Fourth Five-Year Review Report
for
Diamond Shamrock Corp. Landfill
GAD990741092

Cedartown
Polk County, Georgia

September 2016

United States Environmental Protection Agency
Region 4
Atlanta, Georgia

Approved by:

Franklin E. Hill, Director
Superfund Division

Date: 9/26/16

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for
Diamond Shamrock Corp. Landfill
West Girard Avenue
Cedartown
Polk County, Georgia

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List of Acronyms

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIC	Community Involvement Coordinator
COC	Contaminant of Concern
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
EPD	Georgia Environmental Protection Division
ESD	Explanation of Significant Differences
FYR	Five-Year Review
IC	Institutional Control
MCL	Maximum Contaminant Level
MW	Monitoring Well
µg/L	Microgram per Liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SWRAU	Sitewide Ready for Anticipated Use
TBC	To-Be-Considered

Executive Summary

The Diamond Shamrock Corp. Landfill Superfund site (the Site) consists of 8 acres near the northwest edge of Cedartown in Polk County, Georgia. In 1972, about 1,500 gallons of oil pitch and 600 to 800 drums containing reportedly obsolete, off-specification products and raw materials from chemical plant manufacturing operations were buried in unlined disposal trenches at the Site. Contaminants of concern (COCs) include 1,2,-dichloroethane, manganese, toluene and trichloroethylene.

The United States Environmental Protection Agency listed the Site on the Superfund program's National Priorities List (NPL) in August 1990. The EPA entered into an Administrative Order on Consent (AOC) with Henkel Corporation, the Site's potentially responsible party (PRP), for a removal action at the Site in 1990. Following this action, the only medium that continued to pose unacceptable risks to human health and the environment was contamination in site groundwater.

The EPA signed the Site's Record of Decision (ROD) on May 3, 1994. The remedy called for institutional and access controls and groundwater monitoring to confirm the natural attenuation of contaminants. The triggering action for this Five-Year Review (FYR) was the signing of the previous FYR on April 21, 2011.

The remedy at the Site currently protects human health and the environment because there are no exposures occurring. For the remedy to be protective over the long term, the Site requires effective and enforceable institutional controls. The EPA should implement an institutional control that prevents groundwater usage. In addition, the EPA and PRP will determine appropriate next steps to address remaining manganese groundwater contamination.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Diamond Shamrock Corp. Landfill		
EPA ID: GAD990741092		
Region: 4	**State:** GA	**City/County:** Cedartown, Polk County

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

REVIEW STATUS
Lead agency: EPA
Author name: Charles King (EPA), Ryan Burdge and Kelly MacDonald (Skeo)
Author affiliation: EPA and Skeo
Review period: July 2015 – April 2016
Date of site inspection: 9/10/2015
Type of review: Policy
Review number: 4
Triggering action date: 4/21/2011
Due date *(five years after triggering action date)*: 4/21/2016

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: Remedy Performance			
	Issue: Manganese concentrations in groundwater remain above performance standards.			
	Recommendation: Determine appropriate next steps to address remaining manganese groundwater contamination.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	04/21/2017

OU(s): 1	Issue Category: Institutional Controls			
	Issue: The Consent Decree and Affidavit of Title do not explicitly prevent groundwater usage.			
	Recommendation: Implement an institutional control that prevents groundwater usage.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	04/21/2017

Sitewide Protectiveness Statement

Protectiveness Determination:
Short-term Protective

Protectiveness Statement:
The remedy at the Site currently protects human health and the environment because there are no exposures occurring. For the remedy to be protective over the long term, the Site requires effective and enforceable institutional controls. The EPA should implement an institutional control that prevents groundwater usage. In addition, the EPA and PRP will determine appropriate next steps to address remaining manganese groundwater contamination.

Five-Year Review Summary Form (continued)

Environmental Indicators
- Current human exposures at the Site are under control. - Contaminated groundwater migration is under control.

Are Necessary Institutional Controls in Place?
☐ All ☐ Some ☒ None

Has EPA Designated the Site as Sitewide Ready for Anticipated Use?
☒ Yes ☐ No

Has the Site Been Put into Reuse?
☐ Yes ☒ No

Fourth Five-Year Review Report
For
Diamond Shamrock Corp. Landfill Superfund Site

1.0 Introduction

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

The United States Environmental Protection Agency prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA Section 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.

The 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 initiation of the selected remedial action.

Skeo, an EPA Region 4 contractor, conducted the FYR and prepared this report regarding the remedy implemented at the Diamond Shamrock Corp. Landfill Superfund site (the Site) in Cedartown, Polk County, Georgia. The EPA's contractor conducted this FYR from July to April 2015. The EPA is the lead agency for developing and implementing the remedy for the potentially responsible party (PRP)-financed cleanup at the Site. The Georgia Environmental Protection Division (EPD) of the Department of Natural Resources, as the support agency representing the State of Georgia, has reviewed all supporting documentation and provided input to the EPA during the FYR process.

This is the fourth FYR for the Site. The triggering action for this policy review is the previous FYR. The FYR is required due to the fact that hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure. The Site consists of one operable unit (OU).

2.0 Site Chronology

Table 1 lists the dates of important events for the Site.

Table 1: Chronology of Site Events

Event	Date
The EPA discovered contamination at the Site	November 11, 1979
The EPA proposed the Site for listing on the Superfund program's National Priorities List (NPL)	January 22, 1987
Henkel Corporation (PRP) acquired the site property	1987
The EPA listed the Site on the NPL	August, 8, 1990
The EPA and PRP entered into Administrative Order on Consent (AOC) for a removal action at the Site	November 2, 1990
PRP completed interim waste removal project in which they removed trench materials for treatment and disposal and backfilled with clay-rich soils	1990
The EPA and PRP entered into an AOC to conduct the Site's remedial investigation/feasibility study (RI/FS)	September 16, 1991
PRP performed additional site characterization investigations: collection of soil samples to supplement trench closure samples, installation of four more monitoring wells, sampling of all 10 wells, and collection of surface water and sediment samples from Cedar Creek	1992
PRP completed the RI/FS The EPA signed the Site's Record of Decision (ROD)	May 3, 1994
The EPA and PRP entered into a Consent Decree, with PRP agreeing to perform the cleanup described in the ROD	March 30, 1995
PRP initiated the Site's remedial design	April 13, 1995
PRP completed the remedial design PRP initiated the Site's remedial action PRP initiated construction of the Site's remedy	June 29, 1995
PRP completed remedial actions The Site's remedy achieved the EPA's construction completion milestone The EPA issued the Site's Preliminary Close-out Report	September 29, 1995
PRP sold site property to Geo Specialty Chemicals, Inc.	March 25, 1997
The EPA issued Explanation of Significant Differences (ESD) for change in manganese performance standard	September 29, 1997
The EPA signed the Site's first FYR	September 29, 2000
The EPA signed the Site's second FYR	December 21, 2005
The EPA signed the Site's third FYR	April 21, 2011

3.0 Background

3.1 Physical Characteristics

The 8-acre Site is located near the northwest edge of Cedartown in Polk County, Georgia (Figure 1). It is north of West Girard Avenue and east of Cedar Creek. Immediately east of the Site is a wastewater treatment plant owned by Geo Specialty Chemicals, Inc. Beyond this plant to the east is a primarily residential area, with the closest residences located about 700 feet away from the Site. The Cedartown Wastewater Treatment Plant is north of the Site. Land to the south and east is largely residential with some commercial business and light industry. The population within 1 mile of the Site is between 1,001 and 5,000 people.

The property is a flat meadow with forested areas on the northern and western edges along Cedar Creek. The Site is fenced, with the exception of its western edge along Cedar Creek, where the creek and forest act as a natural barrier. The Cedartown area is in the Valley and Ridge physiographic province of the southern Appalachians. The predominant bedrock in the area is the Newala Limestone formation, which is part of the Knox group and is prone to karst solutioning. The bedrock is typically covered by residual soils, which consist of silty-clays, or clays with variable amounts of sand and silt. These soils generally have low permeability, contributing to surface water runoff toward the creek. The Cedartown area is drained by Cedar Creek, which is part of the Mobile River basin. Groundwater from the Site flows to the west or northwest and drains to Cedar Creek, in part due to the karstic limestone geology of the Site. The Site is not located in an environmentally sensitive area.

Figure 2 provides a detailed layout of the Site.

