THIRD FIVE-YEAR REVIEW REPORT FOR STOUGHTON CITY LANDFILL SUPERFUND SITE
City of Stoughton, Dane County, Wisconsin

Prepared by
Wisconsin Department of Natural Resource for the
U.S. Environmental Protection Agency
Region 5
Chicago, Illinois

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Approved by: Date:

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TABLE OF CONTENTS

List of Acronyms.....iv
Executive Summary.....vi
Five-Year Review Summary Form.....vii

I. Introduction.....1

II. Site Chronology.....2

III. Background.....3
Land and Resource Uses and Physical Characteristics
History of Contamination and Initial Response
Extent of Contamination
Site Risks
Basis for Taking Action

IV. Remedial Action.....6
Remedy Selected
Remedy Implementation
Institutional Controls
System Operations and Operation and Maintenance

V. Progress Since the Last Five-Year Review.....12

VI. Five-Year Review Process.....14
Administrative Components
Community Notification and Involvement
Document Review
Data Review
Site Inspection
Institutional Controls

VII. Technical Assessment.....17
Question A. Is the remedy functioning as intended by the decision documents?
Question B. Are the exposure assumptions, toxicity data, clean-up levels, and remedial action objectives used at the time of the remedy selections still valid?
Question C. Has any other information come to light that could call into question the protectiveness of the remedy?
Technical Assessment Summary

VIII. Issues.....18

IX. Recommendations and Follow-Up Actions.....18

X. Protectiveness Statement.....19

XI. Next Review.....19

Figure: Figure 1. Stoughton City Landfill Site.....20

Appendix 1: Data plots for groundwater monitoring

Appendix 2: Five-Year Review Site Inspection Checklist, photo key map, photographs

Appendix 3: Support agency O&M contractor semi-annual site inspection, photographs

Appendix 4: Five-Year Review Public Notice

LIST OF ABBREVIATIONS

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DCE	1,2-Dichloroethylene
EPA	United States Environmental Protection Agency
ES	Enforcement Standard (state of Wisconsin)
ESD	Explanation of Significant Differences
FYR	Five-Year Review
IC	Institutional Controls
LOD	Level of Detection
LOQ	Level of Quantification
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MW	Monitoring Well
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAL	Preventive Action Limits (State of Wisconsin)
PPB	Parts-per-billion or micrograms per liter (ug/L)
PCOR	Preliminary Close Out Report
PRP or RP	Potentially Responsible Party
RA	Remedial Action
RD	Remedial Design

RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SWRAU	Site-Wide Ready for Anticipated Use
TCE	Trichloroethylene
THF	Tetrahydrofuran
UAO	Unilateral Administrative Order
VC	Vinyl Chloride
VOC	Volatile Organic Compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources

EXECUTIVE SUMMARY

This is the third Five-Year Review (FYR) for the Stoughton City Landfill Superfund (Site) located in Stoughton City, Dane County, Wisconsin. 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 the previous FYR on April 16, 2008.

The Stoughton City Landfill site is located in the northeast portion of Stoughton, Dane County, Wisconsin. The property containing the landfill site encompasses approximately 27 acres and occupies a portion of section 4, township 5 north, range 11 east. Although the landfill property originally occupied approximately 40 acres, landfilling has occurred on only about 15 acres of the property. Since 1982, land exchanges between the City of Stoughton (City) and the owner of an adjacent property have modified the original property boundaries.

The remedy for the Stoughton City Landfill site in Stoughton, Dane County, Wisconsin, according to the September 1991 Record of Decision and the February 1996 Explanation of Significant Differences, included: excavation of wastes outside the area of main waste disposal and placement of these materials under the cap; placement of a solid waste landfill cover (cap) system over the waste disposal area; placement of a fence around the cap, or slightly within the edges of the cap; institutional controls to prevent the installation of drinking water wells within 1200 feet of the property boundary and to prevent residential development of the property; and long-term groundwater monitoring to confirm the effectiveness of the other components of the selected remedy. The Record of Decision also included a requirement for the extraction and treatment of contaminated groundwater unless additional investigations indicated that this was not required. Further investigation of the groundwater during the remedial design indicated that it was not necessary to implement the groundwater treatment at the time of the construction of the cap. Based on the evaluation of monitoring results since that time, it may be necessary to examine the need for additional groundwater remedial actions depending on future groundwater monitoring results. The site achieved construction completion with the signing of the Preliminary Close Out Report on December 15, 1998.

The remedy is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are being controlled and monitored. Institutional controls are in place and effective. However, in order for the remedy to be protective in the long-term, groundwater monitoring and gas migration monitoring results need to continue to be assessed and appropriate action taken if needed.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Stoughton City Landfill		
EPA ID: WID980901219		
Region: 5	**State:** WI	**City/County:** Stoughton, Dane County

SITE STATUS	
NPL Status: Final	
Multiple OUs? No	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Gary A. Edelstein, PE State PM
Author affiliation: Wisconsin Department of Natural Resources
Review period: 10/1/2012 – 04/16/2013
Date of site inspection: 10/12/2012
Type of review: Statutory
Review number: 3
Triggering action date: 04/16/2008
Due date *(five years after triggering action date)*: 04/16/2013

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None

Issues and Recommendations Identified in the Five-Year Review:

OU(s): 1	Issue Category: Monitoring			
	Issue: Groundwater Quality			
	Recommendation: Based on an evaluation of the groundwater monitoring results, the monitoring program should continue. If wells show increasing trends, then the need for additional groundwater action would be evaluated prior to or in the next five-year review report.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	EPA	EPA	April 2018

OU(s): 1	Issue Category: Monitoring			
	Issue: Landfill Gas Migration			
	Recommendation: Determine through additional gas probe monitoring if landfill gas migration is occurring to the south; develop and implement corrective measures if they are needed.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	EPA	EPA	April 2018

Protectiveness Statement

Operable Unit:	*Protectiveness Determination:*
1	Short-term Protective

Protectiveness Statement:
The remedy is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are being controlled and monitored. Institutional controls are in place and effective. However, in order for the remedy to be protective in the long-term, groundwater monitoring and gas migration monitoring results need to continue to be assessed and appropriate action taken if needed.

Sitewide Protectiveness Statement
Protectiveness Determination: Short-term Protective
Protectiveness Statement: The remedy is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are being controlled and monitored. Institutional controls are in place and effective. However, in order for the remedy to be protective in the long-term, groundwater monitoring and gas migration monitoring results need to continue to be assessed and appropriate action taken if needed.

Stoughton City Landfill Superfund Site
Stoughton, Dane County, Wisconsin
Third Five-Year Review Report

I. Introduction

The purpose of the Five-Year Review (FYR) is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in a five-year review report. In addition, the FYR report identifies issues found during the review, if any, and identifies recommendations to address them.

The U.S. Environmental Protection Agency (EPA) prepares FYRs. The Comprehensive Environmental Response, Compensation, and Liability Act (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 5 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 action 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 Stoughton City Landfill Superfund site in Stoughton, Wisconsin. The Wisconsin Department of Natural Resource (WDNR) is the support agency representing the State of Wisconsin. This review was conducted for the entire site by the WDNR Project Manager through April, 2013. This report documents the results of the review.

This is the third FYR for the Stoughton City Landfill site. The triggering action for this statutory review is the signature date of the previous FYR, April 16, 2008. 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 or unrestricted exposure.

II. Site Chronology

Event	Date
Landfill began operation (initially as an uncontrolled dump)	September 1952
Operation as a state-licensed landfill began	1969
Wisconsin Department of Natural Resources required closure	1977
Closure completed following operation for landfilling of construction debris since 1978	1982
Site proposed for the National Priorities List (NPL)	10/15/84
Placed as final on the NPL	6/10/86
Administrative Order by Consent for the remedial investigation (RI) and feasibility study (FS)	April 15, 1988 effective May 2, 1988
RI field work begins	March 1989
Proposed Plan released	7/12/91
Public meeting to discuss Proposed Plan and RI and FS reports	7/24/91
End of public comment period for the Proposed Plan	8/12/91
Record of Decision (ROD)	9/30/91
Fund lead remedial design (RD) began	9/28/92
Negotiations for RD and remedial action completed	9/28/92
Explanation of Significant Differences released	2/29/96
RD completed	1/30/97
Consent decree for cost settlement between City of Stoughton and United States and State of Wisconsin	lodged 6/5/97 entered 8/13/97
Fund lead RA began	9/27/97
On-site mobilization for RA began	4/10/98
Preliminary Close Out Report (construction completion under CERCLA)	12/15/98
Site inspection for the first five-year review	4/08/03
First five-year review report completed	4/17/03
Site inspection for second five-year review	10/17/07
Second five-year review report completed	4/16/08
Environmental Protection Easement and Declaration of Restrictive Covenant recorded at Dane County recorder's office	11/23/2010
Site inspection for third five-year review	10/12/12
Sitewide Ready for Anticipated Use (SWRAU) completed	1/24/13

III. Background

Land and Resource Uses and Physical Characteristics

The Stoughton City Landfill site is located in the northeast portion of Stoughton, Dane County, Wisconsin. The property containing the landfill site encompasses approximately 27 acres and occupies a portion of section 4, township 5 north, range 11 east. Although the landfill property originally occupied approximately 40 acres, landfilling has occurred on only about 15 acres of the property. Since 1982, land exchanges between the city and the owner of an adjacent property have modified the original property boundaries.

A wetland area that existed in the southeast portion of the current property boundary was the initial area of waste disposal. Wetlands occur adjacent to the southeast portion of the site, in the north portion of the site, and west of the site along the Yahara River. The river comes within approximately 400 feet of the waste disposal area. Approximately 1/8 of the site (the northeastern section, which consists of wetlands) is situated within the 100-year flood plain. The nearest developed land occurs along Amundson Parkway, the site access road to the south, and Skogdalen Dr., a road off Amundson Parkway just south of the site, where residential homes have been built. An extensive residential area occurs approximately 1/4 mile south of the site, where the city street grid pattern begins. The land immediately adjacent to the southern site boundary was undeveloped at the time of the remedial investigation. Then, as now, there was no developed land in the vicinity of the site to the west, north or east. The City of Stoughton now has a population of about 12,400. The residents of Stoughton are connected to city water.

Quaternary/glacial deposits, composed primarily of lacustrine plain and ice-contact stratified deposits, are approximately 200 feet thick at the site. Ice-contact stratified deposits generally include significant sand and gravel deposits and land forms such as kames and eskers. These deposits occupy higher ground within the landfill site and south of it. Lacustrine plain or glacial lake-bottom sediments are generally composed of fine-grained silt and clay. Some sand is present near former shorelines and stream inlets. These areas are often flat, poorly drained, and show evidence of peat accumulation. Lacustrine plain deposits occupy the southeast portion of the current property boundary, which was initially developed for waste disposal, and the low-lying ground adjacent to the east, north, and west portion of the site. Lacustrine plain sediments are generally overlain by younger marsh deposits. Under these deposits is reported to be Cambrian sandstone bedrock.

Regional groundwater flow is toward the Yahara River, which serves as a groundwater discharge. However, the groundwater flow in the surficial aquifer was radial beneath the site at the time of the remedial investigation. The surficial aquifer and the aquifer in the bedrock are hydraulically connected. Municipal well #3 is situated about 3000 ft west of the site and is set in the sandstone bedrock as an open pipe from roughly 210 ft below ground surface to 940 ft below ground surface.

History of Contamination and Initial Response

The City of Stoughton purchased the original 40-acre site in July 1952 and annexed it in September 1952 when landfill operation began. Between 1952 and 1969 the facility was operated as an uncontrolled dump site. Common municipal waste and both dry and liquid wastes were disposed of at the site. Some sludge materials containing 2-butanone, acetone, tetrahydrofuran, toluene, and xylene mixtures were disposed of at the site from 1954 until 1962. During this period, the liquid wastes were commonly poured over garbage and burned. It was also reported that some liquid wastes were poured down holes drilled to test auger drilling equipment in the west-central portion of the landfill. In 1969, the facility began operation as a state-licensed landfill. In 1977, the Wisconsin Department of Natural Resources (WDNR) required that the site be closed according to state regulations. Closure activities included construction of a trash transfer station, placement of cover material borrowed from the northwest portion of the site and from agricultural areas, application of topsoil also derived from an agricultural area, and seeding. From 1978 to 1982 only brick, rubble, and similar construction materials were accepted at the site while closure work was performed. The landfill was officially closed in 1982.
The site was placed on the National Priorities List (NPL) in June 1986. In March 1988, the two potentially responsible parties (PRPs) named for the site entered into an Administrative Order by Consent with USEPA and WDNR for the performance of a remedial investigation and feasibility study (RI/FS). Remedial investigation field activities began in March 1989. ERM-North Central was originally contracted by the PRPs to conduct the work related to the remedial investigation and feasibility study. ERM was replaced by ENSR Consulting and Engineering in 1990 to complete the remaining tasks of the remedial investigation and feasibility study. The Final Remedial Investigation Report, dated January 17, 1991, was submitted by the Stoughton City Landfill Steering Committee. The Final Feasibility Study Report was dated June 20, 1991. A report on a preliminary ecological site assessment was issued by USEPA in July 1991.

A Proposed Plan for remedial action was released for public comment on July 12, 1991, with a 30-day comment period ending August 12, 1991. A public meeting was held on July 24, 1991 at which the Proposed Plan and the findings of the remedial investigation and the feasibility study were discussed and oral comments were taken. A Record of Decision, in which the remedy selected for the site was described, was signed September 30, 1991. An Explanation of Significant Differences, in which a change in the remedy selected was described, was issued on February 29, 1996.

One of the PRPs who had performed the RI and FS filed for bankruptcy and the other PRP said that it could not pay for implementing the entire remedy. The latter PRP settled with the United States and the State of Wisconsin through a Consent Decree entered in August 1997; this Consent Decree required this PRP to pay to the United States and to the State of Wisconsin for their response costs. Eventually USEPA received some money from the former PRP in the bankruptcy proceedings. The remedial design, remedial action, and operation and maintenance were and have been implemented using these monies and Fund money.

Extent of Contamination

Results of the remedial investigation indicated that groundwater to the west of the site was contaminated with tetrahydrofuran (THF) in concentrations which exceeded the Wisconsin enforcement standard (ES) by more than one order of magnitude (660 µg/l versus 50 µg/l). Limited sampling and analyses were conducted of the wastes themselves, and the results indicated the presence of polynuclear aromatic hydrocarbons (PAHs) and phthalates. Bis(2-ethylhexyl)-phthalate was detected in waste in concentrations as high as 600,000 µg/kg. Sediments in the eastern wetlands were found to contain elevated levels of aluminum, calcium, and magnesium. PAHs, phthalates, benzoic acid, cadmium, and lead were found in low concentrations in sediment samples taken from the wetlands southeast of the site.

THF was measured at MW-3D at concentrations above the ES during all three sampling rounds performed during the remedial investigation. THF was also measured in one sampling round at MW-4D and MW-5S above the Wisconsin preventive action limit (PAL) (10 µg/l). There were no federal drinking water standards for THF at the time of the remedial investigation and there are still none. The NR 140.10 of the Wisc. Adm. Code (Wisconsin Administrative Code) says, "For all substances that have carcinogenic, mutagenic or teratogenic properties or interactive effects, the preventive action limit is 10% of the enforcement standard. The preventive action limit is 20% of the enforcement standard for all other substances that are of public health concern.")

