Five-Year Review Report

Fourth Five-Year Review Report
for
Geiger (C&M Oil) Site
SCD980711279

Hollywood
Charleston County, South Carolina

April 2014

United States Environmental Protection Agency
Region 4
Atlanta, Georgia

Approved by:

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Date: 4/29/14

Fourth Five-Year Review Report
for
Geiger (C&M Oil)
SC-162
Hollywood
Charleston County, South Carolina

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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CCHD	Charleston County Health Department
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Act Information System
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
IC	Institutional Control
MCL	Maximum Contaminant Level
µg/L	Microgram per Liter
mg/L	Milligram per Liter
MNA	Monitored Natural Attenuation
NAI	No ARAR Identified
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polychlorinated Biphenyl
PRMCL	Proposed Recommended Maximum Contaminant Levels
RAO	Remedial Action Objective
ROD	Record of Decision
RPM	Remedial Project Manager
SCDHEC	South Carolina Department of Health and Environmental Control
SCPCA	South Carolina Pollution Control Authority
USACE	United States Army Corps of Engineers

Executive Summary

The five-acre Geiger (C&M Oil) Superfund site (the Site) is located about 10 miles west of Charleston, along Highway 162 in Hollywood (formerly Rantowles), Charleston County, South Carolina. Between 1969 and 1980, Adams Run Services, Inc. used the property for waste oil incineration operations. Business operations included the disposal of oil-related wastes in eight unlined lagoons on the property. In 1980, the United States Environmental Protection Agency (EPA) determined that these activities resulted in contamination of soil and ground water with organic compounds and metals. EPA placed the Site on the Superfund program's National Priorities List (NPL) on September 21, 1984.

EPA selected a remedy to address the Site's contamination in a 1987 Record of Decision (ROD) and updated the remedy with ROD Amendments in 1993 and 1998. The final selected remedy consisted of monitored natural attenuation (MNA) of contaminated ground water, and solidification and stabilization of contaminated soils. EPA completed all soil treatment activities in 1994. In 2001, a restrictive covenant was placed on the Site property to restrict certain uses that would affect the integrity or effectiveness of the soil treatment area, prohibit residential or agricultural uses, and prohibit ground water use without prior approval. EPA deleted the Site from the NPL on January 6, 2014. Pile Drivers, Inc. continues to use the Site for the storage of heavy equipment.

The triggering action for this Five-Year Review (FYR) was the signing of the previous FYR on April 22, 2009.

The remedy at the Site is protective of human health and the environment. Following solidification and stabilization, soils meet industrial cleanup standards. Following MNA, ground water does not exceed action levels for any contaminants of concern. The property is currently in use for industrial purposes. Institutional controls in place ensure the continued protection of the soil wastes left in place and that the property will remain industrial.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Geiger (C&M Oil)		
EPA ID: SCD980711279		
Region: 4	**State:** SC	**City/County:** Hollywood, Charleston County

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

REVIEW STATUS
Lead agency: EPA
Author name: Treat Suomi and Melissa Oakley (Reviewed by EPA)
Author affiliation: Skeo Solutions
Review period: 10/29/2013 – 4/22/2014
Date of site inspection: 1/14/2014
Type of review: Statutory
Review number: 4
Triggering action date: 4/22/2009
Due date *(five years after triggering action date)*: 4/22/2014

Five-Year Review Summary Form (continued)

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1

Sitewide Protectiveness Statement	
Protectiveness Determination: Protective	*Addendum Due Date (if applicable):* *Not Applicable*
Protectiveness Statement: The remedy at the Site is protective of human health and the environment. Following solidification and stabilization, soils meet industrial cleanup standards. Following monitored natural attenuation, ground water does not exceed action levels for any contaminants of concern. The property is currently in use for industrial purposes. Institutional controls in place ensure the continued protection of the soil wastes left in place and that the property will remain industrial.	

Environmental Indicators
Current human exposures at the Site are under control. Current ground water 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
Geiger (C&M Oil) 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.

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 Solutions, an EPA Region 4 contractor, conducted the FYR and prepared this report regarding the remedy implemented at the Geiger (C&M Oil) Superfund site (the Site) in Hollywood (formerly Rantowles), Charleston County, South Carolina. EPA's contractor conducted this FYR from October 2013 to April 2014. EPA is the lead agency for developing and implementing the remedy for the Superfund-financed cleanup at the Site. The South Carolina Department of Health and Environmental Control (SCDHEC), as the support agency representing the State of South Carolina, has reviewed all supporting documentation and provided input to EPA during the FYR process.

This is the fourth FYR for the Site. The triggering action for this statutory review is the previous FYR. The FYR is required because 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). This FYR report addresses the single OU at the Site.

2.0 Site Chronology

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

Table 1: Chronology of Site Events

Event	Date
South Carolina Pollution Control Authority (SCPCA) permitted Adams Run Services, Inc. to incinerate waste oil	March 1969
Adams Run Services, Inc. constructed eight unlined lagoons on site to hold oil-related wastes	1969-1971
SCPCA ordered that all incineration and waste disposal at the Site stop and that the owner take action to prevent oil releases	December 1971
A nearby property owner filed a complaint with the Charleston County Health Department concerning oil overflowing from site lagoons	April 1974
EPA began site investigations	February 1980
EPA listed the Site on National Priorities List (NPL)	September 21, 1984
EPA completed the remedial investigation	July 1, 1986
EPA issued the Site's Record of Decision (ROD)	June 1, 1987
EPA completed the feasibility study	July 24, 1987
EPA began a removal action	October 14, 1987
EPA began remedial design	April 19, 1988
EPA completed the removal action	May 16, 1988
EPA entered a Cooperative Agreement with United States Army Corps of Engineers (USACE) to perform remedial actions	February 1992
EPA began the remedial action	March 31, 1992
EPA completed all remedial design at the Site	September 14, 1992
EPA issued the Site's first ROD Amendment	July 13, 1993
EPA completed the remedial action	September 29, 1997
SCDHEC approved the site's Operation and Maintenance (O&M) Plan	September 1998
EPA issued the Site's second ROD Amendment	September 9, 1998
EPA completed remedy construction and issued the Site's Preliminary Close Out Report	September 14, 1998
EPA issued the Site's first FYR	October 22, 1998
Pile Drivers, Inc. signed a restrictive covenant	October 11, 2001
EPA issued the Site's second FYR	March 29, 2004
EPA conducted temporary ground water well sampling event	September 29, 2004
EPA decommissioned all site wells except for MW-2S and MW-6S	January 2006
EPA conducted ground water sampling event	August 19, 2008
EPA issued Technical Review of Data	March 23, 2009
EPA issued the Site's third FYR	April 22, 2009
Ground water well sampling event conducted	July 2009
Durability and Leachability Study of the Solidified/Stabilized (Monolith) Wastes published	January 2013
EPA issued the Site's Final Close Out Report	August 8, 2013
EPA deleted the Site from the NPL	January 6, 2014

3.0 Background

3.1 Physical Characteristics

The five-acre Site is located about 10 miles west of Charleston, along Highway 162 in Hollywood, Charleston County, South Carolina (see Figures 1 and 2). The Site is in a sparsely populated area. It consists of a 1.5-acre triangular capped area, three ponds and vacant wooded areas.

