minimum of one NR 140 ES exceedance). Non-detect results were assumed to be present at concentrations that represented 50 percent of their respective detection limits. WDNR Form 4400-215 has the capacity for ten data entries; as such, the results of ten groundwater monitoring events from the initial respective monitoring event to the most recent (December 2009) monitoring event were evaluated. To provide comparable

weighting of duplicate data, maximum constituent concentrations were used where greater than one result was reported for a given sampling date.

The results of the Mann-Kendall Test evaluations are provided in Appendix C based on the groundwater monitoring data provided in Appendix D, and is summarized below. As indicated, benzene, vinyl chloride and tetrahydrofuran concentrations are generally stable or decreasing.

- At deep overburden monitoring well MW-8C located approximately 200 feet to the southwest (hydraulically downgradient) of the Landfill, concentrations of benzene are decreasing at an 80 percent confidence level.
- At intermediate-depth overburden monitoring well MW-24B located approximately 800 feet to the southwest (hydraulically downgradient) of the Landfill, concentrations of benzene are also decreasing at an 80 percent confidence level.
- At deep overburden monitoring well MW-24C located approximately 800 feet to the southwest (hydraulically downgradient) of the Landfill, concentrations of benzene are increasing at an 80 percent confidence level. However, no trend in benzene concentrations has been established at the 90 percent confidence level, historical benzene concentrations have not exceeded 11.1 µg/L, and the benzene concentrations have not exceeded 10 µg/L since 2003.
- At bedrock monitoring well MW-24D located approximately 800 feet to the southwest (hydraulically downgradient) of the Landfill, concentrations of benzene are decreasing at a 90 percent confidence level, and vinyl chloride concentrations are decreasing at an 80 percent confidence level.
- At deep overburden monitoring well MW-25C located approximately 1,400 feet to the southwest (hydraulically downgradient) of the Landfill, concentrations of benzene are stable, concentrations of tetrahydrofuran are decreasing at a 90 percent confidence level, and vinyl chloride concentrations are increasing at a 90 percent confidence level. The vinyl chloride concentrations have not exceeded 0.68 µg/L, however, and such low concentrations are associated with relatively low precision. The relatively low data precision results in a relatively low reliability Mann-Kendall Test evaluation.

In summary, of the eight VOC concentration trends evaluated above, only one (vinyl chloride at MW-25C) revealed an increasing concentration trend at a 90 percent confidence level (however, the relatively low data precision results in a relatively low reliability Mann-Kendall Test evaluation as discussed above) . The generally stable or decreasing concentrations of benzene, vinyl chloride and tetrahydrofuran identified above support the conclusion that the overall plume is stable.

5.4.3 Secondary Lines of Evidence – Indicator Parameter Concentrations in Groundwater

Biodegradation is essentially a microbially catalyzed oxidation reduction reaction. Oxidation-reduction reactions are those in which there is a transfer of electrons from an electron donor (generally the substrate) to an electron acceptor. Under aerobic groundwater conditions, the electron acceptor is oxygen, while the major electron acceptors in anaerobic conditions are nitrate, ferric iron, and sulfate.

The geochemical indicator parameters dissolved oxygen (DO), oxidation-reduction potential (ORP), and pH were measured during the 2009 sampling rounds and evaluated. Petroleum hydrocarbons such as benzene, less halogenated aliphatic hydrocarbons such as vinyl chloride, and cyclic ethers such as tetrahydrofuran have been demonstrated to biodegrade under aerobic conditions (e.g., Wiedemeier et. al., 1996, and Nyer, 1992). The June 2009 groundwater monitoring event revealed

an arithmetic mean field DO concentration of 3.1 mg/L, and an arithmetic mean field ORP value of +107 mV. The presence of dissolved oxygen concentrations greater than 0.5 mg/L and ORP values greater than +50 mV represent conditions that are somewhat aerobic, although it is not until dissolved oxygen concentrations are greater than 5 mg/L are they considered to be highly aerobic conditions (USEPA, 1998). Based on the detected dissolved oxygen and redox potential values, aquifer conditions near the Holtz and Krause Landfill can be characterized as moderately aerobic. The June 2009 groundwater monitoring event revealed an arithmetic mean field pH value of 6.9. This groundwater pH is within the range that biodegradation occurs in groundwater (i.e., a pH range of 5.0 to 9.0).

Considering the absence of: (1) more halogenated cis-1,2-dichloroethene, and (2) anaerobic conditions in site groundwater, the potential synergistic effect of vinyl chloride production from more halogenated cis-1,2-dichloroethene in an anaerobic environment is not a concern near the Holtz and Krause Landfill.

The primary and most significant line of evidence, decreasing or stable concentrations of benzene, vinyl chloride and tetrahydrofuran concentrations over time, supports the conclusion that the overall plume is stable. Based on the results of groundwater monitoring to date, natural attenuation is occurring and is a technically feasible remedial alternative that will continue to reduce concentrations of organic compounds to acceptable levels.

6.0 Five-Year Review Progress

6.1 Administrative Components

The Five-Year Review was led by AECOM under the oversight of the WDNR. The review was conducted between January 2010 and the signature date of this report. The review included document review, report development and review.

6.2 Community Involvement

Activities to involve the community in the five-year review process between January 2010 and the signature date of this report were not conducted.

6.3 Document Review

The Five-Year Review included a review of all relevant documents including decision documents, site investigation documents and O&M reports.

6.4 Data Review

Long-term groundwater and landfill gas monitoring was initiated in April 1996. The results of groundwater and landfill gas monitoring conducted since 1996 are summarized in annual monitoring reports, beginning with the "1996 Groundwater Monitoring Summary" that was submitted to WDNR on March 7, 1997. The data contained in these annual monitoring reports were evaluated as part of the five-year review process.

6.5 Site Inspection

Visual inspections of the Holtz and Krause Landfill are conducted as part of ongoing semi-annual monitoring events.

6.6 Interviews

Interviews were not conducted because long-term groundwater and landfill gas monitoring events and conversations with stakeholders, specifically the City of Wausau, and the regulatory agency (the WDNR), have taken place since 1996.

7.0 Technical Assessment

7.1 Question A: Is the remedy functioning as intended by the design documents?

System Operations/Remedial Action Performance

Based on the 1991-1992 RI/FS, the BRA, the comments received during the public comment period, and the Summary of Remedial Alternative Selection prepared by WDNR, the WDNR selected Modified Alternative 4 as the remedial action for Holtz and Krause. Modified Alternative 4 is outlined as the selected remedy in the July 22, 1992 ROD (Appendix A). All of the components of the ROD have been complied with except the three components of the remedy associated with the phased groundwater/leachate extraction remedy.

The Holtz and Krause Landfill has a cover system that consists of 6 inches of topsoil with vegetative cover, 2.5 feet of soil, a 40 mil VLDPE geomembrane, and 2 feet of clay that overlies the base grade and former landfill cap that had been installed in 1982. The landfill has experienced differential settlement, which is reflected by the surface of the cap. The east and west portions of the landfill cap drain away from the landfill at slopes of up to 25 percent; however, the main portion of the cap was constructed to drain to the south at a 2 percent slope with a 1 percent grade for a length of about 250 feet within the central portion of the cover. These areas of relatively low relief have historically featured relatively low drainage rates, and the differential settlement has resulted in marginal drainage rates within isolated portions of the cap.

The Holtz and Krause Landfill remedial gas extraction system was designed to treat landfill gases generated from the former municipal disposal area. The system design was developed in general conformance with Applicable Relevant and Appropriate Requirements (ARARs). The system is currently maintained and operated by the City of Wausau under an agreement with the Steering Committee.

In general, landfill gases generated in the former disposal area are extracted under low negative pressure through a series of gas collection wells. The gas is conveyed to a landfill flare system for treatment prior to being exhausted to the atmosphere. The gas extraction system is comprised of 35 gas extraction wells. The extraction well network consists of six main extraction wells (EW-3, EW-5, EW-6, EW-20, EW-21, EW-27) located within the former waste mass area, and 29 extraction wells, (EW-1 through EW-35, excluding wells previously referenced) located around the perimeter of the former waste mass, generally within the toe of the landfill waste area.

Emissions discharge monitoring subsequent to startup has included field screening of landfill gas concentrations at interior and perimeter extraction wells, and scheduled sample collection of system off-gases and extracted gas streams at the six interior gas extraction well locations for specific VOCs. Field screening of all of the gas extraction wells and the blended gas stream continues to be conducted for methane, oxygen and carbon dioxide on a regular basis by the use of a GEM 500 landfill gas analyzer meter. Samples of the blended system discharge from downstream of the blower, and from the six interior gas extraction wells, are regularly analyzed at an offsite laboratory for VOCs.

The number of VOCs included in the analysis at the blower location and the six interior gas extraction wells currently includes all VOCs listed in EPA Method 8260. Emissions testing is currently completed on an annual basis.

With respect to groundwater quality, the primary and most significant line of evidence of natural attenuation, decreasing or stable concentrations of benzene, vinyl chloride and tetrahydrofuran concentrations over time, supports the conclusion that the overall plume is stable. Based on the results of groundwater monitoring conducted to date, natural attenuation is occurring and is a technically feasible remedial alternative that will continue to reduce concentrations of organic compounds to acceptable levels. Based on the evaluation of monitoring data as documented herein, the Holtz and Krause Landfill site remedy is functioning as intended by the ROD.

Implementation of Institutional Controls and Other Measures

Specific components of the selected Modified Alternative 4 include institutional controls, deed restrictions and site controls. Institutional controls including deed restrictions and the WAC NR 812 prohibition on construction of water supply wells within 1,200 feet of any landfill prevent potential exposure to contaminated groundwater. In addition, WAC NR 506 prohibits activities on the Landfill property that would compromise the cap and protectiveness of the remedy.

Opportunities for Optimization

Based on the absence of noteworthy concentrations of VOCs in groundwater samples collected from monitoring wells MW-4AR, MW-11B, MW-23 and MW-25D, AECOM recommends that these four monitoring wells be removed from the December semi-annual monitoring program. Monitoring wells MW-4AR, MW-11B, MW-23 and MW-25D would, however, continue to be sampled as part of the June annual monitoring program. In addition, monitoring well MW-3R located to the north of the Landfill is damaged (bent) and is no longer sampled as part of the groundwater monitoring program. As such, AECOM recommends abandonment of monitoring well MW-3R in conformance with Wisconsin Administrative Code (WAC) NR 141.

Early Indicators of Potential Issues

There are no early indicators of potential problems that would impact the protectiveness of the remedy.

7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy still valid?

With the exception of arsenic, the exposure assumptions, toxicity data, and RAOs have remained the same. The WAC NR 140 standards for arsenic have changed. In January 2001, the USEPA established a new federal safe drinking water act Maximum Contaminant Level (MCL) of 10 µg/L. The State of Wisconsin subsequently adopted the federal MCL of 10 µg/L as the NR 140 enforcement standard (ES) for arsenic. Because arsenic is a known carcinogen, and NR 140 Preventive Action Limit (PAL) of 1 µg/L, 10 percent of the recommended 10 µg/L Enforcement Standard (ES) value, has been promulgated. On March 1, 2004, the NR 140 standards for arsenic changed from an ES of 50 µg/L to 10 µg/L, and the PAL from 5 µg/L to 1 µg/L.

As indicated in Section 5.3.3, during 2008, arsenic exceeded the PAL (1 µg/L) in eight monitoring wells (MW-4B, MW-8B, MW-8C, MW-12B, MW-21A, MW-22B, MW-24B and MW-24C). No exceedances of the arsenic ES value (10 µg/L) were observed during 2008. Arsenic was detected at concentrations up to 6.51 µg/L and has previously been interpreted to be naturally occurring at such a concentration. This interpretation is supported by the absence of an identified "plume" of arsenic-affected groundwater associated with the landfill.

During 2009, arsenic exceeded the PAL in seven monitoring wells (MW-4B, MW-8B, MW-8C, MW-12B, MW-22B, MW-24B, and MW-24C). One exceedance of the ES value was observed during 2009, at monitoring well MW-22B. Arsenic was detected at concentrations up to 13.0 µg/L. The change in NR 140 standards for arsenic has therefore resulted in the 2009 ES exceedance at MW-22B, which is within the Landfill design management zone (DMZ). WAC NR 140 specifies a range of responses for ES exceedances within a DMZ, one of which is "no action."

Other exposure assumptions, toxicity data, cleanup levels and RAOs remain valid. There have been no changes to the physical condition of the Landfill that would affect the protectiveness of the remedy. Applicable or Relevant and Appropriate Requirements (ARARs) that still must be met and that have been evaluated include the following: the Safe Drinking Water Act (40 CFR 141.11-141.16) and WAC NR 140, from which many of the groundwater cleanup levels were derived (NR 140 PAL and ES, MCLs, and MCL Goals [MCLGs]), and ARARs related to post-closure monitoring.

7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

New human health or ecological risks have not been identified associated with the Holtz and Krause Landfill site.

7.4 Technical Assessment Summary

Based on the results of groundwater monitoring conducted to date, natural attenuation is occurring and monitored natural attenuation is a technically feasible remedial alternative that will continue to reduce concentrations of organic compounds to acceptable levels. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the contaminants of interest that were used in the BRA other than that identified above, and there has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. Based on a review of relevant documents, the remedy appears to be functioning as intended by the ROD and related documents.

8.0 Recommendations and Follow-up Actions

The following recommendations and follow-up actions were identified as part of the five-year review:

1. Annual landfill gas emissions monitoring should continue, in conformance with the approved revised sampling plan included in the 1999 WDNR Annual Review letter dated May 19, 2000.

2. Semi-annual groundwater monitoring should continue, followed by preparation of an Annual Monitoring Report for submittal to the WDNR. Based on the absence of noteworthy concentrations of VOCs in groundwater samples collected from monitoring wells MW-4AR, MW-11B, MW-23 and MW-25D, AECOM recommends that these four monitoring wells be removed from the December semi-annual monitoring program. Monitoring wells MW-4AR, MW-11B, MW-23 and MW-25D would, however, continue to be sampled as part of the June annual monitoring program.

3. The primary and most significant line of evidence, decreasing or stable organic compound concentrations over time, supports the conclusion that natural attenuation is limiting the migration of constituents of interest in groundwater near the Holtz and Krause Landfill. Based on the results of groundwater monitoring to date, natural attenuation is occurring and monitored natural attenuation is a technically feasible remedial alternative to continue to reduce concentrations of these constituents to acceptable levels. As such, on behalf of the Holtz and Krause Steering Committee, AECOM requests that the ROD be amended to document that the eight remedy components established to date, along with a monitored natural attenuation remedy for groundwater, is the selected remedy. Assuming completion of such a ROD amendment, the groundwater component of the remedy will be met and the remedial action can be considered complete. Long term operations and monitoring (including groundwater monitoring) will continue after the ROD is amended.

9.0 Protectiveness Statement(s)

Completion of the current five-year review confirms that the Holtz and Krause Landfill site remains protective of human health and the environment, and there are no known exposure pathways that could result in unacceptable health risks. All of the components of the ROD were complied with except the three components of the remedy associated with the phased groundwater/leachate extraction remedy.

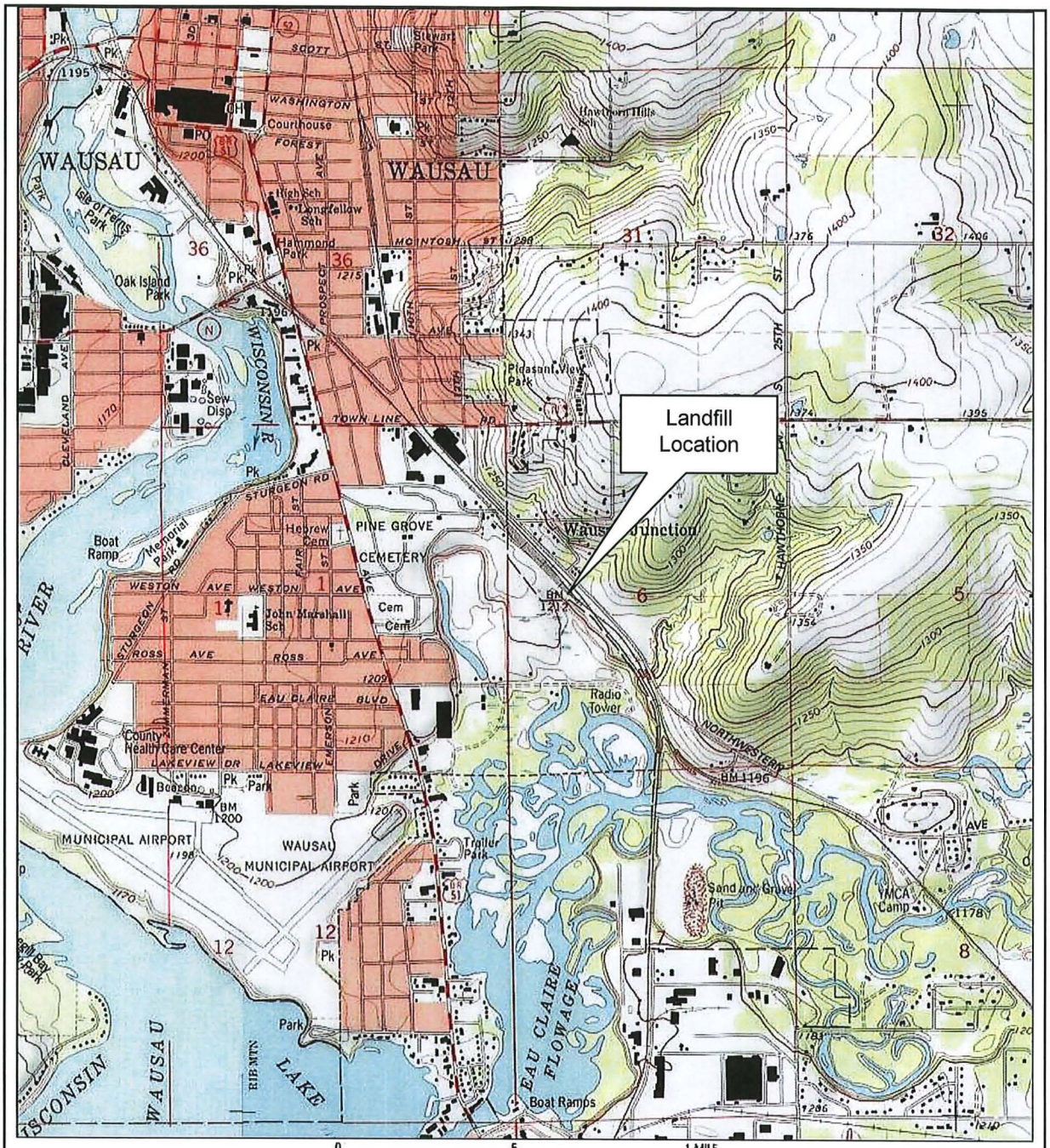
The Holtz and Krause Landfill remedial gas extraction system was designed to treat landfill gases generated from the former municipal disposal area. The system design was developed in general conformance with ARARs. The system is currently maintained and operated by the City of Wausau under an agreement with the Steering Committee.

Landfill gases generated in the former disposal area are generally extracted under low negative pressure through a series of gas collection wells. The gas is conveyed to a landfill flare system prior to being exhausted to the atmosphere. A compliance test program was completed in 1996 to screen for specific organic and inorganic constituents in the raw landfill gas prior to treatment with respect to NR 445 WAC standards, and the landfill gas sampling results were submitted to the WDNR. The analytical results generally indicated that the gas emissions met NR 445 WAC standards prior to combustion at the candlestick flare.

With respect to groundwater quality, the primary and most significant line of evidence of natural attenuation, decreasing or stable concentrations of benzene, vinyl chloride and tetrahydrofuran concentrations over time, supports the conclusion that the overall plume is stable. Based on the results of groundwater monitoring conducted to date, natural attenuation is occurring and monitored natural attenuation is a technically feasible remedial alternative that will continue to reduce concentrations of organic compounds to acceptable levels. Based on the evaluation of monitoring data as documented herein, the Holtz and Krause Landfill site remedy is functioning as intended by the ROD. As such, on behalf of the Holtz and Krause Steering Committee, AECOM requests that the ROD be amended to document that the eight remedy components established to date, along with a natural attenuation remedy for groundwater, is the selected remedy. Assuming completion of such a ROD amendment, the groundwater component of the remedy will be met and the remedial action can be considered complete. Long term operations and monitoring (including groundwater monitoring) will continue after the ROD is amended.

10.0 Next Review

The next five-year review for the Holtz and Krause Landfill site is anticipated to be completed in 2015, five years from the date of this review.

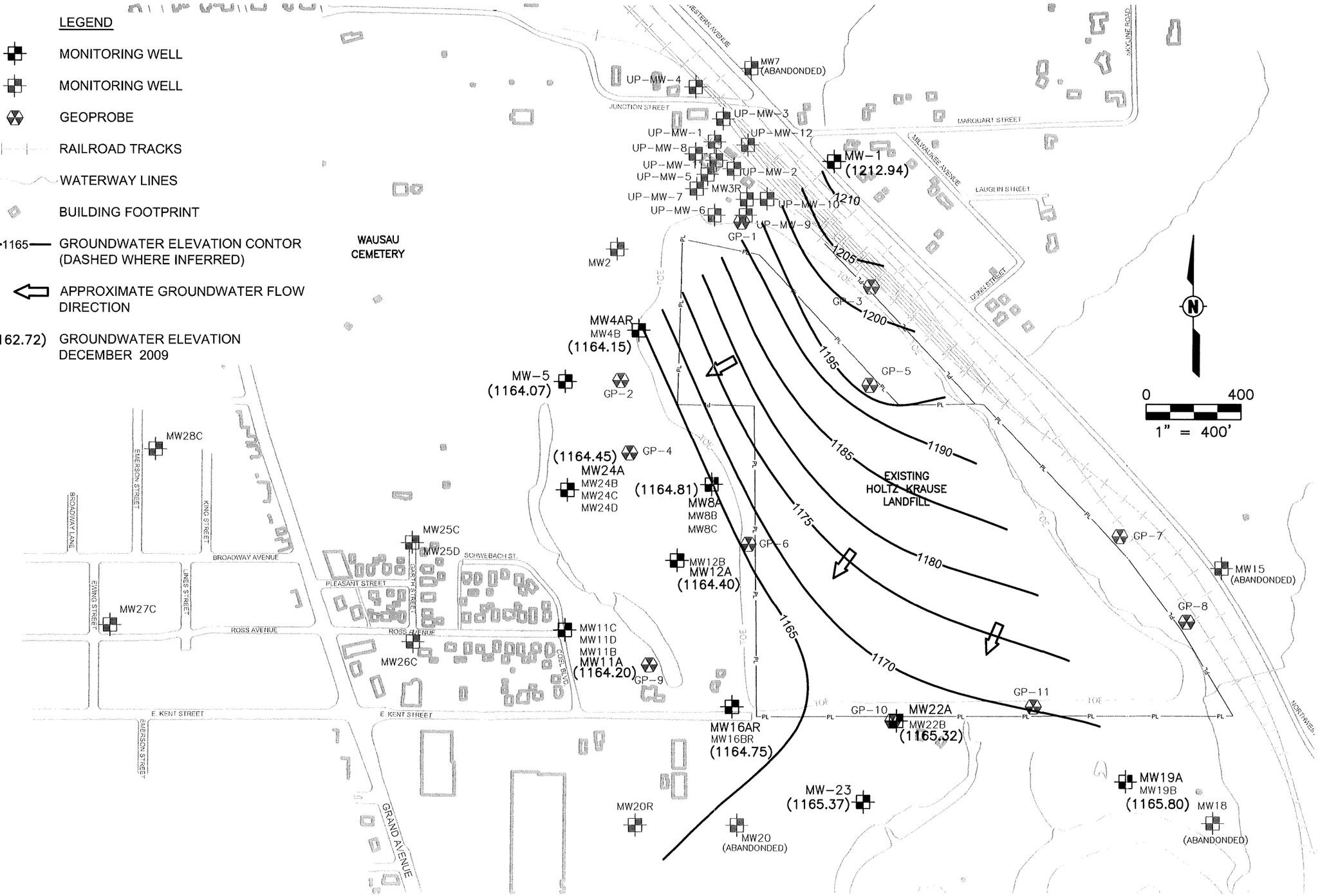


Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

AECOM	**Holtz and Krause Landfill** **Wausau, Wisconsin**	Site Location **60139813** **Figure 1**

LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT
- 1165 — GROUNDWATER ELEVATION CONTOR (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- (1162.72) GROUNDWATER ELEVATION DECEMBER 2009



NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

AECOM

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WATER TABLE CONTOUR MAP DECEMBER 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

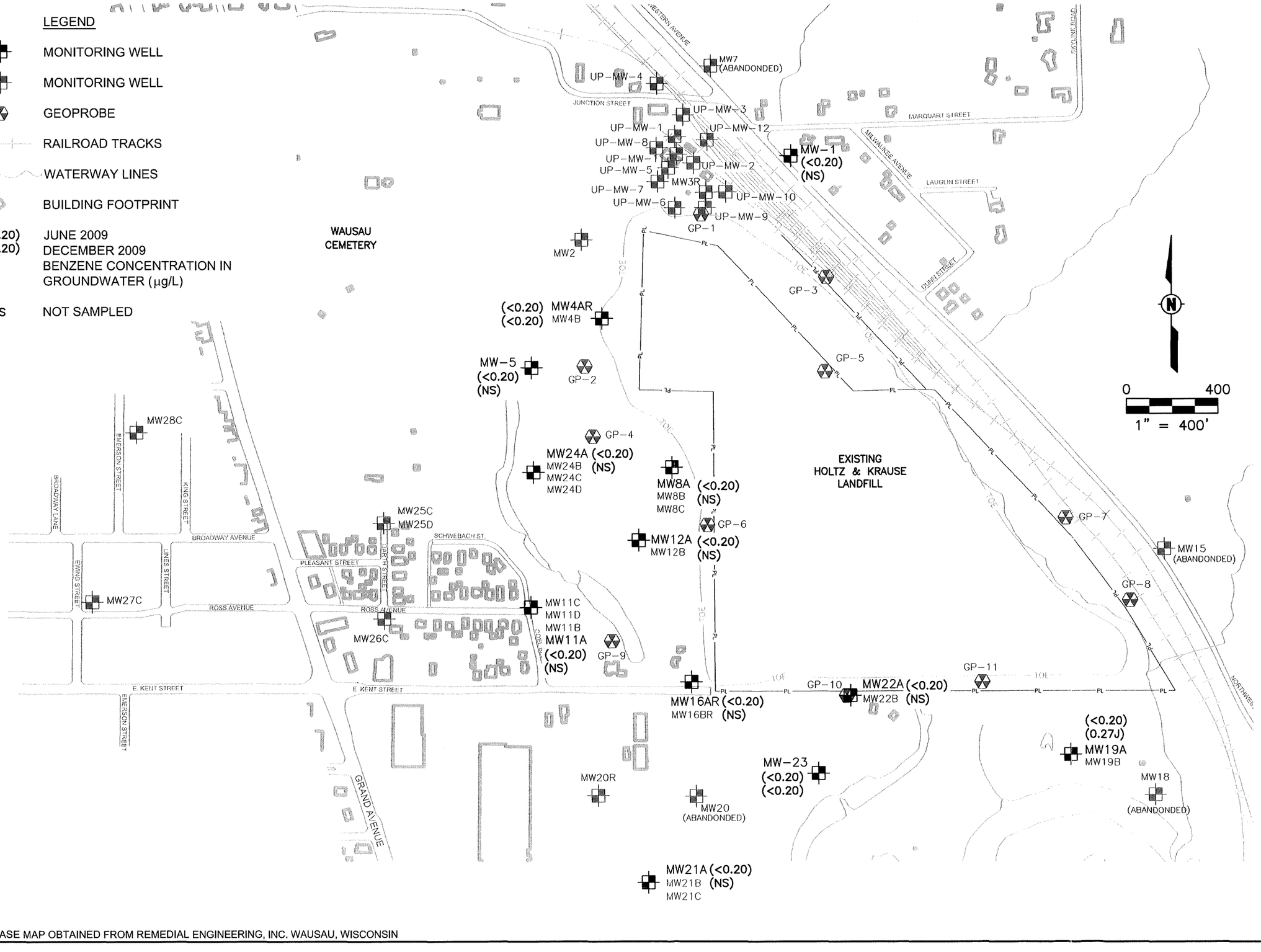
Drawn :	CJH 2/3/2010
Checked:	MMM 2/3/2010
Approved:	MMM 2/3/2010
PROJECT NUMBER	60139813
FIGURE NUMBER	2

LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT

(<0.20) JUNE 2009
(<0.20) DECEMBER 2009
BENZENE CONCENTRATION IN GROUNDWATER (µg/L)

NS NOT SAMPLED



NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

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BENZENE CONCENTRATIONS IN SHALLOW GROUNDWATER SAMPLES 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

Drawn :	CJH	4/2/2010
Checked:	MMM	4/2/2010
Approved:	MMM	4/2/2010
PROJECT NUMBER	60139813	
FIGURE NUMBER	3	

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LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT

(<0.20) JUNE 2009
(<0.20) DECEMBER 2009
BENZENE CONCENTRATION IN GROUNDWATER (µg/L)

NS NOT SAMPLED

(JUNE 2009 GROUNDWATER SAMPLES FROM WELLS MW27C AND MW28C WERE COLLECTED ON AUGUST 4, 2009)

WAUSAU CEMETERY

EXISTING HOLTZ & KRAUSE LANDFILL

MW7 (ABANDONDED)
UP-MW-4
UP-MW-3
UP-MW-1
UP-MW-12
UP-MW-8
UP-MW-11
UP-MW-2
UP-MW-5
MW3R
UP-MW-7
UP-MW-10
UP-MW-6
UP-MW-9
GP-1
MW-1
MW2
GP-3
MW4AR
MW4B
(0.80)
(0.38)
MW-5
GP-2
GP-5
GP-4
MW24A
MW24B
MW24C
MW24D
(NS)
(5.11)
MW8A
MW8B
MW8C
(8.09)
(7.63)
GP-6
GP-7
MW25C
MW25D (<0.20)
(<0.20)
MW12A
MW12B
(1.98)
(1.67)
MW15
(ABANDONDED)
GP-8
MW28C
(1.25)
(1.15)
MW27C
(<0.20)
(<0.20)
MW11D (<0.20)
MW11C (NS)
MW11B
MW11A
MW26C
(1.43)
(0.72)
GP-9
GP-11
GP-10
MW22A
MW22B (3.75)
(3.03)
MW16AR
MW16BR(<0.20)
(NS)
MW-23
MW19A
MW19B
(<0.20)
(NS)
MW18
(ABANDONDED)
MW20R
(<0.20)
(NS)
MW20
(ABANDONDED)
MW21A
MW21B
MW21C(<0.20)
(NS)

JUNCTION STREET
WESTERN AVENUE
MARQUART STREET
SKYLINE ROAD
MILWAUKEE AVENUE
LAUGLIN STREET
DUNN STREET
NORTHWESTERN
BROADWAY LANE
BROADWAY AVENUE
EMERSON STREET
KING STREET
EWING STREET
LINES STREET
PLEASANT STREET
GARTH STREET
SCHWEBACH ST.
ROSS AVENUE
GOEL BLVD.
E. KENT STREET
GRAND AVENUE
TOE
PL

0 400
1" = 400'

NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

BENZENE CONCENTRATIONS IN DEEP GROUNDWATER SAMPLES 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

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Drawn :	CJH 4/2/2010
Checked:	MMM 4/2/2010
Approved:	MMM 4/2/2010
PROJECT NUMBER	60139813
FIGURE NUMBER	4

LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT

(<0.20) JUNE 2009
(<0.20) DECEMBER 2009
VINYL CHLORIDE CONCENTRATION IN GROUNDWATER (µg/L)

NS NOT SAMPLED

WAUSAU CEMETERY

EXISTING HOLTZ & KRAUSE LANDFILL

MW7 (ABANDONDED)
UP-MW-4
UP-MW-3
UP-MW-12
UP-MW-1
UP-MW-8
UP-MW-11
UP-MW-2
UP-MW-5
MW3R
UP-MW-7
UP-MW-10
UP-MW-6
UP-MW-9
GP-1
MW-1 (<0.20) (NS)
MW2
GP-3
(<0.20) MW4AR
(<0.20) MW4B
MW-5 (<0.20) (NS)
GP-2
GP-5
GP-4
MW24A (<0.20) (NS)
MW24B
MW24C
MW24D
MW8A (<0.20) (NS)
MW8B
MW8C
GP-6
MW12A (<0.20) (NS)
MW12B
GP-7
MW15 (ABANDONDED)
GP-8
MW25C
MW25D
MW11D
MW11C
MW11B
MW11A (<0.20) (NS)
GP-9
MW26C
MW27C
MW28C
MW16AR (<0.20) (NS)
MW16BR
GP-10
MW22A (<0.20) (NS)
MW22B
GP-11
(<0.20) (NS) MW19A
MW19B
MW18 (ABANDONDED)
MW-23 (<0.20) (NS)
MW20R
MW20 (ABANDONDED)
MW21A (<0.20) (NS)
MW21B
MW21C

WESTERN AVENUE
JUNCTION STREET
MARQUART STREET
SKYLINE ROAD
MILWAUKEE AVENUE
LAUGLIN STREET
DUNN STREET
NORTHWES
EMERSON STREET
KING STREET
BROADWAY LANE
BROADWAY AVENUE
EWING STREET
LINES STREET
PLEASANT STREET
GARTH STREET
SCHWEBACH ST
ROSS AVENUE
COEL BLVD
E. KENT STREET
GRAND AVENUE
PL
TOE

N

0 400
1" = 400'

NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

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VINYL CHLORIDE CONCENTRATIONS IN SHALLOW GROUNDWATER SAMPLES 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

Drawn :	CJH	4/2/2010
Checked:	MMM	4/2/2010
Approved:	MMM	4/2/2010
PROJECT NUMBER	60139813	
FIGURE NUMBER	5	

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LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT

(<0.20) JUNE 2009
(<0.20) DECEMBER 2009
VINYL CHLORIDE CONCENTRATION IN GROUNDWATER (µg/L)

NS NOT SAMPLED

WAUSAU CEMETERY

EXISTING HOLTZ & KRAUSE LANDFILL

MW7 (ABANDONDED)
UP-MW-4
UP-MW-3
UP-MW-12
UP-MW-1
UP-MW-8
UP-MW-11
UP-MW-2
UP-MW-5
MW3R
UP-MW-7
UP-MW-10
UP-MW-6
UP-MW-9
GP-1
MW-1
MW2
GP-3
(<0.20) MW4AR
(<0.20) MW4B
MW-5
GP-2
GP-5
GP-4
MW24A
MW24B
MW24C
MW24D
(NS)
(2.21)
MW8A
MW8B (<0.20)
MW8C (0.20J)
GP-6
GP-7
MW12A
MW12B (<0.20)
(<0.20)
MW15
(ABANDONDED)
GP-8
MW28C
(1.78)
(1.50)
MW25C (<0.20)
MW25D (<0.20)
MW27C
(<0.20)
(<0.20)
MW11D (<0.20)
MW11C (NS)
MW11B
MW11A
MW26C
(<0.20)
(<0.20)
GP-9
GP-10
GP-11
MW22A
MW22B (<0.20)
(0.20J)
MW16AR
MW16BR (<0.20)
(NS)
MW-23
MW19A
MW19B
(<0.20)
(NS)
MW18
(ABANDONDED)
MW20R
(<0.20)
(NS)
MW20
(ABANDONDED)
MW21A
MW21B
MW21C (<0.20)
(NS)

MARQUART STREET
JUNCTION STREET
MILWAUKEE AVENUE
LAUGLIN STREET
DUNN STREET
SKYLINE ROAD
WESTERN AVENUE
NORTHWEST
TOE
PL
EMERSON STREET
KING STREET
BROADWAY LANE
BROADWAY AVENUE
EWING STREET
LINES STREET
PLEASANT STREET
GARTH STREET
SCHWEBACH ST.
ROSS AVENUE
COEL BLVD
E. KENT STREET
GRAND AVENUE

0 400
1" = 400'

NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

X:\Projects\60139813\dwg\G60139813-VINYL CHLORIDE DEEP 2009.dwg; 4/2/2010 2:49:19 PM; HEINTZ, CHARLES; STS.stb

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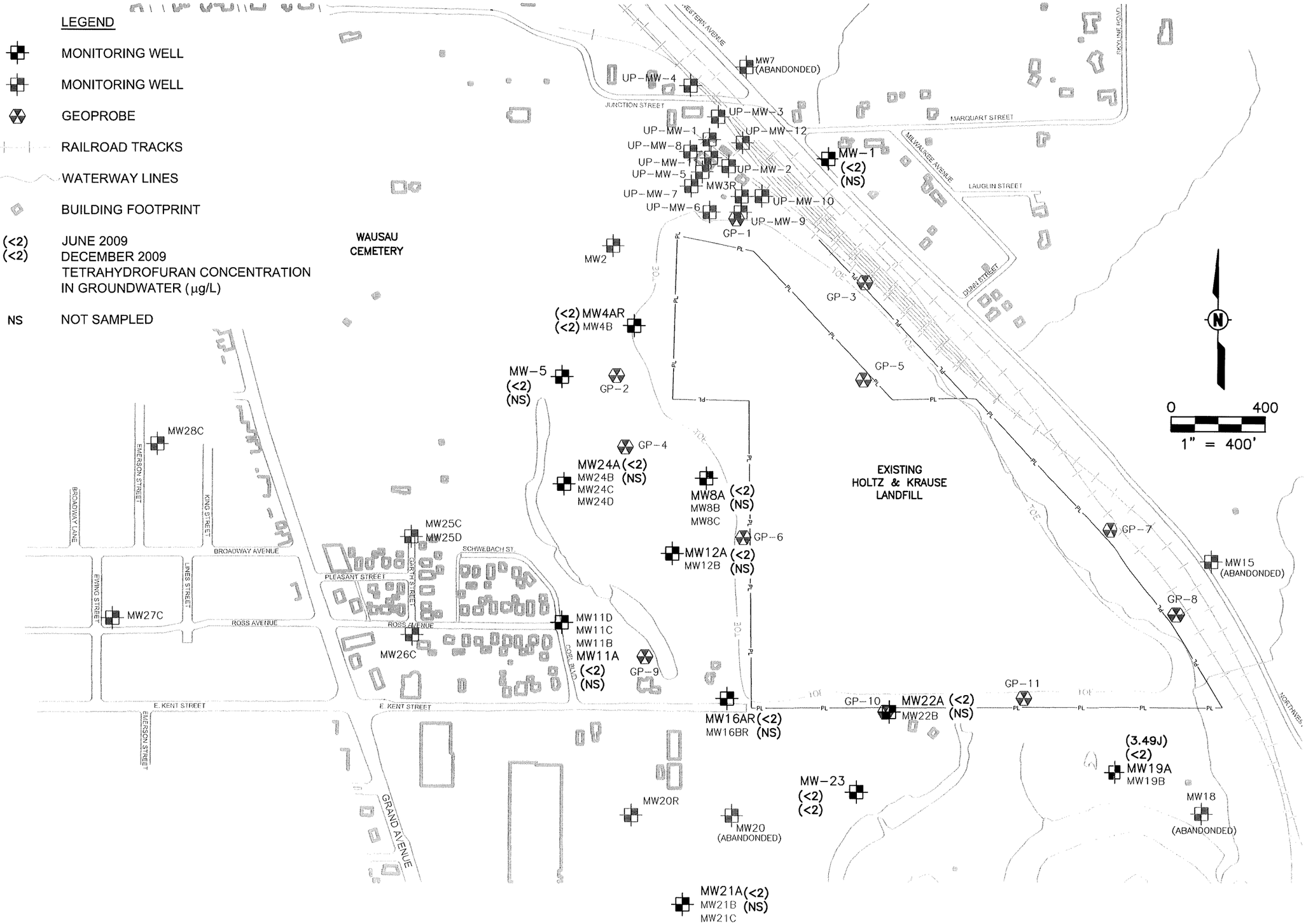
VINYL CHLORIDE CONCENTRATIONS IN DEEP GROUNDWATER SAMPLES 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

Drawn :	CJH 4/2/2010
Checked:	MMM 4/2/2010
Approved:	MMM 4/2/2010
PROJECT NUMBER	60139813
FIGURE NUMBER	6

LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT
- (<2) JUNE 2009
- (<2) DECEMBER 2009
- TETRAHYDROFURAN CONCENTRATION IN GROUNDWATER (µg/L)
- NS NOT SAMPLED



NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

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TETRAHYDROFURAN CONCENTRATIONS IN SHALLOW GROUNDWATER SAMPLES 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

Drawn :	CJH	4/2/2010
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PROJECT NUMBER	60139813	
FIGURE NUMBER	7	

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LEGEND

- MONITORING WELL
- MONITORING WELL
- GEOPROBE
- RAILROAD TRACKS
- WATERWAY LINES
- BUILDING FOOTPRINT
- (<2) JUNE 2009
- (<2) DECEMBER 2009
- TETRAHYDROFURON CONCENTRATION IN GROUNDWATER (µg/L)
- NS NOT SAMPLED

WAUSAU CEMETERY

EXISTING HOLTZ & KRAUSE LANDFILL

MW7 (ABANDONDED)
UP-MW-4
UP-MW-3
UP-MW-1
UP-MW-12
UP-MW-8
UP-MW-11
UP-MW-2
UP-MW-5
MW3R
UP-MW-10
UP-MW-7
UP-MW-6
UP-MW-9
GP-1
MW-1
MW2
GP-3
MW4AR (<2)
MW4B (<2)
MW-5
GP-2
GP-5
GP-4
MW24A
MW24B
MW24C
MW24D (NS) (37.3)
MW8A
MW8B (15.9)
MW8C (13.0)
GP-6
GP-7
MW15 (ABANDONDED)
GP-8
MW12A
MW12B (4.9J) (4.55J)
MW28C (34.9) (34.0)
MW25C (<2)
MW25D (<2)
MW27C (<2) (<2)
MW11D (<2) (NS)
MW11C
MW11B
MW11A
MW26C (41.4) (23.8)
GP-9
GP-11
GP-10
MW22A
MW22B (10.6) (9.29)
MW16AR
MW16BR (<2) (NS)
MW19A
MW19B (<2) (NS)
MW18 (ABANDONDED)
MW-23
MW20R (<2) (NS)
MW20 (ABANDONDED)
MW21A
MW21B
MW21C (<2) (NS)

WESTERN AVENUE
JUNCTION STREET
MARQUART STREET
SKYLINE ROAD
MILWAUKEE AVENUE
LAUGLIN STREET
DUNN STREET
NORTHWES
BROADWAY LANE
EMERSON STREET
KING STREET
BROADWAY AVENUE
EWING STREET
LINES STREET
ROSS AVENUE
PLEASANT STREET
GARTH STREET
SCHWEBACH ST
CORELL BLVD
E. KENT STREET
GRAND AVENUE
TOE
PL

0 400
1" = 400'

NOTE: BASE MAP OBTAINED FROM REMEDIAL ENGINEERING, INC. WAUSAU, WISCONSIN

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TETRAHYDROFURON CONCENTRATIONS IN DEEP GROUNDWATER SAMPLES 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

Drawn :	CJH 4/2/2010
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PROJECT NUMBER	60139813
FIGURE NUMBER	8

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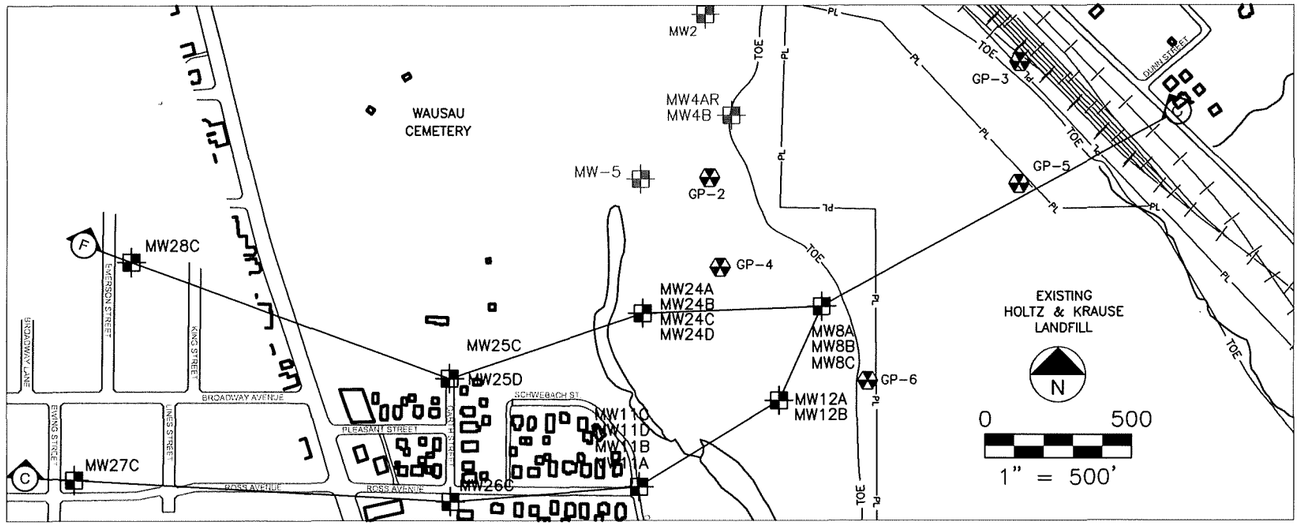

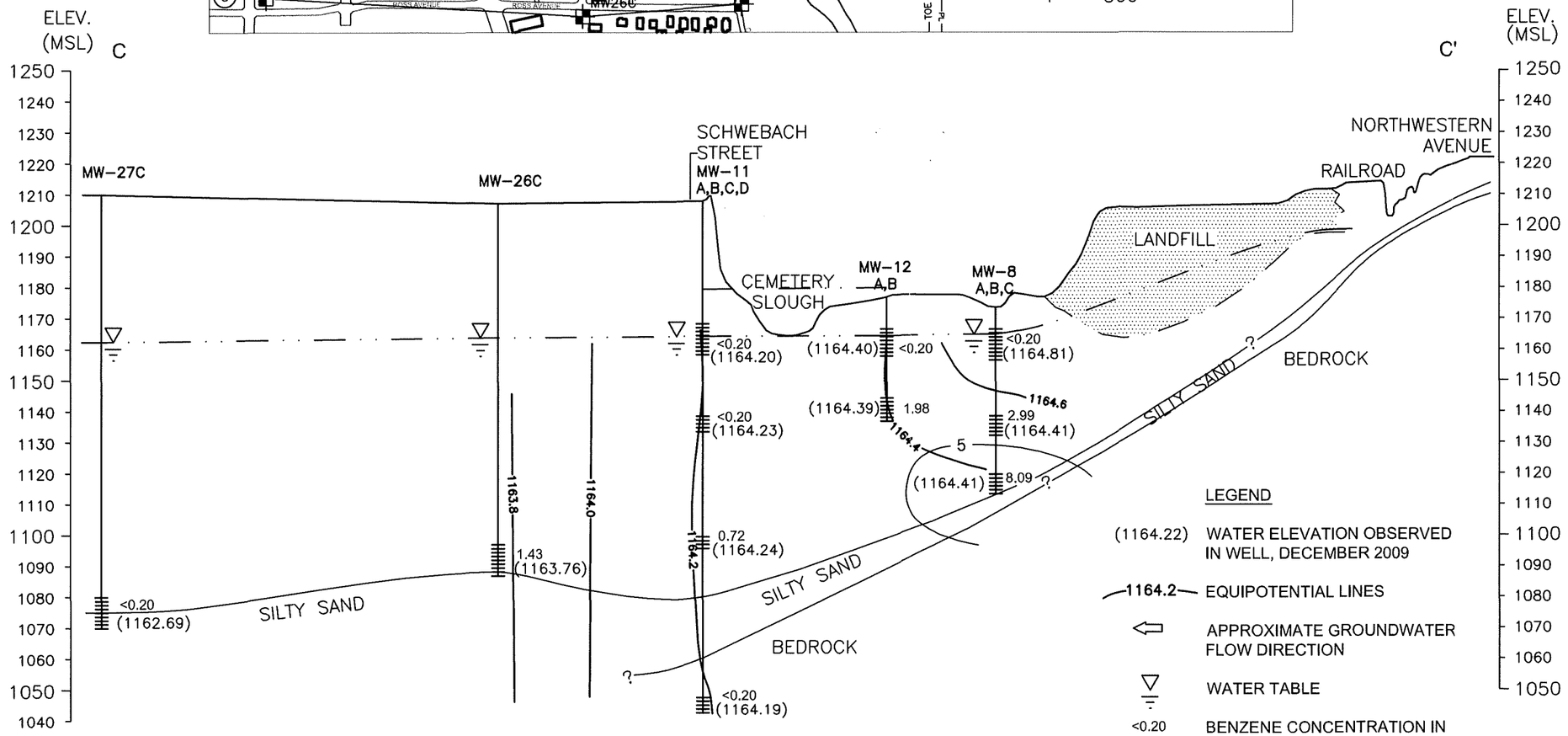

GEOLOGIC CROSS-SECTION C-C'

SCALE: HORIZ.: 1"=400'
VERT.: 1"=40'

LEGEND

(1164.22)	WATER ELEVATION OBSERVED IN WELL, DECEMBER 2009
1164.2	EQUIPOTENTIAL LINES
	APPROXIMATE GROUNDWATER FLOW DIRECTION
	WATER TABLE
<0.20	BENZENE CONCENTRATION IN WELL (µg/L), JUNE/AUGUST 2009
5	BENZENE ISOCONCENTRATION CONTOUR (µg/L), JUNE/AUGUST 2009

MAP SOURCE: MODIFIED FROM GERAGHTY & MILLER REMEDIAL INVESTIGATION DATED FEBRUARY 1991.

BENZENE CONCENTRATIONS IN GROUNDWATER WITHIN GEOLOGIC CROSS-SECTION C-C' JUNE/AUGUST 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

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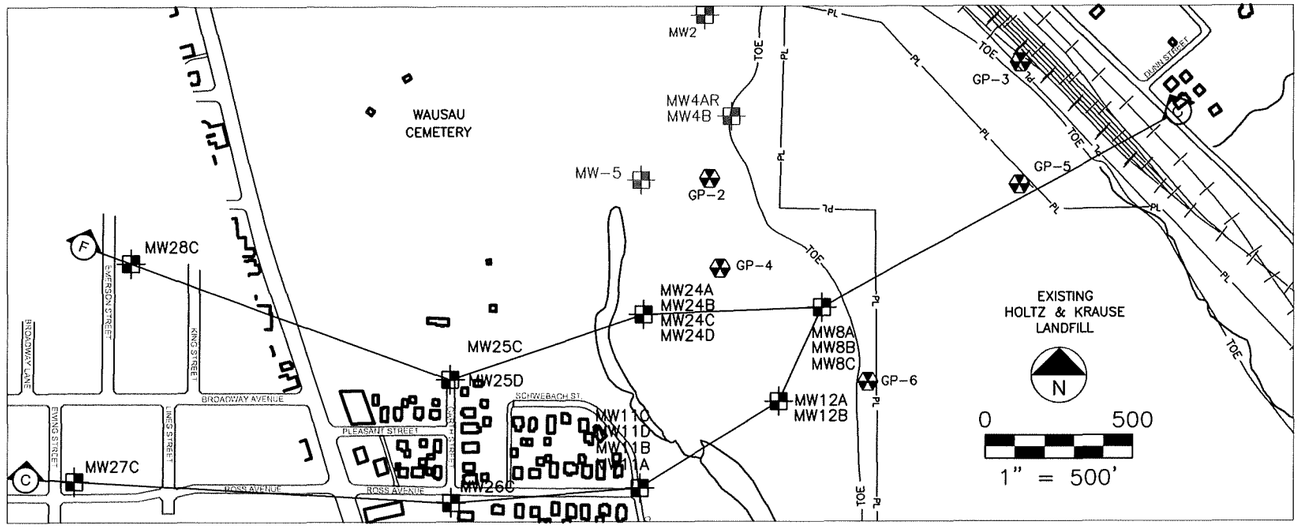
PROJECT NUMBER	60139813	
FIGURE NUMBER	9	



F

C'

ELEV. (MSL)

1250
1240
1230
1220
1210
1200
1190
1180
1170
1160
1150
1140
1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020

MW-28C

MW-25C,D

CEMETERY SLOUGH

MW-24 A,B,C,D

MW-8 A,B,C

RAILROAD

LANDFILL

(1164.45) <0.20

(1164.81) <0.20

FINE TO COARSE SAND

BEDROCK

1164.4

5

(1164.41) 2.99

(1164.21) 5.61

(1164.41) 8.09

1164.2

FINE TO COARSE SAND

(1163.72) 9.13

1164.0

(1164.21) 7.44

BEDROCK

1.15 (1162.75)

SILTY SAND

SILTY SAND

(1164.08) 5.94

<0.20

?

LEGEND

(1164.22) WATER ELEVATION OBSERVED IN WELL, DECEMBER 2009

1164.2 EQUIPOTENTIAL LINES

APPROXIMATE GROUNDWATER FLOW DIRECTION

WATER TABLE

<0.20 BENZENE CONCENTRATION IN WELL (µg/L), JUNE/AUGUST 2009

5 BENZENE ISOCONCENTRATION CONTOUR (µg/L), JUNE/AUGUST 2009

GEOLOGIC CROSS-SECTION F-C'

SCALE: HORIZ.: 1"=300'
VERT.: 1"=30'

MAP SOURCE: MODIFIED FROM GERAGHTY & MILLER REMEDIAL INVESTIGATION DATED FEBRUARY 1991.

