Five-Year Review Report

For the

Haviland Complex Superfund Site

Town of Hyde Park

Dutchess County, New York

September 2007

PREPARED BY:
U.S. Environmental Protection Agency
Region 2
New York, New York

Executive Summary

This is the second five-year review for the Haviland Complex Superfund Site. The site is located in the Town/Village of Hyde Park, Dutchess County, New York. The site remedy was found to function as intended by the decision documents protecting public health and the environment.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Haviland Complex Superfund Site		
EPA ID *(from WasteLAN)*: NYD980785661		
Region: 2	**State: NY**	**City/County: Hyde Park; Dutchess Co.**

SITE STATUS	
NPL status: 0 Final G Deleted G Other (specify)	
Remediation status (choose all that apply): G Under Construction G Operating 0 Complete	
Multiple OUs?* 0 YES G NO	**Construction completion date:**
Are site related properties currently in use? 0 YES ALL G YES SOME G NO NONE G N/A GW	

REVIEW STATUS	
Lead agency: 0 EPA G State G Tribe G Other Federal Agency _____	
Author name: Kevin Willis	
Author title: Project Manager	**Author affiliation:** USEPA
Review period:** 9 / 30 / 2002 to 7 / 30 / 2007	
Date(s) of site inspection: 6 / 14 / 2007	
Type of review: G Post-SARA **Statutory** 0 Pre-SARA or post-SARA **Policy** G NPL-Removal only G Non-NPL Remedial Action Site G Regional Discretion	
Review number: G 1 (first) 0 2 (second) G 3 (third) G Other (specify) _____	
Triggering action: G Actual RA Onsite Construction or RA Start at OU #____ G Construction Completion 0 Previous Five-Year Review Report G Other	
Triggering action date *(from WasteLAN)*: 9 / 30 / 2007	
Does the report include recommendation(s) and follow-up action(s)? G yes 0 no **Does the remedy protect the environment?** 0 yes G no G not yet determined	
Acres in use or suitable for reuse: **restricted:** 0 acres **unrestricted:** 275 acres	

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues, Recommendations and Follow-up Actions:

This report does not identify any issue or recommend any action at this site needed to protect public health and/or the environment that is not addressed by the remedy selected in the site decision documents as routinely operated, modified, maintained and adjusted over time. The following suggestions concerning operations, maintenance and monitoring are summarized below:

- During the site inspection on June 14, 2007 an old monitoring well, MW-12, was found in the residential area. Since residents are connected to the municipal public supply line, drinking water from the site is not an issue. However, this well should be sampled to determine current VOC concentrations in groundwater under the residential area.

- During the site inspection on June 14, 2007, several of the groundwater monitoring wells could not be located and some that were located were in a state of disrepair (i.e., cap broken on MW-26D). All wells should be located and repaired if necessary. However, if any monitoring well has been compromised and can no longer provide valid results, it should be properly sealed according to state and local requirements.

- Future sampling reports need to compare groundwater sampling results to Federal and State (NYSDEC) MCLs. The last report compared results to Federal and NYSDOH standards.

Protectiveness Statement:

The implemented remedy for the Haviland Complex Superfund Site protects human health and the environment. There are no exposure pathways that could result in unacceptable exposure to site-related contamination.

Other Comments:

None.

Five-Year Review Report

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Five-Year Review Report

I. Introduction

This five-year review was conducted by Kevin Willis, U.S. Environmental Protection Agency (EPA) Remedial Project Manager (RPM). This review was conducted in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of a five-year Review is to ensure that implemented remedies are protective of public health and the environment and that they function as intended by the decision documents. This document will become part of the site file.

This is the second five-year review for the Haviland Complex site. This site was addressed in two phases or operable units. Operable Unit 1 (OU1) addressed contaminated groundwater. OU1 consisted of a no further action remedy with long-term monitoring. Operable Unit 2 (OU2), which addressed and eliminated the source of the groundwater contamination, has been completed. This five-year review examines both operable units.

II. Site Chronology

Table 1, attached, summarizes the site-related events from discovery to the present.