The Site is located in the Atlantic Coastal Plain physiographic province of South Carolina. The uppermost aquifer at the Site is a surficial, unconfined aquifer, about 40 to 50 feet thick, composed of clean to silty, fine to medium sand with some clay lenses. This surficial aquifer is underlain by the Cooper Marl, which acts as a confining layer. The Site has flat topography with elevations ranging from about 15 to 30 feet above mean sea level. Surface water flows into two on-site ponds and to the west and northwest toward the Wallace River. Ground water beneath the Site flows north.

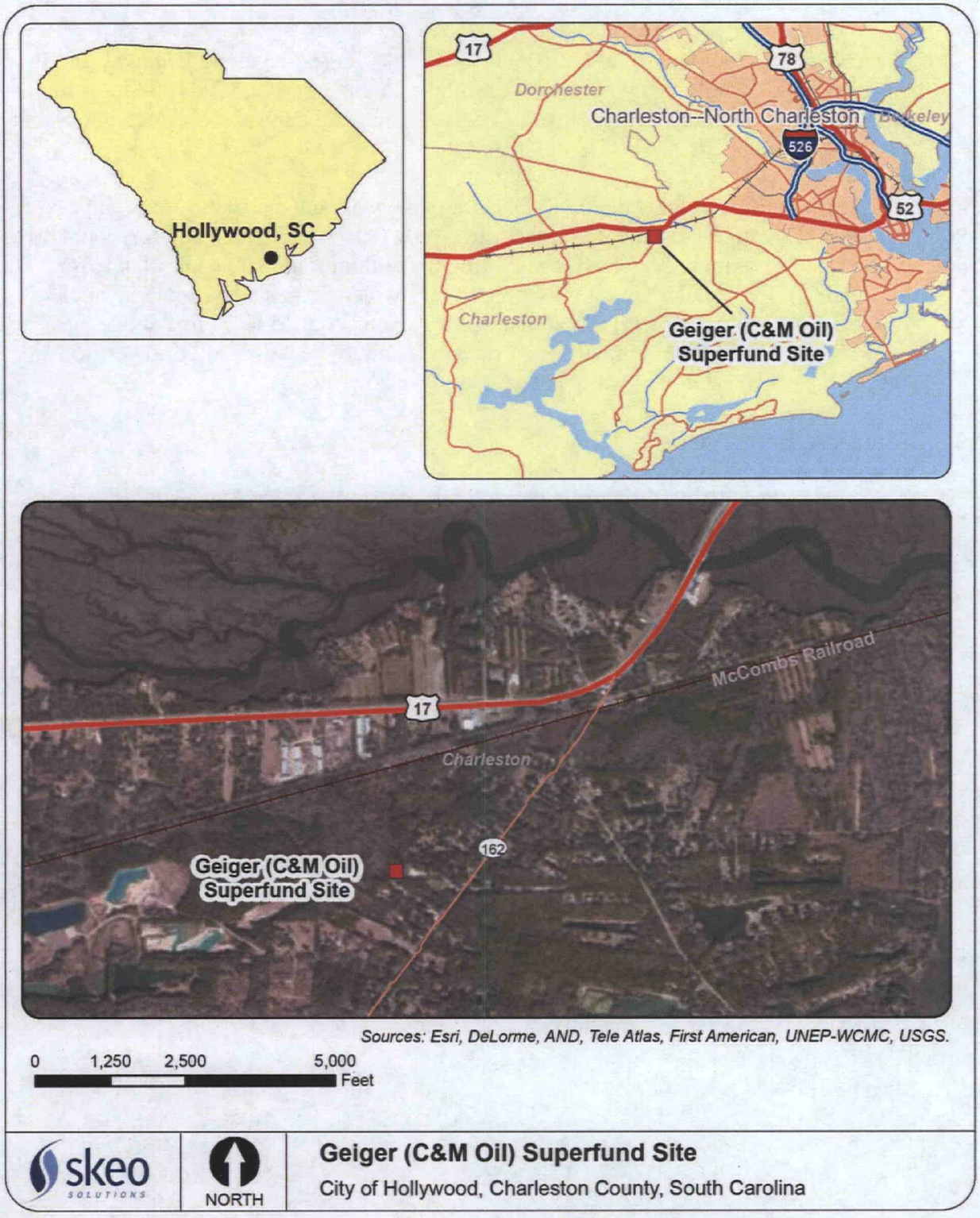
3.2 Land and Resource Use

Between 1969 and 1980, Adams Run Services, Inc. used the site property for waste oil incineration operations. Since 1983, Pile Drivers, Inc. has used the site property as a storage area for construction equipment. The company is located on a property next to the Site.

Nearby residents obtain water through a public water system. The nearest public water supply well is a 2,200-foot-deep well located on Kiawah Island (about 12 miles south of the Site). There are no ground water supply wells on the site property.