BENZENE CONCENTRATIONS IN GROUNDWATER WITHIN GEOLOGIC CROSS-SECTION F-C'
JUNE/AUGUST 2009
HOLTZ AND KRAUSE LANDFILL
WAUSAU, WISCONSIN

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PROJECT NUMBER	60139813	
FIGURE NUMBER	10	

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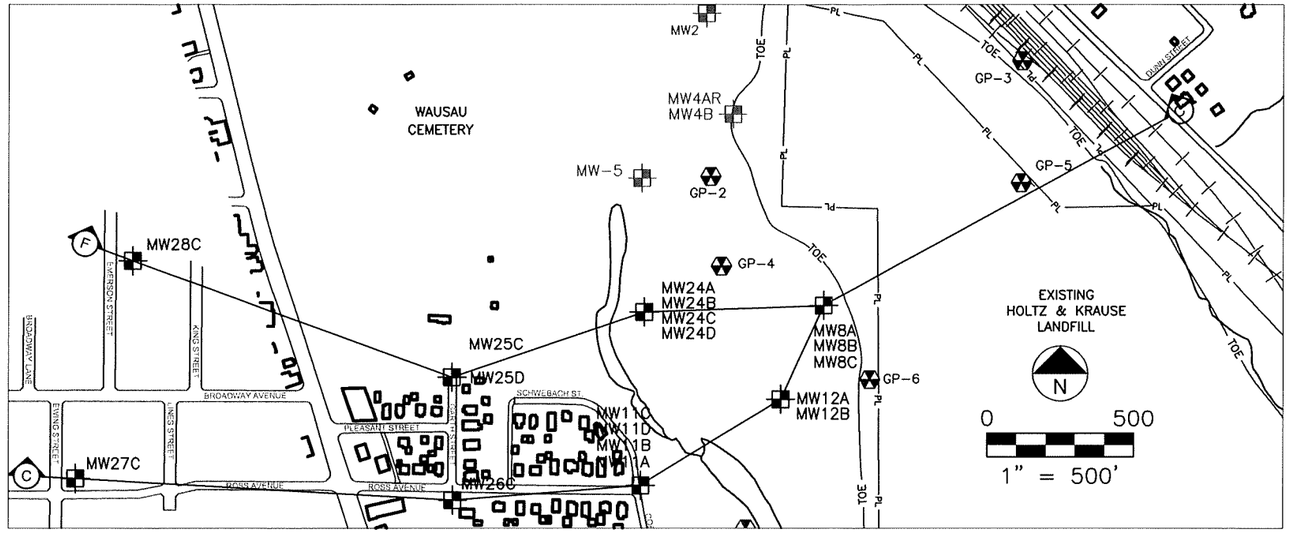

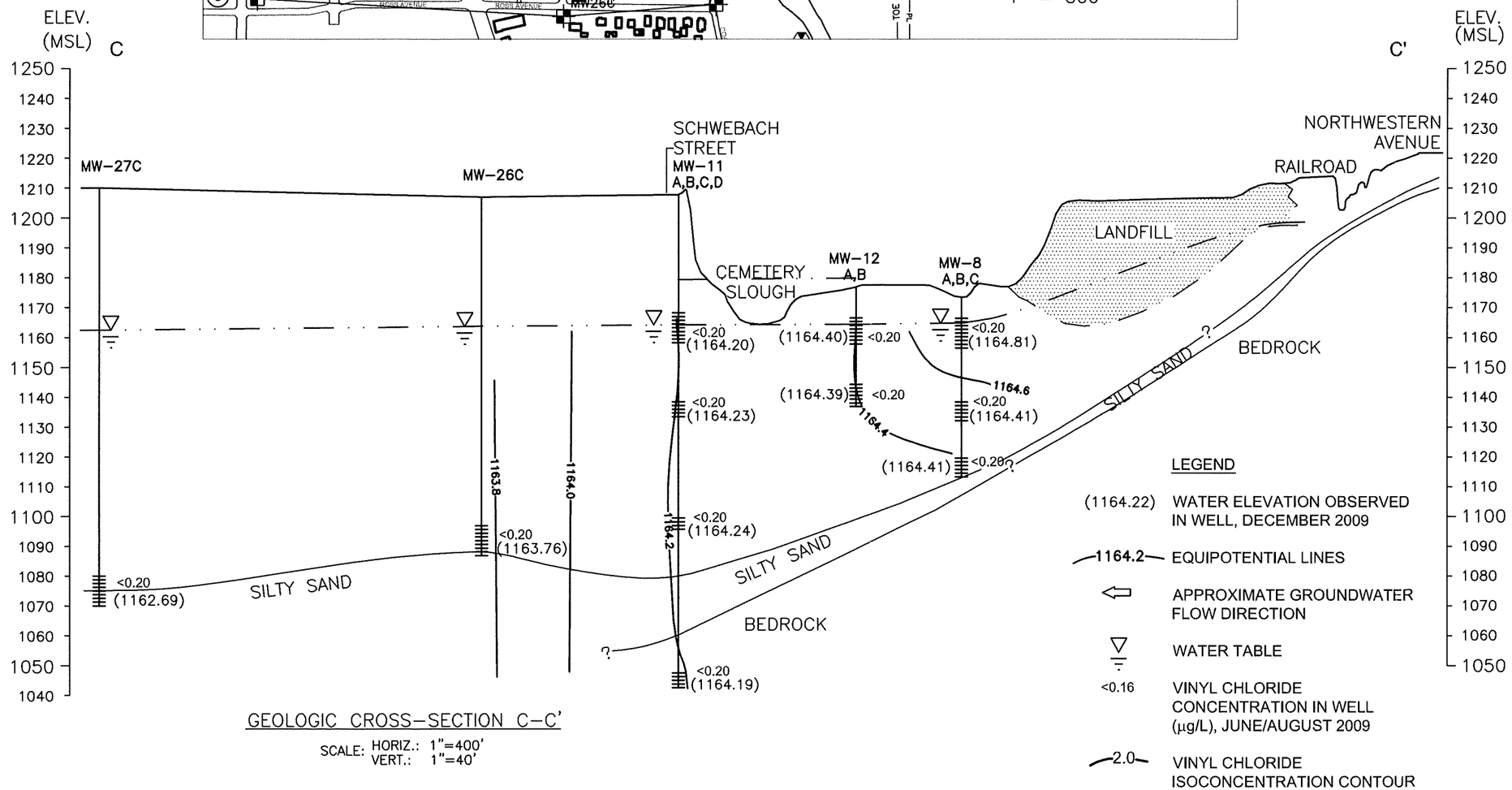

GEOLOGIC CROSS-SECTION C-C'

SCALE: HORIZ.: 1"=400'
VERT.: 1"=40'

LEGEND

(1164.22) WATER ELEVATION OBSERVED IN WELL, DECEMBER 2009

1164.2 EQUIPOTENTIAL LINES

APPROXIMATE GROUNDWATER FLOW DIRECTION

WATER TABLE

<0.16 VINYL CHLORIDE CONCENTRATION IN WELL (µg/L), JUNE/AUGUST 2009

2.0 VINYL CHLORIDE ISOCONCENTRATION CONTOUR (µg/L), JUNE/AUGUST 2009

MAP SOURCE: MODIFIED FROM GERAGHTY & MILLER REMEDIAL INVESTIGATION DATED FEBRUARY 1991.

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VINYL CHLORIDE CONCENTRATIONS IN GROUNDWATER WITHIN GEOLOGIC CROSS-SECTION C-C' JUNE/AUGUST 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

Drawn :	CJH	4/6/2010
Checked:	MMM	4/6/2010
Approved:	MMM	4/6/2010
PROJECT NUMBER	60139813	
FIGURE NUMBER	11	

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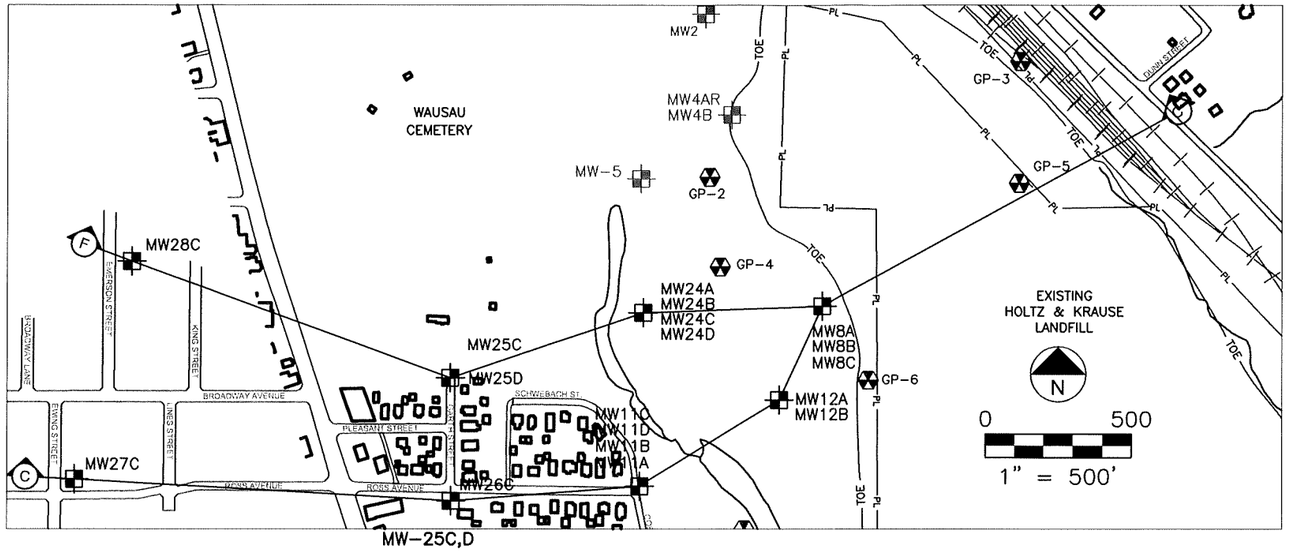

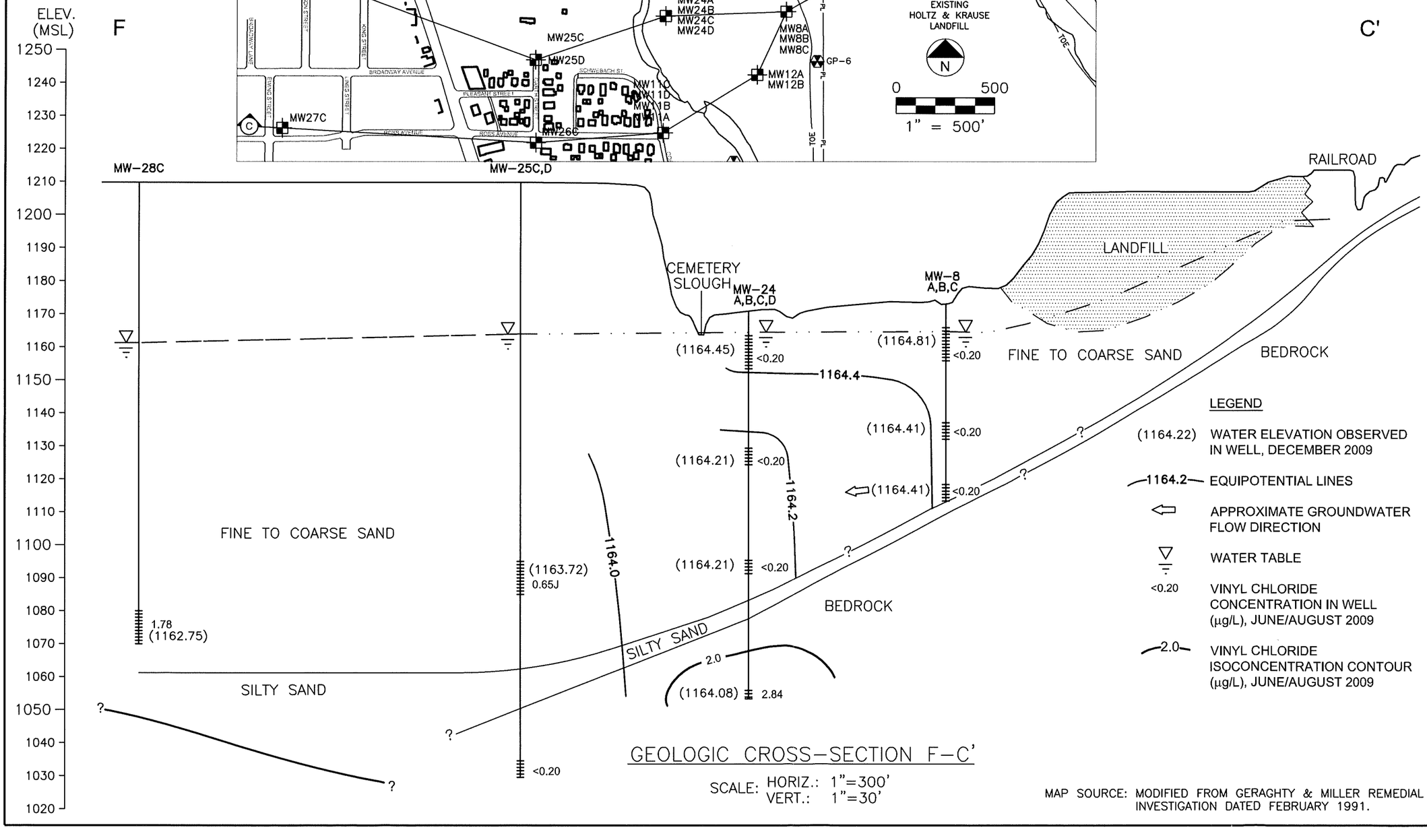

LEGEND

(1164.22) WATER ELEVATION OBSERVED IN WELL, DECEMBER 2009

1164.2 EQUIPOTENTIAL LINES

APPROXIMATE GROUNDWATER FLOW DIRECTION

WATER TABLE

<0.20 VINYL CHLORIDE CONCENTRATION IN WELL (µg/L), JUNE/AUGUST 2009

2.0 VINYL CHLORIDE ISOCONCENTRATION CONTOUR (µg/L), JUNE/AUGUST 2009

GEOLOGIC CROSS-SECTION F-C'

SCALE: HORIZ.: 1"=300'
VERT.: 1"=30'

MAP SOURCE: MODIFIED FROM GERAGHTY & MILLER REMEDIAL INVESTIGATION DATED FEBRUARY 1991.

VINYL CHLORIDE CONCENTRATIONS IN GROUNDWATER WITHIN GEOLOGIC CROSS-SECTION F-C'
JUNE/AUGUST 2009
HOLTZ AND KRAUSE LANDFILL
WAUSAU, WISCONSIN

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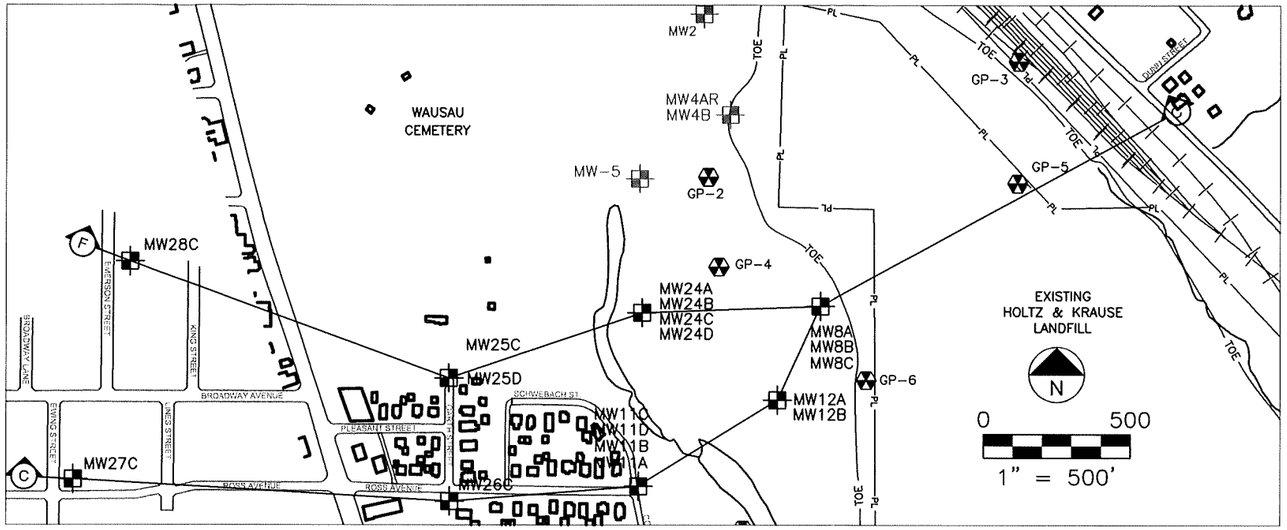
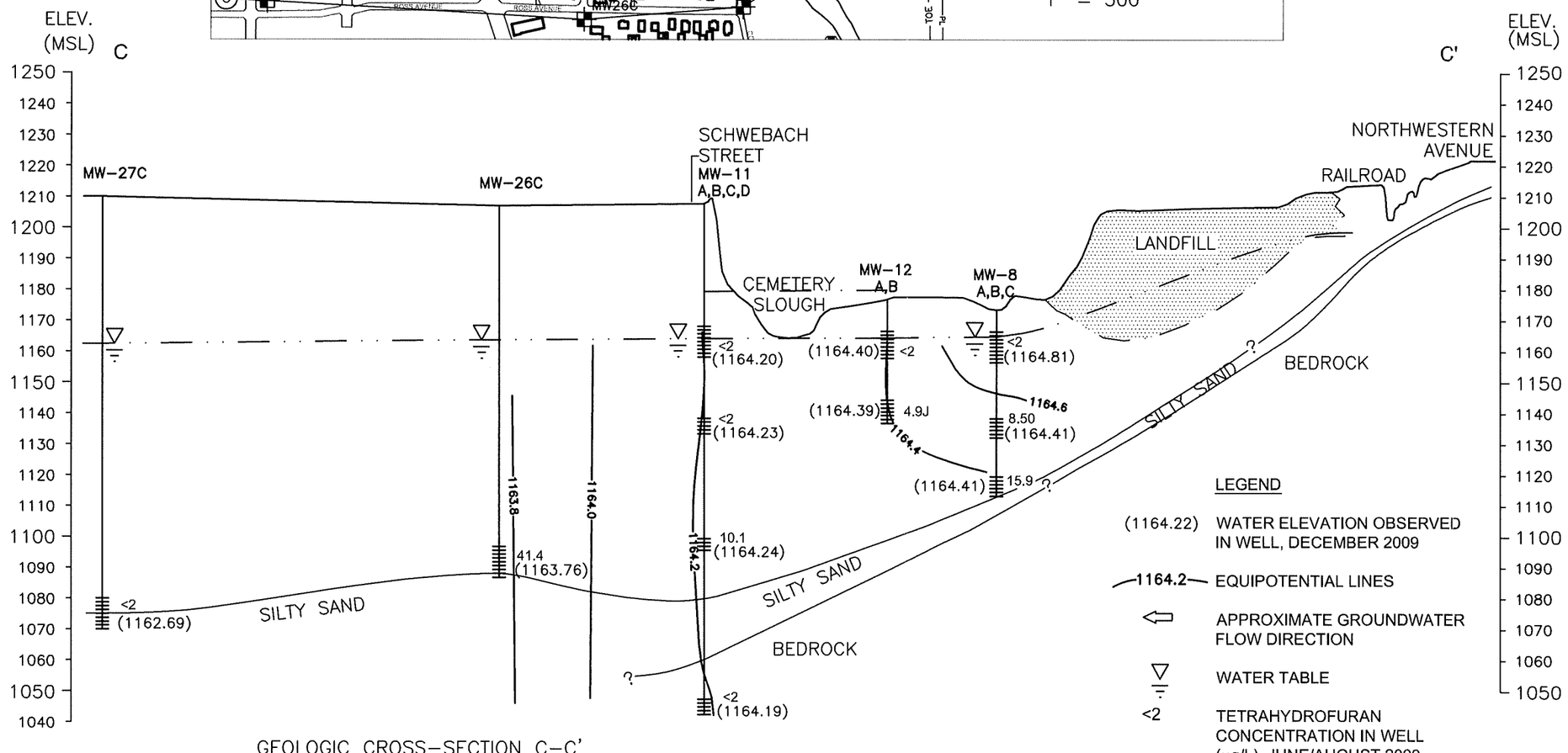
PROJECT NUMBER	60139813	
FIGURE NUMBER	12	





GEOLOGIC CROSS-SECTION C-C'

SCALE: HORIZ.: 1"=400'
VERT.: 1"=40'

LEGEND

(1164.22) WATER ELEVATION OBSERVED IN WELL, DECEMBER 2009

1164.2 EQUIPOTENTIAL LINES

APPROXIMATE GROUNDWATER FLOW DIRECTION

WATER TABLE

<2 TETRAHYDROFURAN CONCENTRATION IN WELL (µg/L), JUNE/AUGUST 2009

50 TETRAHYDROFURAN ISOCONCENTRATION CONTOUR (µg/L), JUNE/AUGUST 2009

MAP SOURCE: MODIFIED FROM GERAGHTY & MILLER REMEDIAL INVESTIGATION DATED FEBRUARY 1991.

TETRAHYDROFURAN CONCENTRATIONS IN GROUNDWATER WITHIN GEOLOGIC CROSS-SECTION C-C' JUNE/AUGUST 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

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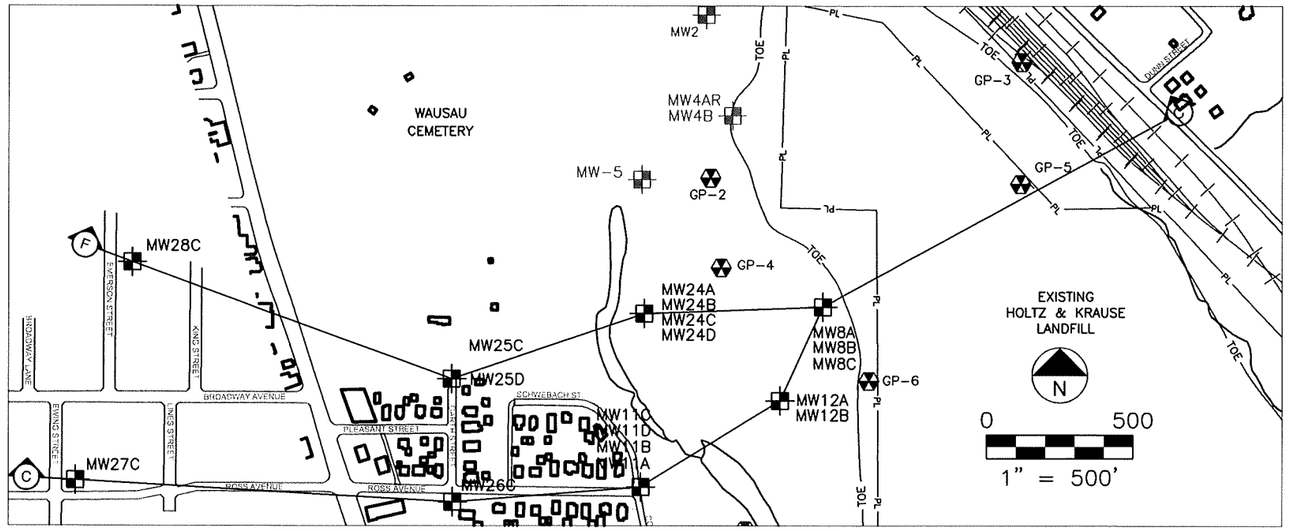
PROJECT NUMBER	60139813	
FIGURE NUMBER	13	



F

C'

ELEV. (MSL)

1250
1240
1230
1220
1210
1200
1190
1180
1170
1160
1150
1140
1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020

MW-28C

MW-25C,D

CEMETERY SLOUGH

MW-24 A,B,C,D

MW-8 A,B,C

RAILROAD

LANDFILL

(1164.45) <2

(1164.81) <2

FINE TO COARSE SAND

BEDROCK

1164.4

(1164.41) 8.5

(1164.21) 13.7

1164.2

(1164.41) 15.9

(1164.21) 44.5

(1163.72) 56.6

1164.0

34.9 (1162.75)

50

SILTY SAND

(1164.08) 38.4

?

<2

LEGEND

(1164.22) WATER ELEVATION OBSERVED IN WELL, DECEMBER 2009

1164.2 EQUIPOTENTIAL LINES

APPROXIMATE GROUNDWATER FLOW DIRECTION

WATER TABLE

<2 TETRAHYDROFURAN CONCENTRATION IN WELL (µg/L), JUNE/AUGUST 2009

50 TETRAHYDROFURAN ISOCONCENTRATION CONTOUR (µg/L), JUNE/AUGUST 2009

GEOLOGIC CROSS-SECTION F-C'

SCALE: HORIZ.: 1"=300'
VERT.: 1"=30'

MAP SOURCE: MODIFIED FROM GERAGHTY & MILLER REMEDIAL INVESTIGATION DATED FEBRUARY 1991.

TETRAHYDROFURAN CONCENTRATIONS IN GROUNDWATER WITHIN GEOLOGIC CROSS-SECTION F-C' JUNE/AUGUST 2009 HOLTZ AND KRAUSE LANDFILL WAUSAU, WISCONSIN

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PROJECT NUMBER	60139813	
FIGURE NUMBER	14	

Appendix A

ROD/SOW/Consent Decree

SCOPE OF WORK FOR COMPLETION OF REMEDIAL DESIGN AND REMEDIAL ACTION (RD/RA) AT THE HOLTZ AND KRAUSE LANDFILL SITE MARATHON COUNTY, WI

This document presents the Scope of Work (SOW) for conducting Remedial Design (RD) and Remedial Action (RA) for the Holtz and Krause Landfill Site located in Marathon County ("the Site"). This document has been incorporated into, and made an enforceable part of a Consent Decree signed by the Wisconsin Department of Natural Resources (WDNR) and the Settling Defendants. Following the schedules in the Consent Decree and in this SOW, project plans and reports will be prepared and submitted for each major component of the response activities at the Site.

As directed by WDNR, the RD/RA Project Plan, Construction Plans and Specifications, Design Reports, Cost Estimates, Project Schedule, Operation and Maintenance Plan, Study Reports, Construction Quality Assurance Program Plan/Documentation and the Construction Completion Report, shall be subject to review, modification and approval by the WDNR in accordance with the terms of the Consent Decree. The Settling Defendants shall correct all deficiencies identified by WDNR in the draft RD/RA project plans or remedial design plans and shall incorporate all modifications required by WDNR in the final draft. At the time that the final draft RD/RA project plans or remedial design plans are submitted, the Settling Defendants shall submit a cover letter describing how WDNR comments were addressed.

Within thirty (30) days after receipt of any RD/RA project plan or remedial design plan disapproval, or conditional approval that requires modification, the Settling Defendants shall submit a final draft or revised final draft plan, or a supplement to the plan, which incorporates the modifications required by the WDNR. Upon approval by WDNR, the final draft RD/RA project plan, or remedial design plan, as revised or supplemented, will be considered the final RD/RA project plan.

REMEDIAL DESIGN (RD) AND REMEDIAL ACTION (RA)

The purpose of the RD/RA for the Site is to design and implement the selected remedy for the Site. The Settling Defendants shall utilize U.S. EPA Superfund Remedial Design and Remedial Action Guidance, the Record of Decision for the Site issued by the Wisconsin Department of Natural Resources (as well as any explanations of differences or ROD amendments issued), the approved final RD/RA Project Plans, any additional guidance provided by WDNR and this Scope of Work in designing and implementing the remedy at the Site.

The RD/RA is comprised of the following interrelated tasks:

- Task 1: RD/RA Project Plans
- Task 2: Remedial Design and RD/RA Project Plans
- Task 3: Remedy Construction
- Task 4: Progress Reports
- Task 5: Construction Completion Reporting
- Task 6: Remedy Documentation

TASK 1

RD/RA PROJECT PLANS

The Settling Defendants shall prepare and submit, according to the schedules set forth in the Consent Decree and in the RD/RA Schedule Summary in this SOW, RD/RA Project Plans which shall describe and document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the remedy, as described in Tasks 2, 3, 4, 5, and 6. The RD/RA Project Plans shall include:

TASK 1/A

Description and Qualifications of Personnel

Settling Defendants shall describe and document the responsibility and authority of all organizations and personnel involved with the remedial design, including a description of qualifications of personnel contractors and contractor personnel.

