



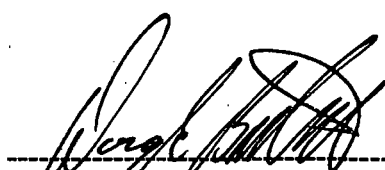
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**FIVE-YEAR REVIEW REPORT FOR
PINE BEND SANITARY LANDFILL SUPERFUND SITE
DAKOTA COUNTY, MINNESOTA**

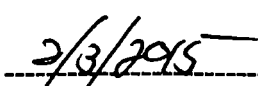


Prepared by

**U.S. Environmental Protection Agency
Region 5
Chicago, Illinois**



Richard C. Karl, Director
Superfund Division



Date

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LIST OF ACRONYMS

ARAR	Applicable or relevant and appropriate requirement
CADL	Crosby American Demolition Landfill
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DCE	Dichloroethane
EMS	Environmental Monitoring System
EPA	United States Environmental Protection Agency
GCCS	Gas Collection and Control System
HDPE	High Density Polyethylene
IL	Intervention Limit
LCS	Leachate Collection System
LFG	Landfill Gas
MDoH	Minnesota Department of Health
MERLA	Minnesota Environmental Response and Liability Act
MPCA	Minnesota Pollution Control Agency
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PCE	Perchloroethylene
PBLI	Pine Bend Landfill Inc.
PBSL	Pine Bend Sanitary Landfill
ppm	Parts Per Million
PRP	Potentially Responsible Party
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
scfm	Standard Cubic Feet Per Minute
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethylene
VC	Vinyl Chloride
VOC	Volatile Organic Chemical

EXECUTIVE SUMMARY

This is the fourth Five-Year Review (FYR) for the Pine Bend Sanitary Landfill Superfund (Site or PBSL Site) located in Inver Grove Heights, Dakota County, Minnesota. The purpose of this FYR is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this statutory FYR was the signing of the previous FYR on 2/11/2010.

The PBSL Site is located in northeast Dakota County, on the periphery of the Minneapolis/St. Paul metropolitan area, in Sections 27, 28, and 33, Township 27 North, Range 22 West, in the City of Inver Grove Heights, Minnesota (see Appendix B, Figure 1). The PBSL Site encompasses two landfills: the approximately 255-acre Pine Bend Sanitary Landfill which is an operating mixed municipal solid waste facility; and the closed 3-acre Crosby American Demolition Landfill (CADL) located immediately north of the Pine Bend Sanitary Landfill (see Appendix B). The PBSL and CADL were operated as separate landfills under separate ownership. The two landfills are considered one site on the National Priorities List (NPL) because their groundwater plumes comeingle within a common surficial aquifer. The Mississippi River is located approximately one mile to the east of the Site.

In an April 1985 Response Order by Consent signed by the Minnesota Pollution Control Agency (MPCA) and Pine Bend Sanitary Landfill Inc. (PBLI), a potentially responsible party (PRP) was required to investigate the nature and extent of contamination at the Site. In April 1985, Crosby American Properties Inc. entered into a Consent Order with MPCA to address groundwater contamination.

The United States Environmental Protection Agency (EPA) concurred on a groundwater only Record of Decision (ROD) for operable unit 1 (OU1) in 1991. The 1991 ROD was a groundwater only remedy for the Site, because the landfill was regulated under an existing MPCA solid waste operating permit. The selected remedy for OU1 was a permanent alternative water supply and consisted of the following components: the extension of the existing city municipal water supply; the connection of impacted or potentially impacted premises to the municipal water supply; and the permanent sealing of the private water supply wells. In September 1992, Amdura Corp. entered into an agreement with the state to temporarily provide bottled water to eight residences and complete an alternate water supply. In fall 1994, the extension of the present municipal water supply system was completed; the residences potentially affected by site contamination were connected to the system; and the contaminated private water supply wells were permanently sealed.

In September 1995, the EPA concurred in a "No Further Action" ROD which addressed OU2 groundwater contamination. The 1995 ROD determined that no further Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action would be necessary at the Site based on the following: 1) the completion of the components of the 1991 ROD remedy; 2) the compliance with requirements stated in the existing solid waste operating permit and 3) the source control and groundwater contamination actions were completed under the state permit requirements. The Site was deleted from the NPL on June 23, 1998.

The remedy is protective of human health and the environment because it eliminates the principal threat posed by the Site by preventing direct contact with contaminated groundwater. The residences have been connected to the extended municipal water supply system in the affected groundwater area. The state solid waste permit SW-45 is the vehicle through which the source control and groundwater contamination are being addressed, and the institutional controls (ICs) have been implemented, maintained, and are effective. The long-term protectiveness at the Site is ensured by compliance with the PBSL solid waste permit, including monitoring, closure, post-closure, groundwater corrective action requirements, and PBSL land use restrictions which include compliance with restrictions prohibiting installation of wells and potable use of groundwater in the groundwater plume area until groundwater standards are achieved. To ensure long-term stewardship at the Site, inspections of the facility by MPCA are conducted, and annual groundwater, gas monitoring, and dual extraction system reports are submitted to MPCA, Dakota County, and the City of Inver Grove Heights as required as part of the permit.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Pine Bend Sanitary Landfill		
EPA ID: MND 000245795		
Region: 5	State: MN	City/County: Inver Grove Heights, Dakota
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? Yes	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: State		
Author name (Federal or State Project Manager): Pamela Molitor		
Author affiliation: EPA		
Review period: 2/11/2014 – 1/30/2015		
Date of site inspection: 8/12/2014		
Type of review: Statutory		
Review number: 4		
Triggering action date: 2/11/2010		
Due date (five years after triggering action date): 2/11/2015		

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:

OU 1 and OU 2

OU 1 and 2 and Sitewide Protectiveness Statement

Protectiveness Determination:

Protective

Protectiveness Statement:

The remedy is protective of human health and the environment because it eliminates the principal threat posed by the Site by preventing direct contact with contaminated groundwater. The residences have been connected to the extended municipal water supply system in the affected groundwater area. The state solid waste permit SW-45 is the vehicle through which the source control and groundwater contamination are being addressed, and the institutional controls have been implemented, maintained, and are effective. The long-term protectiveness at the Site is ensured by compliance with the PBSL solid waste permit, including monitoring, closure, post-closure, groundwater corrective action requirements, and PBSL land use restrictions which include compliance with restrictions prohibiting installation of wells and potable use of groundwater in the groundwater plume area until groundwater standards are achieved. To ensure long-term stewardship at the Site, inspections of the facility by MPCA are conducted, and annual groundwater, gas monitoring, and dual extraction system reports are submitted to MPCA, Dakota County, and the City of Inver Grove Heights as required as part of the permit.

I. INTRODUCTION

The purpose of a FYR is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The EPA prepares FYRs pursuant to CERCLA Section 121 and the National Contingency Plan (NCP). CERCLA 121 states:

“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”

EPA interpreted this requirement further in the NCP, 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which states:

“If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action.”

EPA conducted a FYR on the remedy implemented at the PBSL Site in Inver Grove Heights, Dakota County, Minnesota. MPCA is the lead agency for developing and implementing the remedy for the Site. MPCA has reviewed all supporting documentation and provided input to EPA during the FYR process.

This is the fourth FYR for the PBSL Site. The triggering action for this statutory review is the completion of the previous FYR which was signed on February 11, 2010. The FYR is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE). The Site consists of two OUs and both are addressed in this FYR.

II. PROGRESS SINCE THE LAST REVIEW

Table 1: Protectiveness Determinations/Statements from the 2010 FYR

OU #	Protectiveness Determination	Protectiveness Statement
OUs 1 and 2/Sitewide	Short-term Protective	The remedy at the Pine Bend Sanitary Landfill (PBSL) Site is currently protective of human health and the environment in the short-term due to the connection of residences to the extended municipal water supply system in the affected groundwater area. The long-term protectiveness at the site requires: 1) compliance with the PBSL solid waste permit,

		including monitoring, closure, post-closure, groundwater corrective action requirements and PBSL land use restrictions; and 2) compliance with restrictions prohibiting installation of wells and potable use of groundwater in the groundwater plume area until groundwater standards are achieved.
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Table 2: Status of Recommendations from the 2010 FYR

OU #	Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Party	Original Milestone Date	Current Status	Completion Date (if applicable)
OUs 1 and 2/Sitewide	Groundwater wells still exist within groundwater plume area.	Provide notification/verificati on letters to verify that the wells are not being used for drinking water purposes; to remind them of their potential to be impacted by the groundwater plume; and to remind them of their obligation to notify the prospective purchasers of the plume.	MPCA	MPCA	5/1/2011	Completed	5/20/2011

Recommendation # 1

Based on the well inventory conducted by Dakota County, there were three industrial wells within the plume area. EPA worked with MPCA and Dakota County to develop a notification/verification strategy for the three businesses that have wells located in the plume area to ensure that wells are not used for potable purposes. The letters were sent out in April 2011 and verification was obtained from each of the three businesses (See Attachment 1). One of the wells was confirmed to be sealed and the others are used for fire suppression or lawn irrigation purposes only.

Remedy Implementation Activities

The actions occurring at the Site are not being conducted under CERCLA authority but are being completed as a requirement under state permit SW-45.

Surface and Groundwater

PBSL's storm water discharge is regulated by MPCA permit number MNR0534JT which was issued on July 7, 2010 and expires on April 5, 2015. PBSL has a Storm Water Pollution Prevention Plan (SWPPP) and conducts monthly inspections of Best Management Practices (BMPs) contained in the SWPPP. PBSL's 2013 Storm Water Annual Report was submitted in March 2014.

In 2012, Year 2 quarterly sampling events were completed. The average of these four sampling events was compared to the permit benchmarks for Total Suspended Solids (TSS), pH, Chemical Oxygen

Demand (COD), Aluminum, Copper, Iron, Lead and Zinc. The permit thresholds for TSS, Aluminum, Copper, Iron, Lead and Zinc were exceeded. In 2013, the storm water program was re-evaluated and it was determined that samples were being collected at incorrect locations. Instead of sampling prior to entering the sedimentation basins, the sampling will be collected if there is ever an outflow from those basins. One of the basins has silted in significantly and is in the process of being cleaned.

The reevaluation of the storm water program and establishment of vegetation on the final cover area in Phase 4 has resulted in improved storm water sampling results for 2013. The results show that Copper, Lead, and Zinc are below the benchmark thresholds and that the results for TSS, Aluminum, and Iron have improved significantly.