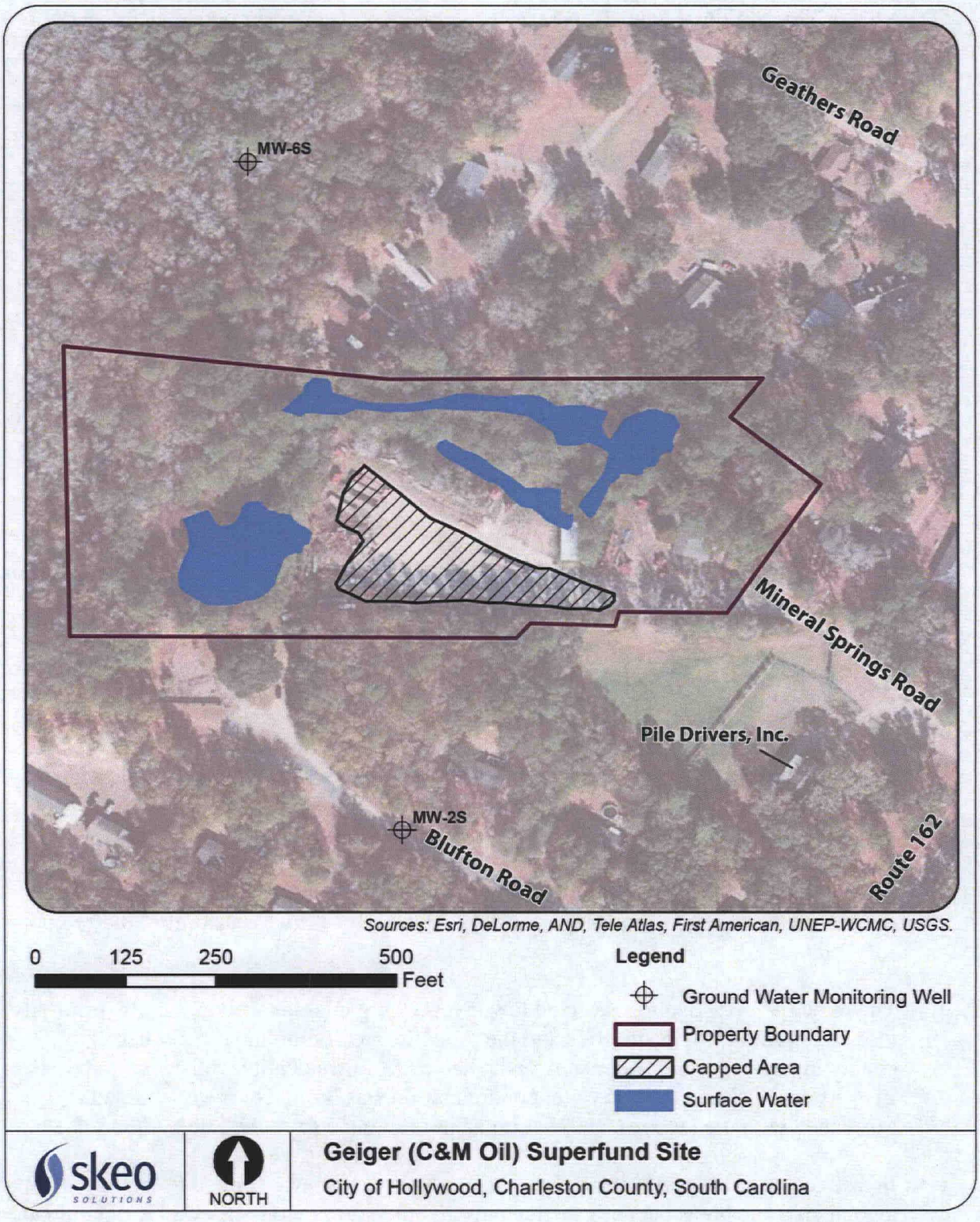
Vacant wooded land and marsh areas border the Site to the west. Sparsely populated residential areas surround the Site on the north, east and south. Mineral Springs Road borders the southern edge of the Site. Estuarine streams and their associated tidal wetlands are located about one mile to the north and south of the Site. Agricultural lands and borrow pits are scattered within a one-mile radius of the Site. There are no expected changes in land use for the Site.

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 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 EPA's response actions at the Site.

3.3 History of Contamination

In 1969, the South Carolina Pollution Control Authority (SCPCA, now SCDHEC), issued a tentative permit to Adams Run Services, Inc. to construct and operate an incinerator to burn waste oil. Between 1969 and 1971, the property owner put in eight unlined lagoons to hold waste oil for the incineration process. Waste oil operations took place at the Site from 1969 through 1980.

3.4 Initial Response

In late 1971, SCPCA ordered the property owner to stop all burning operations at the Site in response to complaints from area residents. SCPCA also ordered the property owner to undertake remedial actions to prevent spillage, leakage or seepage of oil from the Site.

In April 1974, an owner of property northwest of the Site contacted the Charleston County Health Department (CCHD) and complained of oil overflowing from the lagoons. The CCHD investigated the Site and ordered it closed after finding evidence of active oil dumping and confirming the overflow of waste oil from the lagoons. At that time, C&M Oil Distributors, Inc. purchased all reclaimable oil on the Site from the property owner and submitted recovery plans to SCDHEC. C&M Oil reportedly never received state approval for their plans. In December 1979, SCDHEC requested that the company provide information on their intentions to clean up the Site. C&M Oil Distributors, Inc. stated in January 1980 that the company was unable to recover the waste oil and was not obligated to perform the cleanup. The property owner filled the lagoons with locally sourced soil in 1983.

3.5 Basis for Taking Action

Based on the results obtained from a 1980 site investigation, EPA placed the Site on the Superfund program's National Priorities List (NPL) in September 1984. Following a search for potentially responsible parties, it was determined that there were no viable parties responsible for causing the Site's contamination. EPA therefore conducted the remedial investigation/feasibility study, as well as additional field investigations to better characterize and define the extent of the ground water contamination. EPA issued the final Remedial Investigation Report in July 1986 and the final Feasibility Study Report in July 1987.

The remedial investigation detected low levels of organics, as well as metals (primarily lead and chromium), in site soils and the ground water. Sampling did not detect contaminants in ground water samples collected from residential wells next to the Site. EPA determined that ground water contamination was limited to the oil-stained area associated with the lagoons, and that it had not migrated from the Site.

Investigation findings determined that soil contamination was limited to the former lagoon area and areas between the lagoons and the northern on-site pond. Contamination near the north pond resulted from of surface drainage from the oil-stained lagoon area.

EPA estimated the vertical extent of soil contamination at about 4 to 5 feet below the ground surface.

The Public Health Assessment in the remedial investigation determined that risks to human health, as a result of on-site worker exposure to contaminants via inhalation, ingestion and dermal contact, were at acceptable levels under current-use conditions. However, EPA determined there was unacceptable risk under a future residential redevelopment scenario.

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

EPA selected the Site's remedy in the Site's June 1, 1987 Record of Decision (ROD). EPA determined the following cleanup objectives based on regulatory requirements and contamination levels found at the Site:

- Protecting public health and the environment from exposure to contaminated on-site soils through inhalation, direct contact, and erosion of soils into surface waters and wetlands.
- Preventing off-site movement of contaminated ground water.
- Restoring contaminated ground water to levels protective of human health and the environment.