3.2 Land and Resource Use

Before 1968, land use of the site area included agricultural activities. The Diamond Shamrock Corporation owned the Site; Henkel Corporation acquired the site property in 1987. Geo Specialty Chemicals. bought the property from Henkel Corporation in 1997. Henkel Corporation remains responsible for the Site's contamination and cleanup. The property is not currently in use. This FYR found no evidence of changes in projected land use. The EPA designated the Site as Sitewide Ready for Anticipated Use (SWRAU) in June 2006.

The site property and the neighboring Geo Specialty Chemicals wastewater treatment plant property are both zoned for heavy industrial uses.

Groundwater on site flows into Cedar Creek, so groundwater contamination is limited to the site property. According to the 1994 Record of Decision (ROD), the water supply for Cedartown is a spring that is upgradient and upstream of the Site. No private or domestic drinking water wells are believed to exist within a 2,000-foot radius of the Site. Residences in the area are served by municipal water supplies.

3.3 History of Contamination

In 1972, about 1,500 gallons of oil pitch and 600 to 800 drums containing reportedly obsolete, off-specification products and raw materials from chemical plant manufacturing operations were buried in unlined disposal trenches at the Site. Four trenches were located on the northern half of the Site; one was

located on the southern half of the Site. On June 27, 1980, landfill owner/operator Diamond Shamrock Corporation reported details of the burial to Georgia EPD.

3.4 Initial Response

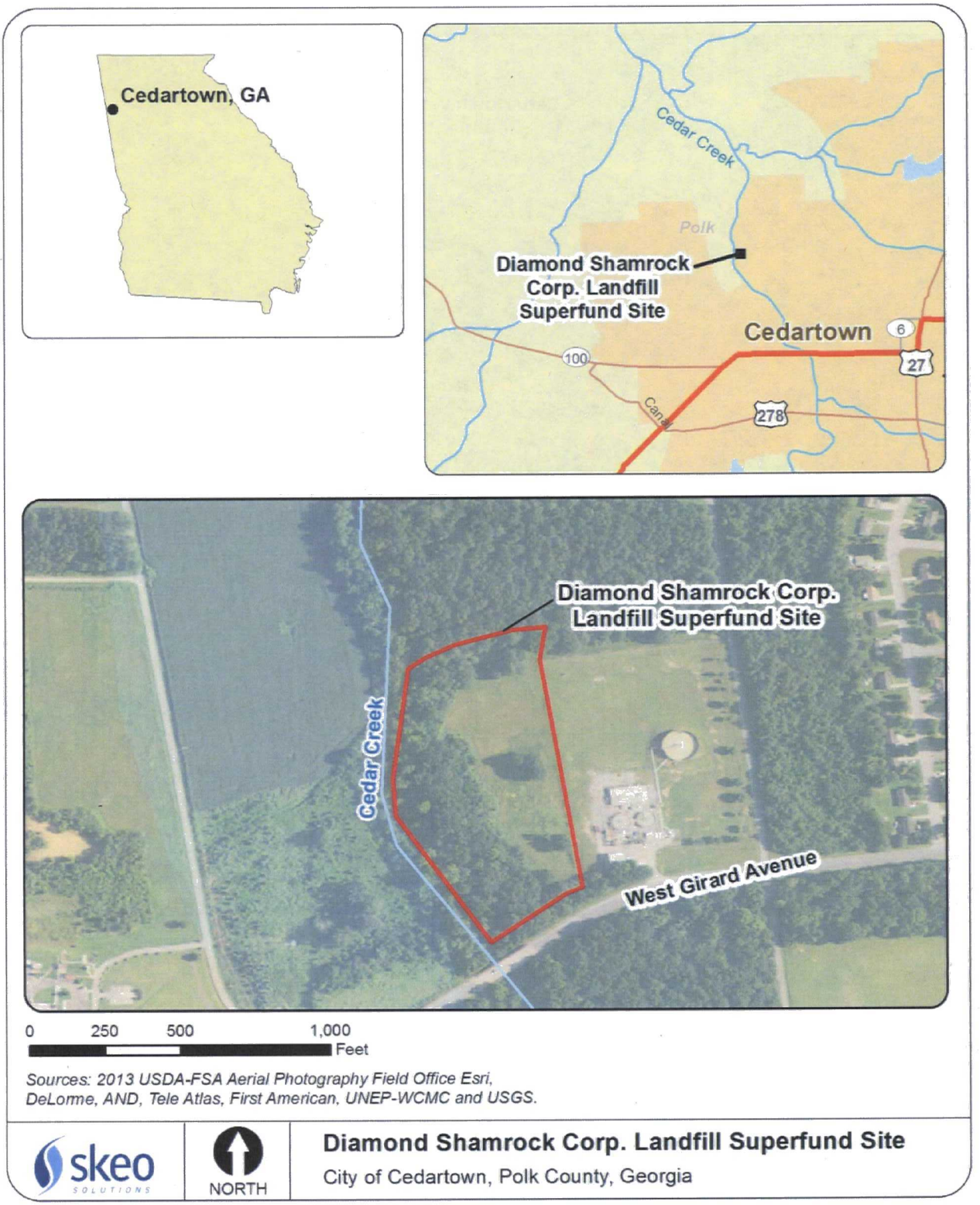
In March 1988, the EPA performed soil sampling, geophysical studies and an environmental assessment at the Site. In July 1989, Henkel Corporation conducted a test excavation/waste characterization study, which identified five drum and waste disposal areas. These disposal areas covered less than one tenth of an acre and consisted of five trenches that were about 6 feet wide and 6 to 14 feet deep. The test excavation program determined that migration of waste into adjacent soils was limited to approximately 1 to 3 feet. During September and October 1989, Henkel Corporation performed initial hydrogeologic investigations. Fieldwork included the decommissioning of four old monitoring wells, the drilling of seven continuously sampled soil test borings, and the installation of six groundwater monitoring wells.

The EPA proposed the Site for listing on the Superfund program's National Priorities List (NPL) in January 1987. The EPA finalized the Site on the NPL in August 1990.

Under the direction of the EPA, Henkel Corporation completed an interim waste removal project in 1990. About 1,500 cubic yards of waste-impacted soils were treated by bioremediation and about 8,400 gallons of liquid waste were incinerated at a licensed hazardous waste facility. Approximately 1,800 cubic yards of non-hazardous waste and debris were disposed of at an off-site industrial landfill. The trenches were backfilled with compacted clay-rich soils and surface soil samples were collected around the trenches and waste holding areas.