Leachate

PBSL has continued its operation of the waste disposal facility in accordance with its permit requirements. The leachate extraction system was installed in 2002 to collect leachate from the unlined portion of the fill area. Forty-nine gas extraction wells were reconfigured to allow for dual use for landfill gas and leachate recovery. Because this portion is unlined, successful leachate extraction is vital in source control of the groundwater and in reducing leachate from the closed portion of the landfill mound. An evaluation of the system shows a continued reduction in leachate levels from 2002 to the present during the time the system has been on-line. Currently, twenty-six extraction wells and two pumping stations are equipped with leachate extraction pumps and are operating as dual leachate extraction wells. The number of dual extraction wells is down to twenty-six due to twenty two extraction wells being taken off-line for Phase 5 landfill construction, including one well with the pump silted in.

Leachate is collected from Phases 1 and 2, the unlined portions of the landfill, utilizing dual-extraction gas wells and from Phases 3, 4, and 5, the lined portions of the landfill, using a typical leachate collection system. The leachate is combined and collected in two above ground leachate storage tanks. The leachate is disposed of at the MCES – St. Paul waste water treatment plant and is delivered via tanker truck. Samples are collected and analyzed from the leachate tanks on a monthly basis and leachate volume is recorded based on a delivery log. Quarterly reports are provided to MCES and MPCA is copied on the reports.

Leachate line jetting was completed on April 15 – 18, 2013. No issues with the leachate collection system were encountered during the jetting. The pounds of Volatile Organic Compounds (VOC) removed via the dual extraction system since 2010 are as follows:

2010 - 1.719 pounds
2011 - 0.814 pounds
2012 - 1.092 pounds
2013 - 2.221 pounds

Portions of the system were periodically shut down during 2013 to allow for repairs and operational work on the gas and dual extraction system. In addition, heavy periods of precipitation, especially during the spring, resulted in added pressure on the Site's leachate handling system. Running the leachate extraction wells at these times was not possible as the leachate would not have been able to be pumped to the on-site storage tanks.

Overall, the dual extraction system is operating well and achieving its goal of removing leachate from unlined Phases 1 and 2 of the landfill. The amount of leachate removed in 2013 was higher than the typical amounts previously removed since 2006. Continued operation of this system in 2014 should result in an additional decrease in leachate levels and the continued removal of leachate from Phases 1 & 2 of the landfill.

For 2013, groundwater analytical results from the 20 PBSL monitoring locations indicate that the average total volatile organic compounds (TVOC) concentration for groundwater was 653.7 ug/L. This concentration represents a decrease of about 8 percent in relation to annual TVOC concentrations for 2012 and represents the second lowest total ever recorded after 2008 and the lowest within the five-year (2009 to 2013) assessment period. This decrease took place even though the net available water balance increased in 2013 compared to the two previous years.

Institutional Controls

ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for UU/UE. The ICs are implemented and maintained in accordance with the state permit SW-45.

The table below identifies those areas that do not support UU/UE and the ICs for these restricted areas at the site.

Table 3: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
<i>Groundwater</i>	YES	YES (through reliance on the MPCA solid waste operating permit)	PBSL and Inver Grove Heights	Permanent sealing of private groundwater wells in plume area. Prohibit installation of groundwater wells in plume area.	Minn. Stat. 1031.301 Minn. Rules Chapter 4725 Dakota County Ordinance No. 114. Inver Grove Heights Special Well Construction Area pursuant to Minnesota Rule: Chapter 4725.3650 Inver Grove Heights City Code 715.0.5.

Current Status of ICs

Groundwater

The OU1 ROD required permanent sealing of private groundwater wells in the area of the groundwater plume. Dakota County has the authority to require sealing of these wells. Under Section 110 of Ordinance No. 114, Dakota County has the authority to inventory and require sealing of wells within the

County. Also under Minn. Statute 103I.301, a property owner is required to have a well or boring sealed if “the well or boring is contaminated or may contribute to the spread of contamination.”

The ROD for OU1 also required all homes in the area at the time of the ROD to be hooked up to municipal water and all private wells to be properly abandoned. Dakota County conducted a groundwater well inventory in August 2009 and determined that three industrial wells were located within the plume area. EPA worked with MPCA and Dakota County to develop a notification/verification strategy for the three businesses that had wells located in the plume area to ensure that the wells were not used for potable purposes. Verification/notification letters were sent out in April 2011 and verification was obtained from each of the three businesses. One of the wells was confirmed to be sealed and the others used for fire suppression or lawn irrigation purposes only. The three properties have been connected to municipal water and the wells are not used for potable purposes.

Additionally, there is a special well construction area established pursuant to Minnesota Rule 4725.3650. In 1973, the Minnesota Department of Health designated the areas east and west of the PBSL as a special well construction area. Currently, the Inver Grove Heights (Pine Bend Area) special well construction area includes Sections 33, 34, 35, Township 27 North, Range 22 West in Dakota County. Under Minn. Chapter 4725.3650, a well may not be constructed, repaired, or sealed in a Special Well Construction Area unless the commissioner has reviewed and approved a proposed plan. In addition, the MPCA commissioner requires the owner of a newly constructed contaminated well in a special well and boring construction area to install, use, and monitor an effective water treatment device if the commissioner determined that the device is reasonably necessary to ensure a safe drinking water supply or monitor the degree of contamination. Currently, the special well construction area does not cover the CADL plume area. However, the PBSL and CADL are covered under the Inver Grove Heights Code 715.0.5. The Inver Grove Heights Code 715.0.5 states that no person, firm, or corporation shall install, alter or extend any water well in the City of Inver Grove Heights.

EPA recommends that the Minnesota Department of Health (MDoH) extend the special well construction area to include the CADL plume area as well but it is not critical as the concentrations of vinyl chloride (VC) are below the respective cleanup goal and are approaching non-detect in all wells, so they do not present an unacceptable risk.

Long-Term Stewardship

Compliance with ICs is necessary to assure the protectiveness of the remedy. Long-term stewardship is required to ensure that the ICs are maintained, monitored and enforced so that the remedy continues to function as intended. Long-term stewardship involves assuring effective procedures are in place to properly maintain and monitor the Site.

Long-term stewardship at the PBSL Site is ensured by 1) compliance with restrictions prohibiting installation of wells and potable use of groundwater in the groundwater plume area until groundwater standards are achieved; and 2) compliance with the PBSL solid waste permit, including monitoring, closure, post-closure, groundwater corrective action requirements and PBSL land use restrictions. To ensure long-term stewardship at the site, inspections of the facility by MPCA are conducted, and annual groundwater, gas monitoring, and dual extraction system reports are submitted to MPCA, Dakota County, and the City of Inver Grove Height as required as part of the permit.

System Operation/Operation and Maintenance Activities

Operations and Maintenance (O&M) at the Site is performed in accordance with the requirements of the facility's solid waste permit (permit SW-45), whose documents include: O&M Plan; Leachate Management Plan; Groundwater Corrective Action Plan; Contingency Action Plan; Closure Plan; Post-Closure Plan; and Construction Inspection and Quality Assurance/Quality Control Programs.

PBSL's current EMS monitoring well locations, sampling frequency, and analytical parameters were established in 2004 following a major modification to permit SW-45 by the MPCA on January 12, 2004 with a subsequent revision in April 2004. The solid waste permit SW-45 was reissued in May 2009 which contained groundwater monitoring, groundwater corrective action requirements, and closure and post-closure requirements according to state law.

The monitoring network consists of 18 monitoring wells, 2 lysimeters, and 2 springs located near the Mississippi River. In addition, a three times per year sampling frequency (spring, summer, and fall) was applied to all EMS wells and springs. Groundwater levels are measured in association with the three sampling events. Groundwater samples collected during the three monitoring events are analyzed for indicator parameters (pH, temperature, specific conductance, and redox potential) and volatile organic compounds (VOCs). In addition, groundwater samples collected during the summer monitoring event are analyzed for inorganics, dissolved metals, and Perfluorochemicals (PFCs). Trends in groundwater quality are characterized by changes observed in indicator parameter measurements, and inorganic, metal, and VOC concentrations. In accordance with the reissuance of permit SW-45, water quality standards called Intervention Limits (ILs) are required for PBSL. Attachment 2 presents the permit required applicable ILs for various organic and inorganic parameters.

III. FIVE-YEAR REVIEW PROCESS

Administrative Components

The State was notified of the initiation of the five-year review on February 12, 2014 (see Attachment 3). The PBSL Superfund Site Five-Year Review was led by EPA Remedial Project Manager, Pamela Molitor and Janet Pope, EPA Community Involvement Coordinator (CIC). Lisa Mojsiej, of MPCA, assisted in the review as the representative for the support agency.

The review, which began on February 12, 2014, consisted of the following components:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

Community Notification and Involvement

Activities to involve the community in the five-year review process were initiated with a meeting between the RPM and CIC for the Site. A notice was published in the local newspaper, the "Lillie Suburban Newspapers", on October 26, 2014, stating that there was a five-year review and inviting the

public to submit any comments to EPA, (see Attachment 4). The results of the review and the report will be made available at the Site information repository located at the Inver Glen Library in Inver Grove Heights, Minnesota.

Document Review

This five-year review consisted of a review of relevant documents including O&M records and annual monitoring reports.

Data Review

Although the actions occurring at the Site are not being conducted under CERCLA authority but are being completed as a requirement under state permit SW-45, the following data was reviewed for this reporting period.

Groundwater samples analyzed from the monitoring network included a total of five metals that exceeded groundwater ILs in July 2013. These metals consisted of arsenic (well M-5B), barium (well M-5B), boron (well, M-26, M-38, and M-46), manganese (wells M-5B, M-6, M-7, M-28, M-30, M-46, M-47, M-48, M-49 and Pipeline Spring), and nickel (M-46). Nitrate also exceeded the IL value at three wells (M-11A, M-15 and M-49) in 2013. Manganese is a naturally occurring element that is associated with iron-oxide coating on the aquifer sand grains. In the degradation of carbon-containing material and under anaerobic conditions, bacteria will reduce manganese oxides found on sand-grain coating and increase its solubility. Barium is also a natural occurring element that is known to substitute for magnesium and calcium cations in carbonate minerals. Nitrates are typically derived from fertilizers and are anticipated to be consumed by microbes in locations where dissolved organic carbon is present.

A total of 7 VOCs exceeded IL values during the 2013 monitoring events.