III. Background

Site Location

The site mainly consists of a plume of contaminated groundwater found in the vicinity of a 275-acre area which includes the Haviland Complex Apartments, the Hyde Park Middle School, the Smith School, the Haviland Shopping Center, and approximately 35 residences and small businesses located east of Route 9G in the Village of Hyde Park, New York (Figure 1). The Village of Hyde Park has an estimated population of 21,000 residents. Of these residents, most are served by a public water supply system. A small percentage of the population obtains their water from residential wells. Groundwater in the study area flows southeasterly and discharges into Fall Kill Creek.

Site Characteristics

The site is located within the Village of Hyde Park. The Village is largely residential, with some small businesses in the community. A municipal water system serves the area, as well as a portion of Dutchess County from Poughkeepsie northward to Hyde Park.

Site Geology/Hydrology

The subsurface geology of the area shows glacial deposits overlaying eroded bedrock. The bedrock surface consists of southerly dipping trenches that control the groundwater flow before being influenced by Fall Kill Creek. Bedrock is exposed immediately north of the site and dips downwardly to the south. Outwash/till overlays the bedrock which constitutes the aquifer which individual home water wells utilize in the area.

History of Contamination

The Dutchess County Department of Health (DCDOH) began receiving complaints concerning groundwater quality in the site area in October 1981. A sampling program and septic system survey of the Haviland Complex area was initiated by DCDOH in December 1981. The results indicated that the Haviland Laundromat and Dry Cleaner and the Haviland Car Wash septic systems were not functioning adequately. Consequently, the car wash installed a new septic tank and the laundromat installed a pre-treatment system and a new tile field as corrective measures.

IV. Remedial Actions

Initial Response

In December 1982, New York State Department of Health (NYSDOH) began sampling the Haviland area groundwater for contamination. The sampling data indicated that levels of tetrachloroethylene (PCE) and dichloroethene (DCE) in the septic discharge from the laundromat exceeded standards. As a result, in 1983, the laundromat was ordered to disconnect the dry cleaning operation from the septic system and to dispose of all spent dry cleaning fluids at a pre-approved disposal facility. All residents in the area were notified of the situation and were advised to use bottled water. Water treatment units were installed on wells servicing the Haviland Apartments and the laundromat in 1984 and 1985, respectively, to remove organic contaminants. In February 1989, the New York State Department of Environmental Conservation (NYSDEC) installed individual activated-carbon treatment systems on homes with well water which exceeded drinking water standards.

Remedial Investigation/Feasibility Study

In 1988, EPA retained the services of Ebasco, Inc. to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the site, which was completed in May 1990. In August 1990, EPA submitted the results of the RI/FS to the public in the form of a Proposed Plan, which recommended control of the contamination source, the installation of a groundwater extraction and treatment system, and to install a public water system into the site area; the Proposed Plan also recommended that additional investigation of the groundwater be conducted.

Remedy Selection

Based on the results of the RI/FS, a ROD was signed on September 30, 1987, identifying the following: 1) clean the contaminated septic systems identified as the source of contamination 2) extend public water from the nearby Harbourd Hills Water District to the residents on private wells (EPA would enter into an agreement with the Town of Hyde Park to upgrade this system to meet New York State drinking water standards) and 3) extract and treat contaminated groundwater.

Subsequent to the ROD, there was difficulty in agreeing on the source of the alternate water supply. On several occasions, Town of Hyde Park officials requested that EPA re-evaluate the source of the drinking water supply to be utilized for the drinking water system. In addition, since the signing of the ROD, levels of groundwater contamination had decreased significantly. Residential well sampling data also indicated that levels of contaminants entering impacted residential wells decreased. It was determined that additional sampling and modeling of the groundwater regime was warranted. Consequently, EPA and NYSDEC decided to reevaluate the need for an alternate supply of public water in the area and the need for a groundwater extraction and treatment system.

Subsequently, a Record of Decision Amendment was issued in September 1997 which found that the extraction and treatment of groundwater, and the provision of a public water system did not need to be implemented to ensure the protection of human health and the environment.

Remedial Action Implementation

The septic tanks at the Haviland Complex and the Haviland Middle School were cleaned by EPA in 1991. This action was described in a 1991 Remedial Action Report.