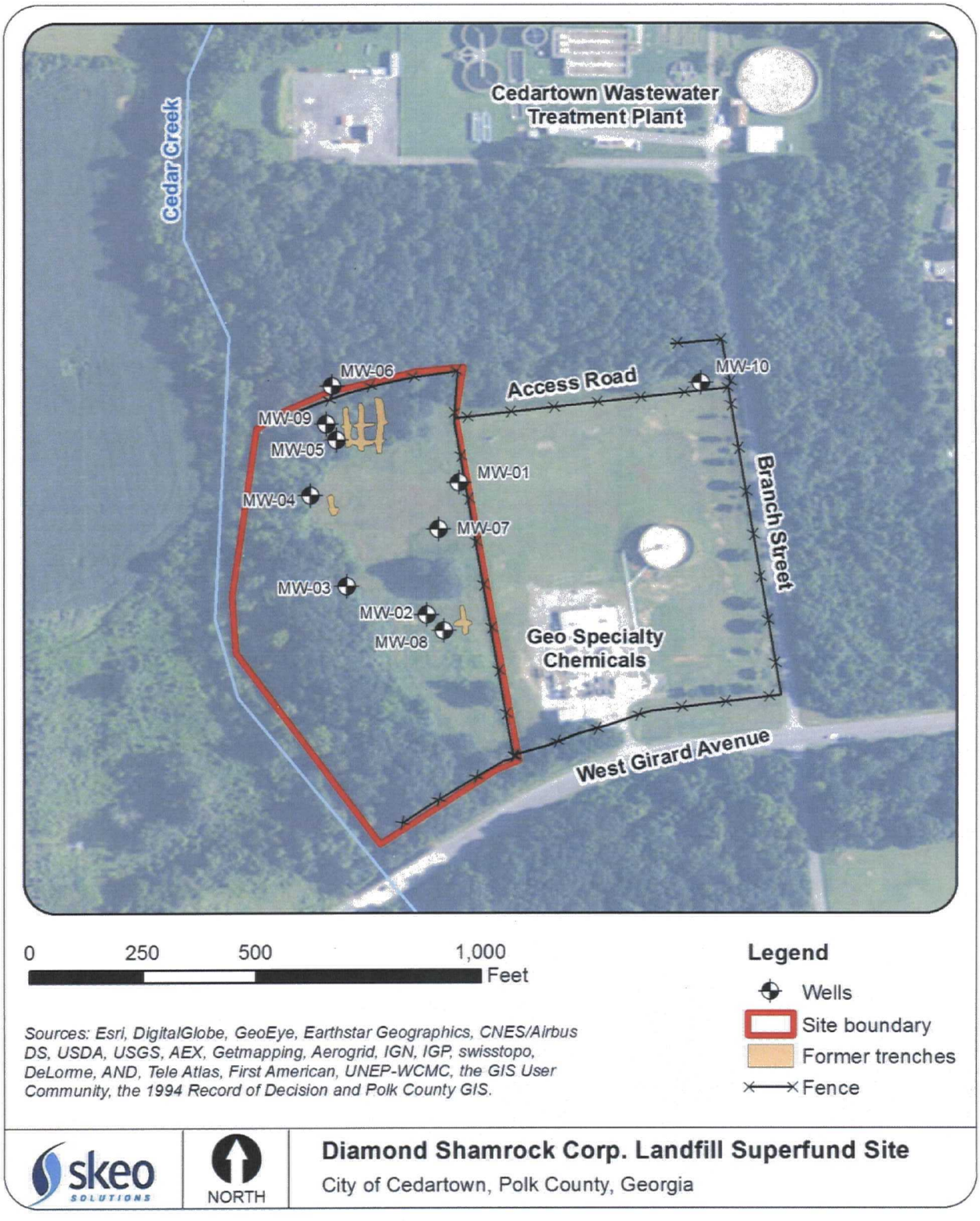
In 1992, Henkel Corporation performed additional site characterization investigations during remedial investigation/feasibility study (RI/FS) fieldwork to supplement previous investigations. Surface and subsurface soil samples were collected to supplement the trench closure samples, four more monitoring wells were installed and sampled along with the original six wells, and surface water and sediment samples were collected from Cedar Creek to characterize conditions in these media.

Figure 1: Site Location Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding the EPA's response actions at the Site.

Figure 2: Detailed Site Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding the EPA's response actions at the Site.

3.5 Basis for Taking Action

Under a 1991 Administrative Order on Consent, Henkel Corporation conducted a RI/FS in 1992 to determine the nature and extent of any contamination remaining at the Site. Volatile organic compounds, semi-volatile organic compounds and metals were detected in site groundwater above maximum contaminant levels (MCLs).

A baseline risk assessment was conducted as part of the RI to determine if the Site posed a current or potential threat to human health and the environment in the absence of any remedial action. Surface and subsurface soil samples, surface water samples and sediment samples collected during the RI indicated no unacceptable risks to human health and the environment. The only pathway indicating an unacceptable human health risk was the possible future residential ingestion of groundwater. The baseline risk assessment indicated that under future land use conditions, a hypothetical on-site resident could install a well and be exposed to groundwater from the Site. Contaminants of concern (COCs) in groundwater include 1,2-dichloroethane, manganese, toluene and trichloroethylene.

4.0 Remedial Actions

In accordance with CERCLA and the NCP, the overriding goals for any remedial action are protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs). A number of remedial alternatives were considered for the Site, and final selection was made based on an evaluation of each alternative against nine evaluation criteria that are specified in Section 300.430(e)(9)(iii) of the NCP. The nine criteria are:

1. Overall Protection of Human Health and the Environment
2. Compliance with ARARs
3. Long-Term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility or Volume through Treatment
5. Short-Term Effectiveness
6. Implementability
7. Cost
8. State Acceptance
9. Community Acceptance

4.1 Remedy Selection

The EPA signed the Site's ROD on May 3, 1994. It included a remedy for contaminated groundwater. The ROD did not list any remedial action objectives. Major components of the selected remedy include:

- Implementation of deed restriction(s) or restrictive covenant(s) to prevent groundwater usage and drilling resulting in exposure to groundwater contaminants.
- Completion and maintenance of site access restrictions (fencing and signage).
- Groundwater and surface water monitoring to confirm that natural attenuation processes are effective and that contaminants are not migrating.
- Performance of FYRs in accordance with CERCLA Section 121(c) to ensure that human health and the environment continue to be protected by the remedy, that natural attenuation continues to be effective, and that groundwater performance standards continue to be appropriate.
- Continued groundwater monitoring upon attainment of the performance standards at sampling intervals to be approved by the EPA.

In September 1997, the EPA issued an Explanation of Significant Differences (ESD) to clarify the performance standard for manganese. The ESD changed the manganese performance standard from 200 micrograms per liter (µg/L) to 850 µg/L. This change reflected the findings at the time that the previous standard was overly conservative. All other performance standards remained unchanged. This change did not fundamentally change the remedy. Cleanup goals for groundwater contaminants are listed in Table 2.

Table 2: Groundwater COC Cleanup Goals

Groundwater COC	ROD Cleanup Goal (µg/L)
1,2,-Dichloroethane	5
Manganese	850
Toluene	1,000
Trichloroethylene	5
Notes: From the 1994 ROD Table 6-4, with the exception of the cleanup goal for manganese, which is from the 1997 ESD. µg/L = Micrograms per Liter	

4.2 Remedy Implementation

The EPA and Henkel Corporation entered into a Consent Decree on March 30, 1995, for Henkel to implement the selected remedy. The remedial design started on April 13, 1995, and finished on June 29, 1995. The remedial action started on June 29, 1995, and finished on September 29, 1995.

In accordance with the ROD, Henkel Corporation registered proprietary controls with the Polk County Clerk of Court on April 19, 1995. Section 6.3 further discusses the Site's institutional controls. In July 1995, the PRP installed a new gate at the entrance of the landfill, two new sections of commercial gauge chain-link fence and signs prohibiting the entry of unauthorized personnel on the property.

The EPA approved the sampling plan for the remedy. The first round of semi-annual sampling took place in July 1995.

4.3 Operation and Maintenance (O&M)

The PRP follows the original O&M plan which was issued in June 1995 as part of the Final Remedial Action Work Plan. O&M activities at the Site since the previous FYR have included periodic grass cutting and sign and fence maintenance. The PRP has performed groundwater monitoring annually for the past five years. Surface water is sampled once every five years.

Total costs incurred over the last five years for groundwater monitoring, O&M, data analysis and reporting are approximately $36,000. In the 1994 ROD, the annual O&M costs were initially estimated to be $34,730.

Table 3: Annual O&M Costs

Year	Total Cost
2011	$5,000
2012	$7,000
2013	$12,000
2014	$9,000
2015	$3,000

5.0 Progress Since the Last Five-Year Review

The protectiveness statement from the 2011 FYR for the Site stated:

The remedial action is protective of human health and the environment. Institutional and access controls are in place and exposure pathways that could result in unacceptable risks are being controlled.

The 2011 FYR included one issue and recommendation. This report summarizes the recommendation and its current status below.

Table 4: Progress on Recommendation from the 2011 FYR

Recommendation	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Determine if concentrations of manganese are comparable to the appropriate background concentration for manganese in local groundwater. Groundwater monitoring should continue until EPA determines it is no longer necessary.	PRP	12/31/11	Ongoing	NA

6.0 Five-Year Review Process

6.1 Administrative Components

EPA Region 4 initiated the FYR in August 2015 and scheduled its completion for April 2016. EPA remedial project manager (RPM) Charles King led the EPA site review team, which also included EPA site attorney Caroline Philson, EPA community involvement coordinator (CIC) Kyle Bryant and contractor support provided to the EPA by Skeo. The review schedule established consisted of the following activities:

- Community notification.
- Document review.
- Data collection and review.
- Site inspection.
- Local interviews.
- FYR Report development and review.

6.2 Community Involvement

In September 2016, the EPA published a public notice in the *Albany Herald Newspaper* announcing the commencement of the FYR process for the Site, providing contact information for Charles King and Kyle Bryant and inviting community participation. The press notice is available in Appendix B. No one contacted the EPA as a result of the advertisement.