Trichlorofluoromethane was measured in MW-5S and MW-5D during all sampling rounds at concentrations below the Wisconsin PAL (698 µg/l). Dichlorodifluoromethane was detected in MW-3D, MW-5S, and MW-5D in concentrations from 16 µg/l to 240 µg/l during some sampling rounds. No federal groundwater standards existed for dichlorodifluoromethane but the state had an interim recommended PAL of 300 µg/l at the time of the remedial investigation.

Elevated concentrations of metals were detected in various shallow and deep monitoring wells located in all directions away from the waste disposal area except to the northeast. The concentration of arsenic (5.2 µg/l) was slightly above the PAL of 5 µg/l in MW-2S in one duplicate sample. The highest concentration of barium in MW-2S (293 µg/l) was above the PAL of 200 µg/l. The concentration of barium was above the PAL at MW-1S; however, this concentration was not significantly above background. Selenium was detected above the PAL in upgradient well MW-1S. Chromium was measured in MW-4D below the limit of quantification but above the PAL. Concentrations of the following constituents were above the Wisconsin groundwater quality standards: iron (in MW-2S, MW-3S, MW-4D, and MW-5D) and manganese (in all wells, including the background well). Iron was also above the standard in the private well sampled for background purposes. The public welfare standards for these two substances are not health related, but rather are for aesthetics (e.g., color and fixture staining).

Site Risks

A baseline risk assessment was performed for the Record of Decision. The original assessment had to be modified when it was found that an incorrect ingestion reference dose was used for THF (the corrected reference dose at the time was 0.002 mg/kg-d, which was obtained from USEPA's Environmental Criteria and Assessment Office (ECAO) (April 15, 1991), and the one originally used was 0.068 mg/kg-d). Based on the risk assumptions and routes of exposure considered (ingestion of the waste, direct skin contact and ingestion of contaminants in the surface water and sediment, direct skin contact with and ingestion of contaminated soil, drinking contaminated groundwater at the landfill, and breathing air at the landfill), the contaminants at the Stoughton City Landfill could result in unacceptable non-carcinogenic risks such as impaired organ function in both adults and children. The maximum cumulative non-carcinogenic risk was determined by USEPA to be 9.5 for ingestion of water from well MW-3D, using a THF concentration in this well of 660 µg/l. This is the adult hazard index (HI), with 1.0 being the acceptable upper value. About 99% of this hazard index was due to the presence of THF. Adding contributions from dermal contact and inhalation, the HI was 10. These risks were based on future residential land use scenarios within close proximity to the site and on future groundwater use at the site.

The maximum carcinogenic risks from the site (considered for both the single, worst-case well approach and reasonable maximum risk associated with the 95 percent upper confidence level [UCL]) were within the agency's allowable risk range. The highest total site risk for the worst well approach was 9.7×10^{-5}. USEPA considers risks at Superfund sites that exceed 1×10^{-4} to be unacceptable.

An ecological assessment was conducted by Region 5 which indicated potential adverse effects to aquatic organisms as a result of contaminants leaching into the wetlands adjacent to the site's eastern border.

Basis for Taking Action

Actual or threatened releases of hazardous substances from this site, if not addressed by implementation of the response action selected in the Record of Decision, might present an imminent and substantial endangerment to public health, welfare, or the environment. This determination was based on the findings in the remedial investigation and the baseline risk assessment.

IV. Remedial Action

Remedy Selected

The remedial action objectives for the site are:

- Minimize direct contact with the wastes
- Minimize the further movement of contaminants to groundwater by reducing the amount of precipitation which infiltrates the landfill
- Contain the movement of contaminants in the groundwater in order to prevent contaminants from leaving the site boundary

- Extract and treat groundwater to meet state water quality discharge limits
- Restore the groundwater to state groundwater quality standards

The remedy selected in the September 30, 1991 Record of Decision was:
- Excavation of wastes in contact with groundwater to the southeast and northeast and placement of these materials under the cap;
- Placement of a solid waste landfill cover (cap) system over the waste disposal area;
- Extraction and treatment of contaminated groundwater unless additional investigations indicated that this might not be required;
- Placement of a fence around the cap, or slightly within the edges of the cap;
- Land use restrictions to prevent the installation of drinking water wells within 1200 feet of the property boundary and to prevent residential development of the property; and
- Long-term groundwater monitoring to confirm the effectiveness of the other components of the selected remedy.

A February 29, 1996 Explanation of Significant Differences reduced the amount of wastes that were to be relocated under the cap. Further investigation of the groundwater during the remedial design indicated that it was not necessary to implement the extraction and treatment of the groundwater at the time of the construction of the cap and the other parts of the remedy.

Remedy Implementation

The closure of the Stoughton City Landfill site involved the excavation and relocation of saturated waste deposited in wetlands, construction of a multilayer soil cover system, installation of a passive gas venting system, and construction of an access road and a perimeter security fence. Construction took place between April and December 1998.

The closure included the following:
- Construction of temporary facilities and security fencing;
- Construction of a decontamination pad and development of a water management plan for water resulting from decontamination and dewatering;
- Clearing, grubbing, and stripping of existing topsoil within the limits of the cap;
- Installation of soil erosion control measures, including a temporary flood control berm along the edge of the existing wetlands;
- Demolition and onsite consolidation of existing on-site facilities and debris, including a water line and picnic shelter;
- Abandonment of some existing monitoring wells on the site;
- Removal and onsite disposal and consolidation of drummed wastes from remedial investigation activities;
- Test pit investigations to determine the limits of the wastes;
- Excavation, dewatering, and on-site consolidation of saturated wastes, including the construction of a dewatering pad;
- Construction of the multilayer soil cover system (cap) after completion of a clay test pad;
- Installation of a passive landfill gas vent system;
- Construction of a permanent access road;
- Installation of a permanent perimeter fence and gates; and

- Final grading and restoration, including construction of a storm water and erosion system.

Additional wastes were encountered during the abandonment of the existing water line and, consequently, additional test pits were excavated in areas outside the originally defined waste relocation areas. It was found that wastes to the south extended to within a few feet of Skogdalen Drive. Due to the additional wastes discovered outside the original limits and some waste found to be at a greater depth than was anticipated, the actual amount of wastes relocated was nearly 25,000 cubic yards. This resulted in the cover being raised about two feet at the high point.

According to the Remedial Action Report prepared by USEPA's contractor, Roy F. Weston, Inc., the total anticipated cost for construction of the landfill cap, based on the Final Design Report, February 7, 1997, was $4,286,500. The original bid amount for the work was about $1,852,000 and change orders brought this to $2,084,000.

Construction completion for the site was achieved with the issuance of the Preliminary Close Out Report on December 15, 1998.

Institutional Controls

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 unlimited use or unrestricted exposure (UU/UE).

The map in Figure 1 shows the area within the fence line that does not support unlimited use and unrestricted exposure. The table below summarizes institutional controls for these restricted areas.

Table 1: Institutional Controls Summary Table

Media, remedy components & areas that do not support UU/UE based on current conditions	*Objectives of IC*	*Title of Institutional Control Instrument Implemented*
Stoughton Landfill – Constructed Subtitle C landfill cap over waste disposal area within fence	Prohibit interference of cap and assure integrity of the landfill cap; Prohibit residential use	-Environmental Protection Easement and Declaration of Restrictive Covenant recorded at Dane County recorder's office on 11/23/2010. Document # 4717518. -State of Wisconsin Chapter NR 506 (requires a prior approval from WDNR to build on a closed or abandoned landfill)
North of Stoughton Landfill on Property - Area of Site beyond landfill treated to recreational cleanup standards	Prohibit residential use	-Environmental Protection Easement and Declaration of Restrictive Covenant recorded at Dane County recorder's office on 11/23/2010. Document # 4717518. -State of Wisconsin Chapter NR 506 (requires a prior approval from WDNR to build on a closed or abandoned landfill)
Groundwater – current area on Stoughton Property that exceeds groundwater cleanup standards	Prohibit groundwater use (until cleanup standards are achieved)	-Environmental Protection Easement and Declaration of Restrictive Covenant recorded at Dane County recorder's office on 11/23/2010. Document # 4717518.
Groundwater – current area beyond Stoughton Property that exceeds groundwater cleanup standards	Prohibit groundwater use (until cleanup standards are achieved)	State of Wisconsin Chapter NR 812 (prohibits construction of well within 1200 feet of landfill waste boundary without prior written approval from WDNR)

The IC ROD Requirements

Cleanup goals for the Site, within the fence, include containment of soils and groundwater and prohibits residential use of the Site. Cleanup goals for groundwater beyond the site are based upon residential use.

The September, 1991 ROD states that the remedy includes "Land use restrictions to prevent the installation of a well within 1200 feet of the property boundary and to prevent residential development of the site." It also states that a component of the remedy is "Groundwater use in the area would be prevented by obtaining deed restrictions on the use and placement of wells in the affected area." Finally, the ROD states that the remedy includes "...the placement of

institutional controls such as deed restrictions to control future land use..." One of the deed restrictions that were to be placed on the two parcels of property at the site states, "No water wells, other than monitoring wells, shall be located on the property." In addition, the ROD calls for the prohibition of wells within 1200 feet of the property boundary. The ROD 1200 feet separation requirement is generally being met by the requirements of NR 812, Wis. Adm. Code, that a well not be constructed within 1200 feet of a landfill unless a written variance is granted by the WDNR.

The Consent Decree IC Requirements

The City of Stoughton entered into a Consent Decree (CD) with the agencies in 1997 to settle their Superfund liability for the site. In the ICs section of the CD it refers to the ROD, and Appendices B, C, and D of the CD address ICs. In Appendix B, "Declaration of Restrictions", section 1(e), it specifically states: "No recreational use within the fence installed pursuant to the ROD".

November 2010 Deed Instrument

An Environmental Protection Easement and Declaration of Restrictive Covenants for the site was recorded at Dane County's office on November 23, 2010. This easement and restrictive covenant prevents installation of drinking water wells in the area of concern, prohibits residential and recreational reuse, and cap interference.

Other Existing ICs

Several Wisconsin regulations are governmental ICs which help to ensure the protectiveness of the remedy. These are as follows:
- Chapter NR 812, Wisconsin Administrative Code, requires anyone who wishes to construct a well within 1200 feet of a landfill to obtain a prior written variance from WDNR.
- Chapter NR 506, Wisconsin Administrative Code, requires anyone who wishes to build on a closed or abandoned landfill to get prior approval from WDNR.

Site-Wide Ready for Anticipated Use

On January 24, 2013, USEPA determined the Site met the requirements for the Site-Wide Ready for Anticipated Use (SWRAU). The Site was found to meet the following requirements: 1) all cleanup goals in the ROD or other decision documents have been achieved for all media, except for the groundwater, that may affect current and reasonably anticipated future land uses, so that there are no unacceptable risks and 2) all ICs, or other controls, required in the RODs or identified as part of the response action to help ensure long-term protection have been put in place. As noted earlier, an Environmental Protection Easement and Declaration of Restrictive Covenant was recorded at the Dane County recorder's office on November 23, 2010 (Document # 4717518).

Long-Term Stewardship:

Long-term protectiveness at the site requires compliance with land and groundwater use restrictions to assure the remedy continues to function as intended. Long-term stewardship must be assured which includes maintaining and monitoring effective ICs. To assure proper maintenance and monitoring effective ICs, long-term stewardship procedures will be reviewed. WDNR will regularly inspect ICs at the site and provide annual certification to EPA that ICs are in place and effective. Additionally, use of a communications plan and use of one-call system will be explored for long-term stewardship.

Current Compliance:

Based on inspections and interviews, EPA is not aware of site or media uses which are inconsistent with the stated objectives of the ICs. The remedy appears to be functioning as intended. No site uses which are inconsistent with the implemented ICs or the remedy IC objectives have been noted during the site inspection or via interviews.

System Operations and Operation and Maintenance

WDNR is providing the operation and maintenance (O&M) required under the state's regulations for a closed landfill and the monitoring required by the ROD. This consists of groundwater monitoring, gas probe monitoring and fence, cover, drainage features and gas vent inspection and maintenance.

WDNR has performed O&M since July of 2000. During the first 5 years, the WDNR paid their O&M contract $23,847 per year for their services. The work was rebid in 2005 and since then the WDNR has paid their contractor $6,422 per year for their services. Most of the cost reduction was achieved by reducing the frequency and extent of groundwater monitoring and eliminating the gas vent monitoring. The work was again rebid in 2011 and since then WDNR has paid their contractor $7251 per year for their services for all routine O&M except special repairs. A repair contractor is hired on an as-needed basis to conduct non-routine repairs.

The current site map, showing monitoring wells, gas vents, gas probes, the fence, gates, site topography and the access road is attached as figure 1.

V. Progress since the Last Five-Year Review

This is the third Five-Year Review report for this site. The 2008 Five-Year Review protectiveness statement was: The remedy is protective of human health and the environment in the short term. Exposure pathways that could result in unacceptable risks are being controlled and monitored. However, in order for the remedy to be protective in the long-term, the institutional controls (ICs) that are part of the remedy need to be implemented. Groundwater monitoring results need to be assessed regularly because a few wells continue to show contaminant concentrations in excess of Wisconsin Preventative Action Limits (PALs). The following table summarizes the issues and recommendations of the 2008 report and the response or follow-up actions that have occurred.

Table 2: Actions Taken Since the Last Five-Year Review

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Flowing wells	Plug the remaining 2 wells, OW2 and OW4, by July, 2008, unless the wells will be abandoned.	**WDNR**	**July 2008**	Well plugs were installed.	5/13/ 2008
Groundwater Quality	Based on an evaluation of the groundwater monitoring results, monitoring program should continue. If increasing trends continue in the single well or other wells start to show increasing trends, then the need for some sort of additional groundwater action would be evaluated prior to or in the next five-year review report.	**USEPA**	**April 2013**	No increasing trends have been noted. All the organic compounds data from April, 2008 to April, 2012 for wells where the results exceeded PALS were reviewed and plotted on graphs to determine if any increasing trend could be noted. See the discussion under Data Review section.	10/1/ 2012

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Unused Wells	Determine the abandonment of unused monitoring wells	**USEPA**	**October 2013**	USEPA agreed that unused wells could be abandoned by WDNR (email dated April 25, 2012).	4/25/ 2012
Institutional Controls Implementing effective ICs will be required to assure protectiveness of the remedy. Long-term stewardship must be assured which includes maintaining and monitoring effective ICs.	USEPA will develop an IC Plan by October 2008. The plan will assure that effective ICs are implemented, monitored and maintained. U.S. EPA will oversee the placement of the necessary effective deed restrictions on the property parcels along with any other ICs deemed necessary and long-term stewardship of the Site.	**USEPA**	**October 2008**	Environmental Protection Easement and Declaration of Restrictive Covenant have been recorded. Site achieved SWRAU	11/23/ 2010 1/24/ 2013

Other progress since the last Five-Year Review: Site-Wide Ready for Anticipated Use

On January 24, 2013, USEPA determined the Site met the requirements for the Site-Wide Ready for Anticipated Use (SWRAU). The Site was found to meet the following requirements: 1) all cleanup goals in the ROD or other decision documents have been achieved for all media, except for the groundwater, that may affect current and reasonably anticipated future land uses, so that there are no unacceptable risks and 2) all ICs, or other controls, required in the ROD or identified as part of the response action to help ensure long-term protection have been put in place. As noted earlier, an Environmental Protection Easement and Declaration of Restrictive Covenant was recorded at the Dane County recorder's office on November 23, 2010 (Document # 4717518).