The site-specific treatability studies performed after the issuance of the 1987 ROD indicated that levels of organic soil contaminants of concern (COCs) were lower than previously described in the remedial investigation/feasibility study reports. Therefore, based on the study results, EPA amended the ROD in 1993, changing the final soil remedy to solidification and stabilization alone and establishing site-specific, leachability-based cleanup goals for the 11 soil COCs. The action-specific soil cleanup goals in the 1993 ROD Amendment were relevant during the remedy's construction. They are not relevant to the remedy's continued protectiveness.

EPA conducted numerous ground water sampling events at the Site between 1988 and 1997. Based on those sampling results, EPA issued another ROD Amendment on September 9, 1998, changing the ground water remedy from pumping and treatment to monitored natural attenuation (MNA). The ROD Amendment also revised ground water COCs to include only cadmium and lead.

The final remedy, selected in the Site's 1987 ROD and amended in 1993 and 1998, consisted of:

- Excavation of contaminated soil.
- Solidification and stabilization of soil to reduce mobility of metals.
- Backfilling of excavated areas with treated soil, followed by grading and covering with gravel.
- MNA of residually contaminated ground water.

The 1987 ROD identified COCs for site soil and ground water. Table 2 lists these COCs.

Table 2: Ground Water and Soil COCs in the 1987 ROD

Ground Water and Soil COCs
Benzo (a) pyrene
Benzo (a) anthracene
Benzo (b and/or k) fluoranthene
Polychlorinated biphenyls (PCBs) (Aroclor 1254)
Benzene
Trans-1,2-dichloroethylene
Chromium
Lead
Toluene
1,2-Dichlorobenzene
1,1-Dichloroethane

Table 3 presents the cleanup goals established in the 1987 ROD and revised by the 1993 and 1998 ROD Amendments for ground water and soil leachate criteria.

Table 3: Cleanup Goals Established in the ROD and ROD Amendments

Contaminant	Ground Water Cleanup Goals (µg/L)		Leachate Criteria (µg/L)[a]
	1987 ROD	1998 ROD Amendment	1993 ROD Amendment
Benzo (a) pyrene	0.03	NA	10
Benzo (a) anthracene	0.03	NA	10
Benzo (b and/or k) fluoranthene	0.03	NA	10
PCB (Aroclor 1254)	0.079	NA	1
Benzene	5	NA	5[b]
Trans-1,2-dichloroethylene	70	NA	100[b]
Chromium	50	NA	150
Lead	50	15	15
Toluene	175	NA	1,000[b]
1,1-Dichlorobenzene	15.8	NA	None
1,2-Dichlorobenzene	NA	NA	600[b]

Contaminant	Ground Water Cleanup Goals (µg/L)		Leachate Criteria (µg/L)[a]
	1987 ROD	1998 ROD Amendment	1993 ROD Amendment
1,1-Dichloroethane	5	NA	5[c]
Cadmium	NA	5	NA

Notes:
[a] Leachate criterion is the Action Level.
[b] In this case, the leachate criterion is equivalent to the National Primary Drinking Water standard.
[c] The leachate criterion is the maximum contaminant level for 1,2-dichloroethane.
NA indicates that the contaminant is not a COC for that medium.

4.2 Remedy Implementation

In February 1992, EPA entered into a cooperative agreement with the U.S. Army Corps of Engineers (USACE) to perform the remedial design/remedial action. Following the completion of the final design, the USACE awarded the remedial action contract to McLaren/Hart Environmental Engineering Corporation (McLaren/Hart) for the solidification and stabilization of site soils. Approximately 23,000 cubic yards of contaminated soil was treated to a depth of 10 feet. The actual treatment area covered approximately 1.4 acres. Upon completion of the solidification and stabilization, the treatment area was graded and covered with a 6-inch thick limestone gravel cap. McLaren/Hart completed all soil treatment activities in April 1994. Placement of a gravel cap over the treated soil (monolith) took place in August 1994. EPA conducted a final site inspection on August 9, 1994, and verified the completion of remedial construction activities. EPA and SCDHEC approved both the site's Final Construction Report and the Interim Remedial Action Report in September 1997.

The Site's September 1998 Preliminary Close Out Report found no definable contaminant plume on site, with localized areas of contamination at well MW-2S and well MW-6S. The 2013 Final Close Out Report determined the implemented remedy achieves the degree of cleanup or protection specified in the ROD and ROD Amendments for all the pathways of exposure. The report concluded that all remedy actions and remedial action objectives and associated cleanup goals are consistent with agency policy and guidance.

In January 2013, EPA evaluated the durability and leachability of the monolith at the Site. The objective was to determine the durability of the solidification and stabilization wastes (the monolith) based on physical measurements (moisture content, bulk and dry density, permeability, wet/dry durability). The evaluation found that the monolith has remained stable in the environment during the 20 years since completion of the remedial action. There was no evidence indicating any adverse change in its physical condition. There was some evidence of the capacity for leaching of cement binder and COCs from the monolith. However, the leaching would be expected to be very minor and would not likely cause an adverse effect on ground water in the short or long term. Testing and analyses support the conclusion that COCs remain highly bound within the monolith and

that leaching of these COCs is unlikely to adversely impact surrounding soil or ground water under current conditions.

EPA, with concurrence from SCDHEC, deleted the Site from the NPL in January 2014.

4.3 Operation and Maintenance (O&M)

The 1987 ROD and 1993 ROD Amendment did not require long-term O&M activities following soil remediation. The 2001 restrictive covenant at the Site states that if any future construction or maintenance activities, other than routine utility maintenance or landscaping, result in removal or damage of the cover, the property owner is responsible for replacement or repair of the damaged portion. There have been no O&M costs since the 2009 FYR.

5.0 Progress Since the Last Five-Year Review

The protectiveness statement from the 2009 FYR for the Site stated:

The remedy at the Geiger site currently protects human health and the environment because exposure pathways that could result in unacceptable risks are being controlled. Soils have been cleaned up to industrial standards using S/S [solidification and stabilization], the property is currently being used for industrial purposes, and ground water sampling results over multiple years led to decommissioning 27 monitoring wells. In order for the Site to be protective in the long-term, two new temporary monitoring wells should be installed in immediate offsetting locations and matching depths to MW-2S and MW-6S. These new wells should be sampled and the water analyzed for field parameters and lead. These temporary wells should then be abandoned. If the analytical results are below the MCL, the Site may then move to closure. If the analytical results are above the MCL [maximum contaminant level], then ground water monitoring should be performed annually and MNA should be evaluated to determine if it will effectively clean up remaining lead contamination in ground water.