The EPA will make the final FYR Report available to the public. Upon completion of the FYR, the EPA will place copies of the document in the designated site repository: Cedartown Public Library, 245 East

Avenue, Cedartown, Georgia 30125.

6.3 Document Review

This FYR included a review of relevant site-related documents, including the ROD, ESD, remedial action reports and recent monitoring data. Appendix A provides a complete list of the documents reviewed.

ARARs Review

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain "a degree of cleanup of hazardous substances, pollutants, and contaminants released into the environment and of control of further release at a minimum which assures protection of human health and the environment." The remedial action must achieve a level of cleanup that at least attains those requirements that are legally applicable or relevant and appropriate.

- Applicable requirements are those cleanup standards, standards of control and other substantive requirements, criteria or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, remedial action, location or other circumstance found at a CERCLA site.

- Relevant and appropriate requirements are those standards that, while not "applicable," address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards more stringent than federal requirements may be applicable or relevant and appropriate.

- To-Be-Considered (TBC) criteria are non-promulgated advisories and guidance that are not legally binding, but should be considered in determining the necessary remedial action. For example, TBC criteria may be particularly useful in determining health-based levels where no ARARs exist or in developing the appropriate method for conducting a remedial action.

Chemical-specific ARARs are health- or risk-based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values establish an acceptable amount or concentration of a chemical that may remain in, or be discharged to, the ambient environment. Examples of chemical-specific ARARs include MCLs under the federal Safe Drinking Water Act and ambient water quality criteria enumerated under the federal Clean Water Act.

Action-specific ARARs are technology- or activity-based requirements or limits on actions taken with respect to a particular hazardous substance. These requirements are triggered by a particular remedial activity, such as discharge of contaminated groundwater or in-situ remediation.

Location-specific ARARs are restrictions on hazardous substances or the conduct of the response activities solely based on their location in a special geographic area. Examples include restrictions on activities in wetlands, sensitive habitats and historic places.

Remedial actions are required to comply with the chemical-specific ARARs identified in the ROD. In performing the FYR for compliance with ARARs, only those ARARs that address the protectiveness of the remedy are reviewed.

Groundwater

According to the 1994 ROD, groundwater cleanup goals are based on federal drinking water standards. As shown in Table 5, groundwater cleanup goals have not changed since the previous FYR.

Table 5: Previous and 2015 ARARs for Groundwater COCs

COC	1994 ROD Cleanup goal (µg/L)[a]	2015 ARAR (µg/L)[b]	ARAR Change
1,2,-Dichloroethane	5	5	No change
Manganese	850	N/A[c]	N/A
Toluene	1,000	1,000	No change
Trichloroethylene	5	5	No change

Notes:
a. From 1994 ROD Table 6-4, with the exception of manganese, which is from the 1997 ESD.
b. Federal MCLs are available at http://water.epa.gov/drink/contaminants/index.cfm (accessed 10/16/2015).
c. Manganese has a secondary standard and therefore does not have an ARAR.

Institutional Control Review

On October 16, 2015, Skeo staff conducted research on the Georgia Superior Court Clerks' Cooperative Authority website and found the Affidavit of Title, which has been considered the Site's institutional control in the past (Table 7) along with the 1995 Consent Decree.[1] However, these documents do not explicitly prevent groundwater usage and drilling as required by the ROD. Skeo staff located the limited warranty deed that documents the sale of the site property from Henkel Corporation to Geo Specialty Chemicals (Table 6).

Table 6: Deed Documents

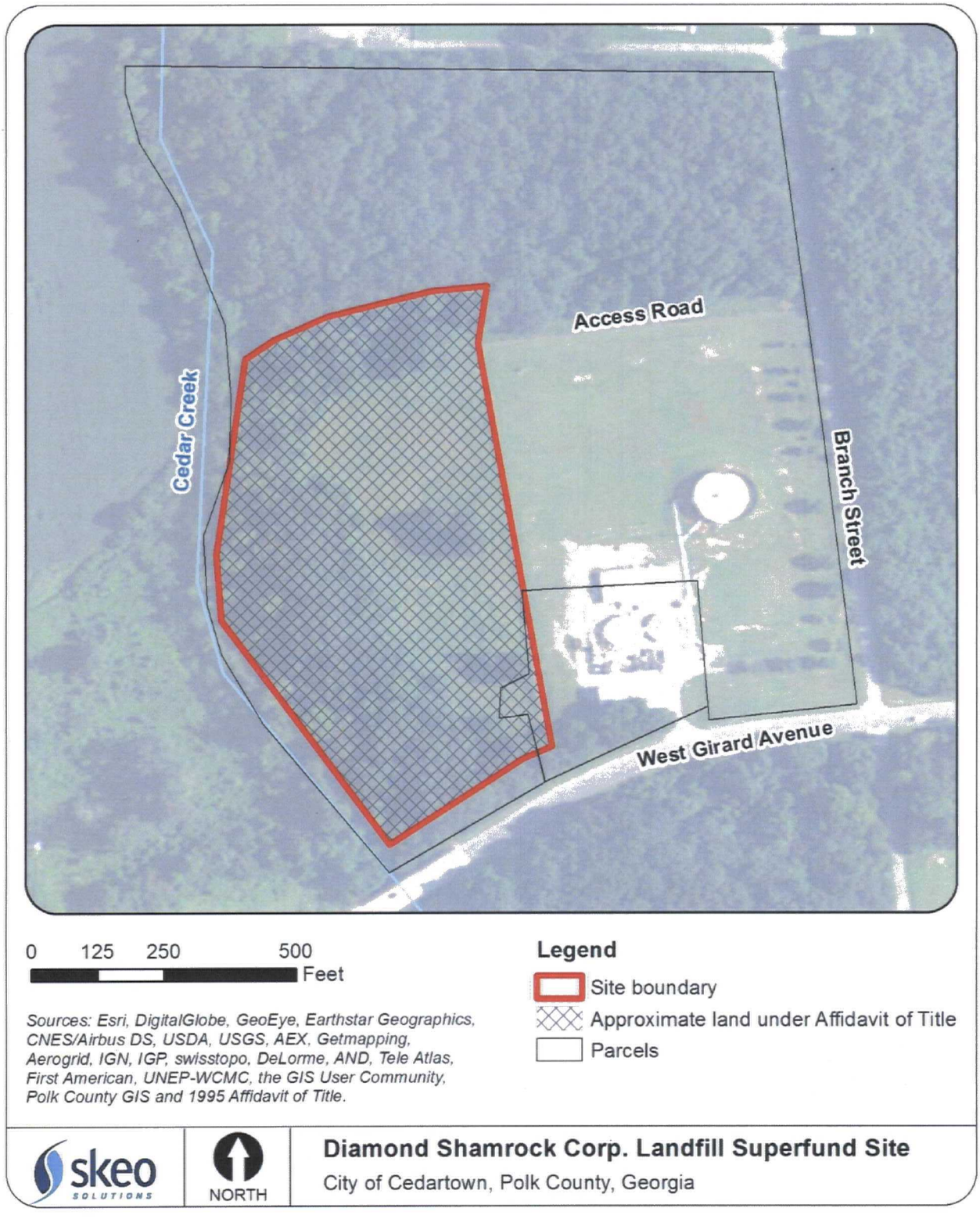
Date	Type of Document	Description	Book #	Page #
3/25/1997	Limited warranty deed	Sale of parcels from Henkel Corporation to Geo Specialty Chemicals	556	332

[1] https://www.gsccca.org/search.

Table 7: Institutional Control (IC) Summary Table

Media	ICs Needed	ICs Called for in the Decision Documents	IC Objective	Instrument in Place	Notes
Ground water	Yes	Yes	Prevent groundwater usage and drilling resulting in exposure to groundwater contaminants	None	1995 Affidavit of Title and 1995 Consent Decree have been considered the Site's institutional controls in the past. However, these documents do not explicitly prevent groundwater usage and drilling.

Figure 3: Institutional Control Base Map



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6.4 Data Review

Groundwater

Annual groundwater monitoring data from the past five years was reviewed and can be found in Table 8. Groundwater flows into Cedar Creek. The remaining contamination is limited to the site property. Concentrations of toluene and 1,2-dichloroethane were under their respective MCLs in all wells. Trichloroethylene concentrations were under the MCL for all samples except the October 2013 sample in monitoring well, MW-1. The subsequent sample for MW-1, in November 2014, was under the MCL.