VI. Five-Year Review Process

Administrative Components

The WDNR remedial project manager began the review in October 2012. The review consisted of: a perusal of past documents, including those documents that provided the history of the site; an examination of the monitoring reports prepared since the last FYR and the data that they presented; notification of the community that the review was to take place; site inspection; and report preparation and review.

Community Notification and Involvement

An advertisement was placed in the Stoughton Courier Hub in October 2012 to inform the public of the upcoming review. The advertisement also reminded the public of the remedy selected and where the repository is located. A notice will be sent out informing the public of the completion of the review and the availability of the report once the report is signed. The results of the review and the FYR report will be made available at the Site information repository located at Stoughton Library, 304 South Fourth Street, Stoughton, Wisconsin 53589. A copy of the ad can be found on Appendix 4.

Document Review

For this review, the support agency Project Manager has gone over the periodic reports on the monitoring and has consulted with the EPA Remedial Project Manager. The documents that were reviewed for this FYR were following:

-Yearly groundwater monitoring reports prepared by the WDNR O&M contractor, including groundwater monitoring data.
-Bi-annual site inspection reports prepared by the WDNR O&M contractor for the last five years.

Data Review

Groundwater

The main objectives of the groundwater monitoring are to track the concentrations of tetrahydrofuran (THF) and dichlorodifluoromethane (DCDFM), which were identified during the earlier studies as the two substances that were of primary concern. Other organics are also tracked. Compounds of secondary concern are tetrachloroethylene (PCE) and trichloroethelyene (TCE).

Groundwater monitoring results from April, 2008 to April, 2012 were reviewed. In summary, the following was found:

- The groundwater contamination is not entering to the Municipal well #3.
- All the sampling results show that all organic compounds of primary and secondary

concern are below chapter NR 140 enforcement standards (ESs).

- A few chapter NR 140 preventive action limit (PAL) exceedances are still being detected for the organic compounds of primary and secondary concern in all the sampling events.

- All the organic compounds data from April, 2008 to April, 2012 for wells where the results exceeded PALs were reviewed and plotted on graphs to determine if any increasing trend could be noted. None of the plots indicate any clear increasing trend, but the results for TCE in well MW9I and THF in well MW13I indicate that periodic increases in concentrations justify a continued VOC monitoring program for those wells to evaluate trends further. Also, due to continued exceedances of PALs in a number of wells for organics, a continued VOC monitoring program is warranted. The graph plots are attached as appendix 1.

Note: In the 2008 second FYR Report, the WDNR Mann-Kendall trends analysis method was used to evaluate wells for trends. This method is no longer accepted by WDNR. An acceptable trends method is the Mann-Whitney trends analysis, but data must be collected on at least a semi-annual basis to use that method. So, trend graphs have been used in this report to determine trends.

The ES and PAL for DCDFM is 1000 and 200 µg/l, respectively.

The ES and PAL for THF is 50 and 10 µg/l, respectively.

The ES and PAL for PCE and TCE are 5 and 0.5 µg/l, respectively.

THF and DCDFM do not have federal maximum contaminant levels (MCLs). USEPA's Region 9 publishes a table of preliminary remediation goals (PRGs). In this table, concentrations in water are given that result from a specified scenario and correspond to a cancer risk of 10^{-6} for carcinogens or a hazard quotient of 1.0 for non-carcinogens (the sum of the hazard quotients (HQs), when there is more than one non-carcinogen, gives the hazard index; a HQ or HI of 1 is the maximum acceptable value); if a substance falls into both categories, then the lower concentration is presented in the table. For THF the PRG is 1.6 µg/l, considering this to be a carcinogen (it is 160 µg/l for a cancer risk of 10^{-4}), and for DCDFM the PRG is 390 µg/l, considering this to be a non-carcinogen (it is 39 µg/l for an HQ = 0.1). Using the non-carcinogen data for THF, the PRG would be 580 µg/l (58 µg/l for HQ = 0.1); this value is based on the use of 0.21 mg/kg-d for the oral reference dose, which reportedly came from USEPA's National Center for Environmental Assessment (NCEA), the successor to ECAO. As noted above, the oral reference dose used at the time of the ROD was 0.002 mg/kg-d, obtained from ECAO. At the time of the ROD, THF was not considered to be a carcinogen.

Soil Gas

There are three soil gas monitoring probes outside the waste area, on the south side of the site between the fill area and existing residential housing. The probes are intended to determine if landfill methane gas is migrating laterally away from the site through soil. The probes are

monitored bi-monthly. All of the rounds of results since April, 2008 show no indication of landfill gas migrating towards the probes, except in October, 2012. Elevated levels of carbon dioxide (10.1%) in combination with low levels of oxygen (4.3%) were detected in gas probe GMP-1 during the October 2012 gas monitoring event. These readings deviate from historical results at this well, and also deviate from readings collected from GMP-2 and GMP-3 during the same event. Additional testing is needed to provide a larger data set to confirm potential landfill gas migration before any action is contemplated.

Site Inspection

The inspection of the site was conducted on October 12, 2012 by the support agency Project Manager, the support agency O&M contractor and the EPA Remedial Project Manager. The completed five-year review site inspection form is attached as appendix 2. Photographs taken at the inspection by the support agency project manager are included, along with a site map photo key.

The state O&M contractor completed their regular semi-annual site inspection that day and their report is attached as appendix 3. Their photographs taken that day are also provided.

The landfill cover appeared to be generally in good condition. No bare spots or sparse vegetation were noted. Several animal burrows were noted and one location showed some potential erosion. Woody vegetation was noted near some of the gas vents. A state repair contractor will be tasked to repair the burrows, erosion and remove woody vegetation.

The storm water drainage system around the site was in good condition. No visible erosion was found. The culverts were undamaged and the riprap was not clogged.

The gas vents were found to be undamaged and no stressed vegetation was found near the vents. All the vent screens were clear and no further maintenance was needed at this time.

The fence was in good condition. No broken or removed boards on the wood slat fence were found. Some boards had warped near the main gate and had become somewhat detached at the bottom. Apparent frost heave has raised the wood fence pole on the west side. A state repair contractor will be tasked to make these repairs. The chain-link fence was in good condition. Both access gates were in good condition and the padlocks operated properly. The warning sign on the front gate was noted.

In the past, the wood slat fence had been damaged by users of the adjacent disc golf course. In June, 2007, the City of Stoughton agreed to inspect the wood slat fence next to the golf course weekly, report the results by email to WDNR and USEPA and repair the fence if problems were found. This has corrected the fence damage problem. The access road was in very good condition with no ruts, ponding or erosion noted.

Four monitoring wells need to have their protective caps replaced, which has been delayed due to interference by the length of the protective casing. Also, one of the hinges on a protective cap needs to be replaced. A state repair contractor will be tasked to make these repairs.

Interview

No formal interviews were conducted during this FYR.

VII. Technical Assessment

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

Yes. The review of the available information indicates that the remedy is functioning as it was intended. None of the monitoring wells currently sampled for organics are showing increasing trends. Based on the results, the annual organics monitoring program should continue for at least another five years to allow continued evaluation of the data over that time by the agencies, report the results and make any recommendations prior to or in the next FYR, to be completed by April 2018. If wells start to show increasing trends, then the need for some sort of additional groundwater action would be evaluated.

Question B. Are the exposure assumptions, toxicity data, clean-up levels, and remedial action objectives used at the time of the remedy selection still valid?

Yes. There have been no major changes in the physical conditions of the site that would affect the protectiveness of the remedy. The site is being used as anticipated (that is, the waste disposal area is not being used). Therefore, new exposure assumptions are not needed at this time.

The primary applicable or relevant and appropriate requirements (ARARs) that the site has to meet fall into two general categories of regulations: landfill and groundwater. Most of the landfill requirements have been met through the construction that has taken place. Of primary concern now is the attainment of the standards for the groundwater.

Finally, no Site uses which are inconsistent with the implemented ICs or the remedy IC objectives have been noted during the Site inspection or via interviews.

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

No. There has been no new information that would suggest that the selected remedy is not protective.

Technical Assessment Summary

According to the data reviewed, the site inspection, and discussions with the state, the remedy is functioning as intended by the decision documents. There have been no changes in the physical conditions at the site that would affect the protectiveness of the remedy.

VIII. Issues

Table 3 identifies the issues identified during this Five-Year Review which affect protectiveness.

Table 3: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Groundwater Quality	N	Y
Landfill Gas Migration	N	Y

This review also notes an additional concern that should be resolved and that does not affect protectiveness of the remedy. This concern is: unused monitoring wells.

IX. Recommendations and Follow-Up Actions

Table 4 identifies the recommended follow-up actions to address the issues from Table 3.

Table 4: Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Groundwater Quality	Based on an evaluation of the groundwater monitoring results, the monitoring program should continue. If wells show increasing trends, then the need for additional groundwater action would be evaluated prior to or in the next five-year review report.	**USEPA**	**USEPA**	**April 2018**	**N**	**Y**

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Landfill Gas Migration	Determine through additional gas probe monitoring if landfill gas migration is occurring to the south; develop and implement corrective measures if they are needed.	**USEPA**	**USEPA**	**April, 2018**	**N**	**Y**

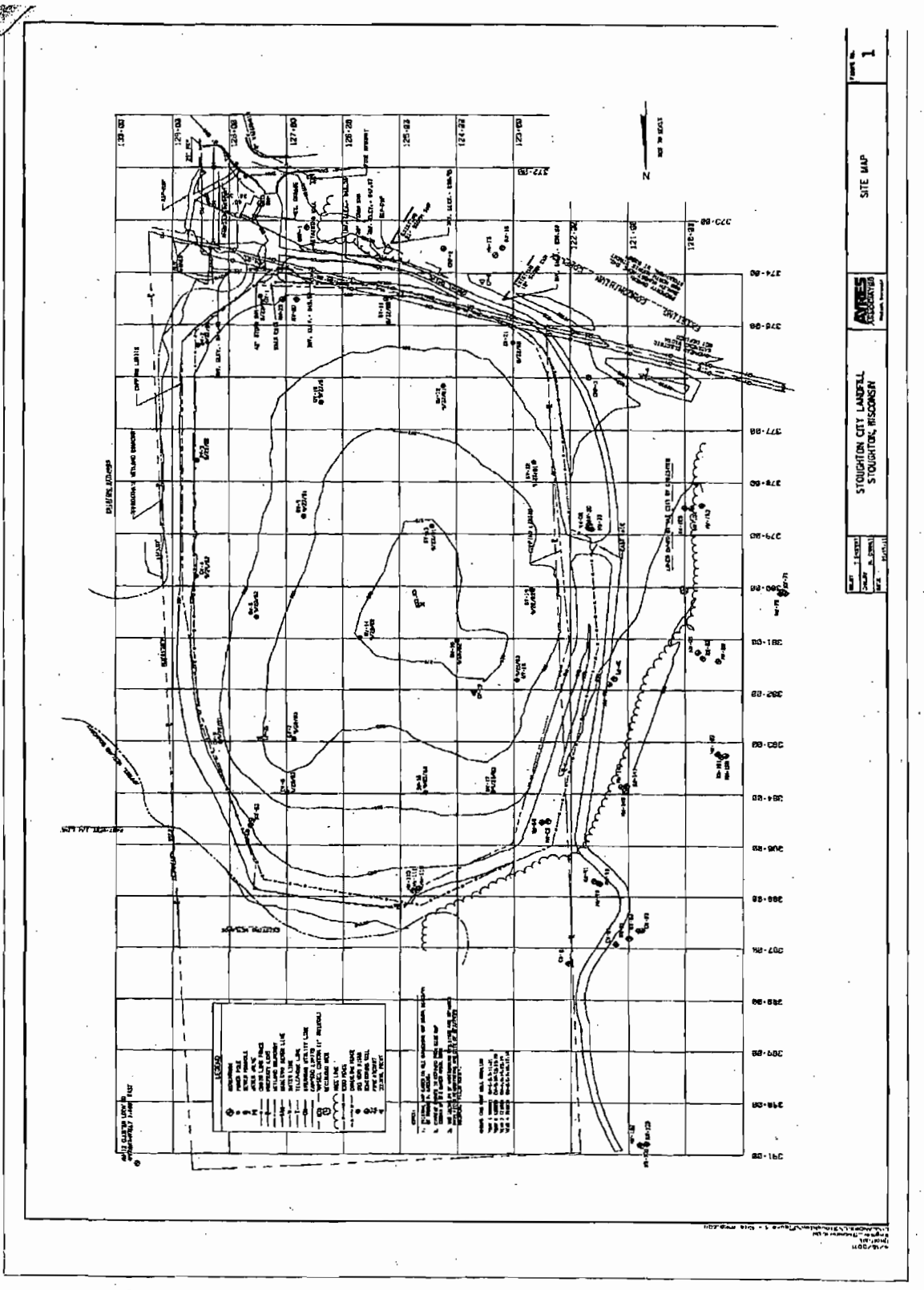
An additional concern noted by this review, but which does not affect remedy protectiveness, should be addressed as follows: determine a cost effective way to properly abandon unused monitoring wells and implement well abandonment.

X. Protectiveness Statement

The remedy is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are being controlled and monitored. Institutional controls are in place and effective. However, in order for the remedy to be protective in the long-term, groundwater monitoring and gas migration monitoring results need to continue to be assessed for increasing trends and appropriate action taken if needed.