The 2009 FYR included one issue and recommendation. This report summarizes the recommendation and its current status below.

Table 4: Progress on Recommendations from the 2009 FYR

Recommendations	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Two new temporary monitoring wells should be installed in immediate offsetting locations and matching depths to MW-2S and MW-6S. These new wells should be sampled and the water analyzed for field parameters and lead. If the analytical results are below the MCL, the Site may then move to closure. If the analytical results are above the MCL, then ground water monitoring should be performed annually and MNA should be evaluated to determine if it will effectively clean up remaining lead contamination in ground water.	EPA	09/01/2009	Complete. EPA sampled two permanent wells and four temporary wells in July 2009. Further details are in section 6.4 of this report.	09/08/2009

6.0 Five-Year Review Process

6.1 Administrative Components

EPA Region 4 started the FYR in October 2013 and scheduled its completion for April 2014. EPA remedial project manager (RPM) William Joyner led the EPA site review team, which also included EPA community involvement coordinator (CIC) Angela Miller and contractor support provided to EPA by Skeo Solutions. 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 March 2014, EPA published a public notice in the Charleston *Post and Courier* newspaper announcing the commencement of the FYR process for the Site, providing contact information for EPA CIC Angela Miller and EPA RPM William Joyner and inviting community participation. The press notice is available in Appendix B. No one contacted EPA as a result of the advertisement.

EPA will make the final FYR Report available to the public. Upon completion of the FYR, EPA will place copies of the document in the designated site repository: St. Paul's Parish Library, 5151 Town Council Drive, Hollywood, SC 29449, where additional information about the Site is available in compact disc format.

6.3 Document Review

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

ARARs Review

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain "a degree of cleanup of hazardous substance, 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 criteria are non-promulgated advisories and guidance that are not legally binding, but should be considered in determining the necessary remedial action. For example, To-Be-Considered 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 discharged to, the ambient environment. Examples of chemical-specific ARARs include maximum contaminant levels (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 ground water 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.

Ground Water ARARs

The 1998 ROD Amendment revised the list of ground water COCs to include only lead and cadmium. Therefore, this review compared current federal and South Carolina MCLs to the 1998 ARARs for lead and cadmium only, as they are the only two current ground water COCs. Appendix F includes additional information regarding the ARAR review for

the original 11 ground water COCs listed in the 1987 ROD. The ARARs associated with lead and cadmium have not changed since 1998 (Table 5).

Table 5: Previous and Current ARARs for Ground Water COCs

COCs	Cleanup Goals (µg/L) Established in the 1987 ROD	Cleanup Goals (µg/L) Established in the 1998 ROD Amendment [a]	Current ARARs (µg/L) as of 2013[b]	ARAR Changes
Lead	50[c]	15	Action Level: 15[d]	None
Cadmium	-	5	5	None

Notes:

[a] The 1998 ROD Amendment revised the list of ground water COCs to include only cadmium and lead.

[b] This review examined current federal and South Carolina MCLs. The federal and state MCLs for ground water COCs are the same. Therefore, they are listed as the current ARARs in Table 5.

[c] The source for the National Primary and Secondary Drinking Water MCLs is http://water.epa.gov/drink/contaminants/index.cfm (accessed on 11/5/2013). State standards are based on South Carolina State Primary Drinking Water MCLs: http://www.scdhec.gov/environment/water/regs/r61-58.pdf (accessed on 11/5/2013).

[d] Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps.

Soil ARARs

The 1987 ROD did not specify soil ARARs. However, the 1993 ROD Amendment changed the final soil remedy to solidification and stabilization alone and established site-specific leachability-based cleanup goals for the 11 soil COCs.

Institutional Control Review

In October 2001, SCDHEC and the site property owner entered into a restrictive covenant to restrict certain uses of the property. Among other things, the restrictive covenant governs uses on part of the property known as the "Soil Treatment Area." This area still contains hazardous substances in excess of allowable concentrations for unrestricted use. The restrictive covenant prohibits activities that would affect the integrity or effectiveness of the cap. Specifically, the covenant prohibits residential or agricultural uses on the "Soil Treatment Area," and ground water use without prior approval from SCDHEC. The restrictive covenant also specifies that the ponds on the "Soil Treatment Area" shall be posted against fishing, swimming, or wading; and that water from the ponds shall not be used without prior approval from SCDHEC. Appendix G includes the October 2001 Declaration of Covenants and Restrictions. Table 6 lists and Figure 3 illustrates the institutional controls associated with areas of interest at the Site.