In the past five years, manganese concentrations above the cleanup goal have been found in three of seven monitoring wells (MW-3, MW-4 and MW-8). MW-3 exceeded the cleanup goal in December 2011 and again in November 2015. MW-4 was under the cleanup goal for all sampling events with the exception of November 2014 sample. MW-8 has been above the cleanup goal for all sampling events from 2012 to 2015. The PRP intends to conduct further investigations to determine the cause of elevated manganese levels. Across the Site, there is no defined trend for manganese concentrations. Appendix F graphs manganese concentrations from the past five years.

Table 8: Monitoring Well Data (2011 to 2014)

Monitoring well	Date	Manganese (µg/L)	1,2-Dichloroethane (µg/L)	Trichloroethylene (µg/L)	Toluene (µg/L)
	Cleanup Goals:	**850**	**5**	**5**	**1,000**
MW-1	December 2011	69	<1.0	3.3	<1.0
	October 2012	14 J	<1.0	2.9	<1.0
	October 2013	5.5 J	0.32 J	**7.2**	<1.0
	November 2014	<10	<1.0	2.8	<1.0
	November 2015	3.3 J	<1.0	1.9	<1.0
MW-2	November 2015	11	<1.0	<1.0	<1.0
MW-3	December 2011	**1,300**	NA	NA	NA
	October 2012	95	NA	NA	NA
	October 2013	38	NA	NA	NA
	November 2014	680	NA	NA	NA
	November 2015	**1,000**	<1.0	<1.0	<1.0
MW-4	December 2011	120	<1.0	0.12 J	<1.0
	October 2012	130	<1.0	0.17 J	<1.0
	October 2013	110	<1.0	0.18 J	<1.0
	November 2014	**1,000**	<1.0	0.29 J	<1.0
	November 2015	780 (780 DUP)	<1.0 (<1.0 DUP)	<1.0 (<1.0 DUP)	<1.0 (<1.0 DUP)
MW-5	November 2015	19	<1.0	<1.0	<1.0
MW-6	November 2015	36	<1.0	<1.0	<1.0
MW-7	December 2011	8.2 J	<1.0	1.6	<1.0
	October 2012	35	<1.0	1.5	<1.0
	October 2013	6.7 J	0.14 J	2.2	<1.0
	November 2014	23	1.9	0.37 J	<1.0
	November 2015	7 J	<1.0	1.9	<1.0
MW-8	December 2011	200	NA	NA	NA
	October 2012	**1,500**	NA	NA	NA
	October 2013	**1,600**	NA	NA	NA
	November 2014	**1,100**	NA	NA	NA
	November 2015	**1,800**	<1.0	<1.0	<1.0
MW-9	December 2011	3.8 J	<1.0	0.098 J	<1.0
	October 2012	42	<1.0	0.086 J	<1.0
	October 2013	7.0 J	<1.0	<1.0	<1.0
	November 2014	81 J	<1.0	<1.0	<1.0
	November 2015	430	1.5	<1.0	<1.0
MW-9 (DUP)	December 2011	4.0 J	<1.0	0.091 J	<1.0
	October 2012	41	<1.0	0.075 J	<1.0
	October 2013	<10	<1.0	<1.0	<1.0
	November 2014	54 J	<1.0	<1.0	<1.0
MW-10	December 2011	23	<1.0	<1.0	<1.0
	October 2012	10 J	<1.0	<1.0	<1.0
	October 2013	14	<1.0	<1.0	<1.0
	November 2014	<10	<1.0	<1.0	<1.0
	November 2015	20	<1.0	<1.0	<1.0

Notes:
Source: 2011-2014 Summary of Analytical Results from Golder Associates and November 2015 Test America Analytical Report.
NA = not tested
J = estimated value
< = parameter not detected
DUP = field duplicate sample
Bold values indicate detections above the performance standard.

Surface Water

Surface water is sampled once every five years and was sampled in November 2015. Results indicate contaminants are not migrating into the creek (Table 9).

Table 9: Surface Water Sampling Results

Monitoring well	Date	Manganese (µg/L)	1,2-Dichloroethane (µg/L)	Trichloroethylene (µg/L)	Toluene (µg/L)
Downstream surface water	July 2010	41	<0.50	0.87	<0.50
	November 2015	66	<1.0	0.61 J	<1.0
Upstream surface water	July 2010	100	<0.50	0.30 J	<0.50
	November 2015	76	<1.0	<1.0	<1.0

Notes:
Source: November 2015 Test America Analytical Report.
< = parameter not detected

6.5 Site Inspection

The site inspection took place on September 10, 2015. Participants included Charles King, EPA RPM; Zuhair Rammo and James Sliwinski, Georgia EPD; Jonathan Blaine, Henkel Corporation, PRP; Scott Anderson and Deana Sneyd, Golder Associates, PRP O&M contractor; and Ryan Burdge and Kelly MacDonald, Skeo Solutions. The group toured the Site and general conditions were noted and photographed (Appendix E). The site inspection was led by Scott Anderson of Golder Associates, the PRP O&M contractor, who explained the current status of site activities. Mr. Anderson pointed out the locations of all monitoring wells and former trenches. Monitoring wells are generally in good condition, with the exception of MW-7, which had a rusted hinge and was not secured. The fence around the Site was intact and locked at both the entrance by the access road and the northern entrance in the woods. Participants also visited Cedar Creek, west of the Site. The Site is generally well maintained. Results of the site inspection are available in the completed site inspection checklist in Appendix D.

Skeo staff visited the designated site repository, Cedartown Public Library, as part of the site inspection. The documents at the repository were not up to date. Documents at the library included a partial Administrative Record. There were no decision documents or FYRs.

6.6 Interviews

The FYR process included interviews with parties affected by the Site, including regulatory agencies involved in site activities or aware of the Site. The purpose was to document the perceived status of the Site and any perceived problems or successes with the phases of the remedy implemented to date. All of the interviews took place during the site inspection on September 10, 2015. The interviews are summarized below. Appendix C provides the complete interviews.

Skeo interviewed all site inspection participants. EPA RPM Charles King and Skeo staff also interviewed local residents at a nearby gas station.

Zuhair Rammo and James Sliwinski: Mr. Rammo and Mr. Sliwinski of Georgia EPD stated that their overall impression of the project is satisfactory, although they believe that some sort of action is needed to address the persistent high levels of manganese in groundwater. They also stated that groundwater monitoring wells should be better maintained, and they are concerned that the lack of a fence next to the creek may allow unwanted access to the Site. They were satisfied with the current institutional controls. They were not aware of any resident inquiries, any changes in state laws or any changes in projected land use.

Jonathan Blaine and Scott Anderson: Jonathan Blaine with Henkel Corporation and Scott Anderson, contractor for Henkel Corporation, believe the remedy has achieved the goals of the ROD and that the remaining manganese contamination is due to naturally elevated concentrations in the area.

Local residents: Local residents were either unfamiliar with or had nothing to say about the Site. They did not express any site-related concerns.

7.0 Technical Assessment

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

The remedy is functioning as intended by the 1994 ROD, with the exception of the institutional controls.

One of the ROD's goals was to complete and maintain site access restrictions (fencing and signage). The Site's fence and signs both appear to be well maintained, although the signs did not include accurate contact information and should be updated. In addition, concerns were raised during the site inspection about the lack of fence along Cedar Creek. The EPA has previously determined that the creek and forest act as an adequate barrier.

Another major component of the selected remedy was to monitor groundwater and confirm that natural attenuation processes are effective and that contaminants are not migrating. Toluene, 1,2-dichloroethane and trichloroethylene have all remained below MCLs in the past five years (with the exception of one exceedance for trichloroethylene, which was below the MCL during the following sampling event), indicating that natural attenuation is occurring and effective. In the past five years, manganese has been detected above the cleanup goal in three wells. The PRP intends to conduct further investigations to determine the cause of elevated manganese levels.

One of the ROD's goals was to implement a restrictive covenant to prevent groundwater usage and drilling that could result in exposure to groundwater contaminants. The 1995 Affidavit of Title and 1995 Consent Decree meet some of the deed restrictions required by the ROD, do not explicitly restrict groundwater usage and well installation. According to representatives/staff from the City of Cedartown potable groundwater use is unlikely because most people are connected to public water. However, in order to ensure long-term protectiveness, the institutional controls must be updated by the PRP to include language that prohibits the installation of potable drinking wells in the area.