TASK 1/B

Project Schedule for Completion of Tasks

A Project Schedule for construction and implementation of the remedy which identifies timing for initiation and completion of all tasks shall be developed. This Project Schedule shall be consistent with the schedule as set forth in the RD/RA Schedule Summary in this SOW. The dates for completion of the remedy and major interim milestones shall be specified.

Settling Defendants shall submit to WDNR a completed Schedule for Completion of Tasks within 30 days after the signing of the Consent Decree by the parties.

TASK 1/C

Monitoring Well Design

A monitoring well design shall be developed which details the design of a deep piezometer located at well nest MW 24. The well shall be constructed with a five-foot screen in the bedrock formation. This well shall be used to further determine the extent of contamination and to evaluate the direction of vertical groundwater gradients from the bedrock and overlying formations.

Settling Defendants shall submit to WDNR a completed Monitoring Well Design Plan within 30 days after the signing of the Consent Decree by the parties. The Deep piezometer located at well nest MW 24 shall be installed within 60 days of WDNR approval of the well design.

TASK 1/D

Monitoring Well Abandonment Plan

A monitoring well abandonment plan shall be developed which details the abandonment of wells which are located through the landfill waste, which are out of compliance with NR 141 WAC requirements or which are not necessary for long term monitoring. Wells shall be abandoned in compliance with NR 141 WAC. The following is a list of wells which should be abandoned.

Well Abandonment

MTW 6
MTW 10
RW 11
RW 2
RW 7
RW 8
RW 5
RW 6
RW 10
RW 13
RW 3
RW 4
RW 14

Settling Defendants shall submit to WDNR a completed Monitoring Well Abandonment Plan within 30 days after the signing of the Consent Decree by the parties. The Monitoring Well Abandonment Plan shall be implemented within 60 days of WDNR approval of the Monitoring Well Abandonment Plan.

TASK 1/E

INVESTIGATIVE WASTE PLAN

An investigative waste plan shall be developed to handle existing investigative waste stored at the landfill and those wastes which shall be generated during the construction of the deep piezometer or abandonment of monitoring wells. The plan shall address the characterization and final disposal of the waste.

Settling Defendants shall submit to WDNR a completed Investigative Waste Plan within 30 days after the signing of the Consent Decree by the parties. The Investigative Waste Plan shall be implemented as part of the remedial construction action.

TASK 1/F

Community Relations Plan

A community relations plan will be continued by the Settling Defendants through the RD/RA process. The Community Relations Plan shall explain activities at or concerning the Site including the remedial design, planned or existing RA activities, the schedule, or any minor changes to the remedy. The community relations plan shall be consistent with Superfund community relations policies as described in the "Guidance for Implementing the Superfund Program" and "Community Relations in Superfund - A Handbook", the NCP, and CERCLA section 117.

A draft Community Relations Plan shall be submitted with the Project Plans submittal. The Draft Plan shall be revised as directed by the WDNR and a Final Community Relations Plan shall be submitted within 30 days of WDNR approval of the Draft Community Relations Plan.

TASK 2

REMEDIAL DESIGN

The RD/RA plans and specifications listed below shall be submitted to the WDNR, in order to implement the remedy at the Site, according to the RD/RA Schedule Summary of this SOW. General correlation shall be assured between drawings and technical specifications, such being a basic requirement of any set of working construction plans and specifications. Before submitting the design plans and specifications, at the 30%, 95% prefinal design submittal and 100% final design, the Settling Defendants shall:

* Coordinate and cross-check the specifications and drawings; and

* Perform complete proofing of the edited specifications and required cross-checking of all drawings and specifications.

Additionally, technical specifications, and contractor requirements for providing appropriate service visits by experienced, qualified personnel to supervise the installation, adjustment, start-up and operation of the treatment systems, and training covering appropriate operational procedures once the start-up has been successfully accomplished shall be included in the design submittals to WDNR.

TASK 2/A

Health and Safety Plan (HSP)

A HSP to address the activities to be performed at the site to implement the remedy shall be submitted to the WDNR. The WDNR will review and comment on the HSP, however it will not issue an approval for the HSP. At a minimum, the safety plan shall incorporate and be consistent with the requirements of:

1. Section 111(c)(6) of CERCLA;

2. EPA Order 1440.3 -- Respiratory Protection

3. EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities;

4. EPA Occupational Health and Safety Manual;

5. OSHA Requirements (29 CFR 1910 and 1926); and

6. Interim Standards Operating Safety Guide (Revised September 1982) by the Office of Emergency and Remedial Response.

Settling Defendants shall submit to WDNR a completed Health and Safety Plan with the 30% design plan report within 60 days after the submittal of the Task 1 RD/RA Project Plans.

TASK 2/B

Quality Assurance Project Plan (QAPP)

A QAPP for remedy sampling analysis and data handling shall be prepared and submitted to the WDNR. At a minimum, the QAPP shall include the following:

1. Statement of Purpose

2. Project Description

3. Project Organization and Responsibility

4. Sampling Procedures and Objectives

5. Sample Custody and Document Control

6. Calibration Procedures and Frequency

7. Analytical Procedures Data Reduction, Validation, Assessment and Reporting

8. Internal Quality Control Checks and Frequency

9. Performance system Checks and Frequency

10. Preventive Maintenance Procedures and Frequency

11. Data Precision, Accuracy and Completeness Assessment Procedures

12. Corrective Action

13. Quality Assurance Reporting

Settling Defendants shall submit to WDNR a completed Quality Assurance Project Plan with the 30% design plan report within 60 days after the submittal of the Task 1 RD/RA Project Plans.

TASK 2/C

Contents of Design Plans

The remedial Design Plans and specifications shall include, at a minimum:

1. Construction and Operation Schedule

A Construction and Operation Schedule for construction and implementation of the remedy which identifies timing for initiation and completion of all tasks shall be compiled and submitted to the WDNR. Dates for construction and operation of the remedy and shall specify major interim milestones shall be specified.

A Draft Schedule shall be submitted with the Preliminary Design Plan submittal (30% completion), a draft final schedule shall be submitted with the Prefinal Design submittal (95% completion of design) and a revised Final Schedule shall be submitted with the Final Design submittal (100% completion).

2. Design Plans and Specifications

Clear and comprehensive design plans and specifications shall be developed which include but are not limited to the following:

a. Discussion of the design strategy and the design basis, including:

(1) Compliance with all applicable or relevant and appropriate environmental and public health requirements; and

(2) Minimization of environmental and public impacts associated with the design and construction of the remedy.

(3) Beneficial reuse of the landfill surface, including detailed discussion of associated impacts and additional engineering design parameters.

b. Discussion of relevant technical factors including:

(1) Use of currently accepted environmental control measures and technology;

(2) The constructability of the design; and

(3) Use of currently acceptable construction practices and techniques.

c. Description of assumptions made and detailed justification of time assumptions;

d. Discussion of the possible sources of error and listing and discussion of possible operation and maintenance problems;

e. Detailed drawings of the proposed design including;

(1) Qualitative flow sheets; and

(2) Quantitative flow sheets.

f. Tables listing equipment and specifications;

g. Tables giving material and energy balances; and

h. Appendices including;

(1) Sample calculations (one example presented and explained clearly for significant or unique design calculations);

(2) Derivation of equations essential to understanding the report; and

(3) Results of laboratory and field tests.

Settling Defendants shall submit to WDNR Design Plans and Specifications, completed to the degree of completion, at each of: 30% completion of design; 95% of completion; and 100% of completion.

3. Operation and Maintenance Plan (O&M Plan)

An Operation and Maintenance Plan (O&M Plan) shall be prepared and submitted to WDNR with the Final Design Plan. In addition, The Final Design Plan shall include a long-term care plan which defines the schedule and procedures to be utilized for the inspection of the remedial components. A final use plan for the Site shall be outlined and discussed. At a minimum, the O&M plan shall be composed of the following elements:

a. Description of normal operation and maintenance (O&M), including;

(1) Description of tasks for operation;
(2) Description of tasks for maintenance;
(3) Description of prescribed treatment or operation conditions; and
(4) Schedule showing frequency of each O&M task.

b. Description of potential O&M problems, including;

(1) Description and analysis of potential O&M problems;
(2) Sources of information regarding problems; and
(3) Description of remedies to be implemented to resolve O&M problems.

c. Description of routine monitoring and laboratory testing, including;

(1) Description of monitoring tasks;
(2) Description of required laboratory tests and their interpretation;
(3) Required Data Collection, Quality Assurance Plan; and
(4) Schedule of monitoring frequency and dates;

d. Description of alternate O&M, including;

(1) In event of failure of partial or total failure of the remedy, alternate procedures which shall be implemented to prevent undue hazard; and
(2) Analysis of vulnerability and additional resource requirements should partial or total failure occur.

e. Corrective Action;

(1) Description of corrective actions to be implemented in the event that the remedy fails in part or whole, and/or if groundwater action levels are exceeded; and
(2) Schedule for implementing these corrective actions;

f. Safety plan;

(1) Description of precautions, of necessary equipment, etc., for site personnel; and
(2) Safety tasks required in event of systems failure.

g. Description of equipment; and

(1) Equipment Identification;
(2) Installation of monitoring components;
(3) Maintenance of site equipment; and
(4) Replacement schedule for equipment and installed components.

h. Records and reporting mechanisms required.

(1) Daily operating logs;
(2) Laboratory records;
(3) Records for operating costs;
(4) Mechanisms for reporting emergencies;
(5) Personnel and maintenance records; and
(6) Monthly/annual reports to State agencies.

A Draft Operation and Maintenance Plan shall be submitted simultaneously with the Prefinal Design submittal (95% completion of Design). The Draft Plan shall be revised as directed by WDNR and a Final Operation and Maintenance Plan with the Final Design (at 100% completion of design shall be submitted for WDNR approval).

4. Cost Estimate

A cost estimate shall be developed refining the numbers in the approved final Feasibility Study and the Record of Decision to reflect the cost estimate developed in the more detailed/accurate design plans and specifications being developed. The cost estimate shall include both capital and operation and maintenance costs.

A revised cost estimate shall be submitted with the Preliminary Design Plan submittal (30% completion), the Prefinal Design submittal (95% completion of design) and a final cost estimate shall be submitted with the Final Design submittal (100% completion).

5. Construction Quality Assurance Plan (CQA Plan)

The construction quality assurance (CQA) plan ensures that the completed remedy meets or exceeds all design criteria, plans and specifications shall be developed and implemented by the Settling Defendants. The CQA Plan is a site specific document which shall be submitted to the WDNR for approval in the Prefinal (95% completion) and the Final Design Plan (100% completion). At a minimum, the CQA plan shall include the elements which are summarized below:

a. Responsibility and Authority

The responsibility and authority of all organizations (i.e. technical consultants, construction firms, etc.) and key personnel involved in the construction of the remedy shall be described fully in the CQA Plan. The Plan shall identify a CQA officer and the necessary supporting inspection staff.

b. Construction Quality Assurance Personnel Qualifications

The qualifications of the CQA officer and supporting inspection personnel shall be presented in the CQA Plan and shall demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

c. Inspection Activities

The observations, tests and inspections that will be used to monitor the construction and/or installation of the components of the remedy shall be summarized in the CQA Plan. The Plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with the environmental requirements and include, but not be limited to, inspection of air quality and emissions monitoring records, solid and hazardous waste disposal records (including RCRA transportation manifests), etc. The inspections shall also ensure compliance with all health and safety procedures.

d. Documentation

Reporting requirements for CQA activities shall be described in detail in the CQA Plan. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records shall be presented in the CQA Plan.

TASK 2/D

Monitoring Program Plan

A detailed Monitoring Program Plan describing the type, frequency and schedule for monitoring of the remedy shall be submitted to the WDNR. The monitoring plan shall address any groundwater, soil samples, soil gas, air or other monitoring requirement for each component of the remedy.

As part of the RD report, Settling Defendants shall submit a monitoring plan which will specify all short- and long-term monitoring requirements, necessary to assess the status and effectiveness of the remedy. The monitoring plan shall, at a minimum, contain the following:

* Monitoring device design;
* Analytical parameter list;
* Analytical methodologies;
* Monitoring schedule;
* Reporting requirements; and
* Specified Performance Standards, Levels, and Locations.

As part of the Remedial Design Plan, Settling Defendants shall submit a plan which defines the procedures which will be implemented if the remedial performance monitoring data indicates that the remedy or a specific remedial component is not attaining the design objective. This plan shall define notification requirements and implementation schedules.

Settling Defendants shall submit to WDNR a draft Monitoring Program Plan with the Prefinal Design Plan (95% design completion) and a final Monitoring Program Plan with the Final Design Plan (100% completion).

Task 2/E

Design Phases

The Settling Defendants shall prepare and submit to WDNR the plans outlined in Task 2 as follows:

1. Preliminary Design Plan Submittal

The Preliminary Design Plan shall be submitted when the design effort is 30% complete. At this stage, the existing conditions of the Site shall have been verified. The Preliminary Design submittal shall reflect a level of effort such that the technical requirements of the project have been addressed and outlined so that they may be reviewed to determine if the final Design will provide an operable and usable remedy. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the program. The preliminary construction drawings shall be organized and clear. The scope of the technical specifications shall be outlined in a manner reflecting the final specifications. The Preliminary Design Plan shall include design calculations reflecting the same percentage of completions the design they support. A Site Plan, Typical Section, and final contours shall be detailed in the 30% submittal. The Preliminary Design Plan shall consist of the Draft Quality Assurance Project Plan and Draft Health and Safety Plan.

The Preliminary Design Plan shall be submitted within 60 calendar days of the submittal of Task 1 RD/RA Project Plans.

2. Prefinal Design and Final Design Submittal

a. Prefinal Design Submittal

The Prefinal Design Submittal at 95% completion of design shall be submitted. The Prefinal Design submittal shall consist of the Design Plans and Specifications, Draft Operation and Maintenance Plan, Initial Capital and Operating and Maintenance Cost Estimate, Draft Construction and Operations Schedule, and Draft Construction Quality Objectives. After WDNR approves or conditionally approves of the Prefinal Design submittal, the Settling Defendants shall incorporate the required revisions into a Prefinal Design Submittal, including reproducible drawings and specifications.

The Prefinal Design Plan shall be submitted within 150 calendar days of the submittal of Task 1 RD/RA Project Plans.

b. Final Design Submittal

The Settling Defendants shall submit the Final Design Submittal at 100% completion of design to WDNR for review and approval. The Final Design submittal shall consist of the Final Design Plans and Specifications, the Final Construction Cost Estimate, the Final Operation and Maintenance Plan, Final Quality Assurance Project Plan, the Final Project Schedule and Final Health and Safety Plan.

The quality of the design documents shall be such that it could be included in a bid package for the construction project.

The Final Design Plan shall be submitted within 300 calendar days of the submittal of Task 1 RD/RA Project Plans.

TASK 2/F

Additional Studies

The remedy may require additional studies to supplement the available technical data. At the direction of the WDNR, for any such studies required by WDNR, all services shall be furnished by the Settling Defendants, including field work as required, materials, supplies, physical plant, labor, equipment, investigations, studies and superintendence. Sufficient sampling, testing and analysis shall be performed to optimize the required treatment and/or disposal operations and systems. There shall be an initial meeting of all principal personnel involved in the development of the program. The purpose will be to discuss objectives, resources, communication channel, role of personnel involved and orientation of the site, etc. An interim report shall be submitted by the Settling Defendants which shall present the results of the testing with the recommended configuration of the remedy (including alternative options). A review shall be scheduled after the interim report has been reviewed by WDNR and all interested parties. A final report of the testing which shall include all data taken during the testing, a summary of the results of the studies, and a discussion of the results shall be submitted by the Settling Defendants.

TASK 2/G

Progress Meetings

Three Progress meetings will be held between the Settling Defendants and the WDNR between the 30% and 95% Design Plans & Specifications submittals. The progress meetings shall be held to discuss progress made on the Design Plans to assure consistency in the remedial design between the consultant and the WDNR. The WDNR shall provide comments to the project consultant which shall be incorporated by the Settling Defendants into the design specifications by the next progress meeting or report submittal. Issues to be highlighted at the meeting include but are not limited to:

1. Changes in design from last meeting or report submittal;
2. Proposed changes to previously agreed concepts or designs;
3. Schedule and percent design update.

TASK 3

REMEDY CONSTRUCTION

Within 60 days of WDNR approval of the Final Design Plan (100%), the construction of the Site remedy shall begin in accordance with the approved ROD, designs, schedule, and the CQA Plan. The construction phase shall commence with the selection of a contractor. Within 21 days from awarding a contract to the contractor construction at the Site shall begin. In addition to implementation of the Remedy the following activities shall be conducted:

1. Preconstruction Inspection and Meeting

Prior to initiation of construction activities and as requested by WDNR, a preconstruction inspection and meeting shall be held to:

a. Review methods for documenting and reporting inspection data;

b. Review methods for distributing and storing documents and reports;

c. Review work area security and safety protocol;

d. Discuss any proposed modifications of the construction quality assurance plan to ensure that site-specific considerations are addressed; and

e. Conduct a site walk-around to verify that the design criteria, plans and specifications are understood and to review material and equipment storage locations.

The Preconstruction Inspection and Meeting shall be documented by a designated person and minutes shall be transmitted to all parties to the contract.

2. Prefinal Inspection

Upon preliminary construction completion, WDNR shall be notified in order to conduct a Prefinal Inspection. The Prefinal Inspection shall consist of a walk-through inspection of the entire site area. The inspection is to determine whether the remedy construction is complete and consistent with the contract documents and the WDNR approved ROD. Any outstanding, incorrect or incomplete construction items discovered during the inspection shall be identified, noted, and rectified.

Additionally, equipment shall be operationally tested. The Settling Defendants shall certify that the equipment will function as designed and that all specifications have been met.

All deficiencies shall be corrected and retesting shall be initiated, as directed by WDNR. A Prefinal Inspection Report shall be submitted within thirty (30) days of the prefinal inspection, documenting all outstanding, incorrect, or incomplete construction items, actions required to resolve these items, completion date for these items, and setting a date for the Final Inspection.

3. Final Inspection

Upon completion of all outstanding construction items, the WDNR shall be notified in order to conduct a Final Inspection. The Final inspection shall consist of a walk-through inspection of the site area. The Prefinal Inspection Report shall be used as a checklist for the Final Inspection, including the outstanding construction items identified in the Prefinal Inspection. Settling Defendants shall certify that all outstanding items have been resolved. Another walk-through inspection may be required based on the findings of the final inspection.

TASK 4

PROGRESS REPORTS

Progress Reports

At a minimum, the WDNR shall be provided with signed, monthly progress reports during the design and construction phases containing:

1. A summary of all validated sampling data and the results of tests relating to the Site produced during the reporting period pursuant this Consent Decree;
2. A description and estimate of the percentage of the remedy completed. A description of activities completed during the past reporting period, as well as such actions, data and plans which are scheduled for the next reporting period;
3. Target date and actual completion date for each element of activity, including the project completion, and an explanation of any deviation from the schedules found in the SOW or in any RD/RA project plan.
4. A description of difficulties encountered during the reporting period and the actions taken to rectify the problems; and
5. Changes in key personnel; and
6. Copies of daily reports and inspection reports.

TASK 5

CONSTRUCTION COMPLETION REPORTING

The Draft Construction Completion Report shall be submitted to the WDNR. The Construction Completion Report shall document that the remedy construction is consistent with the ROD and design specifications. The Report shall include, but not be limited to the following elements:

1. Synopsis of the remedy and certification of the design and construction;

2. Explanation of any proposed and/or WDNR approved minor changes to the plans and why these are/were necessary for the project;

3. Results of all pilot and field tests/studies, site monitoring, and certification that the remedy will meet or exceed the Performance Standards.

4. Listing of the Performance and Clean-up Standards.

5. Explanation of the operation and maintenance and monitoring to be undertaken at the site.

The Draft Construction Completion Report shall be submitted 30 days after WDNR comment on the Prefinal Inspection Report. The Final Construction Completion Report shall be submitted 30 days after WDNR comment on Draft Construction Completion.

TASK 6

REMEDY DOCUMENTATION

TASK 6/A

Remedy Report

1. Draft Completion of Remedy Report

For the time period specified by the WDNR from start-up of the remedy, the Settling Defendants shall submit a Draft Completion of Remedy Report, which shall document the completion of the remedy. At a minimum, the Draft Report shall document that all Performance and Clean-up Standards have been achieved by the remedy. Any additional activities needed to complete the remedy shall be conducted, as directed by WDNR.

The Draft completion of Remedy Report shall be submitted upon completion of remedy but not latter than 14 years after completion of construction, or as otherwise directed by WDNR.

2. Final Completion of Remedy Report

The Settling Defendants shall incorporate WDNR comments and modifications to the Draft Completion of Remedy Report, and shall perform all required additional activities as directed by WDNR. Upon completion of these additional activities and as directed by WDNR, Settling Defendants shall submit a Final Completion of Remedy Report, which shall document that the remedy for the site has been fully completed.

The final Completion of Remedy Report shall be submitted 30 days after WDNR comment on the Draft Completion of Remedy Report.

3. WDNR Periodic Review

To the extent required by section 121(c) of CERCLA, and any applicable regulations, the WDNR shall review the remedial action at the Site at least every five (5) years after the initiation of the remedial action to assure that human health and the environment are being protected by the remedial action being implemented or operated at the Site. If upon such review, the WDNR determines that a significant change, as defined in the NCP, is needed to ensure that the remedial action undertaken at the Site is protective, the WDNR shall take or require the Settling Defendants to undertake such a change.

The Settling Defendants shall be provided with an opportunity to confer with the WDNR on any proposed significant changes that are a direct result of the five-year review for this Site. The Settling Defendants shall be provided with the opportunity to submit comments to the administrative record file if the WDNR is proposing to require or undertake a significant change in the remedy, based on the five-year review for this Site.

RD/RA SCHEDULE SUMMARY

A summary of the information reporting and plan submittal requirements contained in Tasks 1, 2, 3, and 4 is presented below:

Submission	Due Date
RD/RA Project Plans	
• Task 1/A Description and Qualifications of Personnel, Task 1/B Project Schedule for Completion of Tasks, Task 1/C Monitoring Well Design, Task 1/D Monitoring Well Abandonment Plan, Task 1/E Investigative Waste Plans, Task 1/F Draft Community Relations Plan, Task 1/F Final Community Relations Plan	30 days after signing of the consent Decree by the parties 30 days after WDNR approval of Draft Plan
Monitoring Well Construction/Abandonment	
• Deep Piezometer Construction	60 days after WDNR approval of Monitoring Well Design Plan
• Well Abandonment	60 days after WDNR approval of MW Abandonment Plan
Design Phases	
• Preliminary Design (30% completion), Task 2/A Health & Safety Plan, Task 2/B Quality Assurance Project Plans	60 days after submittal of Task 1 RD/RA Project Plans
• Prefinal Design (95% completion), Task 2/C Design Plans 1. Construction & Operation Schedule, 2. Design Plans & Specifications, 3. Operation & Maintenance Plan, 4. Cost Estimate, 5. Construction Quality Assurance Plan, Task 2/D Monitoring Program Plan	150 days after submittal of Task 1 RD/RA Project Plans
• Final Design Plan (100% completion)	30 days after WDNR comment on Prefinal Design Plans
Additional Studies	
• Task 2/G Additional Studies: Interim Report	As required by WDNR
• Task 2/G Additional Studies: Final Report	30 days after WDNR comment on Interim Report
Progress Meetings	
• Task 2/H Progress Meetings	At completion of WDNR Review of the 30% Preliminary Design Plan, 30 days and 60 days after completion of WDNR review of Preliminary Design Plan
Remedy Construction	
• Task 3 Remedy Construction 1. Preconstruction Inspection/Meeting 2. Prefinal Inspection - Prefinal Inspection Report 3. Final Inspection	Begin within 60 days of WDNR approval of the Final Design Plan 30 days after Prefinal Inspection
Progress Reports	
• Task 4/A Progress Reports for Task 1 through 3	MONTHLY
Construction Completion Report	
• Task 5/A Draft Construction Completion Report	30 days after WDNR comment on Prefinal Inspection Report
• Task 5/A Final Construction Completion Report	30 days after WDNR comment on Draft Construction Completion
Remedy Documentation	
• Task 6/A Draft Completion of Remedy Report	Upon completion of remedy, but no latter than 14 years from start-up, or as otherwise directed by WDNR
• Task 6/A Final Completion of Remedy Report	30 days after WDNR comment on Draft Completion of Remedy Report

Holtz and Krause Landfill
Record of Decision
Selected Remedial Alternative

Site Name and Location

The Site is located in the City of Wausau in Marathon County.

Statement of Basis and Purpose

During the course of its operation, the 57-acre site reportedly accepted over 1.4 million cubic yards of municipal, residential, and industrial waste, until it stopped accepting waste in 1980. The landfill has never been properly closed as a result of the Holtz and Krause Corporation insolvent status. Currently the Site does not have an engineered liner, cap or leachate control system. Groundwater monitoring has indicated that Wisconsin Administrative Code NR 140 Enforcement Standards are exceeded and that the landfill posses a current and future threat to groundwater quality. This decision document presents the selected remedial action for the Holtz and Krause Landfill developed in accordance with CERCLA, as amended by SARA, and to the extent practicable, the National Contingency Plan. The attached summary identifies the items that comprise the administrative record upon which the selection of the remedial action is based.

Assessment of the Site

Site Setting

The Holtz and Krause Landfill is located near both the Wisconsin River and the Eau Claire River. The Site is bounded on three sides by wetlands; oxbow lakes and sloughs associated with the Eau Claire River. A small intermittent stream bounds the landfill on the east.

The open-water biotic community provides habitat for waterfowl, furbearers, fish, frogs, turtles, and aquatic invertebrates. Tom Meyer, manager of the Mead Wildlife Area, has indicated that the wetlands biotic community may provide potential habitat for endangered or threatened plant and animal species, although no endangered or threatened species have been identified to date.

The glacial outwash deposits overlying the bedrock in the area constitute the most important source of water in Marathon County. Depth to groundwater ranges from approximately 4 to 46 feet below the surface. In general, the groundwater elevations follow the

surface topography of the site and groundwater flows from northeast to the southwest.

Existing Landfill Cover

Results from the surface borings indicate that the cover system is between 0 and 3 feet thick comprised primarily of sandy soils. Unless erosion is controlled through an engineered cap and maintenance program, exposure to the waste could occur as a result of future erosion.

The existing landfill cover allows a considerable amount of percolation of precipitation and snowmelt into the wastes, allowing significant amounts of leachate to be generated. The investigation found that landfill gas, containing explosive methane and hazardous constituents, is being generated and the gas is migrating into adjacent soils and to the atmosphere. The investigation also determined that leachate, generated by the movement of percolated water through the unsaturated waste and the movement of groundwater though saturated waste, is moving away from the site and causing groundwater contamination beyond the waste boundary in exceedance of NR 140 WAC standards.

Characteristic of Landfill Waste

Records indicate that between 1957 and 1980 municipal, residential, and industrial wastes were accepted at the landfill. Approximately 1.97 million cubic yards of waste are estimated to be in the landfill. Borings through the landfill conducted during the Remedial Investigation indicated between 15 to 40 percent of the waste is saturated below the water table. Testing indicates the waste materials contain volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), pesticides, and elevated levels of some inorganics.