Hexachlorobutadiene	(Pipeline Spring)
1,2-Dichloropropane	(M-26, M-38, M-47, M-48, and Pipeline Spring)
1,4-Dichlorobenzene	(M-5B, and M-26)
Tetrachloroethene (TCE)	(M-15, M-26, M-38, M-49, and Pipeline Spring)
Tetrahydrofuran	(M-38)
Cis-1,2-Dichloroethene (cis-DCE)	(M-26, and M-38)
Vinyl Chloride	(M-4A, M-5B, M-26, M-28, M-30, M-38, M-40, M-46, M-47, M-48, M-49, Ravine Spring and Pipeline Spring)

Mann-Kendall Trend Analysis and Sen's Slope Estimator were subsequently used to assess the data. In general, chloroethane (Perchloroethylene, TCE, cis-DCE, and VC), and refrigerant concentrations continue to decrease along the flow path relative to previous years. Vertically in the aquifer, contaminant concentrations also appear to be decreasing.

Site Inspection

The inspection of the Site was conducted on August 13, 2014. In attendance were Pamela Molitor, EPA, Lisa Mojsiej and Megan Horst of MPCA, Abraham McLaramore from the Saulte Ste. Marie Tribe of Chippewa Indians, and Aaron Janusz and Jeff Brown from Republic Services. The purpose of the inspection was to assess the protectiveness of the remedy, including maintenance and operation of

groundwater monitoring wells. No problems were identified regarding the monitoring well network. See Attachment 5 for the inspection report.

IV. TECHNICAL ASSESSMENT

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

Yes, the review of documents, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended. 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 concern that were used in the health assessment, and there have been no changes to the standardized health assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

Groundwater data has shown that contaminant concentrations have been decreasing and natural attenuation may be effectively controlling contaminant concentrations within the aquifer beneath the site and off-site.

The 1991 ROD for OU1 referred to Minnesota Plumbing Code, Section 4715.0310 as providing the city with authority to require connection to the extended system by residents. The Inver Grove Heights Code does not mandate connection to the water system (Section 705.31), however new wells require a state license and city permit prior to construction of a water well under Section 715 of the Inver Grove Heights Code. In addition, the MDoH has instituted a special well construction area encompassing the PBSL site. Minnesota Rule 4725 states that all wells to be constructed in a well advisory area must have prior review and approval by the state before being constructed. The city and the state have the authority to prevent potable water use for any new wells under the licensing and permitting authorities described above.

The 1991 ROD also required all homes in the area at the time of the ROD to be hooked up to municipal water and all private wells to be properly abandoned. Dakota County conducted a groundwater well inventory in August 2009 and determined that three industrial wells were located within the plume area. These three business properties have been connected to municipal water and the wells are not used for potable purposes. A notification/verification strategy for the three businesses was developed and letters were sent in April 2011. Verification was obtained from each of the three businesses. One of the wells was confirmed to be sealed and the others are used for fire suppression or lawn irrigation purposes only.

EPA concurred in the 1995 No Further Action ROD for the OU2 source control and groundwater contamination remedy which specified that no further CERCLA action was necessary and that any potential problems associated with the Site were being addressed through the Minnesota Solid Waste Landfill Compliance Program, RCRA, and a Response Order by Consent between MPCA and Pine Bend Landfill, Inc. Corrective Action of VOCs in groundwater is being addressed under permit SW-45. The source control provided for the facility under this state permit is a low permeability cover, combustible gas collection system and surface drainage control system which reduces both the production of leachate and the toxicity of the compounds released from the closed, unlined fill area.

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

Yes, the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection are still valid.

The exposure assumptions used to develop the Human Health Risk Assessment included both current exposures and potential future exposures for workers and off-site residential groundwater users. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment. These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions or the cleanup levels developed from them is warranted. There has been no change in the standardized risk assessment methodology that could affect the protectiveness of the remedy.

The 1995 No Further Action ROD specified that the Site was being addressed under the Minnesota Solid Waste Landfill Compliance Program, RCRA, and the Response Order by Consent. MPCA continues to address the risks posed by the Site under their state programs. There have been no changes in remedial action objectives affecting the protectiveness of the remedy.

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

No, there is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs. 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 concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

V. ISSUES/RECOMMENDATIONS AND FOLLOW-UP ACTIONS

There are no issues or follow-up actions that affect current or future protectiveness of the remedy. EPA recommends that the MDoH extend the special well construction area to include the CADL plume area as well but it is not critical as the concentrations of VC are below the respective cleanup goal and are approaching non-detect in all wells, so they do not present an unacceptable risk.

VI. PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i>	Protective
<i>Protectiveness Statement:</i>	The remedy is protective of human health and the environment because it eliminates the principal threat posed by the Site by preventing direct contact with contaminated groundwater. The residences have been connected to the extended municipal water supply system in the affected groundwater area. The state solid waste permit SW-45 is the vehicle through which

the source control and groundwater contamination are being addressed, and the institutional controls have been implemented, maintained, and are effective. The long-term protectiveness at the Site is ensured by compliance with the PBSL solid waste permit, including monitoring, closure, post-closure, groundwater corrective action requirements, and PBSL land use restrictions which include compliance with restrictions prohibiting installation of wells and potable use of groundwater in the groundwater plume area until groundwater standards are achieved. To ensure long-term stewardship at the Site, inspections of the facility by MPCA are conducted, and annual groundwater, gas monitoring, and dual extraction system reports are submitted to MPCA, Dakota County, and the City of Inver Grove Heights as required as part of the permit.

VII. NEXT REVIEW

The next five-year review report for the Pine Bend Sanitary Landfill Superfund Site is required five years from the completion date of this review.

APPENDIX A – SITE BACKGROUND AND HISTORY

A. SITE CHRONOLOGY

Event	Date
CADL State permit issued	September 15, 1970
PBSL issued first state permit (SW-045)	September 7, 1971
PBSL Site proposed for NPL	October 15, 1984
Response Order by Consent Between MPCA and PBLI for Remedial Investigation/Feasibility Study (RI/FS) and Response Action	April 1985
Crosby American Properties, Inc. (CAPI) enter Consent Order with MPCA to address groundwater contamination	April 1985
RI performed	1986
PBSL Site final on NPL	June 10, 1986
Additional RI Activities	1987
Groundwater Monitoring	1988-1999
Preliminary Alternatives Report	1989
Pump Test	1989-1990
MPCA Consent Order Amendment	October 23, 1990
MPCA Approves RI Report	August 1991
OU1 ROD (EPA concurrence)	September 30, 1991
MPCA enters Settlement Agreement for CADL Site	September 28, 1992
PBLI and Amdura enter Settlement Agreement on environmental claims	November 11, 1992
MPCA Approves Detailed Analysis Report	November 1994
Municipal water hookups completed	November 1994
OU 2 ROD (EPA concurrence)	September 28, 1995
Preliminary Close-Out Report	September 28, 1995
MPCA Terminates Amended Response Order by Consent	November 14, 1996

Event	Date
PBSL permit reissued	September 15, 1997
Site Deleted from NPL	June 23, 1998
First Five-Year Review completed by MPCA	September 27, 2000
Major permit modification issued	January 12, 2004
Second Five-Year Review completed by EPA	September 1, 2005
Solid Waste Management Facility Permit re-issued by MPCA	May 29, 2009
Third five-Year Review completed by EPA	February 11, 2010

B. BACKGROUND

Physical Characteristics

The PBSL Site is located in northeast Dakota County, on the periphery of the Minneapolis/St. Paul metropolitan area, in Sections 27, 28, and 33, Township 27 North, Range 22 West, in the City of Inver Grove Heights, Minnesota (see Appendix B, Figure 1). The PBSL Site encompasses two landfills: the ~255 acre operating PBSL municipal solid waste facility, and the closed ~52 acre CADL which is located immediately north of the Pine Bend facility (see Appendix B, Figure 2). The PBSL and CADL facilities were operated under separate ownership. The two landfills are considered one site on the NPL because their groundwater plumes comeingle within a common surficial aquifer. The resulting plume moves through the surficial aquifer and eventually discharges to the Mississippi River.

Land and Resource Use

The PBSL is bordered on the south by industrial areas, to the east by residential and industrial areas, to the north by residential areas, and to the west by pasture and residential areas. The terrain is generally flat to gently rolling and possesses an immature natural surface drainage system resulting in numerous ponds and wetlands. The Mississippi River is located approximately one mile to the east of the site. Currently, PBSL is an active landfill.

History of Contamination

The PBSL was first issued a permit (SW-45) to operate by the MPCA on September 7, 1971. Since then, it has operated as a sanitary landfill accepting mixed municipal solid waste and non-hazardous industrial waste. PBLI, a wholly-owned subsidiary of Allied Waste, was the owner and permittee of the PBSL.

The PBSL Site occupies 255 acres of which roughly half is areas of mixed municipal solid waste landfill (see Appendix B). The filling operations began in 1971 with both non-hazardous industrial waste and mixed municipal solid waste. The rate of disposal changed over the years. For example, the average rate of disposal in 1987 was 60,000 tons per month, whereas in 1994

the rate of disposal was 16,000 tons per month.

In the vicinity of PBSL, the bedrock is overlain by a thick sequence of glacial drift. At the surface the drift consists of sand and gravel outwash deposits. Shallow groundwater in the PBSL area is present in the surficial drift at depths of 90 to 210 feet below ground surface. The groundwater flow beneath the site is to the east/northeast and the average linear velocity of the groundwater in the glacial drift aquifer is estimated to range from 240 to 1,900 feet/year.

VOCs were detected in the surficial drift aquifer beneath PBSL in 1982 and in newly installed monitoring wells in 1983. VOCs detected included benzene, methylene chloride, chlorinated ethylene, and fluorocarbons. Local residential wells were also screened in this aquifer. VOCs were detected in private residential wells east of the site in 1984. Sampling after 1984 showed that a number of residential and production wells to the east of the site were contaminated with one or more VOCs.

An extensive groundwater monitoring system is present around the PBSL. A wide range of compounds, both organic and inorganic, have been detected in the groundwater samples from the PBSL area. The highest concentrations of VOCs are found in samples from monitoring wells located in close proximity to the PBSL. Freon compounds are the most prevalent of the VOCs, but chlorinated solvents are also present in substantial concentrations in samples from many of the wells.