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

There have been no changes in standards, exposure pathways, toxicity data or risk assessment methods. The RAOs are still valid. Surface and subsurface soil samples, surface water samples and sediment samples collected during the RI indicated no unacceptable risks to human health and the environment and groundwater MCLs remain unchanged.

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

No other information has come to light that could call into question the protectiveness of the remedy.

7.4 Technical Assessment Summary

The remedy is functioning as intended by the ROD, with the exception of the institutional controls. The institutional controls are currently insufficient; none of the documents explicitly state that well installation or groundwater usage is prohibited. The cause of persisting manganese concentrations above cleanup goals should be determined, and appropriate next steps should be taken to address remaining manganese groundwater contamination.

8.0 Issues, Recommendations and Follow-up Actions

Table 10: Issues and Recommendations Identified in the Five-Year Review

OU(s): 1	Issue Category: Remedy Performance			
	Issue: Manganese concentrations in groundwater remain above performance standards.			
	Recommendation: Determine appropriate next steps to address remaining manganese groundwater contamination.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	04/21/2017

OU(s): 1	Issue Category: Institutional Controls			
	Issue: The Consent Decree and Affidavit of Title do not explicitly prevent groundwater usage.			
	Recommendation: Implement an institutional control that prevents groundwater usage.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	04/21/2017

The following additional items, though not expected to affect protectiveness, warrant additional follow-up:

- The documents at the site repository were not up to date. Documents at the library included only a partial Administrative Record and should be updated.
- Contact information on the signs at the Site was incorrect and should be updated.
- The cap on MW-7 is rusted and should be replaced.

9.0 Protectiveness Statement

Table 11: Protectiveness Statement

Sitewide Protectiveness Statement
Protectiveness Determination: Short-term Protective
Protectiveness Statement: The remedy at the Site currently protects human health and the environment because there are no exposures occurring. For the remedy to be protective over the long term, the Site requires effective and enforceable institutional controls. The EPA should implement an institutional control that prevents groundwater usage. In addition, the EPA and PRP will determine appropriate next steps to address remaining manganese groundwater contamination.

10.0 Next Review

The next FYR will be due within five years of the signature/approval date of this FYR.

Appendix A: List of Documents Reviewed

U.S. Environmental Protection Agency, Region 4, EPA Superfund Record of Decision, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, May 3, 1994.

U.S. Environmental Protection Agency, Region 4, Consent Decree, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, March 30, 1995.

Georgia Superior Court Clerks' Cooperative Authority, Affidavit of Title, Cedartown, Georgia, April 7, 1995.

U.S. Environmental Protection Agency, Region 4, Preliminary Close-Out Report, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, September 29, 1995.

U.S. Environmental Protection Agency, Region 4, Explanation of Significant Differences, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, September 1997.

Golder Associates, Letter to Mr. Charles King, Response to David Jenkins Memorandum Concerning Five-Year Remedial Action Review Report, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, March 7, 2008.

Golder Associates, Letter to Mr. Charles King, Revised Five-Year Remedial Action Review Report, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, March 7, 2008.

U.S. Environmental Protection Agency, Region 4, Third Five-Year Review Report, Diamond Shamrock Corp. Landfill Site, Cedartown, Georgia, April 21, 2011.

Golder Associates, Summary of Analytical Results, Diamond Shamrock Corp. Landfill Site, 2011-2014.

Appendix B: Press Notice

The U.S. Environmental Protection Agency, Region 4
Announces the Fourth Five-Year Review for
The Diamond Shamrock Corp. Landfill Superfund Site,
Cedartown, Polk County, Georgia

Purpose/Objective: The EPA is conducting the fourth Five-Year Review of the remedy for the Diamond Shamrock Corp. Landfill Superfund site (the Site) in Cedartown, Georgia. The purpose of the Five-Year Review is to make sure the selected cleanup actions effectively protect human health and the environment.

Site Background: The 8-acre area is located in Cedartown in Polk County, Georgia. Prior to 1968, land uses on site were mostly agricultural. In the 1970s, operators of a chemical manufacturing plant disposed of about 1,500 gallons of oil pitch and 600 to 800 drums containing various waste products and raw materials in unlined disposal trenches at the Site. Investigations confirmed that soil and groundwater contained 1,2-dichloroethane, manganese, toluene and trichloroethylene. The release of hazardous substances from the Site was a potential threat to public health and the environment if left unaddressed. The EPA added the Site to the Superfund program's National Priorities List (NPL) in August 1990.

Cleanup Actions: In 1990, the Henkel Corporation completed a short-term cleanup, removing liquid waste and treating contaminated soil. The EPA then issued a Record of Decision (ROD) selecting the final long-term remedy for site groundwater in 1994. It included institutional controls to prevent groundwater use, access restrictions, including fencing and signage, and groundwater and surface water monitoring. The EPA updated the remedy in 1997, altering the cleanup goal for manganese. The EPA continues to monitor groundwater; the previous FYR found that the Site's remedy is functioning as designed.

Five-Year Review Schedule: The National Contingency Plan requires review of remedial actions that result in any hazardous substances, pollutants or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure every five years to ensure the protection of human health and the environment. The fourth of the Five-Year Reviews for the Site will be completed by September 2016.

The EPA Invites Community Participation in the Five-Year Review Process: The EPA is conducting this Five-Year Review to evaluate the effectiveness of the Site's remedy and to ensure that the remedy remains protective of human health and the environment. As part of the Five-Year Review process, EPA staff is available to answer any questions about the Site. Community members who have questions about the Site or the Five-Year Review process, or who would like to participate in a community interview, are asked to contact:

Charles King, EPA Remedial Project Manager
Coordinator
Phone: (404) 562-8931
(toll-free)
Email: king.charlesl@epa.gov

Kyle Bryant, EPA Community Involvement

Phone: (404) 562-9073 | (877) 718-3752

Email: bryant.kyle@epa.gov

Mailing Address: U.S. EPA Region 4, 61 Forsyth Street, S.W., 11th Floor, Atlanta, GA 30303-8960

Additional information is available at the Site's local document repository, located at Cedartown Public Library, 245 East Avenue, Cedartown, Georgia 30125, and online at:
http://www.epa.gov/region4/superfund/sites/npl/georgia/diashamrkga.html.

Appendix C: Interview Forms

Diamond Shamrock Corp. Landfill Superfund Site — **Five-Year Review Interview Form**

Site Name: Diamond Shamrock Corp. Landfill **EPA ID No.:** GAD990741092

Interviewer Name: Ryan Burdge **Affiliation:** Skeo

Subject Name: Zuhair Rammo and James Sliwinski **Affiliation:** Georgia EPD

Subject Contact Information: zuhair.rammo@dnr.ga.gov
jim.sliwinksi@dnr.ga.gov

Time: 11:30 a.m. **Date:** September 10th, 2015

Interview Location: Diamond Shamrock Corp. Landfill Superfund Site

Interview Format (circle one): [In Person] Phone Mail Other:

Interview Category: State Agency

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Our overall impression of the project is satisfactory. If the results of groundwater data show all of contamination levels are reducing, this will indicate that the monitored natural attenuation is effective at this site. Georgia EPD is expecting that the manganese levels are reducing. If the levels of manganese are not declining, Georgia EPD would like the manganese to be compared to background concentrations, which have not been affected by the industrial contamination.

2. What is your assessment of the current performance of the remedy in place at the Site?

   Acceptable, but Georgia EPD still has concerns about the manganese levels in the groundwater (i.e., MW-3, MW-4 and MW-8).

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

   No.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

   No. Georgia EPD has not conducted any activity at the Site for the past five years.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

   No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

Georgia EPD believes that the current institutional controls are effective and should remain in place.

7. Are you aware of any changes in projected land use(s) at the Site?

   No.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   Georgia EPD believes that the groundwater monitoring wells should be better maintained. The lack of a fence next to the creek may allow unwanted access to the Site. Generally, Georgia EPD believes that some sort of action is needed to address the persistent high levels of manganese in the groundwater.