Characteristic of Environmental Media

Groundwater contamination is the major environmental concern associated with the site. Groundwater samples were collected from the groundwater monitoring wells. Inorganic constituents were detected in elevated levels from wells installed in areas of waste disposal and hydraulically downgradient of the landfill. The groundwater samples also contained detectable levels of VOCs, PAHs, pesticides, herbicides and triazines, with nine organics and three inorganics exceeding Wisconsin groundwater standards. The highest concentrations were detected in samples from the monitoring wells installed in areas of waste disposal, and in the wells installed downgradient of the landfill.

The following table summarizes groundwater data exceedances by parameter in comparison to Wis. Adm. Code NR 140 Preventive Action Levels and Enforcement Standards.

Parameter	PAL	ES
vinyl chloride	x	x
1,2-dichloroethane	x	
chloroform	x	
trichloroethene	x	
benzene	x	x
xylenes	x	
lindane	x	x
atrizine	x	
barium	x	x
iron	x	x
manganese	x	x

Description of the Selected Remedy

Modified Alternative 4

The selected alternative for the final remedy, Modified Alternative 4, will address the principal threats posed by the site. The specific components of the selected remedy include:

* Low-permeable cap consistent with Wisconsin NR 504 WAC standards.
* Active gas extraction with treatment to control VOCs and methane.
* Phased groundwater/leachate extraction dependent on groundwater compliance with NR 140 WAC standards.
* Wastewater discharge to local surface waters if groundwater extraction phase is triggered.
* On-site wastewater treatment required to the degree necessary to meet WPDES permit.
* Installation of groundwater monitoring wells to complete long-term groundwater monitoring network.
* Operation and maintenance of all systems.
* Long-term groundwater monitoring.
* Abandonment of existing monitoring wells which are not incompliance with NR 141 WAC or are not necessary for long-term monitoring.
* Disposal of investigative wastes generated during the remedial investigation and remedial action phases of this project.
* Institutional controls, deed restrictions and site controls.

The major components of the selected remedy are the low-permeable cap and a phased groundwater extraction system if required. The selected remedy is designed to provide for flexibility on cap design and to provide for the opportunity of beneficial use of the engineered cover. The need for groundwater extraction will be evaluated after the completion of the cap which will provide the maximum possible cost benefit and be most protective of the surrounding wetlands.

A low-permeable cap will be placed over areas where waste has been landfilled. The cap will conform to the applicable provisions of Section NR 500 WAC, and specifically shall conform to the final cover system design requirements of NR 504.07 WAC, unless otherwise approved by the Department. This referenced chapter and section requires that a low conductivity hydraulic barrier be installed with a grading layer, cover layer, gas venting system, topsoil, minimum slope requirements, and proper revegetation.

In the interest of preserving and providing benefit to the surrounding community, if economically reasonable, technically feasible, and in conformance with the Wisconsin Administrative Code, the cap may also be designed to allow for beneficial uses of the land upon which the cap is placed. Beneficial reuse alternatives will require increased engineering of the cap. All future use of the facility will be protective of human health and the environment.

The groundwater/leachate extraction remedy at the site will be approached in a phased manner. Long-term groundwater monitoring will be initiated immediately after the completion of the cap and active gas extraction system. If groundwater monitoring outside the design management zone, one year after completion of the cap, indicates that groundwater quality exceeds NR 140 WAC, a groundwater extraction system will be implemented.

Declaration

As required by CERCLA as amended by SARA, the selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate for the remedial action, and is cost effective. This remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

The Wisconsin Department of Natural Resources hereby selects Modified Alternative 4 as the remedial action for the Holtz and Krause Landfill.

Dated at Madison, Wisconsin this 22nd day of July 1992.

C. D. Besadny
Secretary

IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

THE STATE OF WISCONSIN,

Plaintiff

v.

HOLTZ AND KRAUSE, INC., et al.,

Defendants.

CONSENT DECREE

TABLE OF CONTENTS

I. BACKGROUND

A. The State of Wisconsin ("the State"), by its attorneys, James E. Doyle, Attorney General, and Lorraine Stoltzfus, Assistant Attorney General, at the request of the Wisconsin Department of Natural Resources ("WDNR"), filed a complaint in this matter pursuant to Section 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. s.9607, and Section 144.442, Wisconsin Statutes.

B. The Defendants who have entered into this Consent Decree ("the Settling Defendants") do not admit any liability to the Plaintiff arising out of the transactions or occurrences alleged in the complaint.

C. In response to a release or substantial threat of release of hazardous substances at or from the Holtz and Krause Landfill Site ("the Site"), WDNR and Holtz and Krause Contractors, Inc. entered into a contractual agreement, which became effective on November 30, 1988, and commenced a joint Remedial Investigation ("RI") and Feasibility Study ("FS") for the Site.

D. A Remedial Investigation Report was completed on February 12, 1991, and a Feasibility Study Report was completed in April, 1992.

E. The decision of the WDNR on the remedial action to be implemented at the Site is embodied in a Record of Decision ("ROD"), which was signed on July 22, 1992.

II. JURISDICTION

This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. ss. 1331 and 1345, and 42 U.S.C. ss. 9607 and 9613(b). This Court also has personal jurisdiction over the Settling Defendants. Solely for the purposes of this Consent Decree and the underlying complaint, Settling Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. Settling Defendants shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

A. This Consent Decree shall apply to and be binding upon the State and upon the Settling Defendants and their respective agents, successors and assigns. The undersigned representative of each party certifies that he or she is fully authorized by the party whom he or she represents to enter into this Consent Decree and execute and legally bind such party to the terms of this Consent Decree.

B. Any change in ownership or corporate or partnership status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property shall in no way alter such Settling Defendant's status or responsibility under this Consent Decree.

C. The Settling Defendants shall condition all contracts entered into hereunder upon the performance of the work required by this Consent Decree by all contractors, consultants, firms and other persons or entities acting under or for them in conformity with the terms of this Consent Decree, and with all applicable laws and regulations. The Settling Defendants shall provide a copy of this Consent Decree to the contractor(s) and consultant(s) hired to perform the work required by this Consent Decree. With regard to the activities undertaken puruant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with the Settling Defendants within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. s. 9607(b)(3).

IV. DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in the National Contingency Plan ("the NCP") shall have the meaning assigned to them in CERCLA or the NCP.

V. GENERAL PROVISIONS

A. The objective of the Parties in entering into this Consent Decree is to protect public health and welfare and the environment at the Site by the design and implementation of response actions at the Site by the Settling Defendants.

B. In consideration of each of the promises, covenants and undertakings of the State set forth herein, Settling Defendants hereby agree to finance and perform the work required under Section VI of this Consent Decree ("the Work") or have it performed on their behalf in accordance with the requirements of this Consent Decree and all plans, performance standards, specifications and schedules set forth in or developed pursuant to, and approved by WDNR pursuant to, this Consent Decree.

C. The WDNR approves the Holtz and Krause Landfill Trust Agreement, attached and incorporated herein as Appendix C ("the Trust"), as the funding mechanism for the Work and associated expenses of this Consent Decree. As part of the obligations of the Settling Defendants, any payments made by the Settling Defendants to satisfy the obligations of the Settling Defendants under this Consent Decree shall be made to the Trust, except for payments which may be made to provide financial assurance of ability to complete the Work, as required by Section XXIX of this Consent Decree, unless it is subsequently agreed by the WDNR and the Trustees that all or part of the funds in the Trust may be used to provide assurance of ability to complete the Work. It is the intent of the parties that the Trust constitute a qualified settlement fund pursuant to Internal Revenue Code Regulation 1.468B-1(C)(1).

D. The WDNR has agreed to pay to the Settling Defendants a total of Four Million and Five Hundred Thousand Dollars ($ 4,500,000), as partial payment for the installation of a landfill cap which meets the requirements of s. NR 504.07, Wisconsin Administrative Code, in three installments . If any portion of the landfill gas collection system or cap construction at the Site is not completed by the Settling Defendants in substantial compliance with the requirements of this Consent Decree, the WDNR's obligation to pay the remainder of the Four Million and Five Hundred Thousand Dollars shall be suspended until compliance is achieved. Each installment shall be made payable to, and shall be mailed or delivered to, such person or entity as the Settling Defendants may designate, as required by the following schedule:

1. $1,750,000 within sixty (60) days after the completion of the installation of the landfill cap over thirty (30) acres at the Site, provided that an inspection by WDNR staff confirms that the cap has been constructed in compliance with the final cover design standards in s. NR 504.07, Wisconsin Administrative Code.

2. $1,750,000 within sixty (60) days after the completion of the entire landfill cap, provided that an inspection by WDNR staff confirms that the cap has been constructed in compliance with the final cover system design standards in s. NR 504.07, Wisconsin Administrative Code.

3. $1,000,000 within one hundred twenty (120) days after the landfill gas system begins operation, provided that the landfill gas system is operating satisfactorily, in compliance

with the requirements of s. NR 506.08(6), Wisconsin Administrative Code, by the end of this 120 day period.

E. Holtz and Krause, Inc., the owner of the property on which the Holtz and Krause Landfill is located, shall sign and record at the office of the Register of Deeds for Marathon County the Declaration of Restrictions and Covenants Upon Real Estate which is attached to this Consent Decree as Appendix A, within thirty (30) days after this Consent Decree becomes effective. This Declaration of Restrictions and Covenants is intended to prohibit any activity that may interfer with the integrity of the landfill cap or any other remedial measure that is required to be implemented under this Consent Decree.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

A. All of the Work to be performed by the Settling Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer and a qualified hydrogeologist, as defined in s. NR 550.31(1)(e), Wis. Adm. Code. Within 10 business days after the effective date of this Consent Decree, the Settling Defendants shall notify the WDNR, in writing, of the name, title, and qualifications of the proposed consultant(s), engineer(s) and hydrogeologist(s) (hereinafter the Consultant(s)), including staff names, titles and responsibilities for work to be performed under this Consent Decree.

B. The Work conducted pursuant to this Consent Decree shall employ sound scientific, engineering and construction practices and shall be consistent with, and performed in accordance with, the National Contingency Plan, 40 CFR part 300; the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA); EPA Superfund Remedial Design and Remedial Action Guidance, dated June, 1986; Wisconsin statutes and administrative rules in effect at the time that the work is conducted; any other State or federal guidance documents provided to the Settling Defendants by the WDNR, subject to the provisions in Paragraph C of this Section; the requirements of this Consent Decree, including the Scope of Work; and the standards, specifications and schedules contained in the project plans or work plans approved under this Consent Decree. All RA work performed under this Consent Decree shall meet the performance and cleanup standards set forth in the Record of Decision (ROD) for the Site.

C. Guidance documents which are published after the effective date of this Consent Decree shall be applied prospectively to work tasks which have not yet begun. If an applicable guidance document is changed or new written guidance is issued which requires modification of any of the project plans required under this Consent Decree, the WDNR shall provide notice, in writing, of the new or revised guidance documents. Within thirty (30) calendar days after receipt of such notice, the Settling Defendants shall submit a revised project plan which complies with the new or revised guidance.

D. If the Settling Defendants, their consultants, contractors or subcontractors fail to comply with any of the requirements of this Consent Decree, the WDNR shall have the right to seek recovery from the Settling Defendants for any costs incurred by WDNR to undertake Work that is the responsibility of the Settling Defendants under this Consent Decree, and the right to seek enforcement of the terms of this Consent Decree where WDNR has not undertaken the Work. WDNR may also refer the Site to the EPA for action pursuant to CERCLA.

E. Appendix B to this Consent Decree provides a Scope of Work (SOW) for the completion of remedial design/remedial action for the Site, other than the remedial design/remedial action that may be required to implement groundwater/leachate extraction and treatment at the Site. A

second SOW will be prepared by the WDNR if the results of groundwater monitoring at the Site indicate that groundwater/leachate extraction is required, as provided in the ROD. The Settling Defendants shall complete the tasks outlined in the second SOW if it is required. The SOW in Appendix B is deemed incorporated into and made an enforceable part of this Consent Decree.

F. The following Work shall be performed:

1. Remedial design and remedial action project plans (hereinafter referred to as RD/RA project plans), including a schedule for the implementation of the remedial action, shall be developed by the Settling Defendants and shall be submitted to the WDNR. These plans shall be appended to this Consent Decree (as Appendix C) and made an integral and enforceable part hereof, after the RD/RA project plans are approved by WDNR.

2. The Settling Defendants shall submit draft RD/RA project plans for those plans listed under Task 1 of the SOW within thirty (30) calendar days after the parties have signed this Consent Decree.

3. The Settling Defendants shall submit draft RD/RA project plans for those plans listed under Task 2/A and Task 2/B of the SOW and preliminary design plans and specifications (30% completion of design) within sixty (60) calendar days after the submittal of the Task 1 RD/RA project plans.

4. The Settling Defendants shall submit prefinal design plans and project plans for those plans listed under Task 2/C Design Plans, 2/D Monitoring Program Plan, of the SOW within (150) days after submittal of Task 1 RD/RA Project Plans.

5. All of the draft RD/RA project plans and remedial design plans shall be subject to review, modification and approval by the WDNR in accordance with the terms of this Consent Decree. The Settling Defendants shall correct all deficiencies identified by WDNR in the draft RD/RA project plans and draft remedial design plans and shall incorporate all modifications required by WDNR in the final draft. At the time that the final draft RD/RA project plans or remedial design plans are submitted, the Settling Defendants shall submit a cover letter describing how WDNR comments were addressed.

6. Within thirty (30) calendar days after receipt of any RD/RA project plan or remedial design plan disapproval, or conditional approval that requires modification, the Settling Defendants shall submit a final draft or revised final draft plan, or a supplement to the plan, which incorporates the modifications required by the WDNR. Upon approval by WDNR, the final draft RD/RA project plans, as revised or supplemented, will be considered the final RD/RA project plans, and the final draft remedial design plans, as revised or supplemented, will be considered the final remedial design plans.

7. The RD/RA project plans and remedial design plans shall be written so that all of the RD/RA work conducted pursuant to this Consent Decree will be in conformance with the ROD, and any ROD amendment which may be issued, and in accordance with the requirements listed in Section II, B of this Consent Decree. It is the intent of the parties that the construction of the approved remedial action will begin as soon as practicable upon WDNR approval of the design.

8. In the event of WDNR disapproval of any final draft RD/RA project plan or remedial design plan, the WDNR retains the right to conduct the remedial action work and enforce

the terms of this Consent Decree where WDNR has not undertaken the work. WDNR may also refer the Site to EPA for action pursuant to CERCLA.

9. The Settling Defendants shall complete the RD/RA work in accordance with all requirements of this Consent Decree, the ROD, the SOW, the RD/RA project plans, the remedial design plans, and all schedules submitted and approved by WDNR under this Consent Decree, including long-term opertion and maintenance of the remedy.

G. The parties acknowledge and agree that neither the SOW nor any RD/RA project plan or remedial design plan approval issued by the WDNR constitutes a warranty or representation of any kind that the SOW or the approved RD/RA project plan or remedial design plan will achieve compliance with state or federal applicable or relevant and appropriate requirements (ARARs) as defined in CERCLA and the NCP.

VII. PROGRESS REPORTS

A. The Settling Defendants shall submit written progress reports to the WDNR according to the RD/RA Schedule Summary contained in the SOW and the requirements of the approved Operation and Maintenance Plan. At a minimum, these written progress reports shall include the following:

1. A summary of all validated sampling data and the results of tests relating to the Site produced during the reporting period pursuant this Consent Decree;

2. A description and estimate of the percentage of the remedy completed. A description of activities completed during the past reporting period, as well as such actions, data and plans which are scheduled for the next reporting period;

3. Target date and actual completion date for each element of activity, including the project completion, and an explanation of any deviation from the schedules found in the SOW or in any RD/RA project plan.

4. A description of difficulties encountered during the reporting period and the actions taken to rectify the problems; and

5. Changes in key personnel; and

6. Copies of daily reports and inspection reports.

B. Unless otherwise specified in the approved Operation and Maintenance plan, written progress reports shall be submitted to the WDNR by the tenth business day of each month.

C. The Settling Defendants may request, in accordance with s. NR 2.19, Wis. Adm. Code, that information required by WDNR, under the terms of this Consent Decree, be treated as confidential.

D. Attorney-client privilege and attorney-work-product privilege shall not apply to documents, deliverables or data required to be submitted or made available to WDNR under Section IV, V, or XI of this Consent Decree.

VIII. SUBMISSION OF DOCUMENTS AND CORRESPONDENCE

Documents and correspondence to be submitted pursuant to this Consent Decree shall be sent to the following addresses, or to such other address as the Settling Defendants or the WDNR may hereafter designate in writing:

A. Documents to be submitted to WDNR shall be sent to:

Section Chief (2 copies)
Emergency and Remedial Response Section (SW/3)
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707

District Solid and Hazardous Waste Program Supervisor (2 copies)
Wisconsin Department of Natural Resources
North Central District
107 Sutliff Avenue, Box 818
Rhinelander, Wisconsin 54501

B. Documents to be submitted to the Settling Defendants shall be sent to:

John Robinson (one copy)
John Robinson & Associates
P.O. Box 31
Wausau, WI 54402-0031

James Lonsdorf (one copy)
Lonsdorf & Andraski
610 Jackson Street
P.O. Box 872
Wausau, WI 54402-0872

David P. Trainor (one copy)
Dames & Moore
2701 International Lane, Suite 210
Madison, WI 53704

IX. MODIFICATION OF WORK

A. In the event that the WDNR or the Settling Defendants determine that either a modification to planned work or additional work is necessary to implement the remedy or achieve compliance with the performance and cleanup standards set forth in the ROD, notification of such modified or additional work shall be provided to the other parties. In the event that the Settling Defendants project coordinator determines that a minor modification to planned work or additional work is necessary during the course of field work, oral notice may be given by the Settling Defendants project coordinator to the WDNR project coordinator. Such oral notice shall be confirmed in writing within five (5) business days after the oral notice, describing the circumstances under which the determination was made and the modification or additional work was performed. Any modified or additional work determined to be necessary by the Settling Defendants shall be subject to approval by the WDNR.

B. During the term of this Consent Decree, any modified or additional work determined to be necessary by the Settling Defendants and approved by WDNR, or determined to be necessary by the WDNR, shall be completed by the Settling Defendants in accordance with the standards, specifications and schedule determined by or approved by the WDNR.

X. COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

A. The RD/RA activities undertaken by the Settling Defendants pursuant to this Consent Decree shall be performed in compliance with the applicable or relevant and appropriate federal and State requirements (ARARs) and any advisories, criteria or guidance which are referenced in the ROD for the Site. As the ROD for the Site provides, compliance with ch. NR 140, Wisconsin Administrative Code, is defined as compliance with the standards listed in Tables 1 and 2 of ss. NR 140.10 and 140.12, Wisconsin Administrative Code, in effect on the date that the ROD was signed. However, if, in the future, the Department promulgates new or modified groundwater standards, the Department may review the conditions at the Site and, based on site-specific information, determine if compliance with the new or modified groundwater standards is necessary to ensure that the remedy is protective of human health or the environment.

B. The Settling Defendants shall store, treat, or dispose of investigation-derived waste that is to be handled on-site, in compliance with all federal and State ARARs, to the extent practicable, considering the exigencies of the situation. The Settling Defendants shall ensure that RD/RA-derived waste that is taken off-site shall be transported in compliance with applicable laws and taken to a facility in compliance with applicable laws.

C. The Settling Defendants shall be responsible for obtaining all federal, State, and/or local permits, licenses and approvals which are necessary for the performance of the work required under this Consent Decree. Nothing in this Consent Decree relieves the Settling Defendants of the obligations to obtain such permits, licenses or approvals.

XI. COMPLIANCE WITH THE RECORD OF DECISION

The Settling Defendants shall carry out RD/RA activities for the Site in conformance with the remedy selected in the ROD issued for the Site by WDNR. Where there is a significant change to a ROD which requires the issuance of an Explanation of Significant Difference or a ROD Amendment (as provided in "Interim Final Guidance on Preparing Superfund Decision Documents: The Proposed Plan; the Record of Decision; Explanation of Significant Differences; The Record of Decision Amendment" OSWER Directive 9355.3-02, dated June 1989), the Settling Defendants shall comply with any laws that are applicable or relevant and appropriate to that significant change.

XII. ACCESS

A. To the extent that the Site or other areas where work is to be performed hereunder is presently owned by parties other than those bound by this Consent Decree, the Settling Defendants shall use their best efforts to obtain access agreements from the present owners within thirty (30) calendar days of the effective date of this Consent Decree, or the date it becomes apparent that access to such property is necessary, whichever is later. Such agreements shall provide access for the WDNR and all authorized representatives of the WDNR, and shall be added as attachments to the SOW. However, the agreements do not have to be obtained prior to signing of this Consent Decree. In the event that such access agreements are not obtained within 30 calendar days of the effective date of this Consent Decree, the Settling Defendants shall so notify the WDNR. That

notification shall include a description of the "best efforts" undertaken by the Settling Defendants to gain access.

B. The employees and authorized representatives of the WDNR shall have the authority to enter the Site at all reasonable times for the purpose of inspecting records, operating logs, Consent Decrees and other documents relevant to the implementation of this Consent Decree; reviewing the progress of the Settling Defendants in implementing this Consent Decree; conducting such tests as the WDNR project coordinator deems necessary; using a camera, sound or video recording, or other documentary type equipment; and verifying the data submitted to the WDNR by the Settling Defendants. The Settling Defendants shall permit such authorized representatives to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, which pertain to this Consent Decree, subject to Paragraph D of this Section regarding confidentiality. All persons with access to the Site pursuant to this Consent Decree shall comply with the health and safety plans prepared for this Site. The Settling Defendants shall honor all reasonable requests for such access by the WDNR conditioned only upon presentation of proper credentials.

C. Nothing herein shall be construed as restricting the inspection or access authority of the WDNR under any statute or rule.

XIII. PROJECT COORDINATORS

A. The WDNR and the Settling Defendants shall each designate a project coordinator within ten (10) business days after the signing of the Consent Decree. Any party may change its designated project coordinator by notifying the other parties, in writing, at least ten (10) business days prior to the change. To the maximum extent possible, communications between the Settling Defendants and the WDNR concerning the Site shall be directed through the project coordinators. Each project coordinator shall be responsible for assuring that communications are appropriately disseminated and processed among the respective parties.

B. The WDNR project coordinator or a designee shall have the authority, pursuant to this Consent Decree, to (1) agree to minor changes in the extent of soils to be removed, if any; (2) take samples or direct that samples be taken; (3) direct that work stop whenever the WDNR project coordinator determines that activities at the Site may create danger to public health or welfare or the environment; (4) observe, take photographs and make such other reports on the progress on the work as deemed appropriate; (5) review records, files and documents relevant to this Consent Decree; and (6) make or authorize minor field modifications to the RD/RA in the techniques, procedures or design utilized in carrying out this Consent Decree. Any field modifications shall be approved orally by both project coordinators. Within 72 hours following the modification, the project coordinator who requested the modification shall prepare a memorandum detailing the modification and the reasons therefore and shall provide and mail a copy of the memorandum to other project coordinators.

C. The project coordinator for the Settling Defendants or a designee shall be on site during performance of all construction work undertaken pursuant to this Consent Decree at the Site.

D. The absence of the WDNR project coordinator from the Site shall not be cause for stoppage of work.

XIV. SAMPLING

A. The WDNR and the Settling Defendants shall upon request, during normal business hours, make available to each other the results of all sampling, tests and other data generated by them, or on their behalf, with respect to the implementation of this Consent Decree and shall submit sampling results in written progress reports as required by Section VII of this Consent Decree.

B. In the event that quality assurance, quality control or chain of custody procedures are not followed properly (for example, if the Settling Defendants' consultant or laboratory holds the samples longer than allowed, loses the samples, etc.), the Settling Defendants shall notify the WDNR project coordinator in writing of the error, what will be done to correct the situation for future sampling rounds and the date on which the sampling event will be rescheduled. This notification shall be provided within five (5) business days of the Settling Defendants becoming aware of the problem.

C. At the request of the WDNR project coordinator, the Settling Defendants shall allow split or duplicate samples to be taken by the WDNR during sample collection conducted during the implementation of this Consent Decree. The PRP project coordinator shall endeavor to notify the WDNR project coordinator not less than five (5) working days in advance of any sample collection.

XV. QUALITY ASSURANCE

A. The Settling Defendants shall use quality assurance, quality control and chain of custody procedures in accordance with EPA "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" QAMS-005-80 (EPA, 1989), and any EPA updates to these procedures, throughout all data collection activities.

B. The Settling Defendants shall consult with the WDNR project coordinator in planning for, and prior to, all sampling and analysis as detailed in the RD/RA project plan. In order to provide quality assurance and maintain quality control with respect to all samples collected pursuant to this Consent Decree, the Settling Defendants shall:

1. Ensure that the WDNR employees and authorized representatives of WDNR are allowed access to any laboratory and personnel utilized by the Settling Defendants for analyses;

2. Ensure that all sampling and analyses are performed according to EPA methods or other methods deemed satisfactory by the WDNR and include all protocols to be used for analyses in the Quality Assurance Project Plan;

3. Ensure that any laboratories utilized by the Settling Defendants for analyses are state certified and participate in a quality assurance/quality control program equivalent to that which is followed by the EPA, and which is consistent with EPA document QAMS-005-80. As part of such a program, and upon request by the WDNR, the Settling Defendants shall have analyses performed by their laboratories of samples provided by the WDNR, or by EPA at WDNR's request, to demonstrate the quality of analytical data for each such laboratory.

XVI. FORCE MAJEURE

A. The Settling Defendants shall cause all work to be performed within the time limits set forth in this Consent Decree, the SOW or the final RD/RA project plan, unless performance is delayed by

events that constitute a force majeure. For purposes of this Consent Decree, a "force majeure" is an event arising from causes beyond the control of the Settling Defendants or any entity controlled by the Settling Defendants, including their contractors and subcontractors, which delays or prevents performance of any obligation under this Consent Decree. Increases in cost or changes in economic circumstances shall not by themselves constitute a force majeure. However, an event that would otherwise constitute a force majeure shall be deemed force majeure even though such event also results in increased costs or changed economic circumstances.

B. The Settling Defendants shall notify the WDNR in writing no later than seven (7) calendar days after any event which the Settling Defendants contends is a force majeure. Such notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken and to be taken by the Settling Defendants to minimize the delay, and the timetable by which these measures will be implemented. The Settling Defendants shall have the burden of demonstrating that the event is a force majeure. WDNR shall promptly provide the Settling Defendants with a written decision as to whether the event constitutes a force majeure after receiving notification from the Settling Defendants.

C. If the WDNR agrees that a delay is attributable to a force majeure, the time period for a performance under this Consent Decree shall be extended for a time period attributable to the event constituting a force majeure unless WDNR determines that it will terminate this Consent Decree because the Settling Defendants are unable to proceed to fulfill its material obligation under this Consent Decree within a time period acceptable to WDNR.