In 1997, EPA issued the Record of Decision Amendment, as described above. In response to requests by local residents made during the public comment period before the ROD Amendment was signed, monitoring wells were installed by EPA in 1998 to observe any changes in the aquifer before the groundwater reached the potable wells. These wells have been sampled by EPA annually since their installation.

In spring 1998, DCDOH acquired the public water portion of Hyde Park Fire and Water District (HPF). It was determined that it would be appropriate to connect the Town of Poughkeepsie public water system to the HPF system. By December 1998, DCDOH decided that the Harbourd Hills Water District would also benefit from connecting into the larger system. The Request for Bids (RFB) to design the water system construction was sent out immediately thereafter and the RFB for the construction was issued in July 2001. Construction of the system began September 2001 and was completed in August 2002.

NYSDEC was informed that the DCDOH would be constructing a public water system into the site area in August 2001 and that all of the homeowners who had NYSDEC-maintained activated-carbon treatment systems had requested that they be connected into

the new public water system. Consequently, NYSDEC decided that it would be cost-effective to provide the connection to the system and remove the carbon units. NYSDEC connected the site-affected homes to the public water system on August 30, 2002.

Institutional Controls Implementation

The 1997 ROD Amendment did not call for the placement of institutional controls. The Region believes that the actions identified in the ROD amendment are adequate to address the current groundwater use as well as the reasonably anticipated future groundwater use. Those actions have been implemented and appear to remain adequate. Furthermore, the DCDOH has extended a county-wide public water system into the site area and all residents have been connected. Local groundwater is no longer used as a potable water supply. In addition, there are extra layers of protection provided by local government. Any well drilling in the area is governed by the Dutchess County Sanitary Code: Article XVI, Sec. 16.4. Also, New York State Sanitary Code 10 NYCRR Part 5, Subpart 5-2 states that "No person shall construct or abandon any water well unless a permit has first been secured from the permit issuing official."

Operation, Maintenance and Monitoring (O, M &M)

An annual sampling plan has been in place during the past five years. Six monitoring wells are sampled to assure that groundwater contamination at the site follows the expected trends. Annual sampling costs are presented in Table 3.

V. Progress Since the Last Review

This is the second five-year review for this site. Six monitoring wells have been sampled annually to observe the trends in the groundwater contamination at the site. EPA has observed the continued attenuation of the site contamination. The data are discussed below.

VI. Five-Year Review Process

Administrative Components

The five-year review team consisted of: Julie McPherson, Risk Assessor, Diana Cutt, Site Hydrogeologist, and Kevin Willis, Remedial Project Manager.

Community Notification and Involvement

The EPA Community Involvement Coordinator for this site, Cecilia Echols, arranged for a notice to be published in a local newspaper, The Poughkeepsie Journal on August 18, 2007. This notice indicated that a five-year review is underway and comments on the remedy or the site were welcome. The notice also identified the local information repositories.

Document Review

The relevant documents and reports which were reviewed in the process of completing this five-year review are included in Table 3.

Data Review

The source removal is documented in a Remedial Action Report. The septic tank cleanout effort showed nonhazardous levels of contamination at the Haviland Complex and that the septic waste from the Haviland Middle School contained hazardous contaminants and was properly disposed off-site.

The groundwater monitoring network includes monitoring wells installed in the overburden zone of the aquifer. Since 1998, groundwater monitoring has been conducted on an annual basis.

The primary groundwater contaminants are PCE, trichloroethylene (TCE), 1,2-DCE, vinyl chloride, and chlorobenzene. The contamination observed in these wells is slowly diminishing. Two of the monitoring wells, MW-99-01 and MW-99-02, continue to show PCE at, or slightly above, Federal Maximum Contaminant Levels (MCLs). In the most recent sampling event, these two monitoring wells showed PCE levels of 5ppb and 6 ppb, respectively. TCE, 1,2-DCE, and vinyl chloride have not been detected above MCLs at the site since 1991. Chlorobenzene remains below federal standards but above NYSDEC standards.

Site Inspection

A site inspection was conducted on April 12, 2007. The following members of the review team were present: Julie McPherson, Risk Assessor, Diana Cutt, Site Hydrogeologist, and Kevin Willis, Remedial Project Manager, all of EPA. During the site inspection, no problems or issues with ongoing remedial activities were noted.