Appendix D: Site Inspection Checklist

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Diamond Shamrock Corp. Landfill	**Date of Inspection:** 09/10/2015
Location and Region: Cedartown, Georgia, Region 4	**EPA ID:** GAD990741092
Agency, Office or Company Leading the Five-Year Review: EPA	**Weather/Temperature:** 65, overcast

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other: _____
- ☒ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** Scott Anderson (Name) | Project Manager (Title) | 09/10/2015 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) | _____ (Title) | _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

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). Fill in all that apply.

   Agency Georgia EPD
   Contact Zuhair Rammo and James Sliwinski (Name) | Senior Geologist and Environmental Engineer (Title) | 09/10/2015 (Date) | 404-656-2833 (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: _____

   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: _____

Jonathan Blaine, PRP project manager

Geo Specialty Chemicals representatives

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	☒ N/A
☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
☐ Maintenance logs	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

2. **Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☒ N/A
☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

3. **O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

5. **Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

6. **Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

7. **Groundwater Monitoring Records**	☒ Readily available	☒ Up to date	☐ N/A

Remarks: _____

8. **Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

9. **Discharge Compliance Records**

☐ Air	☐ Readily available	☐ Up to date	☒ N/A
☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for state

☐ PRP in-house ☒ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

☐ _____

2. **O&M Cost Records**

☒ Readily available ☒ Up to date

☐ Funding mechanism/agreement in place ☐ Unavailable

Original O&M cost estimate: $34,730 annually ☐ Breakdown attached

Total annual cost by year for review period if available

From: 2011 Date	To: 2011 Date	$5,000 Total cost	☐ Breakdown attached
From: 2012 Date	To: 2012 Date	$7,000 Total cost	☐ Breakdown attached
From: 2013 Date	To: 2013 Date	$12,000 Total cost	☐ Breakdown attached
From: 2014 Date	To: 2014 Date	$9,000 Total cost	☐ Breakdown attached
From: 2015 Date	To: 2015 Date	$3,000 Total cost	☐ Breakdown attached

3. ***Unanticipated or Unusually High O&M Costs during Review Period***

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☒ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: _____

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☐ N/A

Remarks: Signs are attached to fence in multiple locations. They state that site access is restricted to authorized personnel only.

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

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

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

Type of monitoring (e.g., self-reporting, drive by): _____

Frequency: _____

Responsible party/agency: _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☐ Yes ☐ No ☒ N/A

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

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

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☐ Report attached

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

Remarks: ICs do not explicitly prevent groundwater usage or on-site drilling.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

Remarks: _____

3. **Land Use Changes Off Site** ☒ N/A

Remarks: _____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads Damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on site map ☐ Settlement not evident

Arial extent: _____ Depth: _____

Remarks: _____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident

Lengths: _____ Widths: _____ Depths: _____

Remarks: _____

3.	**Erosion**	☐ Location shown on site map	☐ Erosion not evident
	Arial extent: _____		Depth: _____
	Remarks: _____		
4.	**Holes**	☐ Location shown on site map	☐ Holes not evident
	Arial extent: _____		Depth: _____
	Remarks: _____		
5.	**Vegetative Cover**	☐ Grass	☐ Cover properly established
	☐ No signs of stress	☐ Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: _____		
6.	**Alternative Cover** (e.g., armored rock, concrete)		☐ N/A
	Remarks: _____		
7.	**Bulges**	☐ Location shown on site map	☐ Bulges not evident
	Arial extent: _____		Height: _____
	Remarks: _____		
8.	**Wet Areas/Water Damage**	☐ Wet areas/water damage not evident	
	☐ Wet areas	☐ Location shown on site map	Arial extent: _____
	☐ Ponding	☐ Location shown on site map	Arial extent: _____
	☐ Seeps	☐ Location shown on site map	Arial extent: _____
	☐ Soft subgrade	☐ Location shown on site map	Arial extent: _____
	Remarks: _____		
9.	**Slope Instability**	☐ Slides	☐ Location shown on site map
	☐ No evidence of slope instability		
	Arial extent: _____		
	Remarks: _____		
B. Benches		☐ Applicable	☐ N/A
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
2.	**Bench Breached**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
3.	**Bench Overtopped**	☐ Location shown on site map	☐ N/A or okay
	Remarks: _____		
C. Letdown Channels		☐ Applicable	☐ N/A
	(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill		

cover without creating erosion gullies.)

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ No evidence of settlement
   Arial extent: _____ Depth: _____
   Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
   Material type:_____ Arial extent: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
   Arial extent: _____ Depth: _____
   Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
   Arial extent: _____ Depth: _____
   Remarks: _____

5. **Obstructions** Type: _____ ☐ No obstructions
   ☐ Location shown on site map Arial extent: _____
   Size: _____
   Remarks: _____

6. **Excessive Vegetative Growth** Type: _____
   ☐ No evidence of excessive growth
   ☐ Vegetation in channels does not obstruct flow
   ☐ Location shown on site map Arial extent: _____
   Remarks: _____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

2. **Gas Monitoring Probes**
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

4. **Extraction Wells Leachate**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks: _____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs maintenance
Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs maintenance
Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs maintenance ☐ N/A
Remarks: _____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
Remarks: _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks: _____

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

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A
☐ Siltation not evident
Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____
☐ Erosion not evident
Remarks: _____

3. **Outlet Works** ☐ Functioning ☐ N/A
Remarks: _____

4. **Dam** ☐ Functioning ☐ N/A
Remarks: _____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement: _____ Vertical displacement: _____
Rotational displacement: _____

Remarks: _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident

Remarks: _____

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

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

☐ Vegetation does not impede flow

Area extent: _____ Type: _____

Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Area extent: _____ Depth: _____

Remarks: _____

4. **Discharge Structure** ☐ Functioning ☐ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Performance Monitoring** Type of monitoring: _____

☐ Performance not monitored

Frequency: _____ ☐ Evidence of breaching

Head differential: _____

Remarks: _____

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

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

1. **Pumps, Wellhead Plumbing and Electrical**

☐ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A

Remarks: _____

2. **Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

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

1. **Collection Structures, Pumps and Electrical**

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

☐ Air stripping ☐ Carbon adsorbers

☐ Filters: _____

☐ Additive (e.g., chelation agent, flocculent): _____

☐ Others: _____

☐ Good condition ☐ Needs maintenance

☐ Sampling ports properly marked and functional

☐ Sampling/maintenance log displayed and up to date

☐ Equipment properly identified

☐ Quantity of groundwater treated annually: _____

☐ Quantity of surface water treated annually: _____

Remarks: _____

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐ N/A ☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Tanks, Vaults, Storage Vessels**

☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance

Remarks: _____

4. **Discharge Structure and Appurtenances**

☐ N/A ☐ Good condition ☐ Needs maintenance

Remarks: _____

5. **Treatment Building(s)**

☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair

☐ Chemicals and equipment properly stored

Remarks: _____

6. **Monitoring Wells** (pump and treatment remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☐ Good condition

☒ All required wells located ☒ Needs maintenance ☐ N/A

Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site and 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 designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).
The remedy was designed to have contaminants naturally attenuate and to prevent groundwater usage and exposure to contaminants. The remedy appears to be functioning as designed, with the exception of institutional controls.

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.
O&M procedures are currently adequate.

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.
The high concentrations of manganese may indicate potential problems, or they may indicate that background levels in the area are high. The EPA and the PRP should make a determination about this.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. The EPA and the PRP should determine if high concentrations of manganese are due to background levels in the area and evaluate the O&M that will be required after the determination is made.