XI. Next Review

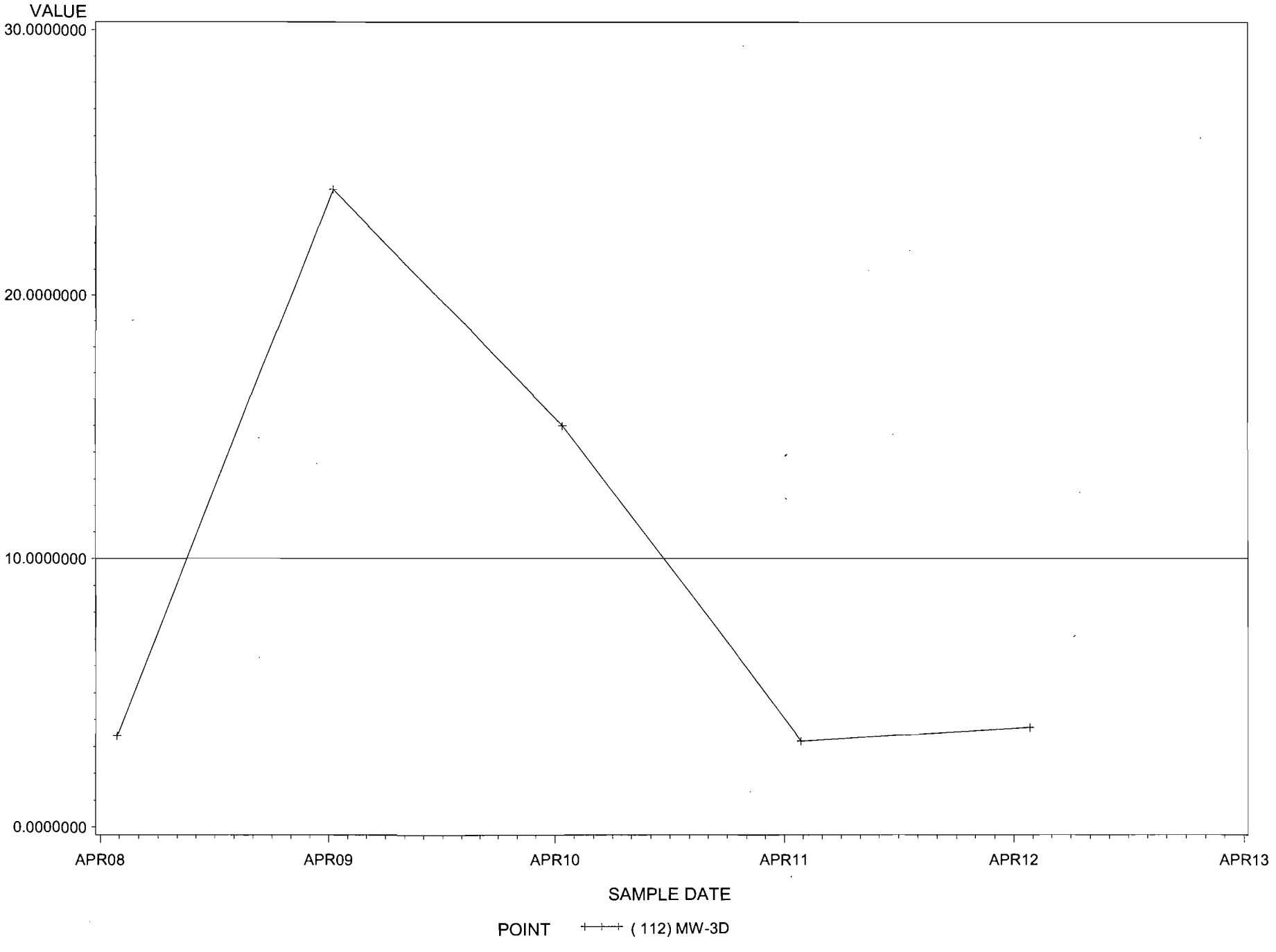
The next five-year review for the Stoughton City Landfill site is required five years from the date of this review.


SITE MAP
STOUGHTON CITY LANDFILL
STOUGHTON, WISCONSIN
ARES
1

APPENDIX 1

Data Plots for Groundwater Monitoring

FACILITY=STOUGHTON CTY (AMUNDSON PARK) (133), PARAMETER=81607, TETRAHYDROFURAN IN WHOLE WATER SAMPLE (



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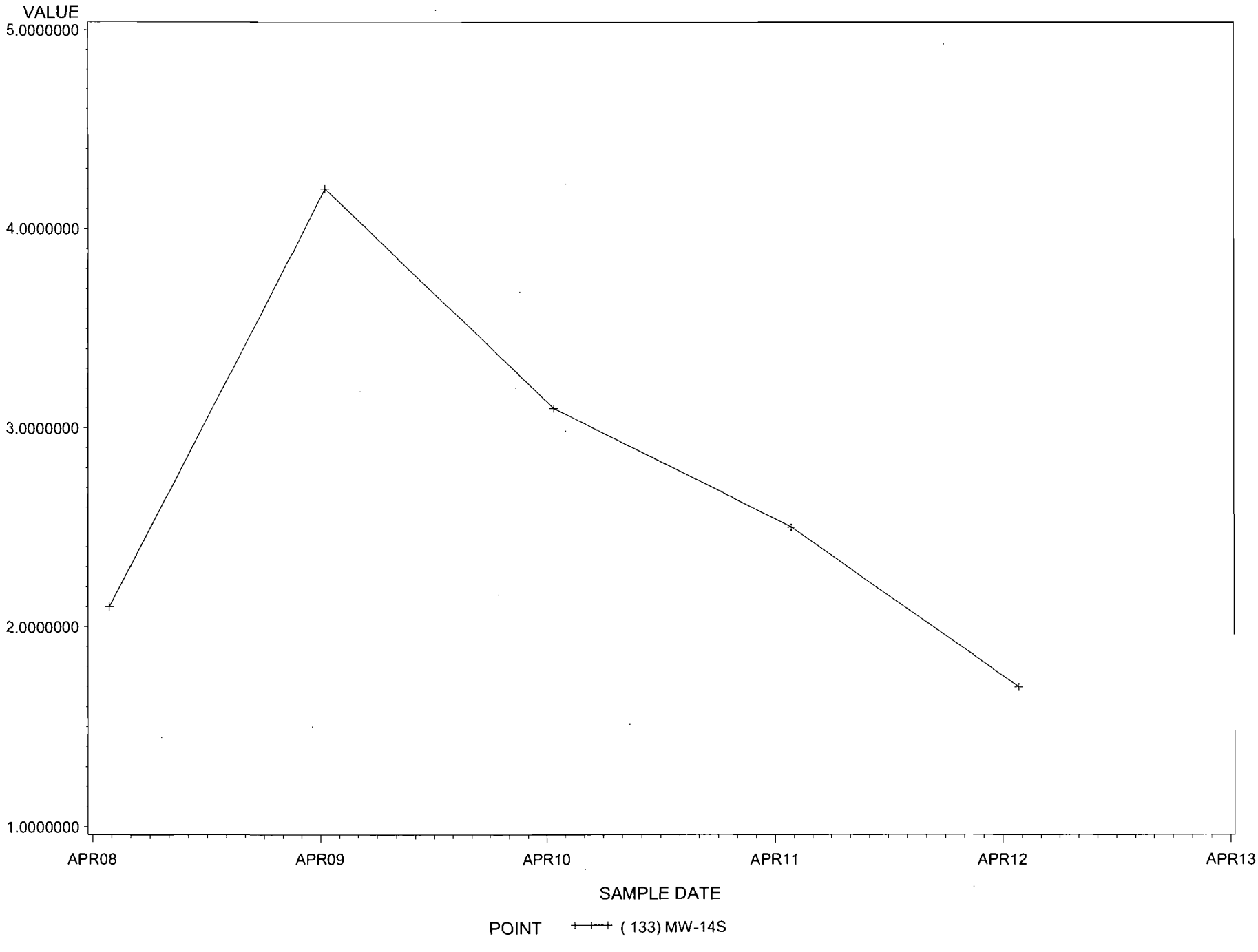

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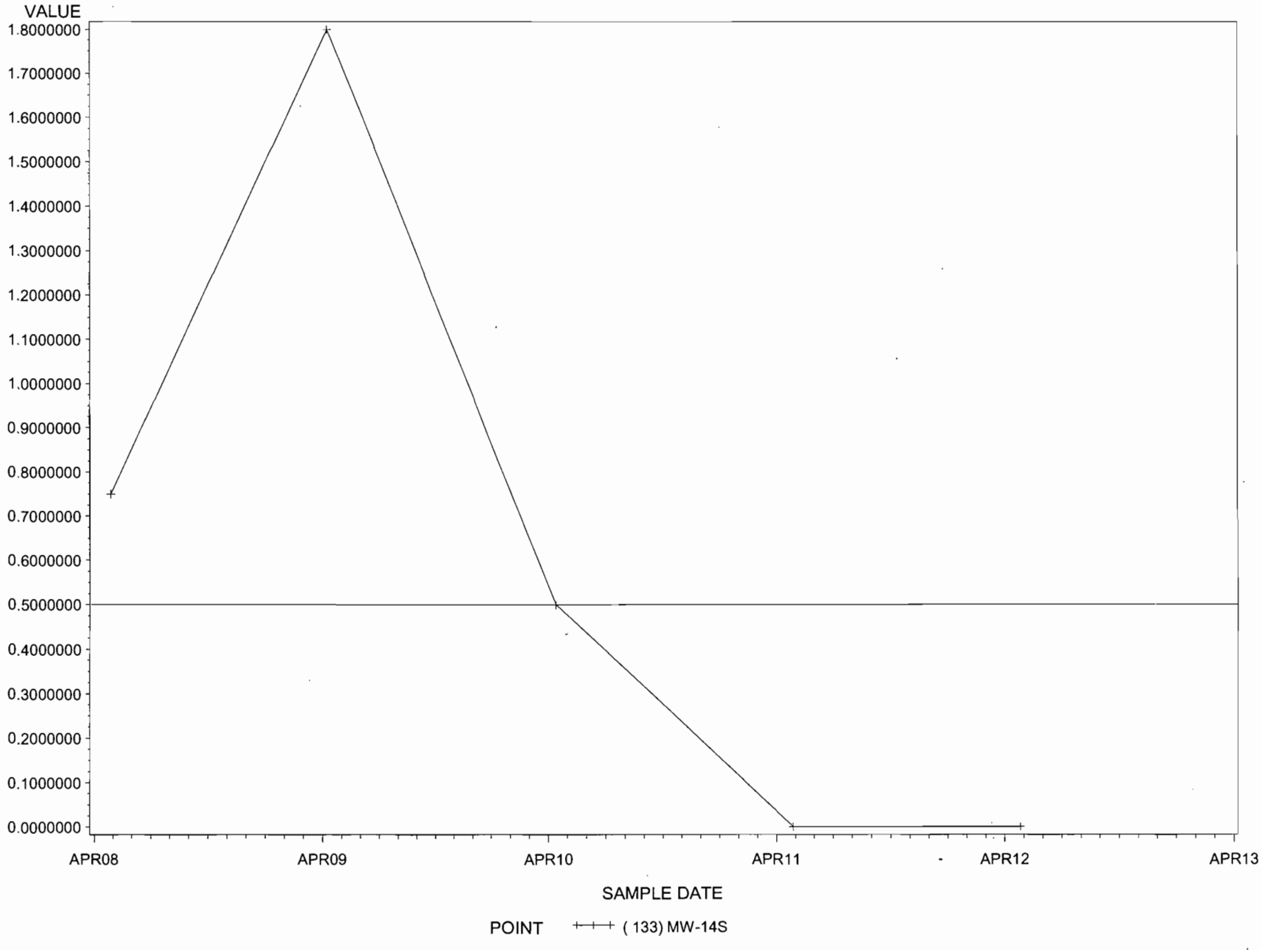

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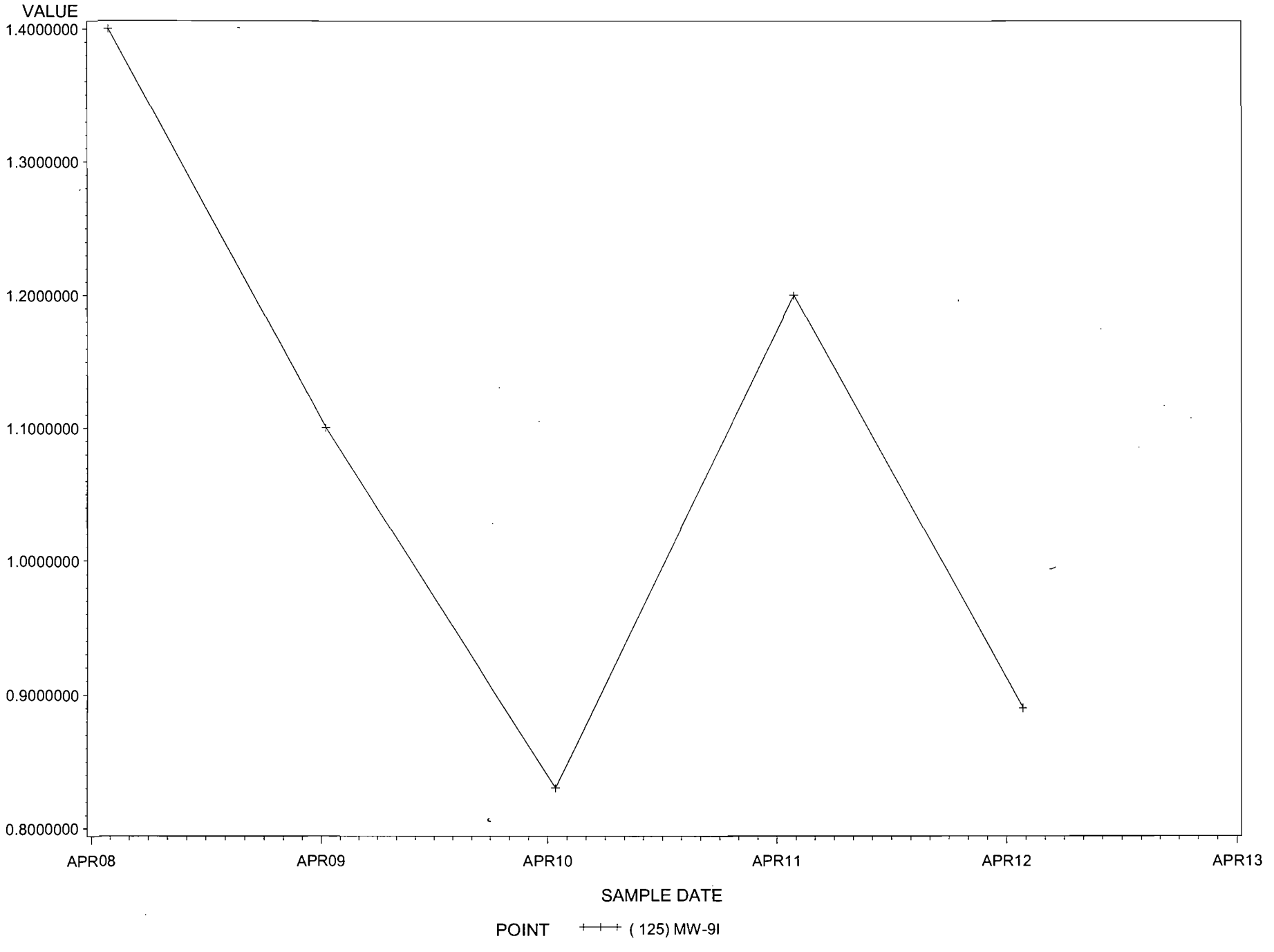
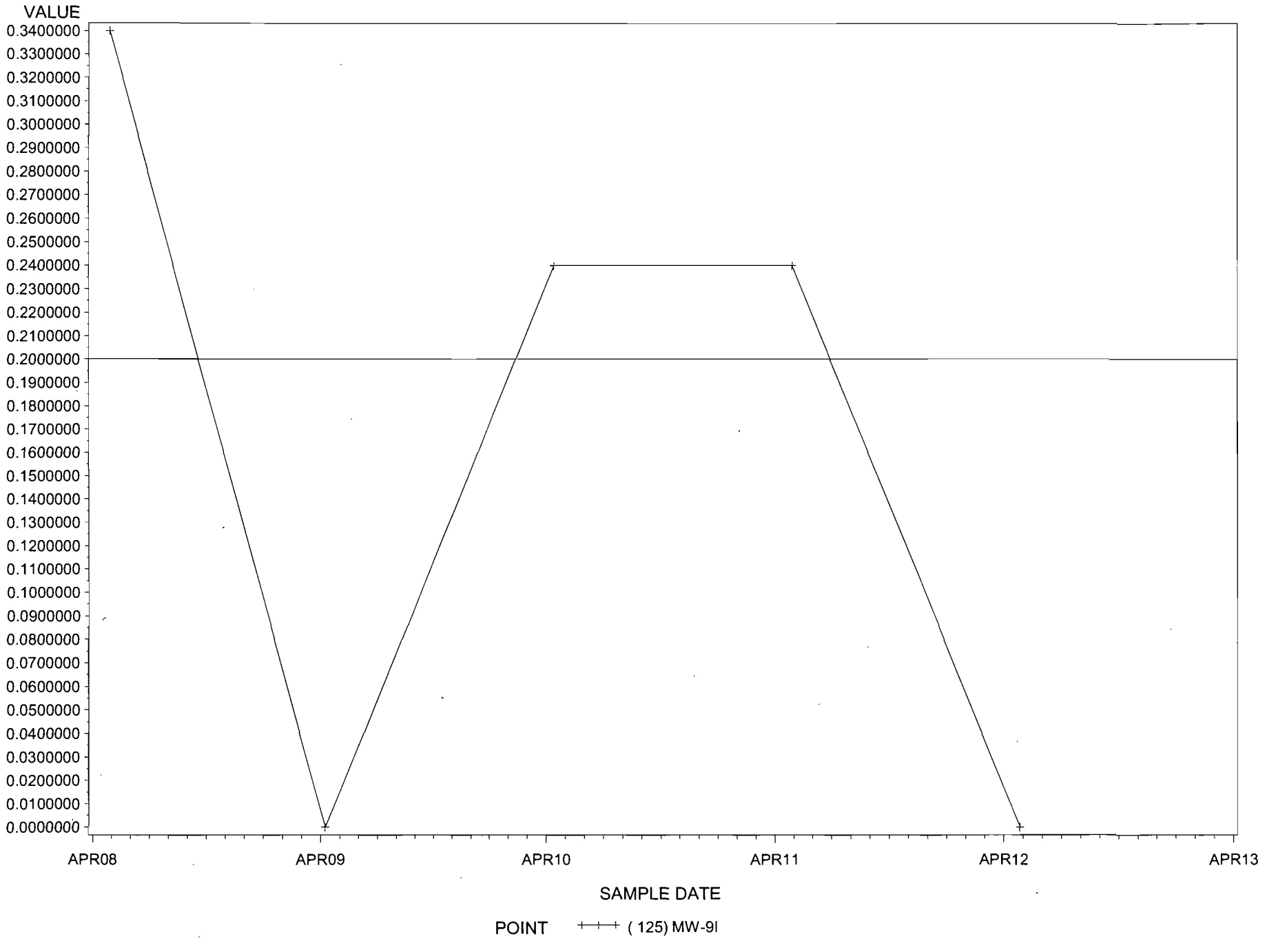