Initial Response

EPA became involved at the site in 1984 when it conducted a site investigation and developed a score under the Hazard Ranking System. The score qualified the site for listing on the NPL. The site was placed on the NPL on June 10, 1986. Prior to being listed, in April 1985, under the Minnesota Environmental Response and Liability Act (MERLA), PBLI entered into a Response Order by Consent with MPCA to carry out the RI, FS, and Response Actions (RA). The Consent Order was amended on October 23, 1990. Pursuant to the Consent Order, PBLI has, among other things, conducted an RI (1986); conducted additional RI activities (1987); conducted a pump test (1989-90); submitted a Preliminary Alternatives Report (1989); undertaken an interim groundwater monitoring program (1988-1994); submitted an MPCA approved final RI report (August 1991); and an MPCA approved Detailed Analysis Report (November 1994). PBSL completed OU1 for a permanent alternative water supply as required by the 1991 ROD and addressed the source control OU2 under the state permit SW-45. Additionally, the following work was required to be completed under the MPCA operating permit:

Placement of final cover on portions of the landfill that are filled to the final elevations, installation of a combustible gas collection system, installation of a clay liner and leachate collection system in an expansion area, and the installation of a surface drainage control system. The existing groundwater contamination is to be addressed through a compliance permit with Pine Bend Landfill. Browning Ferris Industries, Inc., by signing the Amended Order dated October 23, 1990, guarantees PBLI's performance of the obligations established in said Amended Order.

CADL was permitted on September 15, 1970. In April 1985, under MERLA, Crosby American Properties, Inc. (CAPI) entered into a Consent Order to address groundwater contamination including VOCs. Due to bankruptcy proceedings, CAPI claimed it could not carry out the terms of its Consent Order and suspended all activities at the CADL Site. MPCA entered into a settlement agreement for CADL on September 28, 1992. In the agreement, Amdura Corporation agreed to implement the preferred remedy for CADL, with the exception that MPCA would provide a portion of the materials for the engineered cover. PBLI and Amdura entered into a Settlement Agreement regarding environmental claims (No. 9226) on November 11, 1992. The landfill is monitored under MPCA's Closed Landfill Program. The CADL is also known as the Crosby American Properties Landfill.

Basis for Taking Action

Summary of Site Characteristics

The primary concern at the PBSL Site is the VOC contamination in groundwater due to leachate migrating from the site. The site is the only known source of contamination of groundwater in the impacted area east of the site. Groundwater was the only medium found to be contaminated off-site that could be attributable to the site. With the exception of benzene and chlorinated fluoromethanes, all of these substances identified may be related to the transformation of certain chemicals to vinyl chloride through both chemical and biological processes.

The major contaminants of concern include:

- Benzene
- 1,1-Dichloroethane
- 1,1-Dichloroethylene
- 1,2-Dichloroethene
- 1,2-Dichloropropane
- Methylene Chloride
- Tetrachloroethylene
- Trichloroethylene
- Vinyl Chloride

Human Health Risk

The baseline risk assessment indicated that current exposure to residents and workers was acceptable. Future exposure to residents results in an excess lifetime cancer risk of 5×10^{-3} . For non-carcinogens, a hazard index of 1.3 was calculated.

Ecological Risk

The concentrations of the contaminants did not exceed the selected criteria or toxicity value. Thus, no ecological risks were identified in association with the release of contaminants from the site.

C. REMEDIAL ACTIONS

Remedy Selection

OU1 - Permanent Alternative Water Supply

On September 30, 1991, EPA concurred on a State ROD to address OU1-Alternative Water Supply. The work required under the Groundwater ROD for OU1 was completed in November 1994. The components of this selected remedy were: the extension of the existing City of Inver Grove Heights municipal water supply; the connection of impacted or potentially impacted premises to the municipal water supply; and the permanent sealing of the private water wells which served the premises that were connected to the municipal water supply.

OU2 - No Further Action

The No Further Action ROD to address OU2- Groundwater and Source Control was a State ROD on which the EPA concurred on September 28, 1995. The ROD specified that no further CERCLA action was necessary at the Site and that any potential problems associated with the site would be addressed through the Minnesota Solid Waste Landfill Compliance Program, the Resource Conservation and Recovery Act, and a response Order by Consent between MPCA and PBLI. Under these programs and Order, the Site will continue to be monitored to verify that no unacceptable risks posed by the Site occur in the future.

The Site was subsequently deleted from the NPL on June 23, 1998.

Remedy Implementation

The actions occurring at the Site are not being conducted under CERCLA authority but are being completed as a requirement under state permit SW-45.

The landfill is an operating facility and all remedial work was considered to be covered under the operating permit (installation of a landfill cover, clay liner, leachate collection system, etc.).

Corrective Action of VOCs in groundwater is being addressed under state permit SW-45. The source control provided for the facility is a low permeability cover, combustible gas collection system and surface drainage control system which reduces both the production of leachate and the toxicity of the compounds released from the closed, unlined fill area. PBSL has conducted numerous response activities under permit SW-045, including the following:

- 1) Installation of an active landfill gas/methane gas recovery system consisting of the following components:
 - a) Final cover on Phase I and II including:
 - i) high permeability sand layer to promote venting of landfill gas/methane gas;
 - ii) low permeability landfill cap to prevent infiltration of precipitation;
 - iii) rooting zone soils; and

- iv) top soils.
 - b) Active gas wells connected by lateral lines;
 - c) Landfill gas to energy plant.
- 2) Installation of a liner and leachate collection system under all horizontal areas of phased development;
 - 3) Implementation of a long-term groundwater monitoring program in accordance with the Minnesota Solid Waste Landfill Compliance Program to assess trends in groundwater quality down-gradient of the landfill;
 - 4) Installation of a surface drainage control system;
 - 5) Performance of an in-situ bioremediation pilot study to determine site suitability for enhancing biodegradation of VOCs in groundwater;
 - 6) Relocation of 1.4 million cubic yards of refuse from an unlined area of the landfill to reduce the footprint of the unlined landfill; and
 - 7) Installation of a pilot leachate dewatering system to remove perched leachate within the unlined portion of the landfill.

Crosby American Demolition Landfill

The groundwater down-gradient of the CADL will continue to be monitored to evaluate the remedial measures at both the CADL and PBSL. No groundwater remediation system is operating at the CADL. The remedial actions taken at PBSL are believed to contribute to the long-term cleanup of the groundwater contamination plume. There have been no substantial changes in groundwater conditions during this reporting period. Laboratory analysis of groundwater samples continue to indicate low level impacts to the groundwater from the CADL and long-term downward trends in total VOCs. This is indicative of continued improvements to the groundwater quality beneath the CADL. Historical exceedances of Perchloroethylene (PCE) at this site indicate that natural degradation is likely occurring. VC is often the final degradation product of PCE. VC has had a decreasing trend since the late 1990s and is approaching non-detect levels in all wells.

Leachate

PBSL has continued its operation of the waste disposal facility in accordance with its permit requirements. Construction of a new ten acre landfill cell (Phase 4.B) with a leachate collection system was completed in August of 2001. The pilot leachate dewatering system is now part of the long-term O&M of the closed landfill portions and maintenance of the system is a requirement of the PBSL solid waste permit. The methane extraction system was expanded in the summer of 2001 with the addition of nine new methane gas extraction wells. The expansion was installed in the 39 acre lined area of Phase 3. In 2002, three new methane gas extraction wells were installed in the 115 acre closed, unlined area of the landfill. In 2002, PBSL installed and began operating a new leachate recovery system in Phases 1 and 2 of the landfill. Forty-six of the existing gas extraction wells were reconfigured to allow for simultaneous landfill gas and leachate recovery. In 2003, a second leachate holding tank was installed at the south end of the landfill. The methane extraction system was also expanded in Phase 4 of the landfill with the

installation of eight extraction wells. In January 12, 2004, a major modification of Permit SW-45 was approved by MPCA. This modification revised the number of monitoring locations, parameters, and frequency of sampling.

The existing telemetry controlled leachate extraction system was installed in Phases 1 and 2 in August 2002 through October 2002. Because this portion of the landfill is unlined, successful leachate extraction is vital in source control for the groundwater and in reducing leachate from the landfill mound. Forty-six of the existing gas extraction wells were reconfigured to allow for simultaneous landfill gas and leachate recovery. Site data showed a continued reduction in leachate levels throughout the second half of 2002 and throughout 2003 and 2004. Eighteen wells have less than 10 feet of leachate, fourteen extraction wells have 10 to 20 feet of leachate, and only two wells have 20 to 30 feet of leachate present. Leachate levels in the extraction wells have decreased an average of 25 feet per well from the 2002 measurements. In 2004, approximately 782,892 gallons of leachate were removed via the vertical extraction wells in Phase 1 and Phase 2.

The leachate is disposed of at the MCES – St. Paul WWTP and is delivered via tanker truck. Samples are collected and analyzed from the leachate tanks on a monthly basis and leachate volume is recorded based on a delivery log. Quarterly reports are provided to MCES and the MPCA is copied on the reports.

Landfill Gas

PBSL has installed and currently operates a gas collection and control system (GCCS) for the areas filled to final grade. The existing GCCS consists of 159 vertical extraction wells in the final grade and active fill areas. These extraction wells convey the landfill gas (LFG) from the refuse, through a series of lateral and header pipes to a gas-to-energy facility.

The vertical extraction wells are generally positioned on the landfill plateau. Lateral and header pipes are generally installed below grade and are constructed of high-density polyethylene (HDPE) pipe. The LFG is conveyed through this pipe network to the gas-to-energy facility located on the northwest side of the facility. The average spacing between the wells is approximately 150 to 200 feet. Operation of the gas-to-energy facility are monitored continuously.

Surface emissions monitoring is conducted quarterly using flame ionization detectors. Testing is conducted around the perimeter of the collection area and in a serpentine pattern across the collection area. In addition, any areas where visual observations indicate potentially elevated concentrations of methane are also screened. No exceedances of the methane standard of 500 ppm have been reported.

An annual performance test of the GCCS control device is required per the Air Emission Permit No. 03700138-002. The performance test establishes operation criteria based on the type of

control device to maintain a 98% destruction efficiency of non-methane organic compounds (NMOCs).

The control device for the gas to energy facility at the PBSL consists of two stationary turbines with a total rated capacity of 2,500 standard cubic feet per minute (scfm), two blowers with a total rated capacity of 3,200 to 10,500 scfm, two compressors with a total rated capacity of approximately 6,500 scfm, and one enclosed flare. Test results demonstrated the flare and the stack are operating in compliance with the New Source Performance Standards (NSPS) and Minnesota Rule 7011.3510 emission limitations.