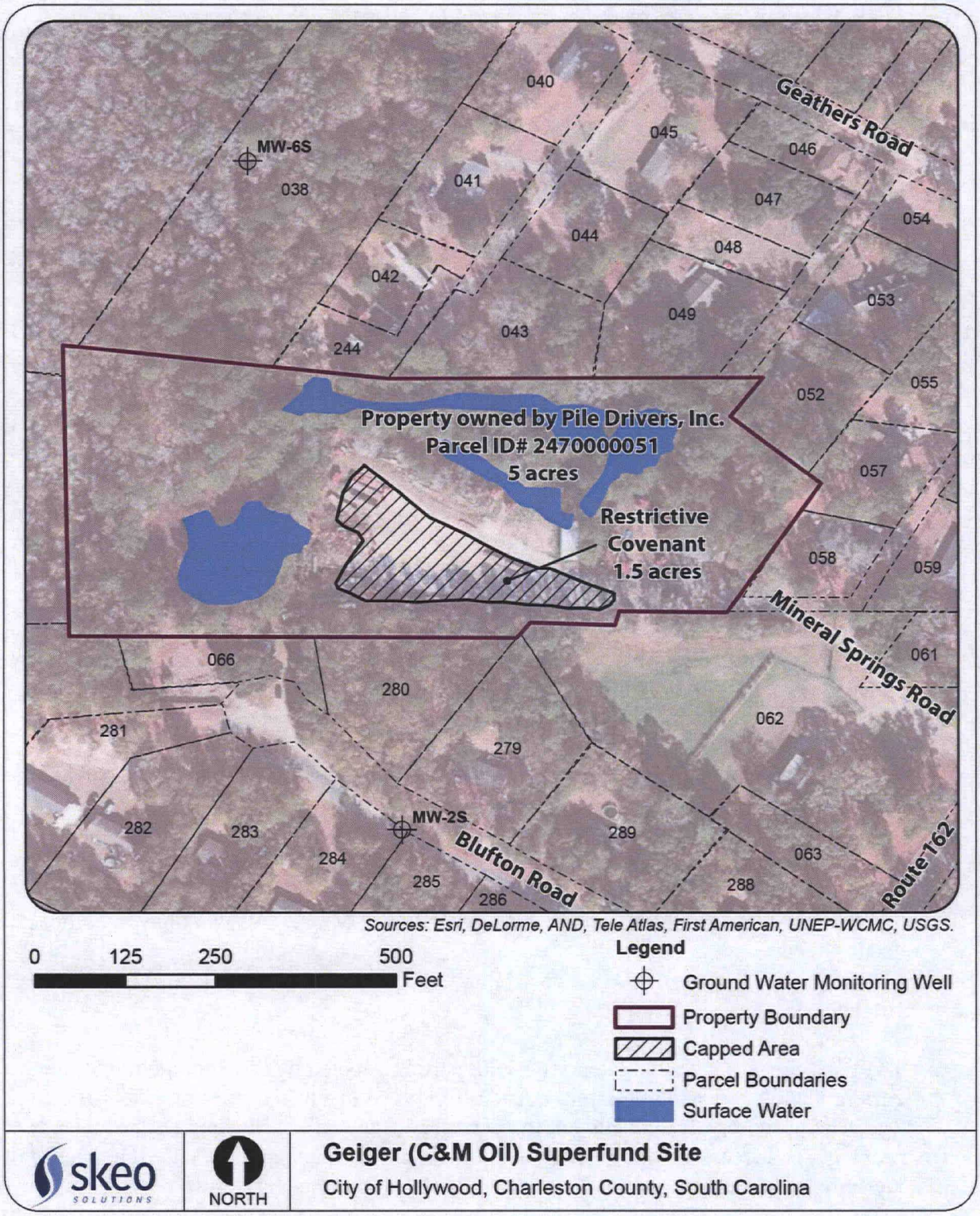
Table 6: Institutional Control (IC) Summary Table

Area of Interest – Geiger Sitewide (Parcel: 2470000051)					
Media	**ICs Needed**	**ICs Called for in the Decision Documents**	**Impacted Parcel(s)**	**IC Objective**	**Instrument in Place**
Ground Water	No	No	2470000051	None	2001 Declaration of Covenants and Restrictions[1]
Soil	Yes	Yes[1]	2470000051	To prohibit any activity that may disturb the integrity of the engineering control and to limit future land use.	2001 Declaration of Covenants and Restrictions

Notes:

1. Institutional controls were not called for in the final remedy. However, the Site's 1987 ROD, Section 4.2 Soil Remediation states: "remediation or institutional controls will be necessary to assure that an increased risk to human health is not posed in the future."

Figure 3: Institutional Control and Parcel 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 EPA's response actions at the Site.

6.4 Data Review

The selected remedy reported that long-term O&M activities for the remedy are not required. Following recommendations in the 2009 FYR and in order to prepare for deletion of the Site from the NPL, EPA conducted a final round of ground water sampling in July 2009. EPA sampled the two permanent ground water monitoring wells and four temporary ground water monitoring wells for total metals. The maximum concentrations of lead and cadmium were 14 µg/L and 0.13 µg/L, respectively. These maximum concentrations were detected in the sample collected at MW-6S. These concentrations were below the lead action level of 15 µg/L and the MCL for cadmium of 5 µg/L and significantly lower than any historically documented concentration of lead and cadmium from this well. Sampling of the temporary wells next to the permanent wells did not detect any lead and only one temporary well (TW06A) had a detection of cadmium, but it was well below the MCL. None of the other metals sampled were detected above action levels. The metals analytical data summary from the 2009 Groundwater Sampling Investigation Report is in Appendix H.

6.5 Site Inspection

On January 14, 2014, EPA RPM William Joyner, Treat Suomi and Johnny Zimmerman-Ward from EPA contractor Skeo Solutions, and Greg Cassidy and Chuck Williams from SCDHEC met at the Site. The group toured the Site and observed the good condition of the monolith area and monitoring wells. Site property owner Pile Drivers, Inc. has an office on a property next to the Site. The company stores heavy construction machinery and vehicles on the monolith area. The monolith area is well maintained by the property owners, covered with gravel, and has some low grass and shrubbery growing around its edges.

The complete site inspection checklist is available in Appendix D. Photographs from the site inspection are available in Appendix E.

Skeo Solutions staff visited the designated site repository, St. Paul's Parish Library, 5151 Town Council Drive, Hollywood, SC 29449, as part of the site inspection. The library had a copy of the administrative record, updated as of May 2009, available on compact disk.

6.6 Interviews

The FYR process included interviews with parties affected by the Site, including the current landowners and 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. The interviews are summarized below. Appendix C provides the complete interviews.

Kay Shealy: Kay Shealy is the owner of Pile Drivers, Inc., which currently owns and uses the site property for storage of construction equipment. Mrs. Shealy completed the

interview on January 14, 2014, at the on-site Pile Drivers, Inc. office. She is aware of the environmental history of the Site and cleanup activities that have taken place. Overall, she believes the Superfund process is going well and that remediation-related activities have no adverse effects on the surrounding community. She reported no instances of vandalism or trespassing, though occasionally people will fish recreationally in a pond on the property. During the interview, Mrs. Shealy noted that Pile Drivers, Inc. will potentially sell or lease the business and associated site property to a current employee in the next five years. If they decide to pursue this, they would like to work with EPA to ensure the new owner would not incur any site-related liabilities. In addition, she indicated that she would like more information about the pond on their property and the relative safety of swimming and fishing in it.

Greg Cassidy: Greg Cassidy is the SCDHEC representative for the Site. Mr. Cassidy completed his interview on January 23, 2014, via email. In 2012, the state agency provided oversight during integrity testing of the monolith on site. Currently, SCDHEC is pleased with the remedy's effectiveness. Mr. Cassidy stated that, in the future, the monolith will need to be evaluated at some interval to determine the status of its integrity. In the last five years, SCDHEC has received no complaints or inquiries about the Site. The only major change Mr. Cassidy foresees regarding future land use is the possibility that the on-site business will be sold, though he reports that all indications show the business operation will remain the same.