FACILITY=STOUGHTON CTY (AMUNDSON PARK) (133), PARAMETER=39175, VINYL CHLORIDE IN WHOLE WATER SAMPLE (U



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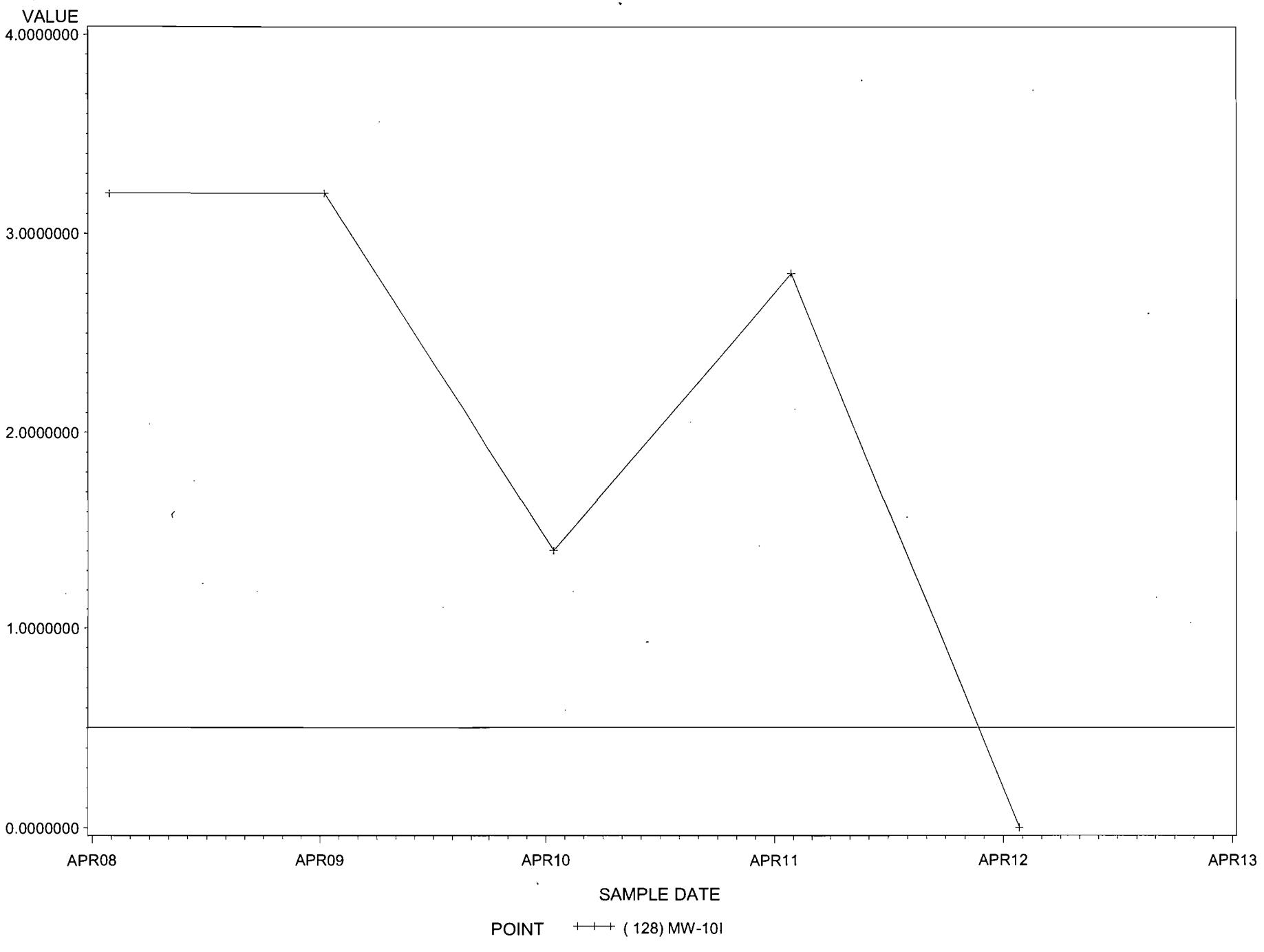

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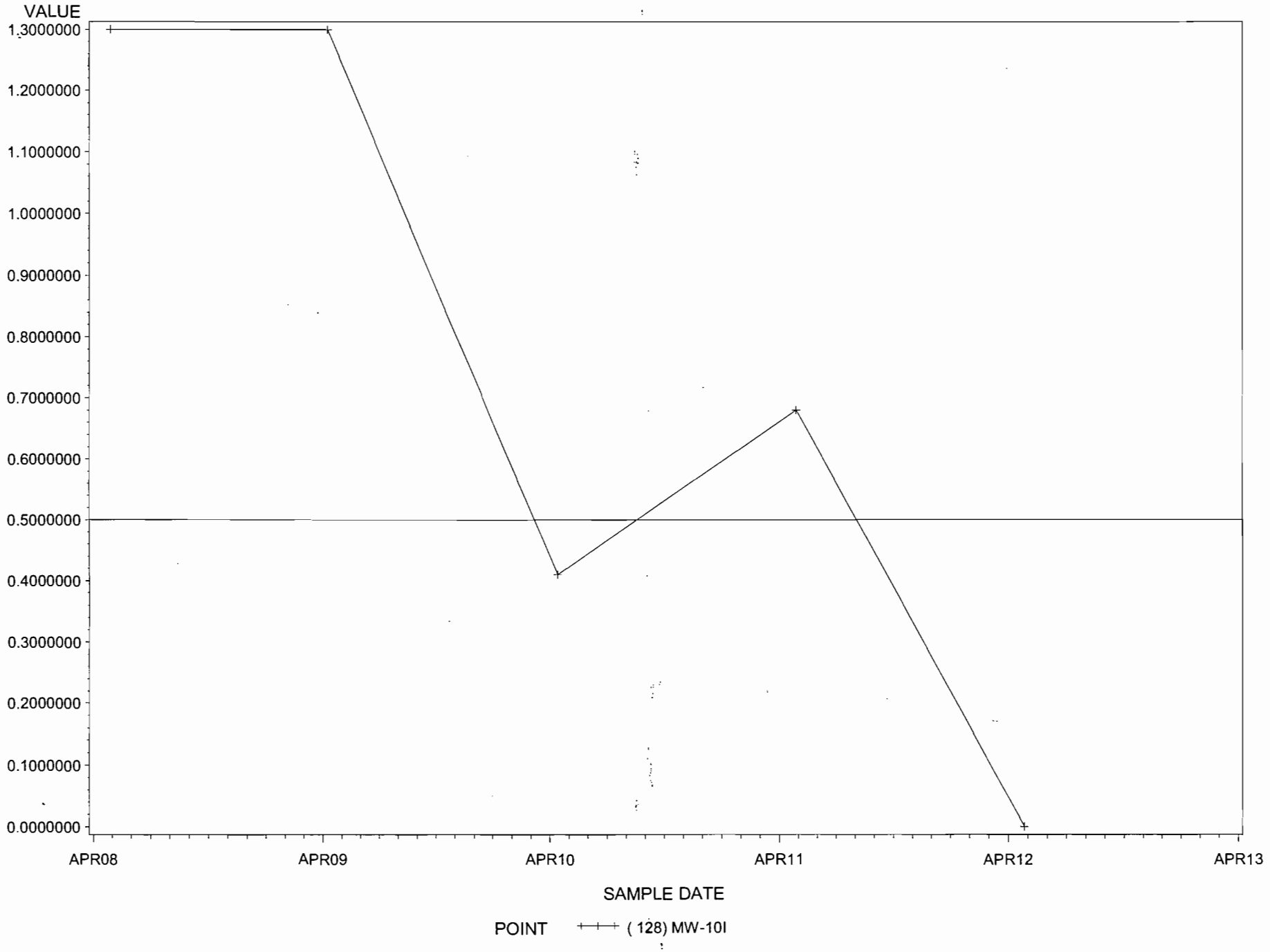

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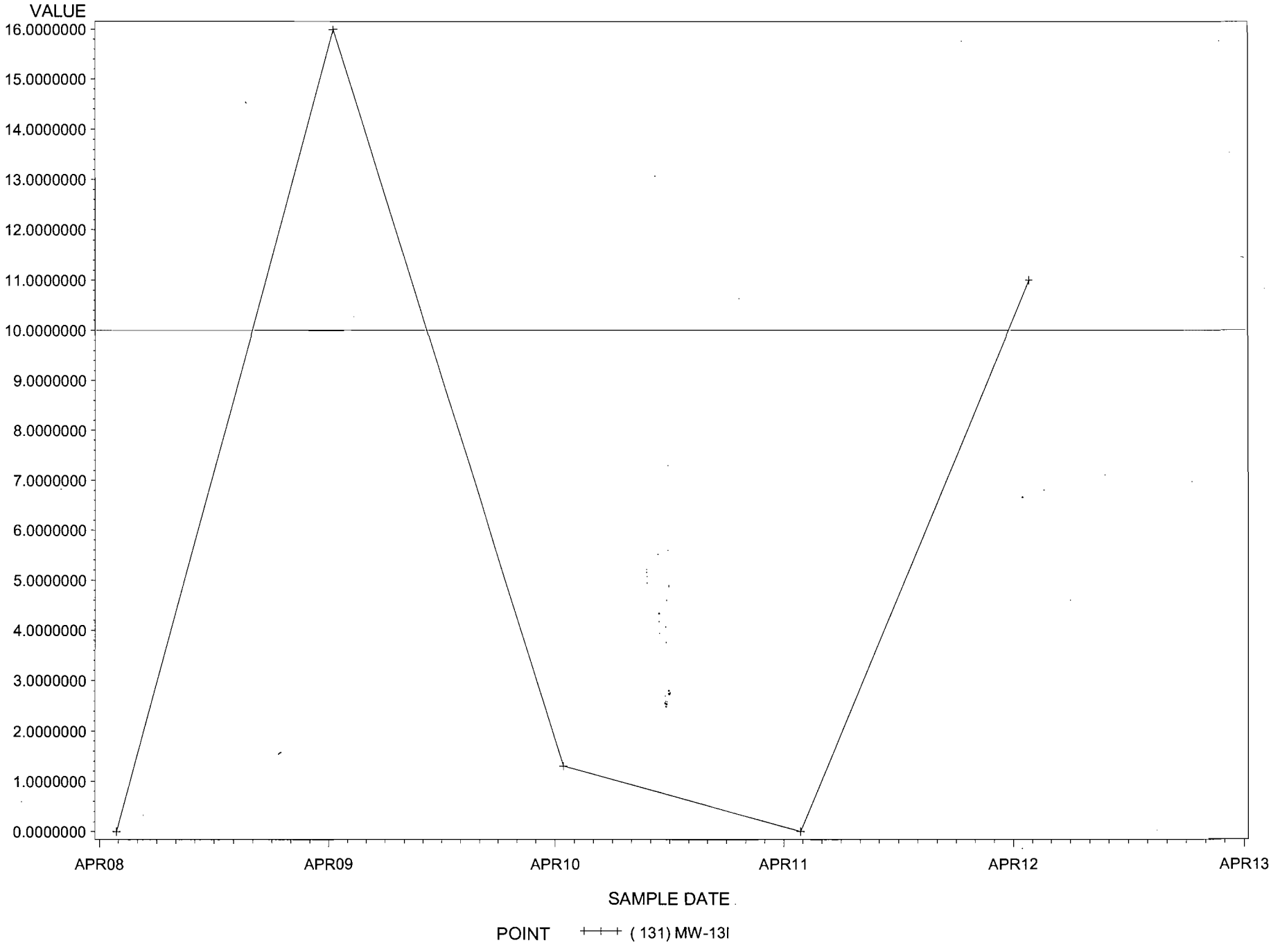