Institutional Controls Verification and Effectiveness

There are no institutional controls that were selected as part of the remedial action and none are needed during the time period of groundwater remediation. The connection of all buildings above the contaminated plume to a public water supply provides an adequate protection against exposure. In addition, EPA believes that there are additional layers of protection which are provided by local government which remain in place.

VII. Technical Assessment

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

The August 1, 1997 ROD called for natural attenuation of groundwater contamination to

below State and Federal drinking water standards. For this review period, contaminant concentrations have decreased in the wells sampled as part of the long-term groundwater monitoring program. In the last sampling round conducted from May 31 - June 1, 2006, only two constituents, PCE at 6 ppb, in one monitoring well (MW-99-02) and chlorobenzene at 32 ppb and 11 ppb in two wells (MW-99-01 and MW-99-02), exceeded the Federal and/or State MCL of 5.0 ppb. Therefore, in almost all cases the groundwater remedy is functioning as intended by the ROD.

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

The risk assessment process has changed somewhat since the original risk assessment was performed in 1996. In order to account for changes in toxicity values and exposure assumptions since the baseline human health risk assessment was performed, the maximum detected concentrations of the contaminants of concern (COCs) identified during the 2004/2006 sampling period were compared to their respective Region 9 Preliminary Remediation Goals (PRGs) - Tap Water Criteria, New York State Department of Environmental Conservation Water Quality Regulations Parts 700-706; and National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) (Table 4). The MCL is the highest level of contaminant that is allowed in drinking water. MCLs are promulgated standards that apply to public water systems and are intended to protect human health by limiting the levels of contaminants in drinking water. PRGs are a human health risk based value that is equivalent to a cancer risk of 1×10^{-6} or a hazard index of 1 (Table 4).

The results indicate that chloroform, bromodichloromethane, TCE, PCE , 1,4-dichlorobenzene and chlorobenzene have exceeded their respective screening criteria in groundwater in the past, but presently only PCE is detected at concentrations at or above federal MCLs. Since the exposure to drinking water has been interrupted, the remedy is considered to be protective of human health.

Soil vapor intrusion was evaluated as a potential future exposure pathway in the 2002 five year review. It was determined at that time that the risks associated with this exposure pathway were not of concern. In order to confirm the protectiveness of this decision, the maximum detected concentrations of the contaminants of concern in the groundwater were compared to the vapor intrusion screening criteria. The maximum detected concentrations of the volatile chemicals detected during the 2004/2006 groundwater sampling event did not exceed the vapor intrusion screening criteria (Cancer Risk = 1×10^{-6} or HI = 1). Based on these results formulated from analyzing the collected samples, vapor intrusion does not appear to be of issue at the site.

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

No. Since residents are connected to the municipal public supply line, drinking water from the site is not an issue. During the site visit an old monitoring well was found in the

residential area. It is recommended that this well be sampled during the next round of sampling. If this well or other monitoring wells are no longer providing valid results, these wells should be properly sealed according to state and local requirements.

Technical Assessment Summary

The unrestricted use of the groundwater will be achieved once the groundwater contaminant levels are below Maximum Contaminant Levels. In the interim, all residents are connected to a public water supply.

Table 5 summarizes suggestions stemming from this review.

VIII. Issues, Recommendations and Follow-up Actions

This report does not identify any issue or recommend any action at this site needed to protect public health and/or the environment that is not addressed by the remedy selected in the site decision documents as routinely operated, modified, maintained and adjusted over time. The following suggestions concerning operations, maintenance and monitoring are summarized below:

- During the site inspection on June 14, 2007 an old monitoring well, MW-12, was found in the residential area. Since residents are connected to the municipal public supply line, drinking water from the site is not an issue. However, this well should be sampled to determine current VOC concentrations in groundwater under the residential area.

- During the site inspection on June 14, 2007, several of the groundwater monitoring wells could not be located and some that were located were in a state of disrepair (i.e., cap broken on MW-26D). All wells should be located and repaired if necessary. However, if any monitoring well has been compromised and can no longer provide valid results, it should be properly sealed according to state and local requirements.

- Future sampling reports need to compare groundwater sampling results to Federal and State (NYSDEC) MCLs. The last report compared results to Federal MCLs and NYSDOH guidance values. The NYSDOH values are similar to NYSDEC's standards but are not promulgated.