William Joyner: William Joyner is the EPA RPM for the Site. Mr. Joyner completed his interview on February 14, 2014, via email. Mr. Joyner stated that the site remedy continues to be effective and reuse of the site by the current property owner is appropriate. EPA has not been contacted concerning any complaints, site-related environmental issues or remedial activities since the implementation of the remedy. Mr. Joyner stated the Site was deleted from the NPL on January 6, 2014. Mr. Joyner indicates that the Site has institutional controls in place that prohibit activities that would adversely affect the remedy now and into the future.

7.0 Technical Assessment

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

Yes. The review of site documents, ARARs, risk assumptions, ground water sampling data, the 2013 study of the monolith and the site inspection indicate the remedy is functioning as intended by the 1987 ROD and 1993 and 1998 ROD Amendments. Institutional controls are in place, in the form of a restrictive covenant, that restrict any uses that may disturb the integrity of the monolith area and that limit future land use.

A January 2013 study of the monolith determined that the monolith has remained stable during the 20 years since the completion of the remedial action. The report indicates that testing and analyses supports the conclusion that COCs remain highly bound within the monolith and that leaching of these COCs is unlikely to adversely impact surrounding soil or ground water under current conditions.

Sampling in 2009 confirmed there were no site COCs present in the permanent and temporary wells at the Site. EPA completed the Site's Final Close Out Report in August 2013. EPA deleted the Site from the NPL in January 2014.

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?

Yes. The exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of remedy selection are still valid. Contaminated soils lie within the monolith, eliminating potential exposures, and the restrictive covenant prohibits disturbance or residential or agricultural uses on the "Soil Treatment Area." The ground water ARARs for cadmium and lead have not changed since the 1998 ROD Amendment and the use of site ground water is prohibited without prior approval from SCDHEC.

Although Aroclor 1254, a dioxin-like contaminant, was found in site soils, maximum concentrations (4 mg/kg) were below action levels at the time of the 1987 ROD and the levels reported in the 1987 ROD remain below the current screening level for industrial soil.

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

No. 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 1987 ROD and the 1993 and 1998 ROD Amendments. Institutional controls in place restrict any uses that may disturb the integrity of the monolith area and limit future land use. The monolith has remained stable

during the 20 years since the completion of the remedial action and will continue to be evaluated during the FYR process. COCs remain highly bound within the monolith and leaching of these COCs is unlikely to adversely impact surrounding soil or ground water under current conditions. There are no COCs present in the ground water at the Site. EPA completed the Site's Final Close Out Report in August 2013. EPA deleted the Site from the NPL in January 2014.

8.0 Issues

No issues were identified during the FYR process that affect current or future protectiveness.

9.0 Recommendations and Follow-up Actions

No issues were identified during the FYR process that affect current or future protectiveness. Therefore, there are no recommendations or follow-up actions required.

10.0 Protectiveness Statements

The remedy at the Site is protective of human health and the environment. Following solidification and stabilization, soils meet industrial cleanup standards. Following monitored natural attenuation, ground water does not exceed action levels for any contaminants of concern. The property is currently in use for industrial purposes. Institutional controls in place ensure the continued protection of the soil wastes left in place and that the property will remain industrial.

11.0 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

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Information System (CERCLIS) Site Information for Geiger (C&M) Oil Site. Last updated on April 10, 2013. Accessed October 1, 2013. <http://cfpub.epa.gov/supercpad/cursites/csitinfo.cfm?id=0400460>

Durability and Leachability of Solidified/Stabilized (Monolith) Wastes, Geiger (C&M) Oil Site, Hollywood, Charleston County, South Carolina. Prepared by Environmental Science Solutions LLC for Black & Veatch Special Projects Corp. January 25, 2013.

EPA Record of Decision Amendment: Geiger (C&M Oil) Site OU 01, Rantoules, SC. Prepared by U.S. EPA Region4. July 13, 1993.

EPA Record of Decision Amendment: Geiger (C&M Oil) Site OU 01, Rantoules, SC. Prepared by U.S. EPA Region 4. September 9, 1998.

EPA Remedial Alternative Selection (ROD): Geiger (C&M Oil) Site, Charleston County, South Carolina. Prepared by U.S. EPA Region 4. June 1, 1987.

Final Close Out Report for the Geiger (C&M) Oil Site, Rantowles, South Carolina. Prepared by U.S EPA Region 4. August 8, 2013.

Final Construction Report/Remedial Action Report for Geiger (C&M Oil) Superfund Site, Charleston County, South Carolina. Prepared by U.S. Army Corps of Engineers, Charleston District, Charleston, South Carolina. August 1997.

Final Feasibility Study Report for Geiger (C&M Oil) Site. Charleston, SC. Prepared by Camp Dresser & McKee Inc. for U.S. EPA Region 4. July 24, 1987.

Final Remedial Investigation Report for Geiger (C&M Oil) Site. Charleston, SC. Prepared by CC Johnson & Associates, P.C. for U.S. EPA Region 4. July 1, 1986.

First Five-Year Review Report (Type 1), Geiger (C&M Oil) Site, Rantoules, South Carolina. Prepared by U.S. EPA Waste Management Division, Region 4. October 22, 1998.

Groundwater Sampling Investigation Report for Geiger (C&M Oil) Superfund Site, Rantoules, Charleston County, South Carolina. SESD Project Identification Number: 09-0605. Prepared by U.S. EPA Region 4. September 8, 2009.

Second Five-Year Review Report for Geiger (C&M Oil) Site, Rantowles, Charleston County, South Carolina. Prepared by U.S. EPA Region 4, Athens, Georgia. October 2003.

Summary of Well Decommissioning Work at Geiger C&M Site, Rantoules, South Carolina. SESD Project No. 06-0152 Memorandum. Prepared by U.S. EPA Region 4. October 10, 2008.

Third Five-Year Review Report for Geiger (C&M Oil) Site, Rantoules, Charleston County, South Carolina. Prepared by E^2 Inc. for U.S. EPA Region 4. April 22, 2009.

Appendix B: Press Notice

The U.S. Environmental Protection Agency (EPA), Region 4
Announces the Fourth Five-Year Review for the
Geiger (C&M Oil) Superfund Site,
Hollywood, Charleston County, South Carolina

EPA is conducting a Five-Year Review of the remedy for the Geiger (C&M Oil) Superfund Site in Hollywood, Charleston County, South Carolina. The purpose of the Five-Year Review is to make sure the selected cleanup actions effectively protect human health and the environment.