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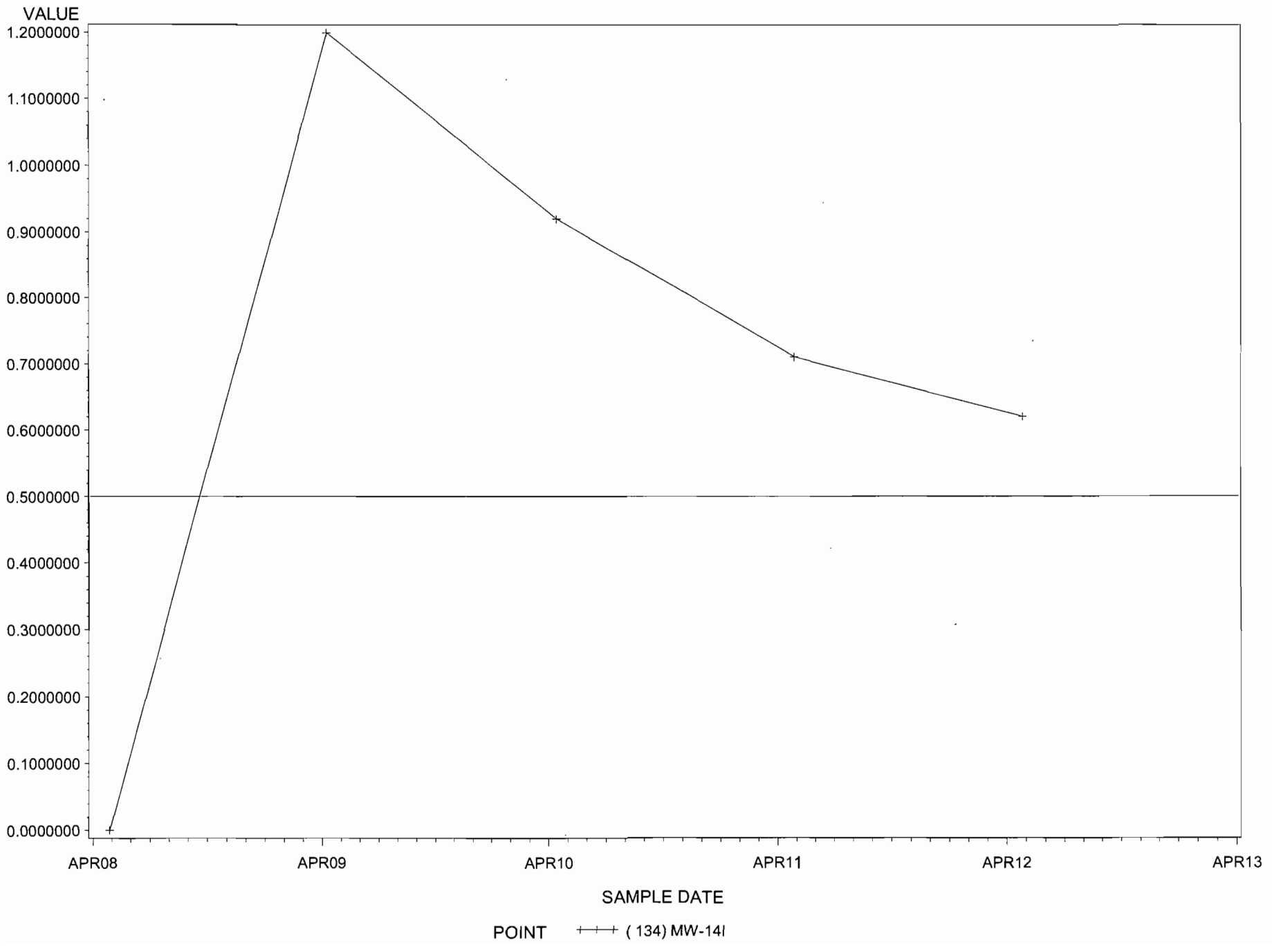

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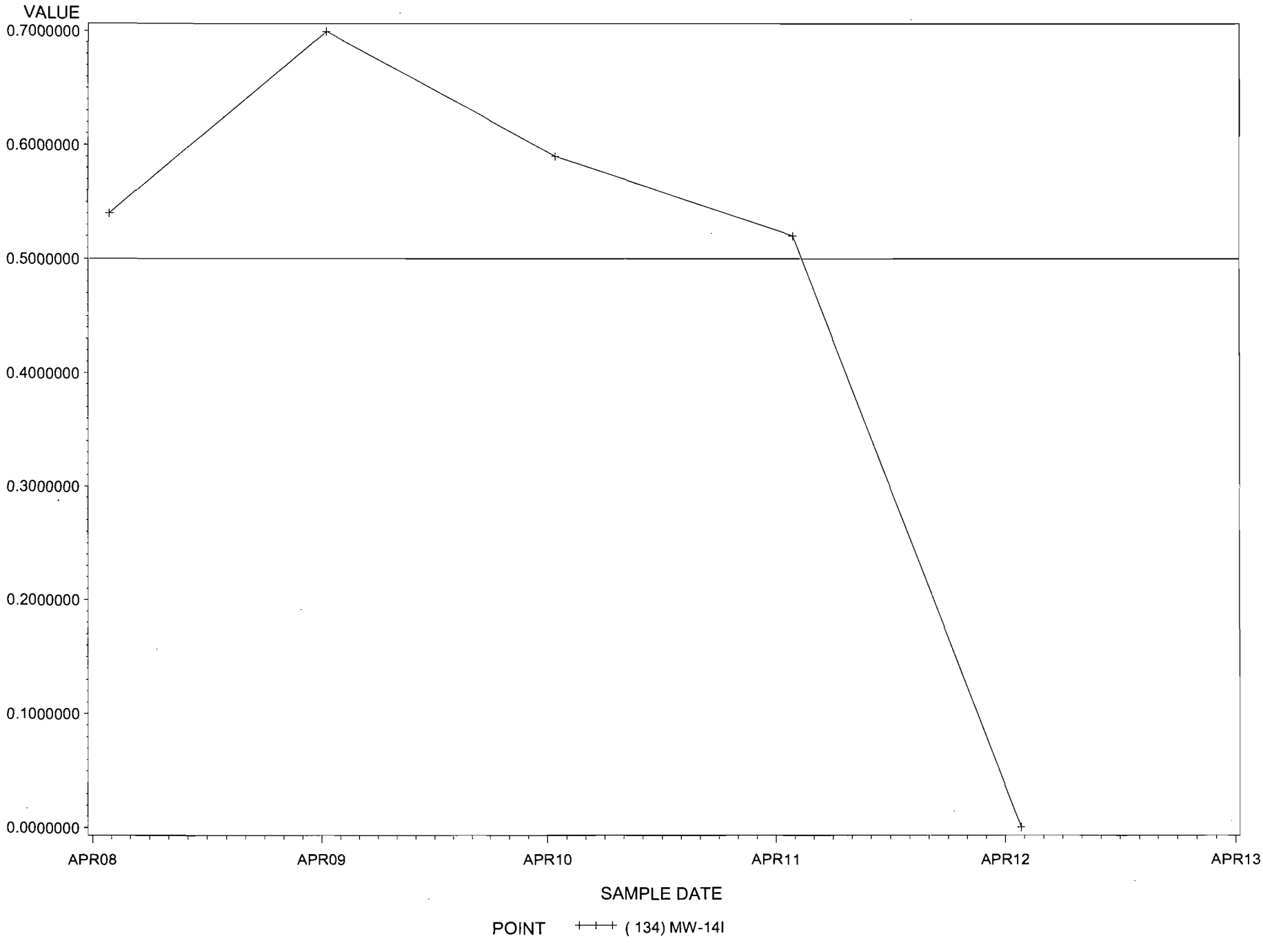

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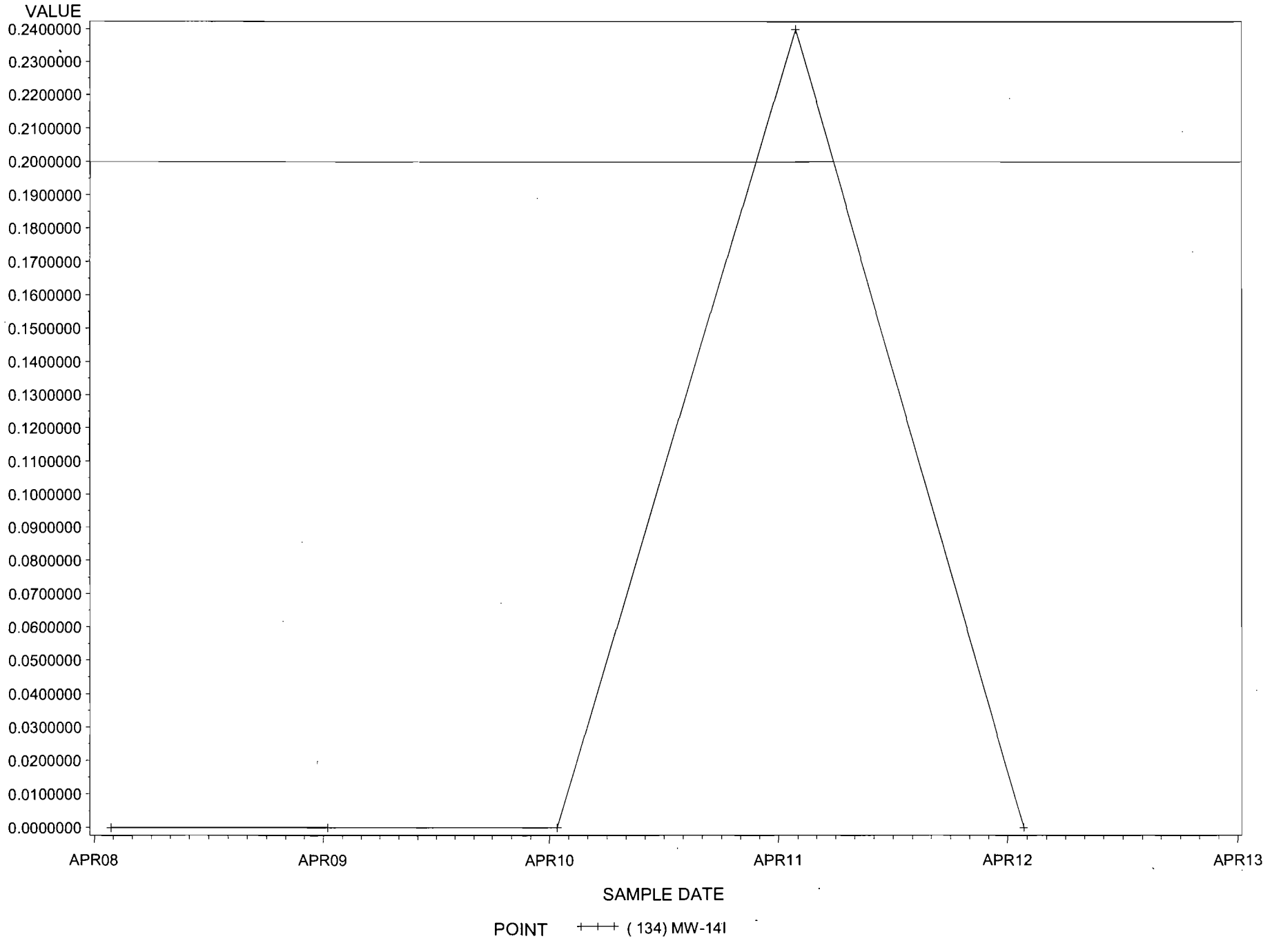

APPENDIX 2

Five-Year review Site Inspection Checklist
Photo Key Map, and Photographs

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: Stoughton City LF	**Date of inspection:** 10/12/12
Location and Region: Stoughton, WI Reg 5	**EPA ID:** WID980901219
Agency, office, or company leading the five-year review: WI DNR G. Edelstein	**Weather/temperature:** Partly Cloudy Upper 50's °F

Remedy Includes: (Check all that apply)

- [X] Landfill cover/containment
- [X] Access controls Fence
- [X] Institutional controls
- [ ] Groundwater pump and treatment
- [ ] Surface water collection and treatment
- [ ] Monitored natural attenuation
- [ ] Groundwater containment
- [ ] Vertical barrier walls
- [X] Other Waste consolidation; Passive LF gas collection; stormwater controls/drainage controls

Attachments: [ ] Inspection team roster attached [X] Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Gary A Edelstein, PE (Name) Waste Management Engineer (Title) 10/12/12 (Date)
   Interviewed [ ] at site [ ] at office [ ] by phone Phone no. 608-767-7563
   Problems, suggestions; [X] Report attached See comments on form, inside

2. **O&M staff** Neil Carney, PE (Name) Project Manager (Title) 10/12/12 (Date)
   Interviewed [X] at site [ ] at office [ ] by phone Phone no. 608-443-1298
   Problems, suggestions; [X] Report attached See comments on form, inside
   Neil Carney works for the O&M Contractor

Note: WI DNR is responsible for site O&M. This is carried out by a contractor working for WI DNR. The City of Stoughton has agreed informally to perform additional fence inspections and maintenance.

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency City of Stoughton Parks Dept
Contact Sean Brysegar — Maintenance Supv. — 10/24/12 — 6088736303
Name — Title — Date — Phone no.
Problems; suggestions; ☒ Report attached See comments attached in form

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ — _____ — _____ — _____
Name — Title — Date — Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☒ Report attached.

Note: Giang-Van Nguyen of US EPA Region 5 attended the inspection

O&M Contractor Semi-Annual Inspection was also conducted on the same date. Their report is attached, dated 11/10/12, as attachment 1.

A photo Key map and photos taken by the author is also attached as attachment 2.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - [X] O&M manual — [X] Readily available — [X] Up to date — [ ] N/A
   - [X] As-built drawings — [X] Readily available — [X] Up to date — [ ] N/A
   - [X] Maintenance logs — [X] Readily available — [X] Up to date — [ ] N/A

   Remarks: Kept by WIDNR, as well as O&M contractor

2. **Site-Specific Health and Safety Plan** — [X] Readily available — [X] Up to date — [ ] N/A
   - [X] Contingency plan/emergency response plan — [X] Readily available — [X] Up to date — [ ] N/A

   Remarks: Kept by WI DNR as well as O&M contractor

3. **O&M and OSHA Training Records** — [X] Readily available — [ ] Up to date — [ ] N/A

   Remarks: Kept by O&M contractor

4. **Permits and Service Agreements**
   - [ ] Air discharge permit — [ ] Readily available — [ ] Up to date — [X] N/A
   - [ ] Effluent discharge — [ ] Readily available — [ ] Up to date — [X] N/A
   - [ ] Waste disposal, POTW — [ ] Readily available — [ ] Up to date — [X] N/A
   - [ ] Other permits _____ — [ ] Readily available — [ ] Up to date — [X] N/A

   Remarks: All N/A

5. **Gas Generation Records** — [ ] Readily available — [ ] Up to date — [X] N/A

   Remarks: Passive System, so N/A

6. **Settlement Monument Records** — [ ] Readily available — [ ] Up to date — [X] N/A

   Remarks: None maintained

7. **Groundwater Monitoring Records** — [X] Readily available — [X] Up to date — [ ] N/A

   Remarks: Kept by WIDNR as paper and electronic GEMS System
   Paper on file with USEPA

8. **Leachate Extraction Records** — [ ] Readily available — [ ] Up to date — [X] N/A

   Remarks: _____

9. **Discharge Compliance Records**
   - [ ] Air — [ ] Readily available — [ ] Up to date — [X] N/A
   - [ ] Water (effluent) — [ ] Readily available — [ ] Up to date — [X] N/A

   Remarks: _____

10. **Daily Access/Security Logs** — [ ] Readily available — [ ] Up to date — [X] N/A

    Remarks: No daily access or activities

IV. O&M COSTS

1. **O&M Organization**
   - G State in-house
   - G PRP in-house
   - G Federal Facility in-house
   - G Other
   - ☒ Contractor for State
   - G Contractor for PRP
   - G Contraetor for Federal Facility

2. **O&M Cost Records** Total O&M contract to $14,502.91 for 2 years for 4/11 - 5/13
   - ☒ Readily available
   - ☒ Up to date
   - G Funding mechanism/agreement in place
   - Original O&M cost estimate_____ G Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: N/A

V. ACCESS AND INSTITUTIONAL CONTROLS G Applicable G N/A

A. Fencing

1. **Fencing damaged** ☒ Location shown on site map ☒ Gates secured G N/A
   Remarks Possible frost heave for post on west side, pome wood slats near gate need to be secured. See attachment 1.