XVII. STIPULATED PENALTIES

A. The Settling Defendants shall be liable for payment into the Environmental Fund administered by the WDNR of the sums set forth in this Section as stipulated penalties for each week that the Settling Defendants fail to submit a plan, report or other document or fail to complete the RD or the RA in accordance with the requirements of this Consent Decree, unless WDNR determines that such a delay is attributable to a force majeure as defined in Section XVI, or WDNR, in its discretion, waives the payment of stipulated penalties. Such sums shall be due and payable with thirty (30) calendar days of receipt of notification from the WDNR assessing the stipulated penalties. These stipulated penalties shall accrue in the following amounts:

1. For failure to submit any plan, report or other document -- (except as identified in paragraph A.2. of this Section)

Amount	Period
$500 per week	1 to 2 weeks
$1000 per week	3 to 4 weeks
$2000 per week	5 or more weeks

2. For failure to complete the RD or any component of the RA action -- (in accordance with the final RD/RA project plan approved by WDNR)

Amount	Period
$750 per week	1 to 2 weeks
$2000 per week	3 to 4 weeks
$5000 per week	5 or more weeks

B. The stipulated penalties provisions set forth in paragraph A of this Section shall not preclude the WDNR from electing to pursue any other remedy or sanction because of the Settling Defendants' failure to comply with any of the terms of this Consent Decree, including a lawsuit to enforce the terms of this Consent Decree.

XVIII. DISPUTE RESOLUTION

A. The parties shall use their best efforts to in good faith resolve all disputes or differences of opinion informally through the project coordinators. If, however, any dispute arises concerning any matter under or subject to this Consent Decree, including additional work determined by WDNR to be necessary pursuant to Section IX or the assessment of stipulated penalties pursuant to Section XVII, which dispute the parties are unable to resolve informally, the Settling Defendants shall present a written notice of such dispute to the WDNR, which shall set forth specific points of dispute, the position of the Settling Defendants and the technical basis therefore, and any actions which the Settling Defendants considers necessary.

B. Within ten (10) business days of receipt of such a written notice, the WDNR shall provide a written response to the Settling Defendants setting forth its position and the basis therefore. The Settling Defendants may respond to WDNR's response within five (5) business days of its receipt. During the five (5) business days following receipt of the Settling Defendants response to WDNR's stated position, the WDNR shall attempt to negotiate in good faith a resolution of the differences. If requested by Settling Defendants, WDNR shall schedule a meeting with representatives of the Settling Defendants, WDNR staff and the Director of the Bureau of Solid and Hazardous Waste Management to attempt to resolve the issue.

C. Following the expiration of the time periods described in paragraph B of this Section, if the WDNR concurs with the position of the Settling Defendants, the Settling Defendants shall be so notified in writing and this Consent Decree shall be modified to include any necessary extensions of time or variances of work. If the WDNR does not concur with the position of the Settling Defendants, the WDNR shall resolve the dispute in good faith, taking due account of the position of the Settling Defendants, and, based upon and consistent with the terms of this Consent Decree, and shall provide written notification of such resolution to the Settling Defendants.

D. The pendency of dispute resolution under this section shall not affect the time period for completion of work or obligations to be performed under this Consent Decree, except that, upon mutual agreement of the WDNR and the Settling Defendants, any time period may be extended not to exceed the actual time taken to resolve the dispute. Elements of work and obligations not affected by the dispute shall be completed in accordance with the RD/RA Schedule Summary contained in the SOW and the requirements of the approved Operation and Maintenance Plan.

E. Upon resolution of any dispute, whether informally or using the procedures in this section, any additions or modifications required as a result of such dispute resolution shall immediately be incorporated, if necessary, into the appropriate plan or procedure and to this Consent Decree. The Settling Defendants shall proceed with all remaining work according to the modified plan or procedure.

F. In any proceeding to enforce the terms of this Consent Decree or to collect stipulated penalties, the Settling Defendants may defend on the basis that WDNR's resolution of any properly invoked dispute was arbitrary and capricious, in addition to any other available defenses. If the court finds that the WDNR's resolution of any dispute was arbitrary and capricious, or was otherwise contrary to law, the court may exercise such legal and equitable powers as it deems appropriate.

XIX. COMMUNITY RELATIONS

The Settling Defendants shall be responsible for conducting the community relations activities for this Site. The Settling Defendants shall prepare a Community Relations Plan for the dissemination of project information to the public, and shall implement the Community Relations Plan after it has been approved by WDNR. The Settling Defendants shall prepare the community relations documents, as specified in the NCP, CERCLA, and the EPA guidance "Community Relations in Superfund: A Handbook", dated January, 1992, including any supplements or updates to the handbook issued by EPA. The Community Relations Plan shall be subject to review, modification and approval by the WDNR. The Settling Defendants shall correct all deficiencies identified by the WDNR in the preliminary draft of the Community Relations Plan and shall incorporate all modifications required by WDNR in the final draft. The Community Relations Plan shall be incorporated into the RD/RA project plan and the Settling Defendants shall conduct community relations activities in compliance with the schedule that has been approved by the WDNR.

XX. ADMINISTRATIVE RECORD REQUIREMENTS

The WDNR has compiled and will maintain the administrative record files for the Site. In the event that the WDNR determines that the administrative record files should be supplemented after the signature of the ROD, the Settling Defendants shall provide the WDNR with all relevant documents requested by the WDNR, unless the documents are privileged under an attorney-client privilege or attorney-work-product privilege.

XXI. RECORD PRESERVATION

The Settling Defendants agree to preserve, during the pendency of this Consent Decree, and for a minimum of six (6) years after termination of this Consent Decree, one original or one legible copy of all records and documents of the Settling Defendants which are in the possession of the Settling Defendants, or in the possession of any division, employee, agent, accountant, or contractor, or any attorney of any of the Settling Defendants, which are generated pursuant to this Consent Decree, the SOW or the RD/RA project plan. After this six year period, the Settling Defendants shall notify the WDNR, in writing, at least thirty (30) calendar days prior to the destruction or disposal of any such documents. Upon request of the WDNR, the Settling Defendants shall make available to the WDNR such records, or copies of any such records. This section is intended to preserve PRP records, or copies of any such records and is not intended nor shall be construed to be a waiver of, or in any other way to diminish the full availability to the Settling Defendants, of any attorney-client or other privilege which may apply to any information not required to be provided to WDNR under this Consent Decree.

XXII. RESERVATION OF RIGHTS

A. Except as otherwise provided in Section XXVIII of this Consent Decree, nothing herein shall waive the right of the WDNR to enforce this Consent Decree, or to take any action pursuant to CERCLA, ch. 144, Wis. Stats., or any other available legal authority. In addition, WDNR reserves the right, following thirty (30) calendar days written notice to the Settling Defendants, to undertake any portion of the work that is the responsibility of the Settling Defendants under this Consent Decree, and to enforce the terms of the Consent Decree where WDNR has not undertaken the work, if the Settling Defendants fail to satisfactorily perform the tasks required of them under this Consent Decree by the end of the thirty (30) calendar day notice period. If WDNR conducts any work that is the responsibility of the Settling Defendants under this Consent Decree, it cannot also commence or maintain an action to compel the Settling Defendants to conduct work already completed by WDNR in a manner consistent with this Consent Decree.

However, the WDNR shall have the right to seek recovery from the Settling Defendants for any costs incurred in undertaking such actions upon the failure of the Settling Defendants, their agents, contractors or subcontractors to proceed according to the requirements of this Consent Decree.

B. Except as otherwise provided in Section XXVIII of this Consent Decree, nothing herein is intended to release, discharge or in any way affect any claims, causes of action or demands in law or equity which each party may have against any person, firm, partnership or corporation for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, release or disposal of any materials, hazardous substances, solid or hazardous waste, contaminants or pollutants at, to or from the Site. The parties to this Consent Decree expressly reserve all rights, claims, demands and causes of action they may have against any and all other persons and entities.

C. The WDNR recognizes that the Settling Defendants may have the right to seek contribution, indemnity and/or any other available remedy against any person found to be responsible or liable for contribution, indemnity or otherwise for any amounts which have been or will be expended by the Settling Defendants in connection with the Site. The parties to this Consent Decree believe that this Consent Decree is a settlement with the State, in accordance with s. 113(f)(2) of CERCLA, 42 U.S.C. ss. 9613(f)(2), which provides protection from claims for contribution regarding matters addressed in this Consent Decree, as of the effective date of this Consent Decree.

D. Nothing herein shall be construed to release the Settling Defendants from any liability for failure of the Settling Defendants to perform the RD/RA in accordance with the RD/RA project plan which will be incorporated herein. The parties expressly recognize that the signing of this Consent Decree and the successful completion and approval of the RD/RA do not represent satisfaction, waiver, release or a covenant not to sue (except as provided in Section XXVIII below) of any claim of the State of Wisconsin against the Settling Defendants related to the Site (including claims to require the Settling Defendants to undertake further response actions and claims to seek reimbursement of response costs pursuant to section 144.442, Wis. Stats., or Section 107 of CERCLA for response actions not covered by this Consent Decree), except that, upon receipt of written notice of satisfaction as provided in Section XXVII of this Consent Decree, the Settling Defendants shall have no further obligations under this Consent Decree. The parties further expressly recognize that this Consent Decree does not represent a waiver of any claim of the United States or the EPA against the Settling Defendants relating to the Site (including claims to require the Settling Defendants to undertake further response actions and claims to seek reimbursement of response costs pursuant to Section 107 of CERCLA).

E. Nothing herein is intended to be a release or settlement of any claim for personal injury or property damage to any person not a party to this Consent Decree.

XXIII. REIMBURSEMENT OF COSTS

A. Shortly after the end of each state fiscal year following the effective date of this Consent Decree, the WDNR shall submit a cost summary to the Settling Defendants of all response costs or oversight costs incurred by the WDNR with respect to this Consent Decree during the previous fiscal year, including, but not limited to, the costs incurred by the WDNR, if any, in having a qualified person oversee the conduct of the RD/RA. WDNR agrees to provide quarterly reports to the Settling Defendants which summarize the activities that have been performed by WDNR personnel on the project. Within sixty (60) calendar days of receipt of each such a cost summary, the Settling Defendants shall pay to WDNR the full amount of the response costs and oversight

costs, incurred during the preceding fiscal year subject to the dispute resolution provisions of Section XVIII.

B. Payments to the WDNR for response costs and oversight costs incurred by the WDNR shall be made payable to the Wisconsin Department of Natural Resources and shall be mailed or delivered to: Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, Section Chief, Emergency and Remedial Response Section (SW/3), P.O. Box 7921, Madison, Wisconsin 53707-7921. A copy of the transmittal letter and the check shall be sent to the WDNR project coordinator.

XXIV. INDEMNIFICATION

A. The Settling Defendants agree to indemnify and save and hold the State of Wisconsin, the WDNR and its officers, employees and authorized representatives, harmless from any and all claims or causes of action arising from, or on account of, acts or omissions of the Settling Defendants, their officers, employees, receivers, trustees, agents, assigns or authorized representatives, in carrying out the activities pursuant to this Consent Decree. However, the Settling Defendants shall not be responsible for indemnification for claims or causes of action arising out of acts or omissions of the WDNR, its officers, employees or authorized representatives.

B. The WDNR is not a party to any contract entered into by the Settling Defendants with their Consultants, contractors or subcontractors concerning the Site.

C. If an entity indemnified under this section receives notice of a claim or action covered by this indemnity, it shall notify the Settling Defendants immediately of any such claim or action. Further, the indemnified entity shall keep the Settling Defendants apprised of how the claim or action is proceeding through its resolution. The indemnified entity shall notify the Settling Defendants, in advance, of any intention to settle a claim covered by this section.

XXV. EFFECTIVE DATE

The effective date of this Consent Decree shall be the date upon which this Consent Decree is signed by the Court. If for any reason the Court should decline to approve of this Consent Decree, this agreement is voidable by any party.

XXVI. SUBSEQUENT AMENDMENT

In addition to the procedures set forth in Sections IX, XIII and XVI of this Consent Decree, this Consent Decree may be amended by mutual agreement of the WDNR and Settling Defendants. Any material modification of this Consent Decree shall be in writing, signed by the WDNR and the Settling Defendants, and shall have as its effective date that date on which the amendment is approved by the Court. Modifications to the SOW or this Consent Decree which do not materially alter this document may be made by written agreement between WDNR and the Settling Defendants.

XXVII. TERMINATION AND SATISFACTION

The provisions of this Consent Decree shall be deemed satisfied upon receipt by the Settling Defendants of written notice from the WDNR that the Settling Defendants have documented that all of the terms of this Consent Decree, including any modified or additional work, or amendments, have been completed in accordance with the terms hereof to the satisfaction of the WDNR. Upon such demonstration by the Settling Defendants, said written notice shall not be unreasonably withheld or delayed by WDNR.

XXVIII. COVENANT NOT TO SUE

Except as otherwise provided herein, from the date on which the Settling Defendants provide financial assurance in the amount of $7 Million Dollars in compliance with the requirements of Section XXIX of this Consent Decree, for as long as the terms herein are complied with, after termination of this Consent Decree pursuant to the provisions of Section XXVII (Termination and Satisfaction) and after payment to WDNR of amounts due as stipulated penalties, response costs or oversight costs under this Consent Decree, WDNR covenants not to sue the Settling Defendants regarding: (A) Work satisfactorily performed by the Settling Defendants hereunder; (B) Amounts actually paid to WDNR by the Settling Defendants hereunder; (C) Reimbursement of any costs related to the Site incurred by the WDNR prior to the signing of this Consent Decree; or (D) Reimbursement of the amount paid by the WDNR as partial payment for the installation of a landfill cap under Section V, D of this Consent Decree. Work shall be deemed to have been satisfactorily performed if it was performed in accordance with all applicable requirements referenced in Section VI (Performance of the Work).

XXIX. ASSURANCE OF ABILITY TO COMPLETE WORK

On or before February 15, 1994, the Settling Defendants shall provide one or more irrevocable letters of credit, irrevocable escrow accounts, an annuity or structured settlement agreement, an enforceable government assurance, a performance bond or a combination of these forms of financial assurance, all of which meet the minimum requirements set forth in this Section and which will assure that a total of at least $7 Million Dollars ($7,000,000) is available to complete all of the work that the Settling Defendants are committing to conduct under this Consent Decree, including long-term operation, maintenance and monitoring of the remedy. The amount of any letter of credit or performance bond which is provided to WDNR to satisfy the requirements of this Section may be periodically adjusted with the approval of WDNR as the work is completed, and the principal and interest in any escrow account established pursuant to this Section may be withdrawn with the approval of WDNR to pay for any work that is required under this Consent Decree. However, financial asssurance that is sufficient to fund all of the work that remains to be completed shall be maintained by the Settling Defendants at all times prior to the termination of this Consent Decree.

A. Irrevocable letters of credit. If the Settling Defendants provide one or more letters of credit to WDNR to satisfy the requirements of this Section, each letter of credit shall be issued by a bank or financial institution which is examined and regulated by a federal agency, or in the case of a bank or financial institution located within the State of Wisconsin, which is examined and regulated by a state or federal agency. The letter of credit shall be irrevocable and issued for a period of at least one year. If the bank or financial institution that has issued a letter of credit pursuant to this Consent Decree becomes bankrupt or insolvent or if its authorization to do business is revoked or suspended, the Settling Defendants shall, within 30 days of receiving notice thereof, deliver to WDNR a replacement letter of credit or other form of financial assurance that is acceptable to WDNR. The letter of credit shall be issued exclusively for the purpose of ensuring that the work required under this Consent Decree is completed by the Settling Defendants. The WDNR shall be the beneficiary of the letter of credit. The letter of credit shall provide that the WDNR shall have the right to withdraw and use part or all of the funds to carry out the work required under this Consent Decree if the Settling Defendants fail to complete the required work , and shall provide that the amount of the letter of credit may be periodically adjusted with the approval of WDNR as the work required under this Consent Decree is completed.

B. Irrevocable escrow accounts. If the Settling Defendants establish one or more escrow accounts, each escrow account shall be with a bank or financial institution located within the State of Wisconsin which is examined and regulated by a state or federal agency. The assets in these escrow accounts shall consist of cash, certificates of deposit, or U.S. government securities. All interest payments shall be accumulated in the accounts. The WDNR shall be a party to the

these escrow accounts shall consist of cash, certificates of deposit, or U.S. government securities. All interest payments shall be accumulated in the accounts. The WDNR shall be a party to the escrow agreements, which shall provide that there shall be no withdrawals from the escrow accounts except as authorized in writing by WDNR. The escrow agreements shall further provide that the WDNR shall have the right to withdraw and use part or all of the funds in the escrow accounts to carry out the work required under this Consent Decree if the Settling Defendants fail to complete the required work .

C. Structured settlement annuity. If the Settling Defendants purchase a structured settlement annuity, the structured settlement annuity shall be purchased from an insurance company licensed to do business in the State of Wisconsin. If a structured settlement annuity is purchased by the Settling Defendants, the scheduled payments made from the annuity will be made payable to an irrevocable escrow account established with a bank or financial institution located within the State of Wisconsin which is examined and regulated by a state or federal agency. The escrow agreement which establishes the escrow account as the payee of the annuity payments shall provide that there shall be no withdrawals from the escrow account except as authorized in writing by the WDNR. The escrow agreement shall further provide that the WDNR shall have the right to withdraw and use part or all of the funds in the escrow account to carry out the work required under this Consent Decree if the Settling Defendants fail to complete the required work .

D. Enforceable governmental assurance. If the Settling Defendants choose to provide a portion of the financial assurance required by this Section in the form of an enforceable government assurance, that assurance shall be given exclusively for the purpose of assuring that the work required under this Consent Decree or a portion thereof will be completed by the governmental entity that is giving the assurance in the event that the Settling Defendants fail to complete the required work. Any governmental entity that wishes to provide an enforceable government assurance to satisfy in whole or in part the financial assurance requirements of this Section shall contract with the WDNR to conduct a specific portion of the work that is required to be completed by the Settling Defendants under this Consent Decree in the event that the Settling Defendants fail to conduct that portion of the required work. The WDNR shall have the right to enforce the government assurance contract if the Settling Defendants fail to conduct the specified work as required under this Consent Decree.

E. Performance bond. If the Settling Defendants provide a performance bond to satisfy the requirements of this Section, the performance bond shall be purchased from a surety company authorized to do surety business in the State of Wisconsin. The WDNR shall be an obligee of the performance bond which shall provide that the WDNR shall have the right to payment under the bond to carry out the unfinished portion of the work that is required under the Consent Decree if the Settling Defendants fail to complete the required work .

XXX. SIGNATORIES AND SERVICE

Each undersigned representative of a Settling Defendant, the Wisconsin Department of Natural Resources or the Wisconsin Department of Justice hereby certifies that he or she is fully authorized to execute and legally bind the party which he or she represents to this Consent Decree. Each Settling Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that party with respect to all matters arising under or relating to this Consent Decree. Settling Defendants hereby agree to accept service in that Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons.

SO ORDERED THIS _____ DAY OF _____, 19___.

_____

United States District Judge

The parties whose signatures appear below, or on separate signature pages, hereby agree to the terms of this Consent Decree:

FOR THE STATE OF WISCONSIN

WISCONSIN DEPARTMENT OF JUSTICE
JAMES E. DOYLE, ATTORNEY GENERAL

By: _____ Date: _____
Lorraine Stoltzfus
Assistant Attorney General
Wisconsin Department of Justice
123 W. Washington Street
P.O. Box 7857
Madison, Wisconsin 53707-7857

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By: _____ Date: _____
George E. Meyer, Secretary
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, Wisconsin 53707-7921

The undersigned hereby agrees to the terms of this Consent Decree in the Matter of the State of Wisconsin v. Holtz and Krause, Inc., et al., relating to the Holtz and Krause Landfill Site.

FOR _____ (Name of Settling Defendant)

By: _____ Date: _____
(Your Signature)

Name: _____
(Please Print)

Title: _____
(Relationship to Settling Defendant)

Mailing Address: _____
_____
_____
_____

Agent Authorized to Accept Service on Behalf of the Above-named Party:

Name: _____
Title: _____
Address: _____
Telephone Number: _____

Appendix B

Monitoring Well Boring Logs, Construction Details, and Development Forms

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Holtz-Krause Landfill	02-37-000007	MW-25C

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants Ltd. - J. Carlson - STS Project No. 21954XB	8/14/2006	8/16/2006	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PA307		MW-25C	Feet MSL	Feet MSL	6.0 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane N, E S/C/N
1/4 of 1/4 of Section , T N, R
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Marathon	37	Wausau

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 PA	60		5	Brown fine to medium sand (SP-SM) - trace silt - trace fine gravel - moist	SP-SM			<1						
2 PA	60		10					<1						
				Blind drill										
			15	Driller's observation - coarse gravel from 25 to 35 feet and 51 to 55 feet										
			20											
			25											
			30											
			35											
			40											
			45											
			50											
			55											
			60											
			65											
			70											
			75											
			80											
			85											
			90											
			95											
			100											
			105											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	
	STS Consultants Ltd. 3909 Concord Avenue Schofield, Wisconsin 54476-6208	Tel: 715-355-4304 Fax: 715-355-4513

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number MW-25C Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
3 SS	24 / 8	38	110	Brown fine to medium sand (SP) - trace fine to coarse gravel - wet - dense to very dense	SP			1						
4 SS	60 / 9	121	115					2						
5 SS	24 / 8	37	120					2						
6 SS	24 / 13	50	125					2						
7 SS	18 / 6	61		Brown silty fine to medium sand (SM) - trace fine to coarse gravel - wet - very dense	SM			4						
				End of Boring. 10.0										
		Solid		Boring advanced ~~from 0.0 feet to 127.0~~ feet with ~~hollow~~-stem auger. Installed 2-inch Schedule 80 PVC monitoring well at 125.0 feet.										

Boring Advanced From 10.0 Feet To 127.0 Feet With Roller Bit And Drilling Fluid.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Holtz-Krause Landfill	Local Grid Location of Well: ☐N. ft. ☐S., ft. ☐E. ☐W.	Well Name: MW-25C
Facility License, Permit or Monitoring No.: 02-37-000007	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PA307 / DNR Well Number:
Facility ID	St. Plane ft. N, ft. E. S/C/N	Date Well Installed: 08/16/2006
Type of Well: Well Code 12/pz	Section Location of Waste/Source: 1/4 of 1/4 of Sec. , T. N, R. ☐E ☐W	Well Installed By: (Person's Name and Firm): John Carlson / STS Consultants Ltd.
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number

X

A. Protective pipe, top elevation 1211.24 ft. MSL
B. Well casing, top elevation 1211.06 ft. MSL
C. Land surface elevation 1208.9 ft. MSL
D. Surface seal, bottom ____ ft. MSL or 0.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50; Hollow Stem Auger ☐ 41; Other ☐

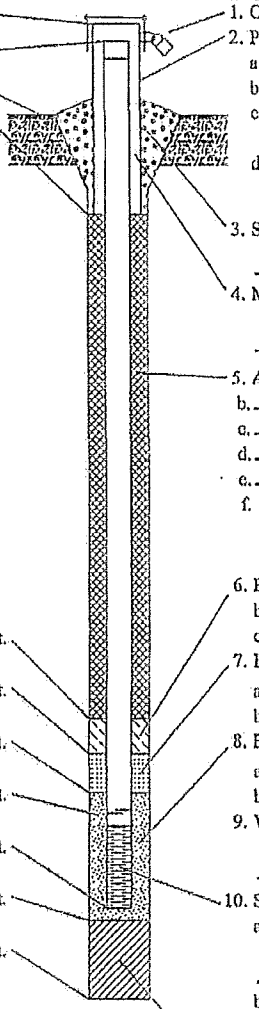
15. Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☒ 03; None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No
Describe bentonite powder

17. Source of water (attach analysis, if required):
Wausau City water

E. Bentonite seal, top 1108.6 ft. MSL or 100.3 ft.
F. Fine sand, top 1098.4 ft. MSL or 110.5 ft.
G. Filter pack, top 1096.2 ft. MSL or 112.7 ft.
H. Screen joint, top 1093.7 ft. MSL or 115.2 ft.
I. Well bottom 1083.7 ft. MSL or 125.2 ft.
J. Filter pack, bottom 1082.4 ft. MSL or 126.5 ft.
K. Borehole, bottom 1082.4 ft. MSL or 126.5 ft.
L. Borehole, diameter 6.0 in.
M. O.D. well casing 2.25 in.
N. I.D. well casing 1.75 in.

1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒ 04; Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe:
3. Surface seal: Bentonite ☒ 30; Concrete ☐ 01; Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 30; annular space seal Other ☒
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. 75 Lbs/gal mud weight . . . Bentonite slurry ☒ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☒ 02; Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Badger 40/70
b. Volume added 1 ft³
8. Filter pack material: Manufacturer, product name & mesh size
a. Badger 43/55
b. Volume added 5 ft³
9. Well casing: Flush threaded PVC schedule 40 ☐ 23; Flush threaded PVC schedule 80 ☒ 24; Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐
b. Manufacturer Buffalo
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐ 14; Badger 45/55 Other ☒



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	
	STS Consultants Ltd. 3909 Concord Avenue Schofield, Wisconsin 54476-6208	Tel: 715-355-4304 Fax: 715-355-4513

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113D Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Holtz-Krause Landfill	Marathon	MW-25C
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well Number**
02-37-000007	37	PA307	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☒	50
other _____	☐	

3. Time spent developing well: 80 min.

4. Depth of well (from top of well casing): 125.2 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 19.7 gal.

7. Volume of water removed from well: 100.0 gal.

8. Volume of water added (if any): gal.

9. Source of water added: _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	42.99 ft.	62.20 ft.
Date b.	8/23/2006	8/23/2006
Time c.	09:20 ☐ p.m. ☒ a.m.	10:40 ☐ p.m. ☒ a.m.
12. Sediment in well bottom	inches	inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) moderate turbid after 10 minutes, clear after 30 minutes	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
Mark Magee
STS Consultants Ltd.

17. Additional comments on development:
Some foaming water observed in 5 gallon bucket after 40 gallons removed. Water level >115' after 10 minutes of pumping.

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: Holtz-Krause

Street: _____

City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: _____

Print Name: Mark Magee

Firm: STS Consultants Ltd.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Holtz-Krause Landfill	02-37-000007	MW-26C

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants Ltd. - J. Carlson - STS Project No. 21954XB	8/16/2006	8/17/2006	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PA308		MW-26C	Feet MSL	Feet MSL	6.0 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane N, E S/C/N
1/4 of 1/4 of Section , T N, R
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Marathon	37	Wausau

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 SS	1.5 / 6		0	Topsoil - dark brown silty fine sand (SM) - trace roots - trace fine gravel - moist	SM			<1						
			4.5	Brown silty fine to medium sand (SM) - trace roots - trace fine gravel - moist - very loose										
2 SS	24 / 14	38		Brown fine to medium sand (SP) - trace fine to coarse gravel - moist to wet - medium dense				<1						
			9.0											
3 SS	24 / 3	28						<1						
			13.5											
4 SS	24 / 13	22						<1						
			18.0											
5 SS	24 / 6	19						<1						
			22.5											
6 SS	24 / 7	27						<1						
			27.0											
7 SS	24 / 9	27			SP			<1						
			31.5											
8 SS	24 / 12	32						<1						
			36.0											
9 SS	24 / 12	46						<1						
			40.5											
10 SS	24 / 9	23						<1						
			45.0											
11 SS	24 / 9	29						<1						
			49.5											
			54.0											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	Tel:
	STS Consultants Ltd. 3909 Concord Avenue Schofield, Wisconsin 54476-6208	715-355-4304 Fax: 715-355-4513

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A

Boring Number MW-26C Use only as an attachment to Form 4400-122.