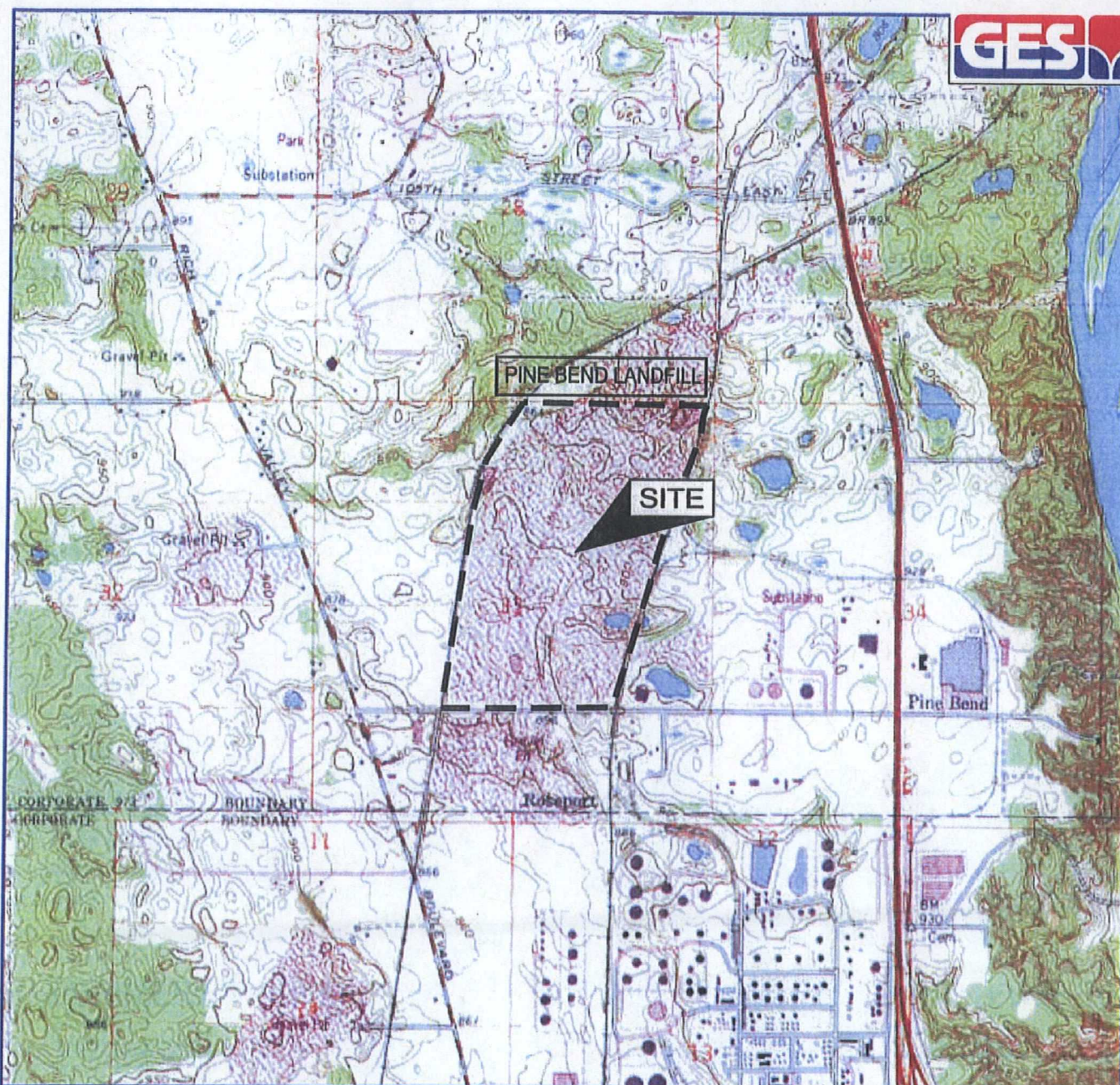
Institutional Controls

Landfill

The basis for EPA's concurrence in the 1995 No Further Action ROD for OU2 was two-fold: 1) completion of OU1 remedy; and 2) that source control, closure and post-closure requirements would be implemented and maintained at the site pursuant to the state permit such that no further CERCLA action is required. The operating permit for the landfill has significant language regarding land use restrictions at the site. Specifically, the reissuance of Permit SW-45 (May 29, 2009) requires the permittee to comply with post-closure use of property requirements in accordance with Minn. R. 7035.2655 subp. 2 which states:

Subp. 2. Post-closure use of property. The landowner must not allow post-closure use of the facility property to disturb the integrity of final covers, liners, or any other components of any containment system, or the function of the facility's monitoring system, unless the commissioner determines that the disturbance: A. is necessary to the proposed use of the property and will not cause a violation of the standards outlined in parts 7035.2565 and 7035.2815, subpart 4; and B. is necessary to remedy a violation of the standards in parts 7035.2565 and 7035.2815, subpart 4.

APPENDIX B



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1993
INVER GROVE HEIGHTS, MINNESOTA
CONTOUR INTERVAL = 10'

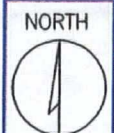


QUADRANGLE LOCATION

DRAFTED BY:
W.G.S.
(N.J.)

CHECKED BY:

REVIEWED BY:



SITE LOCATION MAP

BFI
PINE BEND LANDFILL
INVER GROVE HEIGHTS, MINNESOTA

Groundwater & Environmental Services, Inc.
1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121

SCALE IN FEET



DATE

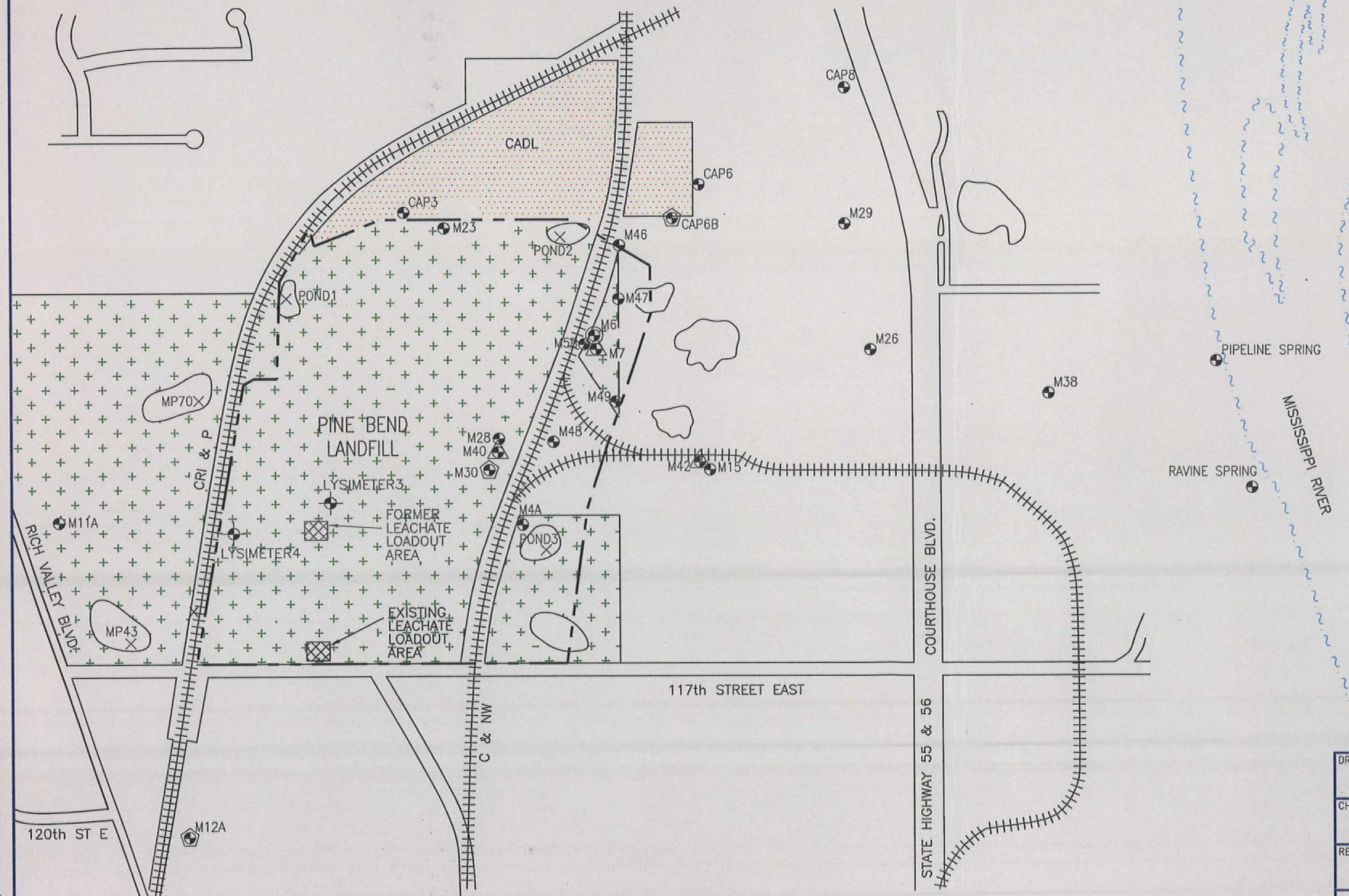
6-25-07

FIGURE

1

LEGEND

- SHALLOW DRIFT MONITORING WELL
- INTERMEDIATE DRIFT MONITORING WELL
- DEEP DRIFT MONITORING WELL
- BEDROCK MONITORING WELL
- PIEZOMETER
- LYSIMETER
- SURFACE WATER MONITORING LOCATION
- CROSBY-AMERICAN DEMOLITION LANDFILL (CADL)
- PINE BEND LANDFILL, INC. PROPERTY