Site Inspection Roster:

Charles King, EPA RPM
Zuhair Rammo and James Sliwinski, Georgia EPD
Scott Anderson and Deana Sneyd, Golder Associates, PRP O&M Contractor
Jonathan Blaine, Henkel Corporation, PRP
Ryan Burdge and Kelly MacDonald, Skeo

Appendix E: Photographs from Site Inspection Visit

Sign on fence at site entrance

Locked fence at site entrance

Monitoring well MW-10

View looking to the south from intersection of Branch Street and Access Road

Monitoring well MW-1

Area of former trenches 1-3

Monitoring well,MW-7, locked with rusted hinge

Area of former trench 5

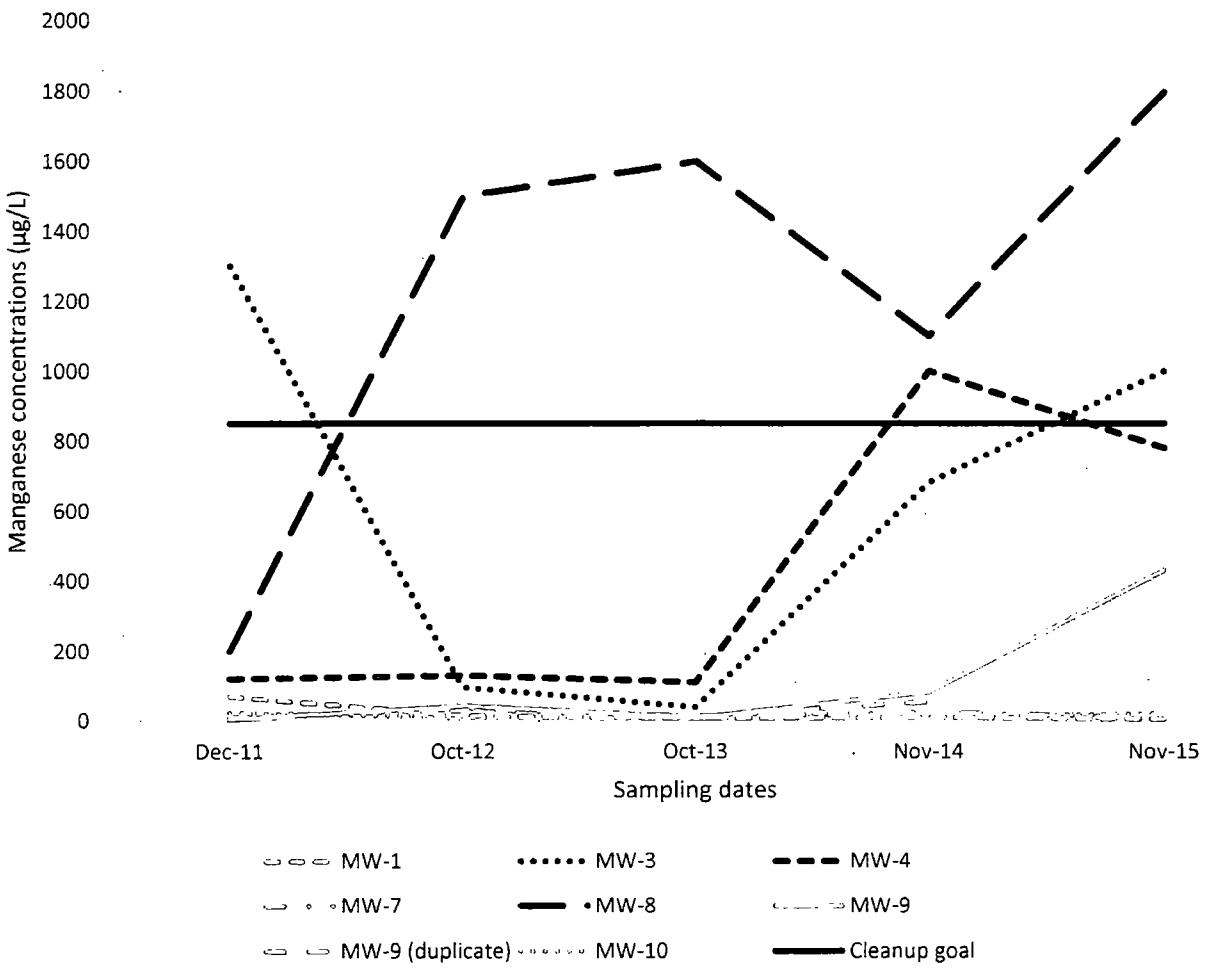
Cedar Creek

Monitoring well MW-3

View of the Site from its western edge

Fence on the northern border of the Site

Appendix F: Manganese concentrations (2011 to 2014)



Notes:
Source: 2011-2014 Summary of Analytical Results from Golder Associates and November 2015 Test America Analytical Report.
For values with "<" (which indicated that the parameter was not detected), the numerical value was used to graph these points.

Appendix G: Affidavit of Title

AFFIDAVIT OF TITLE BOOK 514 PAGE 311

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

IN RE: Property of Henkel Corporation
Deed Book 376, Page 539 and
Deed Book 398, Page 149, Polk
County, Georgia

RECORD AND RETURN TO:

Henkel Corporation, Law Department
Suite 200, 2200 Renaissance Boulevard
Gulph Mills, Pennsylvania 19406
Attn: Sharon McGreevey

Before me, the undersigned attesting authority in and for said State and County, came the undersigned deponent, who being duly sworn deposes and says on oath that this Affidavit relates to the property of the owner designated in the caption hereof as the same as described in the Deed Book and Page herein referred to.

This Affidavit is made pursuant to the provisions of O.C.G.A. §44-2-20, with knowledge that the same will be filed for record under the provisions of O.C.G.A. §44-2-20, and with knowledge that it will be relied on by attorneys examining title to the above-described land, by a purchaser or purchasers in purchasing said property, by a lender or lenders in making a loan or loans secured by said property, and by title insurance companies insuring title to said above-described land.

Deponent makes the following statement under oath as being relevant and material to the ownership of said property:

NOTICE:

1. The property described on Exhibit A attached hereto (the "Site" or the "Diamond Shamrock Superfund Site") is subject to a United States Environmental Protection Agency ("EPA") CERCLA RD/RA Consent Decree (the "Consent Decree"), issued in the matter of the United States of America v. Henkel Corporation , Civil Action No. 4:95-CV-0024-RLV, a certified copy of which is attached as Exhibit B.

2. Pursuant to the provisions of the Consent Decree, Henkel Corporation gives notice that:

   A. Within fifteen (15) days after the entry of the Consent Decree, Henkel Corporation shall record a certified copy of the Consent Decree with the Office of the Clerk of the Superior Court of Polk County, State of Georgia. Thereafter, each deed, title, or other instrument conveying an interest in the property encompassing the Diamond Shamrock Superfund Site in Cedartown, Georgia, shall contain a notice stating that the property is subject to the Consent Decree and shall reference the recorded location of the Consent Decree and any

restrictions applicable to the property under the Consent Decree.

B. The obligations of Henkel Corporation with respect to the provision of access under Section X of the Consent Decree ("Section X") and the implementation of institutional controls under Section 9.0 of a certain Record of Decision, attached as Appendix A to Exhibit B hereto, pertaining to the Site, executed by the EPA on May 3, 1994, shall be binding upon Henkel Corporation and any and all persons who subsequently acquire any such interest or portion thereof (hereinafter "Successors-In-Title"). Within fifteen (15) days after the entry of the Consent Decree, Henkel Corporation shall record at the Office of the Clerk of the Superior Court a notice of obligation to provide access under Section X and related covenants. Each subsequent instrument conveying an interest to any such property included in the Site shall reference the recorded location of such notice and covenants applicable to the property.

C. Henkel Corporation and any Successors-In-Title shall, at least thirty (30) days prior to the conveyance of any such interest, give written notice of the Consent Decree to the grantee and written notice to the EPA of the proposed conveyance, including the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee. In the event of any such conveyance, the obligations under the Consent Decree of Henkel Corporation and any Successors-In-Title to the Site, including their obligations to provide or secure access pursuant to Section X, shall continue to be met by Henkel Corporation and any Successors-In-Title to the Site. In addition, if the United States approves, the grantee may perform some or all of the activities Henkel Corporation and any Successors-In-Title are required to perform under the Consent Decree, except those required by Section XXVI (Retention of Records) of the Consent Decree. In no event shall the conveyance of an interest in property that includes, or is a portion of, the Site release or otherwise affect the liability of Henkel Corporation and any Successors-In-Title to comply with the Consent Decree.

Sworn to and subscribed before me this 7th day of April, 1995.

Sharon N. McGrenrey
Notary Public
Sharon N. McGrenrey

My Commission Expires:

(Notarial Seal)

Notarial Seal
Sharon N. McGrenrey, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires Nov. 14, 1998
Member, Pennsylvania Association of Notaries

Deponent:

Henkel Corporation

By: John E. Knudson
Vice President - Finance and Chief Financial Officer

Address: The Triad, Suite 200
2200 Renaissance Boulevard
Gulph Mills, PA 19406

Georgia, Polk County
Filed in Office this 13 day of April
1995, at 10:50 Recorded in Deed
Book 514 Page 311 This 18
day of APR., 1995.
Sandra W. Greenway, Clerk