Sample: Number and Type	Sample: Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
12 SS	24 8	28	58.5	Brown fine to medium sand (SP) - trace fine to coarse gravel - moist to wet - medium dense *(continued)*				<1						
13 SS	24 15	22	63.0					<1						
14 SS	24 12	61	67.5					<1						
15 SS	24 12	33	72.0					<1						
16 SS	24 9	25	76.5					<1						
17 SS	24 12	32	81.0					<1						
18 SS	24 12	24	85.5		SP			<1						
19 SS	24 12	22	90.0					<1						
20 SS	24 14	24	94.5					<1						
21 SS	24 12	34	99.0					<1						
22 SS	24 9	26	103.5					<1						
23 SS	24 8	23	108.0					<1						
24 SS	24 13	34	112.5					<1						
25 SS	24 13	88	117.0	Brown silty fine to medium sand (SM) - little fine to coarse gravel - wet - extremely dense	SM			<1						
				End of Boring. ID.D Boring advanced ~~from 0.0 feet~~ to ~~122.0~~ feet with ~~roller bit~~ stem auger. Installed 2-inch Schedule 80 PVC monitoring well at 120.0 feet.										

SOLID

BORING ADVANCED FROM 10.0 FEET TO 122.0 FEET WITH ROLLERBIT AND DRILLING FLUID.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name	Local Grid Location of Well	Well Name
Holtz-Krause Landfill	____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	MW-26C
Facility License, Permit or Monitoring No.	**Local Grid Origin** ☐ (estimated: ☐) or **Well Location** ☐	**Wis. Unique Well No.** / **DNR Well Number**
02-37-000007	Lat. ° ' " Long. ° ' " or	PA308
Facility ID	St. Plane ____ ft. N, ____ ft. E. S/C/N	**Date Well Installed**
	Section Location of Waste/Source ☐E ☐W	08/17/2006
Type of Well	____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____	**Well Installed By: (Person's Name and Firm)**
Well Code 12/pz	**Location of Well Relative to Waste/Source**	John Carlson
Distance from Waste/Source ft. / **Enf. Stds. Apply** ☐	u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	**Gov. Lot Number** ____ STS Consultants Ltd.

X0

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation 1207.04 ft. MSL

C. Land surface elevation 1207.3 ft. MSL

D. Surface seal, bottom 1206.3 ft. MSL or 1.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
____ Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☒ 03 None ☐ 99

16. Drilling additives used? ☒ Yes ☐ No
Describe bentonite powder

17. Source of water (attach analysis, if required):
Wausau City water

E. Bentonite seal, top 1116.3 ft. MSL or 90.0 ft.

F. Fine sand, top 1100.3 ft. MSL or 106.0 ft.

G. Filter pack, top 1099.3 ft. MSL or 108.0 ft.

H. Screen joint, top 1096.9 ft. MSL or 110.4 ft.

I. Well bottom 1086.9 ft. MSL or 120.4 ft.

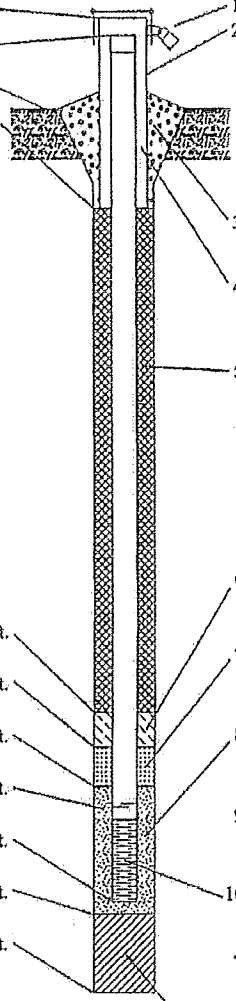
J. Filter pack, bottom 1085.9 ft. MSL or 121.0 ft.

K. Borehole, bottom 1085.9 ft. MSL or 121.0 ft.

L. Borehole, diameter 6.0 in.

M. O.D. well casing 2.25 in.

N. I.D. well casing 1.75 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 04
____ Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☐ 30
Concrete ☒ 01
____ Other ☐

4. Material between well casing and protective pipe:
Bentonite ☐ 30
annular space seal Other ☒

5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. 70 Lbs/gal mud weight . . . Bentonite slurry ☒ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Badger 40/70
b. Volume added 1 ft³

8. Filter pack material: Manufacturer, product name & mesh size
a. Badger 45/55
b. Volume added 5 ft³

9. Well casing: Flush threaded PVC schedule 40 ☐ 23
Flush threaded PVC schedule 80 ☒ 24
____ Other ☐

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11
Continuous slot ☐ 01
____ Other ☐
b. Manufacturer Buffalo
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☐ 14
Badger 45/55 Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	Tel: 715-355-4304
	STS Consultants Ltd. 3909 Concord Avenue Schofield, Wisconsin 54476-6208	Fax: 715-355-4513

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Holtz-Krause Landfill	Marathon	MW-26C

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
02-37-000007	37	PA308	

1. Can this well be purged dry? ☒ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☒	50
other _____	☐	☒

3. Time spent developing well: 57 min.

4. Depth of well (from top of well casing): 120.4 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 18.5 gal.

7. Volume of water removed from well: 170.0 gal.

8. Volume of water added (if any): gal.

9. Source of water added: _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	43.10 ft.	82.00 ft.
Date b.	8/23/2006	8/23/2006
Time c.	11:08 ☐ a.m. ☐ p.m.	12:05 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	inches	inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) high turbidity for 5 minutes - low after 10 minutes	Clear ☐ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
Mark Magee
STS Consultants Ltd.

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: Holtz-Krause

Street: _____

City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: _____

Print Name: Mark Magee

Firm: STS Consultants Ltd.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Holtz-Krause Landfill - 60139813	02-37-000007	MW-27C

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
R. Treml AECOM	7/13/2009	7/15/2009	HSA/RB

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PL619	148	MW-27C	Feet MSL	Feet MSL	6.0 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane N, E S/C/N
1/4 of 1/4 of Section , T N, R
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Marathon	37	Wausau

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 SS	18 13.20 42	2 2 4	0	Topsoil - dark brown silty fine sand (SM) - trace roots - trace fine gravel	Topsoil									
				Brown silty fine to medium sand (SM)	SM									
2 SS	18 18 42	1 6 11	5	Brown fine to coarse sand (SP) - trace fine to coarse gravel										
3 SS	18 1.20 42	6 11 15	10											
4 SS	18 2.40 42	2 6 8	15											
5 SS	18 8.40 42	15 28 25	20											
6 SS	18 8.40 42	10 10 10	25											
7 SS	18 1.20 42	3 10 14	30		SP									
8 SS	18 7.20 42	12 13 16	35											
9 SS	18 10.80 42	10 14 15	40											
10 SS	18 8.40 42	9 11 12	45											
11 SS	18 12 42	7 6 8	50											
12 SS	18 12 42	6 4 5	55 60											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm AECOM	Tel: Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number MW-27C Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
13 SS	18 12 42	16 15 10		Brown fine to coarse sand (SP) - trace fine to coarse gravel *(continued)*										
14 SS	18 14.40 42	8 10 15	65											
15 SS	18 8.40 42	7 10 8	70											
16 SS	18 14.40 42	8 14 10	75											
17 SS	18 18 42	24 35 29	80											
18 SS	18 18 42	9 12 10	85											
19 SS	18 18 42	3 7 8	90											
20 SS	18 18 42	11 13 16	95		SP									
21 SS	18 18 42	14 24 20	100											
22 SS	18 12 42	11 14 21	105											
23 SS	18 8.40 42	25 18 14	110											
24 SS	18 13.20 42	12 13 14	115											
25 SS	18 12 42	7 8 9	120											
26 SS	18 18 42	11 14 17	125											
27 SS	18 18 42	11 14 17	130											
28 SS	18 18 42	32 37 40	135	Brown silty fine to medium sand (SM) - trace weathered rock	SM									
29 SS	0.5 1.20	50/.1	140	End of Boring. Boring advanced from 10.0 feet to 140.5 feet with Roller Bit and Drilling Fluid. Installed 2-inch Schedule 80 PVC monitoring well at 139.7 feet.										

State of Wisconsin
Department of Natural Resources Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 6/04

Facility/Project Name: Holtz Krause	Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name: MW-27C
Facility License, Permit or Monitoring No.: 0D0090709	Grid Origin Location (Check if estimated: ☐) Lat. ° ' " Long. ° ' " or	Wis. Unique Well No. / DNR Well Number
Facility ID: MW-27C	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 7-15-09
Type of Well: Monitoring Well	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____ T. ____ N, R. ____ ☐E ☐W	Well Installed By: (Person's Name and Firm) RANDY T
Distance Well Is From Waste/Source Boundary: ____ ft.	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	John W

A. Protective pipe, top elevation -0.2 ft. MSL
B. Well casing, top elevation ____ ft. MSL
C. Land surface elevation ____ ft. MSL
D. Surface seal, bottom ____ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☐ No

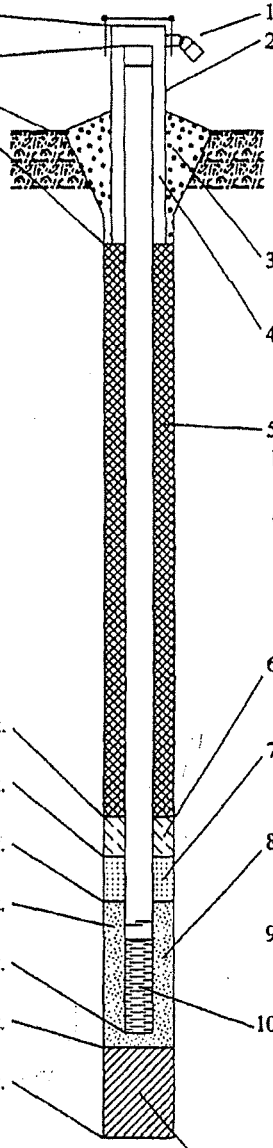
14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☐ 41 ____ Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☐ No
Describe ____

17. Source of water (attach analysis): ____

E. Bentonite seal, top ____ ft. MSL or 10.0 ft.
F. Fine sand, top ____ ft. MSL or 125.6 ft.
G. Filter pack, top ____ ft. MSL or 127.8 ft.
H. Screen joint, top ____ ft. MSL or 129.8 ft.
I. Well bottom ____ ft. MSL or 139.8 ft.
J. Filter pack, bottom ____ ft. MSL or 140.5 ft.
K. Borehole, bottom ____ ft. MSL or 140.5 ft.
L. Borehole, diameter 6" in.
M. O.D. well casing ____ in.
N. I.D. well casing ____ in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 1.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 04 ____ Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____
3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 ____ Other ☐
4. Material between well casing and protective pipe: Bentonite ☒ 30 ____ Other ☐
5. Annular space seal: a. Granular Bentonite ☐ 33
b. ____ Lbs/gal mud weight . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☒ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☒ 02 Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ____ Other ☐
7. Fine sand material: Manufacturer, product name and mesh size
a. ~~#5/55~~ 40/70
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name and mesh size
a. 45/55
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☐ 23 Flush threaded PVC schedule 80 ☒ 24 ____ Other ☐
10. Screen material: ____
a. Screen Type: Factory cut ☒ 11 Continuous slot ☐ 01 ____ Other ☐
b. Manufacturer ____
c. Slot size: ____ in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14 ____ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] Firm: Subsurface Testing Services, Inc. 1035 Kepler Drive, Green Bay, Wisconsin 54311-8320 Tel: 920-468-1978 Fax: 920-468-3312

Please complete both Forms 4400-113A and 4400-113B and return to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 6/04

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Holtz - Krause Landfill	Marathon	MW-27C

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
2-37-000007	37	PL 619	

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☒	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	[illegible]

3. Time spent developing well: 125 min.

4. Depth of well (from top of well casing): 139.8 ft.

5. Inside diameter of well: 1.75 in.

6. Volume of water in filter pack and well casing: 15.5 gal.

7. Volume of water removed from well: 110 gal.

8. Volume of water added (if any): 0 gal.

9. Source of water added: _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	49.70 ft.	69.52 ft.
Date b.	7/20/2009	
Time c.	09:15	11:20
12. Sediment in well bottom	2 inches	0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Lt. gray, high turbidity for 60 gal. Low turbidity then clear after 80 gal.

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
Erik Nielsen, AECOM

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: Holtz - Krause

Street: _____

City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: [signature]

Print Name: ERIK H. NIELSEN

Firm: Subsurface Testing Services, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

BCG 39246

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Holtz-Krause Landfill - 60139813	02-37-000007	MW-28C

Boring Drilled By: Name of crew chief (first,. last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
R. Treml AECOM	7/16/2009	7/20/2009	RB

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PL620	149	MW-28C	Feet MSL	Feet MSL	6.0 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane N, E S/C/N
1/4 of 1/4 of Section , T N, R
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Marathon	37	Wausau

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 SS	18 10.80 42	3 4 3		Topsoil - dark brown silty fine sand (SM) with fine gravel Brown fine to medium sand (SP) - trace fine to coarse gravel - medium dense to dense	Topsoil									
2 SS	18 12 42	3 5 13	5											
3 SS	18 18 42	5 8 11	10											
4 SS	18 18 42	6 12 11	15											
5 SS	18 7.20 42	16 16 31	20											
6 SS	18 12 42	18 20 21	25											
7 SS	18 12 42	11 10 8	30		SP									
8 SS	18 12 42	14 13 12	35											
9 SS	18 12 42	8 11 13	40											
10 SS	18 12 42	9 12 15	45											
11 SS	18 12 42	7 8 11	50											
12 SS	18 12 42	9 10 10	55 60											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	Tel: / Fax:
	AECOM	

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number MW-28C Use only as an attachment to Form 4400-122.

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
13 SS	18 18 42	9 10 10		Brown fine to medium sand (SP) - trace fine to coarse gravel - medium dense to dense *(continued)*										
14 SS	18 18 42	9 12 11	65											
15 SS	18 12 42	4 8 9	70											
16 SS	18 18 42	16 24 22	75											
17 SS	18 12 42	11 11 11	80											
18 SS	18 15.60 42	11 16 21	85											
19 SS	18 18 42	9 11 12	90											
20 SS	18 12 42	11 41 50/.3	95											
21 SS	18 18 42	22 25 16	100											
22 SS	18 18 42	14 21 28	105		SP									
23 SS	18 18 42	12 21 22	110											
24 SS	18 6.00 42	12 22 20	115											
25 SS	18 18 42	17 28 30	120											
26 SS	18 12	21 29 35	125											
			130											
			135											
			140											
			145											
			150	Brown silty fine to medium sand (SM) with fine to coarse gravel	SM									
				End of Boring. Boring advanced from 0.0 feet to 150.0 feet with Roller Bit and Drilling Fluid. Installed 2-inch Schedule 80 PVC monitoring well at 141.0									

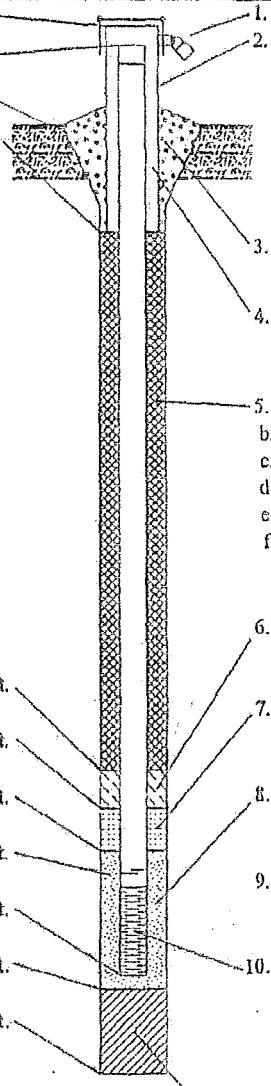
State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 6/04

Facility/Project Name: Holtz Krause	Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name: MW-28C
Facility License, Permit or Monitoring No.: MW-28C	Grid Origin Location (Check if estimated: ☐) Lat. ° ' " Long. ° ' " or	Wis. Unique Well No. / DNR Well Number
Facility ID: MW-28C	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 7-20-09
Type of Well: Monitoring Well	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____ T. ____ N, R. ____ ☐E ☐W	Well Installed By: (Person's Name and Firm) John Wagner
Distance Well Is From Waste/Source Boundary: ____ ft.	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	John Denneau



A. Protective pipe, top elevation 610 ft. MSL

B. Well casing, top elevation 607.8 ft. MSL

C. Land surface elevation ____ ft. MSL

D. Surface seal, bottom ____ ft. MSL or 0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☐ No

14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☐ 41 ____ Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☐ No
Describe ____

17. Source of water (attach analysis): ____

E. Bentonite seal, top ____ ft. MSL or 122.1 ft.

F. Fine sand, top ____ ft. MSL or 127.8 ft.

G. Filter pack, top ____ ft. MSL or 129.10 ft.

H. Screen joint, top ____ ft. MSL or 131.0 ft.

I. Well bottom ____ ft. MSL or 141.0 ft.

J. Filter pack, bottom ____ ft. MSL or 141.0 ft.

K. Borehole, bottom ____ ft. MSL or 151.5 ft.

L. Borehole, diameter 10 in.

M. O.D. well casing ____ in.

N. I.D. well casing ____ in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 6" in.
b. Length: 10 ft.
c. Material: Steel ☒ 04 ____ Other ☐
d. Additional protection? ☐ Yes ☐ No
If yes, describe: ____

3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 ____ Other ☐

4. Material between well casing and protective pipe: Bentonite ☒ 30 ____ Other ☐

5. Annular space seal: a. Granular Bentonite ☐ 33
b. ____ Lbs/gal mud weight . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☒ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft³ volume added for any of the above
f. How installed: Tremie ☒ 01 Tremie pumped ☐ 02 Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
c. ____ Other ☐

7. Fine sand material: Manufacturer, product name and mesh size
a. 40/70 Badger
b. Volume added ____ ft³

8. Filter pack material: Manufacturer, product name and mesh size
a. 45/55 Bader
b. Volume added ____ ft³

9. Well casing: Flush threaded PVC schedule 40 ☐ 23 Flush threaded PVC schedule 80 ☒ 24 ____ Other ☐

10. Screen material: ____
a. Screen Type: Factory cut ☒ 11 Continuous slot ☐ 01 ____ Other ☐
b. Manufacturer ____
c. Slot size: .10 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☐ 14 SAND Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] Firm: Subsurface Testing Services, Inc. 1035 Kepler Drive, Green Bay, Wisconsin 54311-8320 Tel: 920-468-1978 Fax: 920-468-3312

Please complete both Forms 4400-113A and 4400-113B and return to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

RCG 99248

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 6/04

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Holtz - Krause Landfill	Marathon	MW-28 C

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
2-37-000007	37	PL 619	

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☒	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	

3. Time spent developing well: 150 min.

4. Depth of well (from top of well casing): 141.0 ft.

5. Inside diameter of well: 1.75 in.

6. Volume of water in filter pack and well casing: 13.9 gal.

7. Volume of water removed from well: 120 gal.

8. Volume of water added (if any): 0 gal.

9. Source of water added: _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	49.62 ft.	60.31 ft.
Date b.	7/27/2009	
Time c.	10:15	12:45
12. Sediment in well bottom	2 inches	0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☒ 25 (Describe)
	High turbidity for 40 gal.	Low turbidity at 120 gallons; Light yellowish brown.

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: Holtz - Krause Landfill

Street: _____

City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: EJN

Print Name: Erik J Nielsen

Firm: Subsurface Testing Services, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

BCG-39246

Appendix C

Results of Mann Kendall Tests

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.

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Site Name : Holtz and Krause Landfill				BRRTS No. =		Well Number = MW-8C	
	Compound ->	Benzene					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1-Nov-89	13.00					
2	1-Jun-90	9.00					
3	12-Jul-94	6.30					
4	9-Dec-96	6.00					
5	14-Dec-98	4.82					
6	4-Dec-00	7.90					
7	11-Dec-02	6.81					
8	8-Dec-04	6.40					
9	11-Dec-06	6.17					
10	30-Dec-09	7.63					
	Mann Kendall Statistic (S) =	-11.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	0	0	0	0	0
	Average =	7.40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	2.283	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.308	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4
	Data Entry By = MMM.		Date = 12-Apr-10		Checked By = MMM		

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : Holtz and Krause Landfill | BRRTS No. = | Well Number = MW-24B

	Compound ->	Benzene					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1-Jun-90	8.00					
2	13-Jul-94	5.90					
3	11-Dec-96	4.76					
4	15-Dec-98	4.32					
5	7-Dec-00	5.16					
6	11-Dec-02	3.95					
7	7-Dec-04	4.01					
8	11-Dec-06	3.42					
9	31-Dec-08	6.25					
10	31-Dec-09	5.60					
	Mann Kendall Statistic (S) =	-13.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	0	0	0	0	0
	Average =	5.14	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	1.361	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.265	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = MMM. | Date = 12-Apr-10 | Checked By = MMM

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : Holtz and Krause Landfill				BRRTS No. =		Well Number = MW-24C	
	Compound ->	Benzene					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1-Jun-90	5.00					
2	13-Jul-94	8.70					
3	11-Dec-96	7.82					
4	15-Dec-98	6.41					
5	7-Dec-00	7.89					
6	11-Dec-02	10.60					
7	7-Dec-04	8.91					
8	11-Dec-06	7.68					
9	31-Dec-08	9.36					
10	31-Dec-09	7.89					
	Mann Kendall Statistic (S) =	14.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	0	0	0	0	0
	Average =	8.03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	1.549	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.193	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	n<4	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	n<4	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4
	Data Entry By = MMM.		Date = 12-Apr-10		Checked By = MMM		

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : Holtz and Krause Landfill				BRRTS No. =		Well Number = MW-24D	
	Compound ->	Benzene	Vinyl Chloride				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	13-Jul-94	2.60	0.44				
2	11-Dec-96	25.30	8.38				
3	15-Dec-98	21.20	4.63				
4	7-Dec-00	14.90	3.17				
5	11-Dec-02	13.00	4.54				
6	7-Dec-04	10.30	5.47				
7	11-Dec-06	6.45	2.34				
8	12-Dec-07	6.34	2.25				
9	2-Jan-09	5.94	3.41				
10	31-Dec-09	5.11	2.21				
	Mann Kendall Statistic (S) =	-27.0	-13.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	11.11	3.68	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	7.464	2.205	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.672	0.599	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	**DECREASING**	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4
	Data Entry By = MMM.		Date = 12-Apr-10		Checked By = MMM		

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name : Holtz and Krause Landfill | BRRTS No. = | Well Number = MW-25C

	Compound ->	Benzene	Vinyl Chloride	THF			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	11-Dec-06	10.40	0.22	79.00			
2	19-Mar-07	11.00	0.24	77.00			
3	19-Jun-07	9.81	0.27	67.10			
4	20-Sep-07	11.20	0.38	73.80			
5	12-Dec-07	12.80	0.31	76.00			
6	25-Jun-08	8.44	0.10	54.70			
7	2-Jan-09	12.20	0.60	75.50			
8	22-Jun-09	9.13	0.65	56.60			
9	29-Dec-09	9.38	0.66	58.50			
10							
	Mann Kendall Statistic (S) =	-4.0	24.0	-18.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	9	9	0	0	0
	Average =	10.48	0.38	68.69	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	1.448	0.206	9.679	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.138	0.541	0.141	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	INCREASING	**DECREASING**	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	INCREASING	**DECREASING**	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		**CV <= 1 STABLE**	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = MMM. | Date = 12-Apr-10 | Checked By = MMM

Appendix D

Historical Groundwater Monitoring Data from Selected Monitoring Wells

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
34030	Benzene	Benzene (GC-MS)	Benzene	13				112	MW-8C	01-Nov-89	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	9				112	MW-8C	01-Jun-90	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	9				112	MW-8C	01-Jun-90	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE (GC-MS)	6.3				112	MW-8C	12-Jul-94	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.6				112	MW-8C	08-Apr-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	5.13	0.08	0.264	0.5	112	MW-8C	24-Jun-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	5.82	0.08	0.264	0.5	112	MW-8C	09-Sep-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6	0.08	0.27	0.5	112	MW-8C	09-Dec-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.75	0.08	0.267	0.5	112	MW-8C	25-Mar-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	5.59	0.2	0.67	0.5	112	MW-8C	16-Jun-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	3.45	0.2	0.67	0.5	112	MW-8C	02-Sep-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	3.45	0.2	0.67	0.5	112	MW-8C	02-Sep-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.72	0.20	0.67	0.50	112	MW-8C	01-Dec-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.93	0.20	0.67	0.50	112	MW-8C	01-Dec-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.58	0.20	0.67	0.50	112	MW-8C	04-Mar-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.1	0.20	0.67	0.50	112	MW-8C	01-Sep-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.35	0.20	0.67	0.50	112	MW-8C	01-Sep-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.82	0.20	0.67	0.50	112	MW-8C	14-Dec-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.79	0.20	0.67	0.50	112	MW-8C	14-Dec-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	8.45	0.20	0.67	0.2	112	MW-8C	01-Mar-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	7.63	0.20	0.67	0.2	112	MW-8C	01-Mar-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	8.00	0.150	0.500	0.200	112	MW-8C	14-Jun-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	8.52	0.150	0.500	0.200	112	MW-8C	14-Jun-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	6.52	0.15	0.50	0.15	112	MW-8C	07-Dec-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	7.70	0.15	0.50	0.15	112	MW-8C	07-Dec-99	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	7.71	0.15	0.5	0.15	112	MW-8C	08-Jun-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	8.05	0.15	0.5	0.15	112	DUP-4	08-Jun-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	7.88	0.15	0.5	0.15	112	MW-8C	04-Dec-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	7.90	0.15	0.5	0.15	112	DUP-1	04-Dec-00	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.11	0.16	0.53	0.16	112	MW-8C	14-Jun-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	7.71	0.16	0.53	0.16	112	DUP-4	14-Jun-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.95	0.16	0.53	0.16	112	MW8C	05-Dec-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	9.1	0.16	0.53	0.16	112	DUP3	05-Dec-01	UG/L	5	0.5

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
34030	Benzene	Benzene (GC-MS)	Benzene	8.41	0.31	1.03	0.31	112	MW8C	06-Jun-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	9.17	0.31	1.03	0.31	112	DUP3	06-Jun-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.81	0.31	1.03	0.31	112	MW8C	11-Dec-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.54	0.31	1.03	0.31	112	MW8C	26-Jun-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.29	0.31	1.03	0.31	112	DUP3	26-Jun-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	7.49	0.31	1.03	0.31	112	MW8C	09-Dec-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.45	0.31	1.03		112	MW8C	23-Jun-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.17	0.31	1.03		112	MW8C	23-Jun-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.4	0.31	1.03		112	MW8C	08-Dec-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.85	0.31	1.03		112	MW8C	22-Jun-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.49	0.31	1.03		112	DUP2	22-Jun-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	1.77	0.31	1.03		112	MW8C	22-Dec-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	7.08	0.31	1		112	MW-8C	27-Jun-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.17	0.15	0.5		112	MW-8C	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.87	0.2	0.67		112	MW-8C	18-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	9.41	0.2	0.67		112	MW-8C	13-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	8.64	0.2	0.67		112	MW-8C	23-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	8.92	0.2	0.67		112	MW-8C	23-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	9.42	0.2	0.67		112	MW-8C	31-Dec-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8				140	MW-24B	01-Jun-90	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE (GC-MS)	5.9				140	MW-24B	13-Jul-94	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	5				140	MW-24B	10-Apr-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.29	0.08	0.264	0.5	140	MW-24B	25-Jun-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.24	0.08	0.264	0.5	140	MW-24B	10-Sep-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.76	0.08	0.27	0.5	140	MW-24B	11-Dec-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	3.93	0.08	0.267	0.5	140	MW-24B	25-Mar-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.06	0.2	0.67	0.5	140	MW-24B	18-Jun-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	2.9	0.2	0.67	0.5	140	MW-24B	03-Sep-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	3.81	0.20	0.67	0.50	140	MW-24B	02-Dec-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.55	0.20	0.67	0.50	140	MW-24B	04-Mar-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	5.22	0.20	0.67	0.50	140	MW-24B	02-Sep-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.32	0.20	0.67	0.50	140	MW-24B	15-Dec-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	4.59	0.20	0.67	0.2	140	MW-24B	03-Mar-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	4.73	0.150	0.500	0.200	140	MW-24B	16-Jun-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	4.56	0.15	0.50	0.15	140	MW-24B	09-Sep-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	4.79	0.15	0.50	0.15	140	MW-24B	08-Dec-99	UG/L	5	0.5