IX. Protectiveness Statement

The implemented remedy for the Haviland Complex Superfund Site protects human health and the environment. There are no exposure pathways that could result in unacceptable exposure to site-related contamination.

X. Next Review

The next five-year review for the Haviland Complex Superfund Site should be completed before September 2012, or within five years from this report's approval date.

Approved by:

George Pavlou, Director
Emergency and Remedial Response Division

Date: 9-27-07

Attachments:

List of Acronyms

COC	Contaminant of Concern
DCDOH	Dutchess County Department of Health
EPA	United States of Environmental Protection Agency
FS	Feasibility Study
HPF	Hyde Park Fire and Water District
MCL	Maximum Contaminant Level
NPL	National Priorities List
NYDOH	New York State Department of Health
NYSDEC	New York Department of Environmental Conservation
NYCRR	New York Code of Rules and Regulations
O&M	Operation and Maintenance
OU	Operable Unit
ppb	Parts per Billion
PRP	Potentially Responsible Party
RA	Remedial Action
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
VOC	Volatile Organic Compound

Site Map

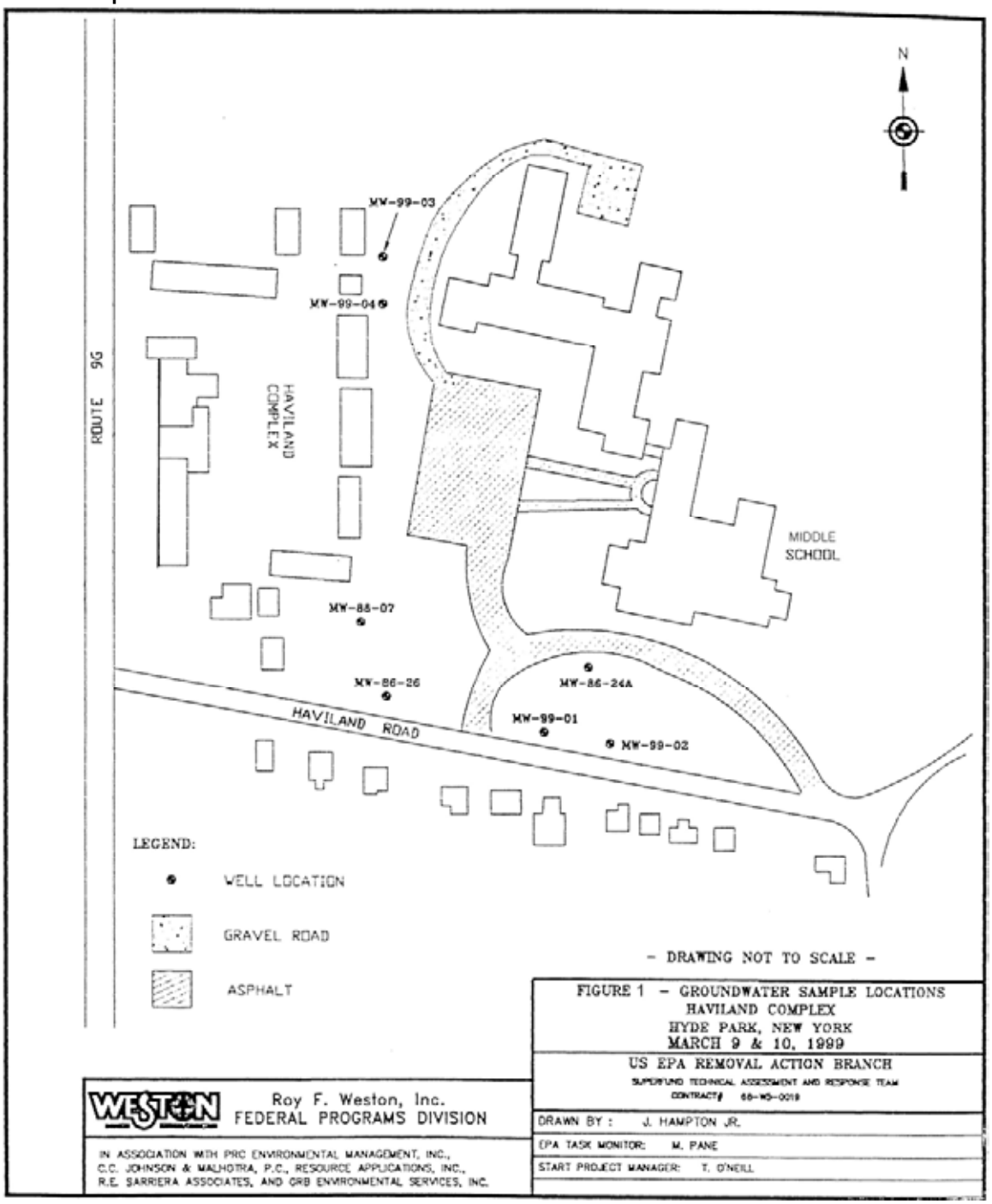

Figure 1

Table 1: Chronology of Site Events	
Event	**Date**
Volatile organic compounds detected at Haviland Complex	1982
Site placed on National Priorities List	1986
Record of Decision	1987
Remedial Design started	1988
Residential water treatment units installed	1989
Septic system cleaning	1991
Record of Decision Amendment	1997
Installation of additional monitoring wells	1998
County installs public water system	2002
NYSDEC connects Haviland Road residents to Public water system and removes carbon filters	2002
First five-year review	2002

Table 2: Annual System Operations/O&M Costs

	Cost per Year
Groundwater Monitoring, Sampling, and Analysis	$20,000
Data Management and Reporting	$30,000
Total Estimated Cost	*$50,000*

Table 3: Documents, Data, and Information Reviewed in Completing the Five-Year Review	
Document Title, Author	**Submittal Date**