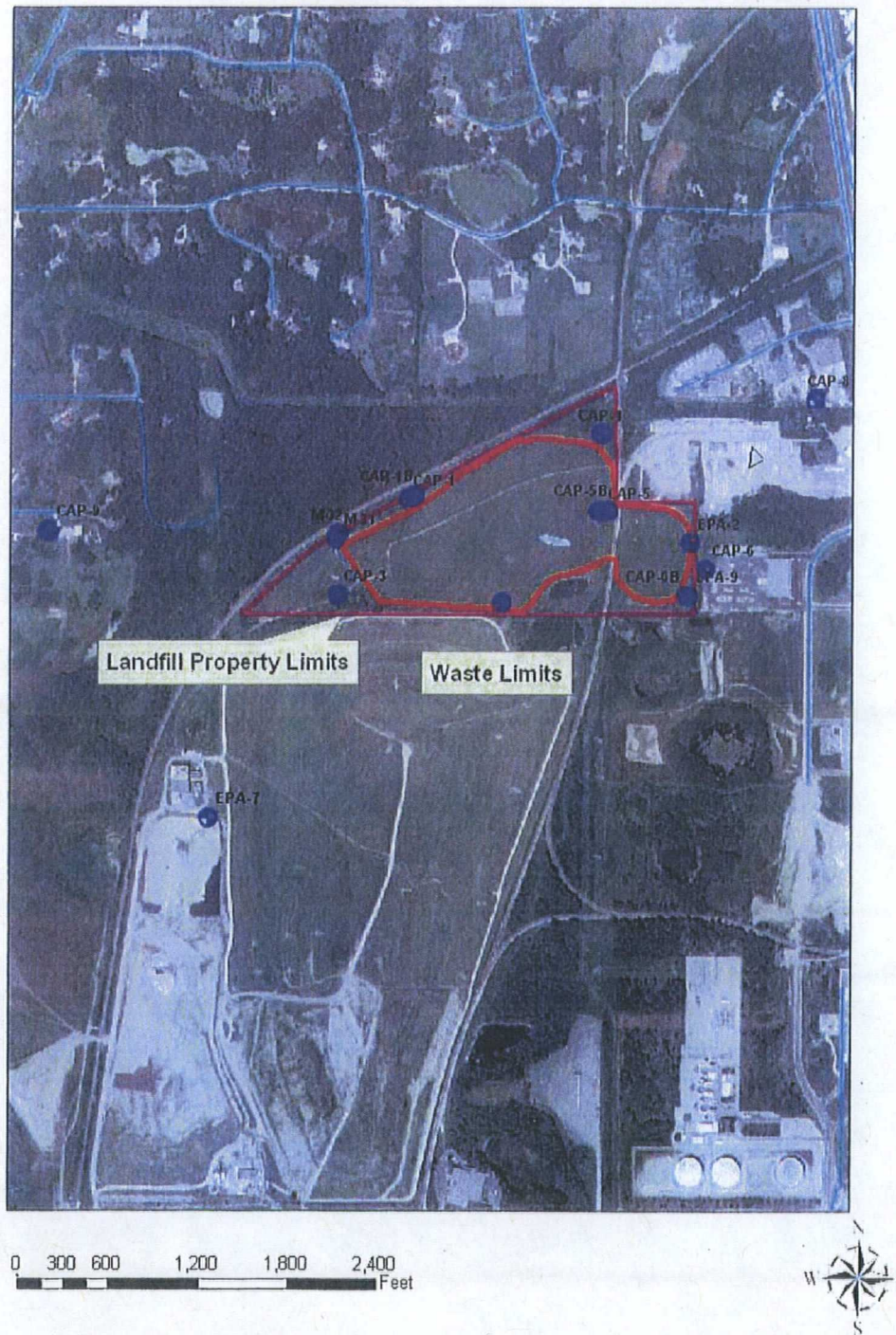


DRAFTED BY: W.G.S. (N.J.)	SITE MAP		
CHECKED BY:	BFI		
REVIEWED BY:	PINE BEND LANDFILL INVER GROVE HEIGHTS, MINNESOTA		
NORTH 	Groundwater & Environmental Services, Inc. 1285 CORPORATE CENTER DRIVE, SUITE 120, EAGAN, MN 55121		
	SCALE IN FEET 0 APPROXIMATE 1000	DATE 5-9-11	FIGURE 2

NOTE: BASE MAP ADAPTED FROM 1996 ANNUAL GROUNDWATER MONITORING REPORT - PINE BEND SANITARY LANDFILL, DATED JANUARY 1997.

Figure 2

Crosby American Properties Landfill
& GW Monitoring Wells



Institutional Controls

Minnesota Special Well Construction Areas

Superfund
U.S. Environmental Protection Agency



Pine Bend Sanitary Landfill Dakota County, MN

EPA ID# MND000245795



Legend

- Wells with Exceedances: Pine Bend Landfill**
- Wells with Exceedances: Crosby American Landfill*
- ⊕ Other Wells* **
- ▭ Pine Bend Landfill site boundary**
- ▭ Crosby American Landfill site boundary*
- ▭ Crosby American: Limit of Waste*
- ▭ Sections with Institutional Controls^

Sources:

- * Annual Report 2006, Crosby American Properties Landfill (MPCA)
- ** Water Quality and Natural Attenuation Monitoring Reports (GES, 2007/2008)
- ^ Minnesota Dept. of Health and US Public Land Survey (ESRI)

Produced by Angela Rozinski
U.S. EPA Region 5 on 01/21/2010
Image Date: 2009



EPA Disclaimer: Please be advised that areas depicted in the map have been estimated. The map does not create any rights enforceable by any party. EPA may refine or change this data and map at any time.

ATTACHMENT 1



11499 Courthouse Blvd
Inver Grove Heights, MN 55077

May 20, 2011

Denise Boone
U.S. EPA Region 5 (SR-6J)
77 West Jackson Blvd.
Chicago, IL 60604

Re: Notification/Verification of Private Well Use in Commercial Groundwater Plume at Pine Bend Landfill Site, Inver Grove Heights, MN

Dear Ms. Denise Boone:

This letter is written in response to letter received by Praxair on April 12, 2011 referencing a "Notification/Verification of Private Well Use in Contaminated Groundwater Plume at Pine Bend Landfill Site, Inver Grove Heights, MN". The industrial well in question, Groundwater Well #12728 located on Praxair property, is still active. This well is not used as a potable water source. The industrial well is solely used for process water in our industrial gas manufacturing process.

If you have any further questions, please contact me at (651) 319-6981 or kerry_krause@praxair.com.

Sincerely yours,

A handwritten signature in black ink that reads "Kerry Krause". The signature is fluid and cursive, with the first name "Kerry" and last name "Krause" clearly distinguishable.

Kerry Krause
S&ES Field Specialist

cc: Dennis Johnson
James Merriam
Tabitha Williams
Scott Harvey

Cut Fruit Express

Fresh from our table to yours™

May 9 2011

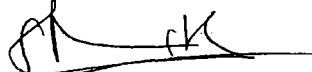
Denise Boone
U.S. EPA Region 5 (SR-6J)
77 West Jackson BLVD.
Chicago, IL 60604

RE: Well #151553

Dear Ms. Boone:

Well #151553 will be used for irrigation only.

Thanks,



Lawford Baxter



414 Nicollet Mall
Minneapolis, Minnesota 55401-1993

May 16, 2010

Denise Boone
U.S. EPA Region 5 (SR-6J)
77 West Jackson Blvd.
Chicago, Illinois 60604

**Re: Notification/Verification of Private Well Use in Contaminated
Groundwater Plume at Pine Bend Landfill Site, Inver Grove Height, MN**

Dear Ms. Boone:

In response to a letter from your office dated April 12, 2011, Xcel Energy is responding within 45 days of receipt of this letter. Review of Xcel Energy files resulted in discovery of a well sealing record (H-61392) that appeared to correspond with Well # 249051. After review of site files, Xcel Energy contacted William Olsen, Dakota County Water Resources to discuss the status of this well. Mr Olsen reviewed the record and conducted a site visit to verify that Well #249501 corresponded with sealing record H 61392, to document the well was sealed and no longer used as a potable water source at the plant site. Further, Xcel Energy property identified by this letter has transitioned to municipal water and sealed the potable well and fire well at the site. Enclosed is a report on the status of the well in question by Mr. Olsen

If you have any questions or concerns, please contact me at 612-330-7530.

Sincerely,

A handwritten signature in black ink that reads 'Jeff Berrington'.

Jeff Berrington
Senior Environmental Analyst
Northern States Power Company-MN, an Xcel Energy Company

Enclosures

c: William Olsen Dakota County Water Resources Department
 Lisa Mojsiej MPCA
 Alex Hokenson MPCA
 Terry Coss
 Steve Chapman
 Pat Flowers
 Frank Prager
 ES Record Center



May 10, 2011

Physical Development Division
Lynn Thompson, Director

Dakota County
Western Service Center
14955 Galaxie Avenue
Apple Valley, MN 55124-8579
952.891.7000
Fax 952.891.7031
www.dakotacounty.us

Environmental Mgmt. Department
Office of GIS
Parks and Open Space Department
Surveyor's Office
Transit Office
Transportation Department
Water Resources Department

Terry Coss
Director of Environmental Services
Xcel Energy
414 Nicollet Mall (MP -7)
Minneapolis, MN 55401

Re: Status of domestic water supply well, Minnesota Unique Well Number
249051, located at 3185 117th St, Inver Grove Heights, MN.

Dear Mr. Coss:

This letter confirms that the above referenced well was properly sealed on
September 21, 1994, by Traut Wells Inc. A copy of the Well and Boring Sealing
Record is attached.

Our records continued until recently to show that this well was not sealed. The
reason was that, in our records, the sealing record for this well had not been
correctly tied to the original well construction record, and the sealing record had
not been located geographically so that we could easily discover the
association. That has now been corrected. The County is not aware of any
remaining unsealed drinking water supply well at the above address.