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78124	Benzene	Benzene	Benzene	5.73	0.15	0.5	0.15	140	MW-24B	06-Mar-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	5.37	0.15	0.5	0.15	140	MW-24B	07-Jun-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	5.16	0.15	0.5	0.15	140	MW-24B	07-Dec-00	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.62	0.16	0.53	0.16	140	MW-24B	13-Jun-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.21	0.16	0.53	0.16	140	MW24B	05-Dec-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.71	0.31	1.03	0.31	140	MW24B	04-Jun-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	3.95	0.31	1.03	0.31	140	MW24B	11-Dec-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.1	0.31	1.03	0.31	140	MW24B	25-Jun-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.87	0.31	1.03	0.31	140	MW24B	09-Dec-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	3.61	0.31	1.03		140	MW24B	23-Jun-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.01	0.31	1.03		140	MW24B	07-Dec-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	4.16	0.31	1.03		140	MW24B	23-Jun-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	0.646	0.31	1.03		140	MW24B	22-Dec-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.99	0.3	1		140	MW-24B	28-Jun-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.42	0.15	0.5		140	MW-24B	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	2.95	0.2	0.67		140	MW-24B	19-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.66	0.2	0.67		140	MW-24B	13-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	4.09	0.2	0.67		140	MW-24B	24-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.25	0.2	0.67		140	MW-24B	31-Dec-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	5				141	MW-24C	01-Jun-90	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE (GC-MS)	8.7				141	MW-24C	13-Jul-94	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	9.2				141	MW-24C	10-Apr-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	10.5	0.08	0.264	0.5	141	MW-24C	25-Jun-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	9.92	0.08	0.264	0.5	141	MW-24C	10-Sep-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	7.82	0.08	0.27	0.5	141	MW-24C	11-Dec-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	7.14	0.08	0.27	0.5	141	MW-24C	11-Dec-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.84	0.08	0.267	0.5	141	MW-24C	25-Mar-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.42	0.2	0.67	0.5	141	MW-24C	29-Jul-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	7.79	0.2	0.67	0.5	141	MW-24C	03-Sep-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	7.71	0.20	0.67	0.50	141	MW-24C	02-Dec-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.96	0.20	0.67	0.50	141	MW-24C	09-Mar-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.67	0.20	0.67	0.50	141	MW-24C	02-Sep-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.41	0.20	0.67	0.50	141	MW-24C	15-Dec-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	6.95	0.20	0.67	0.2	141	MW-24C	03-Mar-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	6.69	0.150	0.500	0.200	141	MW-24C	16-Jun-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	4.64	0.15	0.50	0.15	141	MW-24C	09-Sep-99	UG/L	5	0.5

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78124	Benzene	Benzene	BENZENE IN WATER	7.05	0.15	0.50	0.15	141	MW-24C	08-Dec-99	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	9.30	0.15	0.5	0.15	141	MW-24C	06-Mar-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	7.81	0.15	0.5	0.15	141	MW-24C	07-Jun-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	7.89	0.15	0.5	0.15	141	MW-24C	07-Dec-00	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.1	0.16	0.53	0.16	141	MW-24C	13-Jun-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.85	0.16	0.53	0.16	141	DUP-3	13-Jun-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.3	0.16	0.53	0.16	141	MW24C	05-Dec-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.3	0.31	1.03	0.31	141	MW24C	04-Jun-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.6	0.31	1.03	0.31	141	MW24C	11-Dec-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.1	0.31	1.03	0.31	141	MW24C	25-Jun-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.1	0.31	1.03	0.31	141	DUP2	25-Jun-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	11.1	0.31	1.03	0.31	141	MW24C	09-Dec-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	7.23	0.31	1.03		141	MW24C	23-Jun-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.29	0.31	1.03		141	MW24C	23-Jun-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.91	0.31	1.03		141	MW24C	07-Dec-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.91	0.31	1.03		141	MW24C	23-Jun-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.81	0.31	1.03		141	MW24C	22-Dec-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	7.11	0.3	1		141	MW-24C	28-Jun-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	7.68	0.15	0.5		141	MW-24C	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	7.58	0.15	0.5		141	MW-24C	19-Mar-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.99	0.2	0.67		141	MW-24C	19-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	7.48	0.2	0.67		141	MW-24C	20-Sep-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	8.6	0.2	0.67		141	MW-24C	13-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	8.71	0.2	0.67		141	MW-24C	24-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	9.36	0.2	0.67		141	MW-24C	31-Dec-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE (GC-MS)	2.6				142	MW-24D	13-Jul-94	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	62				142	MW-24D	10-Apr-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	25.5	0.08	0.264	0.5	142	MW-24D	25-Jun-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	24.7	0.08	0.264	0.5	142	MW-24D	10-Sep-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	25.8	0.08	0.264	0.5	142	MW-24D	10-Sep-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	25.3	0.08	0.27	0.5	142	MW-24D	11-Dec-96	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	25.5	0.08	0.267	0.5	142	MW-24D	25-Mar-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	22.4	0.2	0.67	0.5	142	MW-24D	18-Jun-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	23.2	0.2	0.67	0.5	142	MW-24D	18-Jun-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	25	0.2	0.67	0.5	142	MW-24D	03-Sep-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	18.4	0.2	0.67	0.5	142	MW-24D	03-Sep-97	UG/L	5	0.5

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
78124	Benzene	Benzene	BENZENE IN WTR	26.3	0.20	0.67	0.50	142	MW-24D	02-Dec-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	27.5	0.20	0.67	0.50	142	MW-24D	02-Dec-97	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	22.8	0.20	0.67	0.50	142	MW-24D	04-Mar-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	20.7	0.20	0.67	0.50	142	MW-24D	04-Mar-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	24.1	0.20	0.67	0.50	142	MW-24D	03-Sep-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	23.1	0.20	0.67	0.50	142	MW-24D	03-Sep-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	21.2	0.20	0.67	0.50	142	MW-24D	15-Dec-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	20.0	0.20	0.67	0.50	142	MW-24D	15-Dec-98	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	21.1	0.20	0.67	0.2	142	MW-24D	03-Mar-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WTR	20.1	0.20	0.67	0.2	142	MW-24D	03-Mar-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	20.9	0.150	0.500	0.200	142	MW-24D	16-Jun-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	21.2	0.150	0.500	0.200	142	MW-24D	16-Jun-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	21.0	0.15	0.50	0.15	142	MW-24D	09-Sep-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	19.6	0.15	0.50	0.15	142	MW-24D	09-Sep-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	19.1	0.15	0.50	0.15	142	MW-24D	08-Dec-99	UG/L	5	0.5
78124	Benzene	Benzene	BENZENE IN WATER	20.0	0.15	0.50	0.15	142	MW-24D	08-Dec-99	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	16.3	0.15	0.5	0.15	142	MW-24D	06-Mar-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	15.3	0.15	0.5	0.15	142	DUP-1	06-Mar-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	14.2	0.15	0.5	0.15	142	MW-24D	07-Jun-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	14.9	0.15	0.5	0.15	142	DUP-3	07-Jun-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	14.6	0.15	0.5	0.15	142	MW-24D	07-Dec-00	UG/L	5	0.5
78124	Benzene	Benzene	Benzene	14.9	0.15	0.5	0.15	142	DUP-2	07-Dec-00	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	14.7	0.16	0.53	0.16	142	MW-24D	13-Jun-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	13.2	0.16	0.53	0.16	142	MW24D	05-Dec-01	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	15	0.31	1.03	0.31	142	MW24D	04-Jun-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	13	0.31	1.03	0.31	142	MW24D	11-Dec-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	12.8	0.31	1.03	0.31	142	DUP2	11-Dec-02	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	11.2	0.31	1.03	0.31	142	MW24D	25-Jun-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	13.1	0.31	1.03	0.31	142	MW24D	09-Dec-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	12	0.31	1.03	0.31	142	DUP2	09-Dec-03	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	9.25	0.31	1.03		142	MW24D	23-Jun-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.2	0.31	1.03		142	MW24D	07-Dec-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	10.3	0.31	1.03		142	DUP1	07-Dec-04	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	8.94	0.31	1.03		142	MW24D	23-Jun-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	9.03	0.31	1.03		142	DUP3	23-Jun-05	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	Benzene	6.1	0.31	1.03		142	MW24D	22-Dec-05	UG/L	5	0.5

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	5.76	0.3	1		142	MW-24D	28-Jun-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.45	0.15	0.5		142	MW-24D	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	5.94	0.15	0.5		142	MW-24D	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	5.56	0.15	0.5		142	MW-24D	19-Mar-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	5.96	0.2	0.67		142	MW-24D	19-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	5.89	0.2	0.67		142	MW-24D	20-Sep-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.34	0.2	0.67		142	MW-24D	13-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.2	0.2	0.67		142	MW-24D	24-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	6.29	0.2	0.67		142	MW-24D	31-Dec-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	10.4	0.15	0.5		146	MW-25C	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	11	0.15	0.5		146	MW-25C	19-Mar-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	10.6	0.15	0.5		146	MW-25C	19-Mar-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	9.81	0.2	0.67		146	MW-25C	19-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	11.2	0.2	0.67		146	MW-25C	20-Sep-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	12.8	0.2	0.67		146	MW-25C	12-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	12.7	0.2	0.67		146	MW-25C	12-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	8.44	0.2	0.67		146	MW-25C	25-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	12.2	0.2	0.67		146	MW-25C	02-Jan-09	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	12.1	0.2	0.67		146	MW-25C	02-Jan-09	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	5.92	0.15	0.5		147	MW-26C	11-Dec-06	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	4.66	0.15	0.5		147	MW-26C	19-Mar-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	4.37	0.2	0.67		147	MW-26C	19-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	4.88	0.2	0.67		147	MW-26C	19-Jun-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.97	0.2	0.67		147	MW-26C	20-Sep-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.85	0.2	0.67		147	MW-26C	20-Sep-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.79	0.2	0.67		147	MW-26C	13-Dec-07	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	2.57	0.2	0.67		147	MW-26C	25-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	2.65	0.2	0.67		147	MW-26C	25-Jun-08	UG/L	5	0.5
34030	Benzene	Benzene (GC-MS)	BENZENE IN WATER	3.19	0.2	0.67		147	MW-26C	02-Jan-09	UG/L	5	0.5
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I		2.53	8.42		112	MW-8C	27-Jun-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	18.2	0.7	2.3		112	MW-8C	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	11.5	0.7	2.3		112	MW-8C	18-Jun-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	13.8	1	3.33		112	MW-8C	13-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	14.5	1	3.33		112	MW-8C	23-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	13.4	1	3.33		112	MW-8C	23-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	13.8	1	3.33		112	MW-8C	31-Dec-08	UG/L	50	10

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	12.9	2.5	8.4		140	MW-24B	28-Jun-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	24.8	0.7	2.3		140	MW-24B	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	16	0.7	2.3		140	MW-24B	19-Jun-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	25.5	1	3.33		140	MW-24B	13-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	33.9	1	3.33		140	MW-24B	24-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	21.4	1	3.33		140	MW-24B	31-Dec-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	128	2.5	8.4		141	MW-24C	28-Jun-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	113	0.7	2.3		141	MW-24C	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	95.7	0.7	2.3		141	MW-24C	19-Mar-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	75.9	0.7	2.3		141	MW-24C	19-Jun-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	69.2	1	3.33		141	MW-24C	20-Sep-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	56.4	1	3.33		141	MW-24C	13-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	56.8	1	3.33		141	MW-24C	24-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	49	1	3.33		141	MW-24C	31-Dec-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I		2.53	8.4		142	MW-24D	28-Jun-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	41.2	0.7	2.3		142	MW-24D	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	39.2	0.7	2.3		142	MW-24D	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	34.4	0.7	2.3		142	MW-24D	19-Mar-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	26.5	0.7	2.3		142	MW-24D	19-Jun-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	28.6	1	3.33		142	MW-24D	20-Sep-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	27	1	3.33		142	MW-24D	13-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	31.3	1	3.33		142	MW-24D	24-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	40.3	1	3.33		142	MW-24D	31-Dec-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	79	0.7	2.3		146	MW-25C	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	73.5	0.7	2.3		146	MW-25C	19-Mar-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	77	0.7	2.3		146	MW-25C	19-Mar-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	67.1	1	3.33		146	MW-25C	19-Jun-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	73.8	1	3.33		146	MW-25C	20-Sep-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	76	1	3.33		146	MW-25C	12-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	72	1	3.33		146	MW-25C	12-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	54.7	1	3.33		146	MW-25C	25-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	74.7	1	3.33		146	MW-25C	02-Jan-09	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	75.5	1	3.33		146	MW-25C	02-Jan-09	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	69.3	0.7	2.3		147	MW-26C	11-Dec-06	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	60.1	0.7	2.3		147	MW-26C	19-Mar-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	63.7	1	3.33		147	MW-26C	19-Jun-07	UG/L	50	10

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	75.8	0.7	2.3		147	MW-26C	19-Jun-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	67.5	1	3.33		147	MW-26C	20-Sep-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	61.9	1	3.33		147	MW-26C	20-Sep-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	65.9	1	3.33		147	MW-26C	13-Dec-07	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	53.7	1	3.33		147	MW-26C	25-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	57.3	1	3.33		147	MW-26C	25-Jun-08	UG/L	50	10
81607	Tetrahydrofuran	Tetrahydrofuran	TETRAHYDROFURAN I	67.4	1	3.33		147	MW-26C	02-Jan-09	UG/L	50	10
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		10		10	112	MW-8C	01-Nov-89	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		10		10	112	MW-8C	01-Jun-90	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		10		10	112	MW-8C	01-Jun-90	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE	0.91				112	MW-8C	12-Jul-94	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE				0.11	112	MW-8C	08-Apr-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.5	0.14	0.46	0.2	112	MW-8C	24-Jun-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.46	0.2	112	MW-8C	09-Sep-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.47	0.2	112	MW-8C	09-Dec-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.467	0.2	112	MW-8C	25-Mar-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	1.65	0.2	0.67	0.2	112	MW-8C	16-Jun-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.2	0.67	0.2	112	MW-8C	02-Sep-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.2	0.67	0.2	112	MW-8C	02-Sep-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.217	0.20	0.67	0.20	112	MW-8C	01-Dec-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.227	0.20	0.67	0.20	112	MW-8C	01-Dec-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.15	0.50	0.20	112	MW-8C	04-Mar-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.404	0.15	0.50	0.20	112	MW-8C	01-Sep-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.358	0.15	0.50	0.20	112	MW-8C	01-Sep-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.302	0.15	0.50	0.20	112	MW-8C	14-Dec-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.283	0.15	0.50	0.20	112	MW-8C	14-Dec-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.768	0.15	0.50	0.15	112	MW-8C	01-Mar-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.703	0.15	0.50	0.15	112	MW-8C	01-Mar-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.447	0.110	0.367	0.150	112	MW-8C	14-Jun-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.470	0.110	0.367	0.150	112	MW-8C	14-Jun-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.354	0.11	0.37	0.11	112	MW-8C	07-Dec-99	UG/L	0.2	0.02

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.335	0.11	0.37	0.11	112	MW-8C	07-Dec-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.11	0.37	0.11	112	MW-8C	08-Jun-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.11	0.37	0.11	112	DUP-4	08-Jun-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.118	0.11	0.37	0.11	112	MW-8C	04-Dec-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.167	0.11	0.37	0.11	112	DUP-1	04-Dec-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.39	1.3	0.39	112	MW-8C	14-Jun-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.39	1.3	0.39	112	DUP-4	14-Jun-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.3	1	0.3	112	MW8C	05-Dec-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.3	1	0.3	112	DUP3	05-Dec-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	112	MW8C	06-Jun-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	112	DUP3	06-Jun-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	112	MW8C	11-Dec-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	1.01	0.2	0.67	0.2	112	MW8C	26-Jun-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.486	0.2	0.67	0.2	112	DUP3	26-Jun-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.201	0.2	0.67	0.2	112	MW8C	09-Dec-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		112	MW8C	23-Jun-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	1.21	0.2	0.67		112	MW8C	23-Jun-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.933	0.2	0.67		112	MW8C	08-Dec-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		112	MW8C	22-Jun-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		112	DUP2	22-Jun-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		112	MW8C	22-Dec-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	1		112	MW-8C	27-Jun-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.15	0.5		112	MW-8C	11-Dec-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		112	MW-8C	18-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		112	MW-8C	13-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		112	MW-8C	23-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		112	MW-8C	23-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.31	0.2	0.67		112	MW-8C	31-Dec-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		10		10	140	MW-24B	01-Jun-90	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE	0.72				140	MW-24B	13-Jul-94	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE				0.11	140	MW-24B	10-Apr-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.4	0.14	0.46	0.2	140	MW-24B	25-Jun-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.46	0.2	140	MW-24B	10-Sep-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.47	0.2	140	MW-24B	11-Dec-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.467	0.2	140	MW-24B	25-Mar-97	UG/L	0.2	0.02

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.2	1.4	0.2	140	MW-24B	18-Jun-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.2	0.67	0.2	140	MW-24B	03-Sep-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.20	0.67	0.20	140	MW-24B	02-Dec-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.15	0.50	0.20	140	MW-24B	04-Mar-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.418	0.15	0.50	0.20	140	MW-24B	02-Sep-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.263	0.15	0.50	0.20	140	MW-24B	15-Dec-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.317	0.15	0.50	0.15	140	MW-24B	03-Mar-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.220	0.110	0.367	0.150	140	MW-24B	16-Jun-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.120	0.11	0.37	0.11	140	MW-24B	09-Sep-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.205	0.11	0.37	0.11	140	MW-24B	08-Dec-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.527	0.11	0.37	0.11	140	MW-24B	06-Mar-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.294	0.11	0.37	0.11	140	MW-24B	07-Jun-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.158	0.11	0.37	0.11	140	MW-24B	07-Dec-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.39	1.3	0.39	140	MW-24B	13-Jun-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.3	1	0.3	140	MW24B	05-Dec-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.477	0.2	0.67	0.2	140	MW24B	04-Jun-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.277	0.2	0.67	0.2	140	MW24B	11-Dec-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.219	0.2	0.67	0.2	140	MW24B	25-Jun-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	140	MW24B	09-Dec-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.731	0.2	0.67		140	MW24B	23-Jun-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.573	0.2	0.67		140	MW24B	07-Dec-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.267	0.2	0.67		140	MW24B	23-Jun-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		140	MW24B	22-Dec-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	1		140	MW-24B	28-Jun-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.15	0.5		140	MW-24B	11-Dec-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		140	MW-24B	19-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		140	MW-24B	13-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		140	MW-24B	24-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		140	MW-24B	31-Dec-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		10		10	141	MW-24C	01-Jun-90	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE				0.2	141	MW-24C	13-Jul-94	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE				0.11	141	MW-24C	10-Apr-96	UG/L	0.2	0.02

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.6	0.14	0.46	0.2	141	MW-24C	25-Jun-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.46	0.2	141	MW-24C	10-Sep-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.47	0.2	141	MW-24C	11-Dec-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.47	0.2	141	MW-24C	11-Dec-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.14	0.467	0.2	141	MW-24C	25-Mar-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.2	1.4	0.2	141	MW-24C	29-Jul-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.2	0.67	0.2	141	MW-24C	03-Sep-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.20	0.67	0.20	141	MW-24C	02-Dec-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.323	0.15	0.50	0.20	141	MW-24C	04-Mar-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.411	0.15	0.50	0.20	141	MW-24C	02-Sep-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL		0.15	0.50	0.20	141	MW-24C	15-Dec-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	0.543	0.15	0.50	0.15	141	MW-24C	03-Mar-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.219	0.110	0.367	0.150	141	MW-24C	16-Jun-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.11	0.37	0.11	141	MW-24C	09-Sep-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.223	0.11	0.37	0.11	141	MW-24C	08-Dec-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.518	0.11	0.37	0.11	141	MW-24C	06-Mar-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.243	0.11	0.37	0.11	141	MW-24C	07-Jun-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.130	0.11	0.37	0.11	141	MW-24C	07-Dec-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.39	1.3	0.39	141	MW-24C	13-Jun-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.39	1.3	0.39	141	DUP-3	13-Jun-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.3	1	0.3	141	MW24C	05-Dec-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	141	MW24C	04-Jun-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	141	MW24C	11-Dec-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.452	0.2	0.67	0.2	141	MW24C	25-Jun-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.508	0.2	0.67	0.2	141	DUP2	25-Jun-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67	0.2	141	MW24C	09-Dec-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		141	MW24C	23-Jun-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	0.87	0.2	0.67		141	MW24C	23-Jun-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		141	MW24C	07-Dec-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		141	MW24C	23-Jun-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride		0.2	0.67		141	MW24C	22-Dec-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	1		141	MW-24C	28-Jun-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.15	0.5		141	MW-24C	11-Dec-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.15	0.5		141	MW-24C	19-Mar-07	UG/L	0.2	0.02

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		141	MW-24C	19-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		141	MW-24C	20-Sep-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		141	MW-24C	13-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		141	MW-24C	24-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		141	MW-24C	31-Dec-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE	0.44				142	MW-24D	13-Jul-94	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE	3.8				142	MW-24D	10-Apr-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.38	0.14	0.46	0.2	142	MW-24D	25-Jun-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.4	0.14	0.46	0.2	142	MW-24D	10-Sep-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.57	0.14	0.46	0.2	142	MW-24D	10-Sep-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	8.38	0.14	0.47	0.2	142	MW-24D	11-Dec-96	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	11.2	0.14	0.467	0.2	142	MW-24D	25-Mar-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.8	0.2	1.4	0.2	142	MW-24D	18-Jun-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	6.96	0.2	1.4	0.2	142	MW-24D	18-Jun-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.16	0.2	0.67	0.2	142	MW-24D	03-Sep-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	4.8	0.2	0.67	0.2	142	MW-24D	03-Sep-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.07	0.20	0.67	0.20	142	MW-24D	02-Dec-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.62	0.20	0.67	0.20	142	MW-24D	02-Dec-97	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.26	0.15	0.50	0.20	142	MW-24D	04-Mar-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	4.08	0.15	0.50	0.20	142	MW-24D	04-Mar-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	6.49	0.15	0.50	0.20	142	MW-24D	03-Sep-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	6.42	0.15	0.50	0.20	142	MW-24D	03-Sep-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	4.63	0.15	0.50	0.20	142	MW-24D	15-Dec-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	4.21	0.15	0.50	0.20	142	MW-24D	15-Dec-98	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.37	0.15	0.50	0.15	142	MW-24D	03-Mar-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VIN CLD WHL SMPL	5.20	0.15	0.50	0.15	142	MW-24D	03-Mar-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	4.72	0.110	0.367	0.150	142	MW-24D	16-Jun-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	4.06	0.110	0.367	0.150	142	MW-24D	16-Jun-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	3.74	0.11	0.37	0.11	142	MW-24D	09-Sep-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	3.48	0.11	0.37	0.11	142	MW-24D	09-Sep-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	4.03	0.11	0.37	0.11	142	MW-24D	08-Dec-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	4.42	0.11	0.37	0.11	142	MW-24D	08-Dec-99	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	4.43	0.11	0.37	0.11	142	MW-24D	06-Mar-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	4.43	0.11	0.37	0.11	142	DUP-1	06-Mar-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.53	0.11	0.37	0.11	142	MW-24D	07-Jun-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.48	0.11	0.37	0.11	142	DUP-3	07-Jun-00	UG/L	0.2	0.02

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.03	0.11	0.37	0.11	142	MW-24D	07-Dec-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.17	0.11	0.37	0.11	142	DUP-2	07-Dec-00	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	8.45	0.39	1.3	0.39	142	MW-24D	13-Jun-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	4.72	0.3	1	0.3	142	MW24D	05-Dec-01	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	5.36	0.2	0.67	0.2	142	MW24D	04-Jun-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	4.44	0.2	0.67	0.2	142	MW24D	11-Dec-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	4.54	0.2	0.67	0.2	142	DUP2	11-Dec-02	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.58	0.2	0.67	0.2	142	MW24D	25-Jun-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.94	0.2	0.67	0.2	142	MW24D	09-Dec-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	3.66	0.2	0.67	0.2	142	DUP2	09-Dec-03	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	4.85	0.2	0.67		142	MW24D	23-Jun-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	5.39	0.2	0.67		142	MW24D	07-Dec-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	5.47	0.2	0.67		142	DUP1	07-Dec-04	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	6.06	0.2	0.67		142	MW24D	23-Jun-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	6.78	0.2	0.67		142	DUP3	23-Jun-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride	6.16	0.2	0.67		142	MW24D	22-Dec-05	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	5.14	0.2	1		142	MW-24D	28-Jun-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.34	0.15	0.5		142	MW-24D	11-Dec-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.01	0.15	0.5		142	MW-24D	11-Dec-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.22	0.15	0.5		142	MW-24D	19-Mar-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.27	0.2	0.67		142	MW-24D	19-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.3	0.2	0.67		142	MW-24D	20-Sep-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.25	0.2	0.67		142	MW-24D	13-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	2.42	0.2	0.67		142	MW-24D	24-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	3.41	0.2	0.67		142	MW-24D	31-Dec-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.22	0.15	0.5		146	MW-25C	11-Dec-06	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.24	0.15	0.5		146	MW-25C	19-Mar-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.2	0.15	0.5		146	MW-25C	19-Mar-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.27	0.2	0.67		146	MW-25C	19-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.38	0.2	0.67		146	MW-25C	20-Sep-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.29	0.2	0.67		146	MW-25C	12-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.31	0.2	0.67		146	MW-25C	12-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		146	MW-25C	25-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.6	0.2	0.67		146	MW-25C	02-Jan-09	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.6	0.2	0.67		146	MW-25C	02-Jan-09	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN	0.15	0.15	0.5		147	MW-26C	11-Dec-06	UG/L	0.2	0.02

NAL_COD	STS Name Sort	STS Name	ANALYTE	RESULT	LOD	LOQ	RL	DNR_PNT_ID	WELL_ID	S_DATE	Units	NR140 ES	NR140 PAL
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.15	0.5		147	MW-26C	19-Mar-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	19-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	19-Jun-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	20-Sep-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	20-Sep-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	13-Dec-07	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	25-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	25-Jun-08	UG/L	0.2	0.02
39175	Vinyl Chloride	Vinyl Chloride	VINYL CHLORIDE IN		0.2	0.67		147	MW-26C	02-Jan-09	UG/L	0.2	0.02