B. Other Aecess Restrictions

1. **Signs and other security measures** G Location shown on site map G N/A
   Remarks WI DNR Warning sign located at gate.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented — G Yes ☒ No G N/A

Site conditions imply ICs not being fully enforced — G Yes ☒ No G N/A

Type of monitoring (e.g., self-reporting, drive by) Monitored by WI DNR

Frequency As needed

Responsible party/agency

Contact G. Edelstein (Name) — WM Engineer (Title) — 10/12/12 (Date) — 608-267-7563 (Phone no.)

Reporting is up-to-date — G Yes G No ☒ N/A

Reports are verified by the lead agency — G Yes G No ☒ N/A

Specific requirements in deed or decision documents have been met — ☒ Yes G No G N/A

Violations have been reported — G Yes G No ☒ N/A

Other problems or suggestions: G Report attached

Deed restrictions required by the ROD to prevent building or well construction have been put into place by the City. The 1997 Consent Decree with the City requires no recreational use.

2. **Adequaey** ☒ ICs are adequate G ICs are inadequate G N/A

Remarks

D. General

1. **Vandalism/trespassing** G Location shown on site map ☒ No vandalism evident

Remarks

2. **Land use changes on site** ☒ N/A

Remarks None

3. **Land use changes off site** ☒ N/A

Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable G N/A

1. **Roads damaged** ☒ Location shown on site map ☒ Roads adequate G N/A

Remarks

B. Other Site Conditions

Remarks

VII. LANDFILL COVERS G Applicable G N/A

A. Landfill Surface

1. **Settlement** (Low spots) G Location shown on site map ☒ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** G Location shown on site map ☒ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** G Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☒ Location shown on site map G Holes not evident
   Areal extent_____ Depth_____
   Remarks Animal burrows noted and will be repaired, See attachment 1. Burrow on west side slope previously repaired has eroded and will be repaired.

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress
   G Trees/Shrubs (indicate size and locations on a diagram)
   Remarks Recently mowed and in good condition. Small roots/shrubs near vents will be removed

6. **Alternative Cover (armored rock, concrete, etc.)** ☒ N/A
   Remarks_____

7. **Bulges** G Location shown on site map ☒ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
- G Wet areas — G Location shown on site map — Areal extent_____
- G Ponding — G Location shown on site map — Areal extent_____
- G Seeps — G Location shown on site map — Areal extent_____
- G Soft subgrade — G Location shown on site map — Areal extent_____

Remarks_____

9. **Slope Instability** G Slides G Location shown on site map ☒ No evidenee of slope instability
Areal extent_____
Remarks_____

B. Benches G 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** G Location shown on site map ☒ N/A or okay
Remarks_____

2. **Bench Breached** G Location shown on site map ☒ N/A or okay
Remarks_____

3. **Bench Overtopped** G Location shown on site map ☒ N/A or okay
Remarks_____

C. Letdown Channels G 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** G Location shown on site map ☒ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** G Location shown on site map ☒ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** G Location shown on site map ☒ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** G Location shown on site map ☒ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☒ No obstructions
G Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☒ No evidence of excessive growth
G Vegetation in channels does not obstruct flow
G Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☒ Applicable G N/A

1. **Gas Vents** G Active ☒ Passive
G Properly secured/locked ☒ Functioning G Routinely sampled ☒ Good condition
G Evidence of leakage at penetration G Needs Maintenance
G N/A
Remarks_____

2. **Gas Monitoring Probes**
☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
G Evidence of leakage at penetration G Needs Maintenance G N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☒ Properly secured/locked ☒ Functioning G Routinely sampled ☒ Good condition
G Evidence of leakage at penetration G Needs Maintenance G N/A
Remarks_____

4. **Leachate Extraction Wells**
G Properly secured/locked G Functioning G Routinely sampled G Good condition
G Evidence of leakage at penetration G Needs Maintenance ☒ N/A
Remarks_____

5. **Settlement Monuments** G Located G Routinely surveyed ☒ N/A
Remarks_____

E. Gas Collection and Treatment G Applicable X N/A

1. **Gas Treatment Facilities**
   G Flaring G Thermal destruction G Collection for reuse
   G Good condition G Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   G Good condition G Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   G Good condition G Needs Maintenance G N/A
   Remarks_____

F. Cover Drainage Layer G Applicable X N/A

1. **Outlet Pipes Inspected** G Functioning G N/A
   Remarks_____

2. **Outlet Rock Inspected** G Functioning G N/A
   Remarks_____

G. Detention/Sedimentation Ponds G Applicable X N/A

1. **Siltation** Areal extent_____ Depth_____ G N/A
   G Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   G Erosion not evident
   Remarks_____

3. **Outlet Works** G Functioning G N/A
   Remarks_____

4. **Dam** G Functioning G N/A
   Remarks_____

H. Retaining Walls G Applicable X N/A

1. **Deformations** G Location shown on site map G Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** G Loeation shown on site map G Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge X Applicable G N/A

1. **Siltation** X Location shown on site map G Siltation not evident
   Areal extent_____ Depth_____
   Remarks Some siltation may have occurred in South ditch does not appear to be significant

2. **Vegetative Growth** X Location shown on site map G N/A
   X Vegetation does not impede flow.
   Areal extent_____ Type_____
   Remarks Siltation may have allowed some cattails to grow in South ditch with some ponding, but culverts are clear

3. **Erosion** G Location shown on site map X Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** G Functioning X N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS G Applicable X N/A

1. **Settlement** G Location shown on site map G Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   G Performanee not monitored
   Frequency_____ G Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES G Applicable ☒ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines G Applicable ☒ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   G Good condition G All required wells properly operating G Needs Maintenance G N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   G Good condition G Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   G Readily available G Good condition G Requires upgrade G Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines G Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
   G Good condition G Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   G Good condition G Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   G Readily available G Good condition G Requires upgrade G Needs to be provided
   Remarks_____

C. Treatment System G Applicable ☒ N/A

1. **Treatment Train** (Cheek eomponents that apply)
   G Metals removal G Oil/water separation G Bioremediation
   G Air stripping G Carbon adsorbers
   G Filters_____
   G Additive (*e.g.*, chelation agent, flocculent)_____
   G Others_____
   G Good condition G Needs Maintenance
   G Sampling ports properly marked and functional
   G Sampling/maintenance log displayed and up to date
   G Equipment properly identified
   G Quantity of groundwater treated annually_____
   G Quantity of surface water treated annually_____
   Remarks_____

2. **Electrleal Enclosures and Panels** (properly rated and funetional)
   G N/A G Good condition G Needs Maintenanee
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   G N/A G Good condition G Proper seeondary containment G Needs Maintenanee
   Remarks_____

4. **Discharge Structure and Appurtenances**
   G N/A G Good condition G Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   G N/A G Good condition (esp. roof and doorways) G Needs repair
   G Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   G Properly secured/lockedG Functioning G Routinely sampled G Good condition
   G All required wells located G Needs Maintenance G N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☒ Is routinely submitted on time ☒ Is of aeeeptable quality

2. Monitoring data suggests:
   G Groundwater plume is effectively contained G Contaminant eoneentrations are declining

See text of 5 year report for monitoring data discussion.

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
X Properly secured/locked X Functioning X Routinely sampled G Good condition
X All required wells located X Needs Maintenance G N/A
Remarks See discussion in text of 5 Year Review Report
See attachment 1 for additional discussion of needed repairs.

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.).

See text of 5 Year Review Report for detailed discussion

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.

See text of 5 Year Review Report for detailed discussion

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.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Attachment 2. Stoughton City LF Inspection 10/12/12
Photo Key A. Edelstein

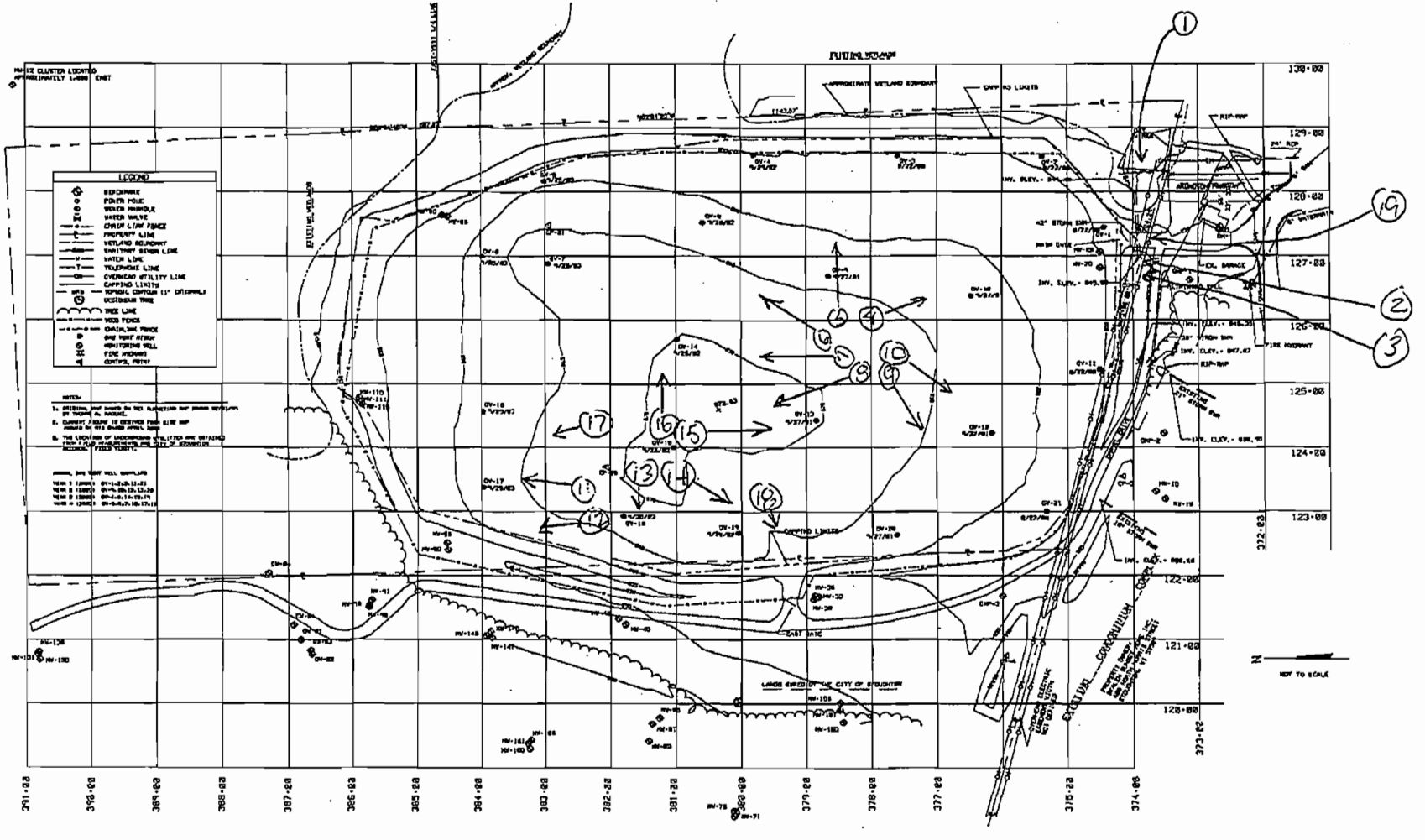

Photo 1. Outlet from culvert. Note no ponding or apparent impediment to flow.

Photo 2. Vegetation in drainage ditch to the S of site outside fence.

Photo 3. Culvert to S of ditch. There is no apparent impediment to flow through this culvert.

Photo 4. View on top of cover to the SSE towards entry gate. Note cover recently mowed.

Photo 5. View on top of cover to the E towards chain link fence.

Photo 6. View on top of cover towards the NE.

Photo 7. View on top of cover to the N. Neil Carney from Ayres Associates is pictured.

Photo 8. View on top of cover to the NNW.

Photo 9. View on top of cover to the WSW.

Photo 10. View on top of cover to the SSW.

Photo 11. View on top of cover to the N.

Photo 12. View on top of cover to the NNW.

Photo 13. View on top of cover to the W. GV-18 pictured next to Neil Carney.

Photo 14. View on top of cover to the SSW.

Photo 15. View on top of cover to the S.

Photo 16. View on top of cover to the E.

Photo 17. View on top of cover to the NNW.

Photo 18. View on top of cover to the W showing purge water storage drums near W gate.

Photo 19. Warped boards near front gate that need to be reattached.

APPENDIX 3

Support Agency O&M Contractor Semi-Annual Site Inspection Report

AYRES ASSOCIATES

November 10, 2012

Mr. Gary A. Edelstein, PE
Wisconsin Department of Natural Resources
Bureau for Remediation and Redevelopment - RR/5
PO Box 7921
Madison, WI 53707

SUBJECT: Semi-Annual Report
October 2012 Semi-Annual Facility Inspection
Bi-Monthly Gas Monitoring Results
Stoughton City Landfill
FID No.113005950 - License No. 00133
USEPA ID #WID980901219

Dear Mr. Edelstein:

This letter provides the Semi-Annual Report for the October 2012 Semi-Annual Facility Inspection, and Bi-Monthly Gas Monitoring events at the Stoughton City Landfill, located in Stoughton, Wisconsin. A discussion of the results of the inspection and monitoring events are summarized in the sections below.

1.0 SEMI-ANNUAL INSPECTION RESULTS

The Semi-Annual Facility Inspection was conducted on October 12, 2012. Representatives from both the Wisconsin Department of Natural Resources (WDNR) and United States Environmental Protection Agency (USEPA) were present during the inspection. The following items were noted during the inspection. A photolog of the inspection event is provided as Attachment A.

Perimeter Security Fencing - Site signage was unobstructed and legible. The chain-link fencing at the site was in good condition with no damage or vandalism noted. Access gates were in satisfactory condition with both padlocks functioning properly. A broken slat and warped boards are present at the south access gate. Additionally, frost heave has caused the concrete fence supports to rise, and has created an elevated area of fenceline where unauthorized access to the landfill is possible on the southwest perimeter of the landfill. Refer to Attachment A, reference photos 2012-10-001 and 2012-10-002 to see these areas. **Recommend resetting the concrete support to return the fenceline to original condition/elevation, and repairing the warped and broken wooden fence slats.**

Landfill Cover – Vegetation on the landfill cap was established and in late seasonal stage. No localized areas of ponding or bare soil were observed.

One gulley, approximately 6-inches deep was observed on the northwest side of the landfill cap near gas vent 18 (GV-18). A pile of sandy soil was observed downgradient of the gulley. Refer to Attachment A, reference photo 2012-10-003. **Recommend replacement of sandy material to eliminate gulley in this area.**

Multiple animal burrows and deep-rooted woody vegetation were observed during the inspection. The table below summarizes the locations and provides cross-reference to the photolog in Attachment A.