Sincerely,

William Olsen
Hydrogeologist
Dakota County Water Resources Department

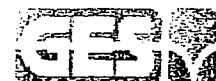
CC Denise Boone, U. S. EPA Region 5

Encl Copy of Sealing Record number H61392



IMPORTANT-FILE WITH PROPERTY
PAPERS-WELL OWNER COPY H 61392

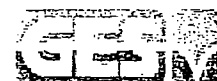
ATTACHMENT 2



INTERVENTION LIMITS

BFI Waste Systems of North America, LLC
2495 East 117th Street
Inver Grove Heights, Minnesota

Parameter	CAS	IL	Unit
1,1,1,2-Tetrachloroethane	630-20-6	17.5	ug/l
1,1,1-Trichloroethane	71-55-6	150	ug/l
1,1,2,2-Tetrachloroethane	79-34-5	0.5	ug/l
1,1,2-Trichloroethane	79-00-5	0.75	ug/l
1,1,2-Trichlorotrifluoroethane	76-13-1	50,000	ug/l
1,1-Dichloroethane	75-34-3	17.5	ug/l
1,1-Dichloroethylene (Vinylidene chloride)	75-35-4	1.5	ug/l
1,1-Dichloropropene	563-58-6	-	-
1,2-(trans-) Dichloroethylene	156-60-5	25	ug/l
1,2,3-Trichloropropane	96-18-4	10	ug/l
1,2-Dibromoethane (Ethylene dibromide) EDB	106-93-4	0.001	ug/l
1,2-Dichlorobenzene (ortho-)	95-50-1	150	ug/l
1,2-Dichloroethane	107-06-2	1	ug/l
1,2-Dichloroethylene (cis-)	156-59-2	17.5	ug/l
1,2-Dichloropropane	78-87-5	1.25	ug/l
1,3-Dichlorobenzene (meta-)	541-73-1	150	ug/l
1,3-Dichloropropane	142-28-9	-	-
1,3-Dichloropropene (cis + trans)	100-61-015	0.5	ug/l
1,4-Dichlorobenzene (para-)	106-46-7	2.5	ug/l
2,2-Dichloropropane	594-20-7	-	-
2-Chlorotoluene (ortho-)	95-49-8	-	-
4-Chlorotoluene (para-)	106-43-4	-	-
Acetone	67-64-1	175	ug/l
Allyl chloride (3 chloropropene)	107-05-1	7.5	ug/l
Ammonia Nitrogen	7664-41-7	-	-
Arsenic	7440-38-2	12.5	ug/l
Barium	7440-39-3	500	ug/l
Benzene	71-43-2	2.5	ug/l
Boron	7440-42-8	150	ug/l
Bromobenzene	108-86-1	-	-
Bromochloromethane (Chlorobromomethane)	74-97-5	-	-
Bromodichloromethane (Dichlorobromomethane)	75-27-4	1.5	ug/l
Bromoform	75-25-2	10	ug/l
Bromomethane (Methyl bromide)	74-83-9	2.5	ug/l
Cadmium	7440-43-9	1	ug/l
Carbon tetrachloride	56-23-5	0.75	ug/l
Chloride	16887-00-6	-	-
Chlorobenzene (monochlorobenzene)	108-90-7	25	ug/l
Chlorodibromomethane (Dibromochloromethane)	124-48-1	2.5	ug/l
Chloroethane	75-00-3	-	-
Chloroform	67-66-3	15	ug/l
Chloromethane (Methyl chloride)	74-87-3	-	-



INTERVENTION LIMITS

BFI Waste Systems of North America, LLC
2495 East 117th Street
Inver Grove Heights, Minnesota

Parameter	CAS	IL	Unit
Chromium (total) (Chromium VI)	18540-29-9	25	ug/l
Chromium III	10025-73-7	5,000	ug/l
Copper	7440-50-8	250	ug/l
Cumene (Isopropylbenzene)	98-82-8	75	ug/l
Dibromochloropropane (DBCP)	96-12-8	0.05	ug/l
Dibromomethane (Methylene bromide)	74-95-3	-	-
Dichlorodifluoromethane	75-71-8	250	ug/l
Dichlorofluoromethane	75-43-4	-	-
Dichloromethane (Methylene chloride)	75-09-2	12.5	ug/l
Dissolved Oxygen, Field	T-1-05	-	-
Eh (Oxidation potential)	4	-	-
Ethyl benzene	100-41-4	175	ug/l
Ethyl ether	60-29-7	250	ug/l
Hexachlorobutadiene	87-68-3	0.25	ug/l
Iron	7439-89-6	-	-
Lead	7439-92-1	-	-
Magnesium	7439-95-4	-	-
Manganese	7439-96-5	250	ug/l
Mercury	7439-97-6	0.5	ug/l
Methyl ethyl ketone (MEK)	78-93-3	1,000	ug/l
Methyl isobutyl ketone (4-Methyl-2-pentanone)	108-10-1	75	ug/l
Methyl tertiary-Butyl Ether (MTBE)	1634-04-4	-	-
Naphthalene	91-20-3	75	ug/l
n-Butyl Benzene	104-51-8	-	-
Nickel	7440-02-0	25	ug/l
Nitrate (as Nitrogen)	14797-55-8	2,500	ug/l
Nitrite (as Nitrogen)	14797-65-0	250	ug/l
n-Propyl benzene	103-65-1	-	-
pH	C-0-06	-	-
p-Isopropyltoluene	99-87-6	-	-
Potassium	7440-00-97	-	-
sec-Butyl Benzene	135-98-8	-	-
Selenium	7782-49-2	12.5	ug/l
Silver	7440-22-4	7.5	ug/l
Sodium	7440-23-5	-	-
Specific Conductance	C-0-11	-	-
Static Water Level	PCA-00-1	-	-
Styrene	100-42-5	25	ug/l
Sulfate	14808-79-8	-	-
Temperature	T-1-21	-	-
tert-Butyl Benzene	98-06-6	-	-
Tetrachloroethylene (Perchloroethylene)	127-18-4	1.75	ug/l



INTERVENTION LIMITS

BFI Waste Systems of North America, LLC
2495 East 117th Street
Inver Grove Heights, Minnesota

Parameter	CAS	IL	Unit
Tetrahydrofuran	109-99-9	25	ug/l
Toluene	108-88-3	250	ug/l
Trichloroethylene (TCE)	79-01-6	7.5	ug/l
Trichlorofluoromethane	75-69-4	500	ug/l
Turbidity Field	G-0-19	-	-
Vinyl chloride (chloroethene)	75-01-4	0.05	ug/l
Xylenes (mixture of o,m,p)	1330-20-7	2,500	ug/l
Zinc	7440-66-6	500	ug/l

ATTACHMENT 3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

February 12, 2014

Reply to: SR 6J

Ms. Lisa Mojsiej and
Mr. Abdi Hassan
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Re: Notification of Five Year Review Start for the Pine Bend Landfill SW-45, Inver Grove Heights, Minnesota

Dear Ms. Mojsiej:

This letter is to notify you that the United States Environmental Protection Agency (EPA) will begin the Five Year Review for the Pine Bend Landfill SW-45 Site (Site) located in Inver Grove Heights, Minnesota on February 12, 2014.

EPA is conducting a statutory Five Year Review for the Site as required by Section 121 of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of the review is to evaluate the remedy implemented at the Site and determine if the remedy remains protective of human health and the environment.

The Five Year Review for the Site is due on February 11, 2015. EPA is providing the Minnesota Pollution Control Agency (MPCA) with notification so that EPA and MPCA can begin the necessary coordination activities. EPA will be contacting you to schedule a Site Inspection and is working with the Community Involvement Coordinator to notify the public of the review.

If you have any questions or would like to discuss the Five Year Review for the Site further, please feel free to contact me at 312-886-3543.

Sincerely,

A handwritten signature in cursive script, reading "Pamela Molitor", is positioned above the typed name.

Pamela Molitor
Remedial Project Manager

ATTACHMENT 4

Paid for by Friends to Elect Bruce Johnson, 2504 Crestmount Lane, Burnsville, MN 55306

ATTACHMENT 5

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION			
Site name: <u>Pine Bend Sanitary Landfill</u>		Date of inspection: <u>8/13/2014</u>	
Location and Region: <u>Minnesota R5</u>		EPA ID: <u>MND 000245795</u>	
Agency, office, or company leading the five-year review: <u>EPA</u>		Weather/temperature: <u>80°F Sunny</u>	
Remedy Includes: (Check all that apply)			
☒ Landfill cover/containment		Monitored natural attenuation	
Access controls		Groundwater containment	
☒ Institutional controls		Vertical barrier walls	
Groundwater pump and treatment			
☐ Surface water collection and treatment			
Other _____			
Attachments: Inspection team roster attached		Site map attached	
II. INTERVIEWS (Check all that apply)			
1. O&M site manager <u>Aaron Janusz</u> <u>ENV. MGR</u> <u>8/13/14</u>			
Name		Title	
Interviewed <u>at site</u> at office by phone		Phone no. _____	
Problems, suggestions; Report attached <u>NONE</u>		_____	
2. O&M staff <u>Jeff Brown, Kevin Michael Brian Deering</u> <u>8/13/14</u>			
Name		Title	
Interviewed <u>at site</u> at office by phone		Phone no. _____	
Problems, suggestions; Report attached _____		_____	

Inspection Team:

Pamela Molitor, EPA

Lisa Mojsiej, MPCA

Megan Horst, MPCA

Abraham McLaramore

Saulte Ste Marie tribe

of Chippewa Indians

Aaron Janusz, Republic Services
Inc

Jeff Brown, Republic

Kevin M. Lienau, GES

Brian Dering, GES

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents <u>O&M manual</u> <u>As-built drawings</u> <u>Maintenance logs</u> Remarks _____	<u>Readily available</u> <u>Readily available</u> <u>Readily available</u>	Up to date Up to date Up to date	N/A N/A N/A
2.	Site-Specific Health and Safety Plan Contingency plan/emergency response plan Remarks _____	<u>Readily available</u> <u>Readily available</u>	Up to date Up to date	N/A N/A
3.	O&M and OSHA Training Records Remarks _____	<u>Readily available</u>	Up to date	N/A
4.	Permits and Service Agreements Air discharge permit Effluent discharge Waste disposal, POTW Other permits Remarks <u>MPCA permit</u>	<u>Readily available</u> <u>Readily available</u> <u>Readily available</u> <u>Readily available</u>	Up to date Up to date Up to date Up to date	N/A N/A N/A N/A
5.	Gas Generation Records Remarks _____	Readily available	Up to date	N/A
6.	Settlement Monument Records Remarks _____	Readily available	Up to date	N/A
7.	Groundwater Monitoring Records Remarks _____	<u>Readily available</u>	Up to date	N/A
8.	Leachate Extraction Records Remarks _____	<u>Readily available</u>	Up to date	N/A
9.	Discharge Compliance Records Air Water (effluent) Remarks _____	<u>Readily available</u> <u>Readily available</u>	Up to date Up to date	N/A N/A
10.	Daily Access/Security Logs Remarks _____	<u>Readily available</u>	Up to date	N/A