Remedial Investigation/Feasibility Study	1987
Record of Decision, EPA	1990
Final Remedial Design Report, USACE	1999
Post-ROD Groundwater Evaluation, QST	2001
Remedial Action Report, EPA	2001
Preliminary Close-Out Report, EPA	2002
Annual Groundwater Sampling Reports, Mactec	2001-2005
Five-year Groundwater Evaluation Report, Mactec	2006
EPA guidance for conducting five-year reviews and other EPA guidances and regulations to determine if any new Applicable or Relevant and Appropriate Requirements relating to the protectiveness of the remedy were developed since EPA issued the ROD.	

Table 4 – Site Contaminants						
COPC	**Maximum Detected Concentration (ug/l)**	**Region 9 Preliminary Remediation Goal (ug/l) Cancer risk = 1 x 10^{-6} Non-cancer hazard = 1**	**National Primary Drinking Water Standard (ug/l)**	**NYSDEC Groundwater Quality Criteria (ug/l)**	**Location**	**Date**
Acetone	6.8	5500 (nc)		50	99-04	2004
Cis-1,2-DCE	3.2	61 (nc)	70	5	99-02	2004
MTBE	0.71	11 (c)			99-02	2004
Chlorobenzene	32	110 (nc)	100	5	99-01	2006
PCE	8.8	0.1 (c)	5	5	99-02	2004
TCE	1.8	0.028 (c)	5	5	86-24A	2004
Chloroform	16	0.17 (c)		7	86-24A	2004
1,2-Dichlorobenzene	5.6	370 (nc)	600	4.7	99-01	2004
1,3-Dichlorobenzene	4.3	180 (nc)		5	99-01	2006
1,4-Dichlorobenzene	3.5	0.5 (c)	75	5	99-01	2006
Isopropyl Alcohol	0.78				86-24A	2006
Bromodichloromethane	2.6	0.18 (c)			86-24A	2006

Table 5 - **Issues, Recommendations and Follow-Up Actions**	
Issue	Recommendations/Follow-Up Actions
Monitoring well located in the residential area should be included into sampling program.	The sampling of MW-12 will be included into the EPA sampling program
Some site monitoring wells are in a state of disrepair. Monitoring wells that are not used should be properly decommissioned.	A monitoring well reconnaissance will be conducted to repair/decommission wells during the next sampling event.
Future sampling results need to be compared to NYSDEC criteria as well as NYSDOH standards.	All appropriate standards will be used when reviewing sampling results.