Location	Observation	Photolog Reference
GV-9	Burrow, Woody Vegetation	2012-10-004
GV-5	Burrow	2012-10-005
MW-6S	Burrow	2012-10-006
MW-6S Near Fence	Burrow	2012-10-007
MW-11S	Woody Vegetation	2012-10-008
GV-16	Woody Vegetation	2012-10-009
SE of GV-9	Burrow	2012-10-010
GV-13	Woody Vegetation	2012-10-011
GV-19	Woody Vegetation	2012-10-012
GV-12	Burrow	2012-10-013

Recommend plugging animal burrows, and removing all woody vegetation and root masses at above-listed locations.

Storm Water Management System - No visible erosion was observed in the drainage channels, and the culverts appeared undamaged. Existing riprap was clogged with obstructions in the south stormwater drainage feature. Obstructions included cattails and woody vegetation, consistent with past inspections. Based on WDNR direction during the inspection event, no further action will be taken in this area.

Landfill Gas Venting System - All 21 gas vents and screens were in good condition and unobstructed. No further action is required for this inspection feature.

Monitoring Wells and Wellhead Covers – The protective casing interferes with the well cap installation on MW4D, MW14I, and MW15D. Refer to Attachment A, reference photos 2012-10-0014 through 0016. **Recommend installation of a new well cover clasp to allow sufficient clearance for expandable caps at each location.**

The stainless steel well casing has been compromised at MW-7B. Refer to Attachment A, reference photos 2012-10-017. It is assumed that the installation of the existing well packer at this location allowed artesian groundwater to freeze and expand within the well casing. No action is recommend at this location as sampling does not occur at this well.

MW-13S has a broken hinge which allows access to the well. Refer to Attachment A, reference photos 2012-10-018. **Recommend installation of a new hinge and clasp at this location.**

Access Road - The site access road was in good condition with no significant ruts or erosion noted. No further action is required for this inspection feature.

Refer to Attachment B for the field form completed during the semi-annual inspection.

2.0 BI-MONTHLY GAS MONITORING RESULTS

Bi-Monthly Gas Monitoring of the three perimeter gas probes was conducted on June 28, August 27, and October 12, 2012. Elevated levels of carbon dioxide (10.1%) in combination with

low levels of oxygen (4.3%) were detected in GMP-1 during the October 2012 gas monitoring event. These readings deviate from historical results at this well, and also deviate from readings collected from GMP-2 and GMP-3 during the same event. Recommendations for potential corrective action will be made once additional testing provides a larger data set to confirm potential landfill gas migration. The completed field forms for the Bi-Monthly Gas Monitoring Inspections is included in Attachment C.

3.0 ANNUAL MOWING FOR LANDFILL COVER

The annual landfill cap mowing event was conducted on August 15, 2012. A tractor pulled mower was utilized during the event. Vegetation was cut to a height of 12-inches or less. Vegetation and brush that were present around existing monitoring wells or gas vents were also cut. There are some well-established root systems near the landfill gas vents which remain as listed in this report. Refer to Attachment A, reference photos 2012-10-019 through 2011-10-020 to see photos of the mowing event.

4.0 CONCLUSION

If you have any questions regarding site activities or recommendations listed in this report, feel free to contact me by phone at (608) 443-1298, or by e-mail at carneyn@ayresassociates.com.

Sincerely,

Ayres Associates Inc
Neil Carney, PE
Project Manager

cc: Ms. Giang-Van Nguyen - USEPA Region V

ATTACHMENT A

SITE PHOTOGRAPHS

2012-10-001: Broken and warped slats on south access gate
Date: 12-Oct-2012
Time: 2:03 PM
Weather: Sunny, 50 Degrees F.

2012-10-002: Frost heave has lifted fence at SW perimeter.
Date: 12-Oct-2012
Time: 1:53 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-003: Gulley and sand pile (w/vegetation) near GV-18
Date: 12-Oct-2012
Time: 1:45 PM
Weather: Sunny, 50 Degrees F.

2012-10-004: GV-9 – Animal Burrow, Woody Vegetation
Date: 12-Oct-2012
Time: 12:50 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: Nick Carney

AYRES ASSOCIATES

2012-10-005: Animal burrow at perimeter fence near GV-5
Date: 12-Oct-2012
Time: 12:55 PM
Weather: Sunny, 50 Degrees F.

2012-10-006: : Animal burrow near MW-6S
Date: 12-Oct-2012
Time: 12:58 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-007: Animal burrow near MW-6S at fenceline
Date: 12-Oct-2012
Time: 12:59 PM
Weather: Sunny, 50 Degrees F.

2012-10-008: Woody vegetation near MW-11S
Date: 12-Oct-2012
Time: 1:01 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-009: Woody vegetation near GV-16
Date: 12-Oct-2012
Time: 1:03 PM
Weather: Sunny, 50 Degrees F.

2012-10-010: Animal burrow SE of GV-9
Date: 12-Oct-2012
Time: 1:30 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-011: Woody vegetation near GV-13
Date: 12-Oct-2012
Time: 1:36 PM
Weather: Sunny, 50 Degrees F.

2012-10-012: Woody vegetation near GV-19
Date: 12-Oct-2012
Time: 1:51 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-013: Animal burrow near GV-12
Date: 12-Oct-2012
Time: 1:59 PM
Weather: Sunny, 50 Degrees F.

2012-10-014: MW4D – Well casing too high to allow installation of expandable cap
Date: 23-Mar-2012 (Historical photo)
Time: 2:49 PM
Weather: Sunny, 35 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-015: MW14I – Well casing too high to allow installation of expandable cap
Date: 23-Mar-2012 (Historical photo)
Time: 2:51 PM
Weather: Sunny, 35 Degrees F.

2012-10-016: MW15D – Well casing too high to allow installation of expandable cap
Date: 12-Oct-2012
Time: 1:53 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-017: MW-7B – Broken Well Casing
Date: 12-Oct-2012
Time: 2:26 PM
Weather: Sunny, 50 Degrees F.

2012-10-018: MW-13S requires new hinge
Date: 12-Oct-2012
Time: 3:22 PM
Weather: Sunny, 50 Degrees F.

Signature of Photographer: _____

AYRES ASSOCIATES

2012-10-019: GV-1 – Landfill Cap Prior to Mowing
Date: 15-Aug-2012
Time: 8:45 PM
Weather: Sunny, 70 Degrees F.

2012-10-020: GV-1 – Landfill Cap After Mowing
Date: 15-Aug-2012
Time: 3:45 PM
Weather: Sunny, 80 Degrees F.

Signature of Photographer: Nick Carney

AYRES ASSOCIATES

ATTACHMENT B

SEMI-ANNUAL INSPECTION FORM
OCTOBER 2012

Operation and Maintenance Semi Annual Inspection Report
Stoughton City Landfill
Stoughton, Wisconsin

Inspector	N. Carney
Company	Ayres Associates
Project	Stoughton LF
Location	Stoughton, WI
Date/Time	Oct 12, 2012 12:45
Project No.	19-0270.20

Weather	Clear X	P. Cloudy	Cloudy	Fog
Temperature	High 48 F		---	---
Wind	Calm	Medium 7MPH	High	---
Precipitation	Rain	Light	Moderate	Heavy
None.	Snow	Light	Moderate	Heavy

Type of Inspection Routine. ☒ Special ☐

Persons/Equipment Present: N. J. Carney, Gary Edelstein (WDNR), Giang-Van Nguyen (USEPA)

General Description of Site Conditions: Cap is in excellent condition with dense vegetation & good coverage. SW drainage swale is full of cattails & has some trees. Per WDNR No action required. Six animal burrows and five areas of deep rooted weedy vegetation present. Erosion gullies (or animal dig) near NW side of cap.

Specific Inspection Items	Potential Problem Areas	Status *	Notes
Perimeter Security Fencing	Broken or missing wood slats, torn chain link fabric.	2	Front knee on SW fence. BNKen slat and wire @ E. gate.
Entrance Gate and Locking Mechanism	Lock broken/missing, mechanism inoperative.	1	OK
Monitoring Wells and Wellhead Covers	Signs of tampering, casing damaged, lock missing.	2	MW-7B casing broken. MW 4D, 14D, 15D need new closure MW35 needs hinge.
Final Cover Vegetation	Bare spots, stressed vegetation, deep rooted vegetation.	2	See Below
Final Cover Slope (explain below)	Gullies, lack of vegetation, subsidence, ponding.	2	Gulley on NW side of cap
Evidence of Burrowing Animals	Damage to final cover, evidence of waste.	2	See Below
Stormwater Drainage Channels	Gullies, erosion, debris, culvert blocked.	2	SW channel clogged w/cattails
Landfill Gas Venting System	Damaged or blocked vent risers, stressed vegetation.	1	OK
Access Road Cover Mowing and Tall Vegetation Removal (October Inspection Only)	Ponding, rutting, erosion. Mowing and tall vegetation removal done to specified vegetation height, any missed areas	1	OK

* (1) Acceptable - No Maintenance Required. (2) Not Acceptable - Identify Required Maintenance.

Summary of Deficiencies and/or Corrective Actions: Refer to Report. Too many to list here.

Signature of Inspector N. J. Carney Date 12-Oct-2012

Burrows - GV-9, GV-5, MW-6S, MW-6S (Var Fence), GV-9, GV-12

Vegetation - GV-9, MW-11S, GV-16, GV-13, GV-19

ATTACHMENT C

BI-MONTHLY GAS MONITORING FORMS

Gas Probe Monitoring Report
Stoughton City Landfill
Stoughton, Wisconsin

Probe	%LEL (as methane)	% Oxygen	%CO2	PID (ppm)	Pressure (inches of water)
GMP-1	0.0	20.6	0.3	0.0	29.29
GMP-2	0.0	19.1	1.8	0.0	29.24
GMP-3	0.0	17.2	3.2	0.0	29.24

Instruments Used: GEM-2000, Thermo 580B OVM

Operator: Neil Comey
Date: June 28, 2012

Weather Conditions:

Barometric Pressure (inches of Hg): 29.79 Temperature (Degrees F): 96°F

Relative Humidity (%): 31% Dewpoint (Degrees F): 70° Wind: 8 MPH

Sky Conditions: Sunny

Ground Conditions:

___ Snow X No Snow ___ Frozen Ground/Frost

Gas Probe Monitoring Report
Stoughton City Landfill
Stoughton, Wisconsin

Probe	%LEL (as methane)	% Oxygen	%CO2	PID (ppm)	Pressure (inches of ~~water~~ Hg)
GMP-1	0.0	20.1	0.0	0.0	29.11
GMP-2	0.0	17.9	2.7	0.0	29.11
GMP-3	0.0	14.9	7.2	0.0	29.11

Instruments Used: GEM 2000, Thermo 580B OVM

Operator: Neil Carney
Date: 8-27-2012

Weather Conditions:

Barometric Pressure (inches of Hg): 30.01 Temperature (Degrees F): 82°F

Relative Humidity (%): 36% Dewpoint (Degrees F): 62° Wind: NNW 7MPH

Sky Conditions: Sunny

Ground Conditions:

____ Snow X No Snow ____ Frozen Ground/Frost

Gas Probe Monitoring Report
Stoughton City Landfill
Stoughton, Wisconsin

Probe	%LEL (as methane)	% Oxygen	%CO2	PID (ppm)	Pressure (inches of ~~water~~ Hg)	BAL
GMP-1	0.00 %	4.3%	10.1 %	0.00	29.43	85.9%
GMP-2	0.00 %	19.7%	1.4 %	0.00	29.43	78.9%
GMP-3	0.00%	18.1%	4.4%	0.00	29.43	77.5%

Instruments Used: GEM 2000, 580B OVM, Thermo

Operator: Neil Carney
Date: Oct 12, 2012 12:00 PM START

Weather Conditions: Sunny

Barometric Pressure (inches of Hg): 30.47 Temperature (Degrees F): 47°F

Relative Humidity (%): ~~30.47~~ NSC 42% Dewpoint (Degrees F): 25°F Wind: ESE 7MPH

Sky Conditions: Sunny

Ground Conditions:

____ Snow X No Snow ____ Frozen Ground/Frost

APPENDIX 4

Five-Year Review Public Notice

Photo submitted

Emma Olstand, center, celebrates her success at the World Dairy Expo with grandparents (from left) Jim and Sonjia Olstad, dad Eric Olstad, mom Angie Olstad, sister Molly Olstad and Grandparents Marcia and George Seybold.

Olstad brings home honors from World Dairy Expo

Emma Olstad, freshman at Stoughton High School, recently competed at the 2012 World Dairy Expo at the Alliant Energy Center.

Emma showed her Winter Yearling Jersey heifer, Licorice. She placed third in her class and was first Junior exhibitor. Emma's heifer was chosen as the Junior Champion of the Junior show. Emma also competed in the Intermediate Showmanship Class and placed fifth out of 104 participants.

World Dairy Expo is the international dairy meeting place, a five day event showcasing the finest in dairy genetics and the newest technologies available to the dairy industry.

Emma is a member of the Triangle Troopers 4-H club and the Stonghton FFA.

Emma and family will be traveling to Louisville, Ky. on Nov. 3 to show Licorice at the North American International Livestock Exposition.

She is the daughter of Eric and Angie Olstad.

Car crash kills three on Hwy. 51

Two men and a woman were killed in a one-vehicle crash around 2:30 a.m. last Friday morning in the Town of Dunn, Lt. Brian Mikula of the Dane County Sheriff's Office said in a news release.

A 1993 Oldsmobile Cutlass was traveling southbound on Hwy. 51 near Schneider Drive.

"The initial investigation indicates (the car) ... veered off into the ride side of the ditch," Mikula said in the release. "It appears that the vehicle then over corrected and crossed back over to the opposite ditch, where it continued down an embankment and struck two trees."

Two men were ejected from the vehicle and the woman was pinned in the back seat, the sheriff's office state.

The Dane County Medical Examiners identified the victims as Darin S. Carley, 44, of Stoughton; Rebecca M. Carstens, 39, Sun Prairie; and Steven M. Leslie, 44, of Beaver Dam.

According to a news release from the medical examiner's office, preliminary autopsies indicated all three died of injuries sustained in the crash and that alcohol may have been a factor. None of the victims were wearing seat belts, the release said.

Deputies from the Dane County Sheriff's Office, officers from the McFarland Police Department, along with Stoughton Fire Department and EMS units responded to the crash that closed the road until about 6:30 a.m. Friday morning.

The case remains under investigation by the Dane County Sheriff's Office and the Dane County Medical Examiner's Office.

– *Mark Ignatowski*

Fire destroys Pleasant Springs home, no injuries reported

A Sunday fire has destroyed a Town of Pleasant Springs home, according to a release from the Dane County Sheriff's Office.

None of the inhabitants of the home at 2678 Church St. were there when the fire broke out sometime before 4:12 p.m. Sunday, Oct. 28, the office said in the release. Sheriff's deputies and firefighters from Cottage Grove, Deerfield, Stoughton, Blooming Grove and McFarland were summoned to the home after a neighbor reported seeing smoke and fire coming from the residence. When deputies arrived at the scene, the house was fully engulfed.

"The home is believed to be a total loss and the cause remains under investigation by the Dane County Sheriff's Office," the release stated.