IV. O&M COSTS																																											
1.	O&M Organization State in-house _____ Contractor for State _____ PRP in-house _____ Contractor for PRP _____ Federal Facility in-house _____ Contractor for Federal Facility _____ Other _____																																										
2.	O&M Cost Records Readily available _____ Up to date _____ Funding mechanism/agreement in place _____ Original O&M cost estimate _____ Breakdown attached _____ Total annual cost by year for review period if available <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">From _____</td> <td style="width: 15%;">To _____</td> <td style="width: 30%;"></td> <td style="width: 40%;">Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> </table>	From _____	To _____		Breakdown attached	Date	Date	Total cost		From _____	To _____		Breakdown attached	Date	Date	Total cost		From _____	To _____		Breakdown attached	Date	Date	Total cost		From _____	To _____		Breakdown attached	Date	Date	Total cost		From _____	To _____		Breakdown attached	Date	Date	Total cost			
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3.	Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: _____ _____ _____ _____ _____																																										
V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A																																											
A. Fencing																																											
1.	Fencing damaged Remarks _____	Location shown on site map _____	Gates secured N/A																																								
B. Other Access Restrictions																																											
1.	Signs and other security measures Remarks _____	Location shown on site map _____	N/A																																								

C. Institutional Controls (ICs)				
1. Implementation and enforcement				
Site conditions imply ICs not properly implemented	Yes	☒ No	N/A	
Site conditions imply ICs not being fully enforced	Yes	☒ No	N/A	
Type of monitoring (e.g., self-reporting, drive by) _____				
Frequency _____				
Responsible party/agency _____				
Contact _____				
Name	Title	Date	Phone no.	
Reporting is up-to-date				
Yes	No	N/A		
Reports are verified by the lead agency				
Yes	No	N/A		
Specific requirements in deed or decision documents have been met				
Yes	No	N/A		
Violations have been reported				
Yes	No	N/A		
Other problems or suggestions: Report attached				

2. Adequacy				
☒ ICs are adequate	☐ ICs are inadequate	N/A		
Remarks _____				

D. General				
1. Vandalism/trespassing				
Location shown on site map	☒ No vandalism evident			
Remarks _____	_____			

2. Land use changes on site				
☒ N/A				
Remarks _____	_____			

3. Land use changes off site				
☒ N/A				
Remarks _____	_____			

VI. GENERAL SITE CONDITIONS				
A. Roads				
Applicable	N/A			
1. Roads damaged				
Location shown on site map	☒ Roads adequate			N/A
Remarks _____	_____			

B. Other Site Conditions			
Remarks _____ _____ _____ _____ _____			
VII. LANDFILL COVERS Applicable N/A			
A. Landfill Surface			
1.	Settlement (Low spots) Areal extent _____ Remarks _____	Location shown on site map Depth _____	Settlement not evident
2.	Cracks Lengths _____ Remarks _____	Widths _____ Depths _____ Location shown on site map	Cracking not evident
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Depth _____	Erosion not evident
4.	Holes Areal extent _____ Remarks _____	Location shown on site map Depth _____	Holes not evident
5.	Vegetative Cover Trees/Shrubs (indicate size and locations on a diagram) Remarks _____	Grass _____ Cover properly established	No signs of stress
6.	Alternative Cover (armored rock, concrete, etc.) Remarks _____	N/A	
7.	Bulges Areal extent _____ Remarks _____	Location shown on site map Height _____	Bulges not evident

8.	Wet Areas/Water Damage Wet areas Ponding Seeps Soft subgrade Remarks _____	Wet areas/water damage not evident Location shown on site map Location shown on site map Location shown on site map Location shown on site map	Areal extent Areal extent Areal extent Areal extent	N/A
9.	Slope Instability Areal extent _____ Remarks _____	Slides Location shown on site map	No evidence of slope instability	
B. Benches Applicable N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)				
1.	Flows Bypass Bench Remarks _____	Location shown on site map	N/A or okay	
2.	Bench Breached Remarks _____	Location shown on site map	N/A or okay	
3.	Bench Overtopped Remarks _____	Location shown on site map	N/A or okay	
C. Letdown Channels Applicable N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)				
1.	Settlement Areal extent _____ Remarks _____	Location shown on site map Depth _____	No evidence of settlement	
2.	Material Degradation Material type _____ Remarks _____	Location shown on site map Areal extent _____	No evidence of degradation	
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Depth _____	No evidence of erosion	

4.	Undercutting Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	No evidence of undercutting
5.	Obstructions Type _____ Location shown on site map _____ Size _____ Remarks _____	Areal extent _____	No obstructions
6.	Excessive Vegetative Growth Type _____ No evidence of excessive growth Vegetation in channels does not obstruct flow Location shown on site map _____ Remarks _____	Areal extent _____	
D. Cover Penetrations Applicable N/A			
1.	Gas Vents Properly secured/locked Evidence of leakage at penetration N/A Remarks _____	Active Functioning	Passive Routinely sampled Good condition Needs Maintenance
2.	Gas Monitoring Probes Properly secured/locked Evidence of leakage at penetration Remarks _____	Functioning	Routinely sampled Good condition Needs Maintenance N/A
3.	Monitoring Wells (within surface area of landfill) <u>Properly secured/locked</u> <u>Functioning</u> Evidence of leakage at penetration Remarks _____	<u>Routinely sampled</u> Needs Maintenance	<u>Good condition</u> N/A
4.	Leachate Extraction Wells <u>Properly secured/locked</u> <u>Functioning</u> Evidence of leakage at penetration Remarks _____	<u>Routinely sampled</u> Needs Maintenance	<u>Good condition</u> N/A
5.	Settlement Monuments Remarks _____	Located	Routinely surveyed N/A

E. Gas Collection and Treatment		Applicable	N/A
1.	Gas Treatment Facilities Flaring Good condition Remarks _____	Thermal destruction Needs Maintenance	Collection for reuse
2.	Gas Collection Wells, Manifolds and Piping Good condition Remarks _____	Needs Maintenance	
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) Good condition Remarks _____	Needs Maintenance	N/A
F. Cover Drainage Layer		Applicable	N/A
1.	Outlet Pipes Inspected Remarks _____	Functioning	N/A
2.	Outlet Rock Inspected Remarks _____	Functioning	N/A
G. Detention/Sedimentation Ponds		Applicable	N/A
1.	Siltation Areal extent _____ Depth _____ Siltation not evident Remarks _____		N/A
2.	Erosion Areal extent _____ Depth _____ Erosion not evident Remarks _____		
3.	Outlet Works Remarks _____	Functioning	N/A
4.	Dam Remarks _____	Functioning	N/A

H. Retaining Walls		Applicable	N/A
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	Location shown on site map Vertical displacement _____	Deformation not evident
2.	Degradation Remarks _____	Location shown on site map	Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		Applicable	N/A
1.	Siltation Areal extent _____ Remarks _____	Location shown on site map Depth _____	Siltation not evident
2.	Vegetative Growth Vegetation does not impede flow Areal extent _____ Remarks _____	Location shown on site map Type _____	N/A
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Depth _____	Erosion not evident
4.	Discharge Structure Remarks _____	Functioning	N/A
VIII. VERTICAL BARRIER WALLS		Applicable	N/A
1.	Settlement Areal extent _____ Remarks _____	Location shown on site map Depth _____	Settlement not evident
2.	Performance Monitoring Type of monitoring _____ Performance not monitored Frequency _____ Head differential _____ Remarks _____	Evidence of breaching	

IX. GROUNDWATER/SURFACE WATER REMEDIES		Applicable	N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines		Applicable	N/A
1.	Pumps, Wellhead Plumbing, and Electrical <u>Good condition</u> All required wells properly operating Needs Maintenance N/A Remarks _____ _____		
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <u>Good condition</u> Needs Maintenance Remarks _____ _____		
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade Needs to be provided Remarks _____ _____		
B. Surface Water Collection Structures, Pumps, and Pipelines		Applicable	N/A
1.	Collection Structures, Pumps, and Electrical <u>Good condition</u> Needs Maintenance Remarks _____ _____		
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance Remarks _____ _____		
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade Needs to be provided Remarks _____ _____		

C. Treatment System	Applicable	N/A
1. Treatment Train (Check components that apply) Metals removal Air stripping Filters Additive (e.g., chelation agent, flocculent) Others Good condition Needs Maintenance Sampling ports properly marked and functional Sampling/maintenance log displayed and up to date Equipment properly identified Quantity of groundwater treated annually Quantity of surface water treated annually Remarks	Oil/water separation Carbon adsorbers	Bioremediation
2. Electrical Enclosures and Panels (properly rated and functional) N/A Remarks	<u>Good condition</u> Needs Maintenance	
3. Tanks, Vaults, Storage Vessels N/A Remarks	<u>Good condition</u> Proper secondary containment Needs Maintenance	
4. Discharge Structure and Appurtenances N/A Remarks	Good condition Needs Maintenance	
5. Treatment Building(s) N/A Chemicals and equipment properly stored Remarks	<u>Good condition</u> (esp. roof and doorways) Needs repair	
6. Monitoring Wells (pump and treatment remedy) Properly secured/locked All required wells located Remarks	Functioning Needs Maintenance	Routinely sampled Good condition N/A
D. Monitoring Data		
1. Monitoring Data <u>Is routinely submitted on time</u>	Is of acceptable quality	
2. Monitoring data suggests: <u>Groundwater plume is effectively contained</u>	Contaminant concentrations are declining	

D. Monitored Natural Attenuation			
1.	Monitoring Wells (natural attenuation remedy)		
	Properly secured/locked	Functioning	Routinely sampled
	All required wells located	Needs Maintenance	Good condition
	Remarks _____		N/A
X. OTHER REMEDIES			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
XI. OVERALL OBSERVATIONS			
A. Implementation of the Remedy			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).			
Operating Landfill under Permit by MPCA			
#45-			
NO ISSUES			
B. Adequacy of O&M			
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.			
operating as designed			

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

N/A

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

N/A

ATTACHMENT 6

Documents Reviewed

- 5/29/2009 MPCA Solid Waste Management Facility Permit
- 1/30/2013 *2012 Annual Water Quality and Natural attenuation Monitoring Report*, Groundwater & Environmental Services, Inc.
- 1/28/2014 *2013 Annual Water Quality and Natural attenuation Monitoring Report*, Groundwater & Environmental Services, Inc.
- 6/23/2014 *2014 Spring Water Quality and Natural Attenuation Monitoring Report*, Groundwater & Environmental Services, Inc.
- 9/29/2014 *2014 Summer Water Quality and Natural Attenuation Monitoring Report*, Groundwater & Environmental Services, Inc.