The 5-acre Site is located along Highway 162, about 10 miles west of Charleston. Between 1969 and 1980, Adams Run Services, Inc., incinerated waste oil on the property. Business operations included the disposal of oil-related wastes in eight unlined lagoons. These activities contaminated site soil and groundwater with organic compounds and metals. In 1980, EPA also discovered trace amounts of polychlorinated biphenyls (PCBs) and small amounts of solvents often associated with automotive oils in the lagoons. EPA placed the Site on the National Priorities List (NPL) in September 1984.

EPA selected a remedy to address the contamination in the Site's 1987 Record of Decision (ROD), and updated the remedy in 1993 and 1998. The final remedy consisted of monitored natural attenuation (MNA) for contaminated groundwater and solidification/stabilization for contaminated soils. EPA documented the completed construction of the Site's remedy in September 1998, and deleted the Site from the NPL on January 6, 2014.

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 April 2014 and a final copy will be placed in the information repository located at the St. Paul's Parish Library, 5151 Town Council Drive in Hollywood, South Carolina. Additional information can be found online at http://www.epa.gov/region4/superfund/sites/npl/southcarolina/geigerousc.html.

FOR FURTHER INFORMATION

Please contact Angela Miller, EPA Community Involvement Coordinator toll free (877) 718-3752 or via email miller.angela@epa.gov or William Joyner, EPA Remedial Project Manager at (404) 562-8795 or via email joyner.william@epa.gov.

Appendix C: Interview Forms

Geiger (C&M Oil) Superfund Site **Five-Year Review Interview Form**

Site Name: Geiger (C&M Oil) **EPA ID No.:** SCD980711279

Interviewer Name: Treat Suomi **Affiliation:** Skeo Solutions

Subject Name: Kay Shealy **Affiliation:** Pile Drivers, Inc. (Owner)

Subject Contact Information: Phone: (843) 763-7736

Time: 10:51 am **Date:** 01/14/2014

Interview Location: Pile Drivers, Inc. offices near the Site

Interview Format: In Person

Interview Category: On-site Business – Pile Drivers, Inc.

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes.

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

   It has all been OK.

3. What have been the effects of the Site on the surrounding community, if any?

   None.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

   No.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

   Yes. Continued contact through the phone and email will work.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

No.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

   There is the potential over the next five years that we may sell the business to one of our long-term employees. He has been involved with the company throughout the entire cleanup process. We are not sure yet if we will sell him the land or lease it to him. We want to work with EPA to ensure that if we transfer the land that the new owner does not incur any liabilities related to the Site.

   We are also interested in understanding more about the pond on our property. We used to have a sign that said no fishing, swimming, etc. Do we still need to have a sign like that? Is it safe to eat the fish in the pond? Currently, people fish there and just throw the fish back in the pond. The pond does dry up on occasion, usually in the summer during drought years.

Site Name: Geiger (C&M Oil) **EPA ID No.:** SCD980711279

Interviewer Name: Treat Suomi **Affiliation:** Skeo Solutions

Subject Name: Greg Cassidy **Affiliation:** SCDHEC

Subject Contact Information: 803-898-0910

Time: 3:00 pm **Date:** 1/23/14

Interview Location: Email

Interview Format: In Person Phone Mail Other:

Interview Category: State Agency - SCDHEC

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

   SCDHEC is always happy when a site has been remediated to the point of being delisted from the NPL. That being said, the long-term condition of the monolith that remains on site is an issue we will need to continue to monitor.

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

   The remedy has achieved the performance goals and the Site has been delisted.

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

   SCDHEC has not been contacted with any complaints or inquiries regarding the Site in the last five years.

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.

   SCDHEC was involved with oversight during the monolith integrity testing during 2012. SCDHEC has concurred with delisting the Site from the NPL.

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

   I am not aware of any changes that might affect the Site's protectiveness.

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

SCDHEC is satisfied with the institutional controls present at the Site.

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

   As indicated during the site visit, there is potential that the business currently on site will be sold soon. All indications are that the business will operate in the same manner under new ownership.

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

   SCDHEC is pleased with the remedy's effectiveness at remediating the property. The monolith remaining on site will need to be evaluated at some interval to determine the status of its integrity.

Geiger (C&M Oil) Superfund Site **Five-Year Review Interview Form**

Site Name: Geiger (C&M Oil) **EPA ID No.:** SCD980711279

Subject Name: William Joyner **Affiliation:** EPA Region 4 (RPM)

Subject Contact Information: Phone: (404) 562-8795, Email: joyner.william@epa.gov

Time: 10:00 am **Date:** 02/14/2014

Interview Location: Email

Interview Format: In Person Phone Mail Other:

Interview Category: EPA Remedial Project Manager

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

   The site remedy continues to be effective. Reuse of the site by the current property owner is appropriate.

2. What have been the effects of this Site on the surrounding community, if any?

   The current property owner is able to utilize the site for their business.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities since the implementation of the cleanup?

   The EPA has not been contacted concerning any complaints, site –related environmental issues or remedial activities since the implementation of the remedy.

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

   The remedy at the site has been determined to still be effective, and the site has been delisted.

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

   The site has institutional controls in place that prohibit activities that would affect the remedy for the site now and into the future.

6. Are you aware of any community concerns regarding the Site or the operation and management of its remedy? If so, please provide details.

The EPA has not been contacted by the community regarding the site operation and or management of the remedy.

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

   Maintain the current institutional control restrictions for the site.

Appendix D: Site Inspection Checklist

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Geiger (C&M Oil)	**Date of Inspection: 1/14/2014**
Location and Region: Hollywood, South Carolina/EPA Region 4	**EPA ID: SCD980711279**
Agency, Office or Company Leading the Five-Year Review: EPA Region 4	**Weather/Temperature: Raining and temperatures in the 60's**

Remedy Includes: (Check all that apply)

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

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **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 SCDHEC
Contact Greg Cassidy ____ 1/23/2014 803-898-0910
Name Title Date Phone No.
Problems/suggestions ☐ Report attached: Appendix C

Agency EPA
Contact William JoynerName RPM 2/14/2014 404-562-8795
Title Date Phone No.
Problems/suggestions ☐ Report attached: Appendix C

4. **Other Interviews** (optional) ☒ Report attached: Appendix C

Kay Shealy, Pile Drivers, Inc.

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. **Ground Water 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

☒ Deleted site no long-term O&M.

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: _____

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): Site inspection

Frequency: Every five years

Responsible party/agency: EPA

Contact	William Joyner	RPM	01/14/2014	404-562-8795
	Name	Title	Date	Phone no.

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

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

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

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

Other problems or suggestions: ☐ Report attached

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

Remarks: _____

D. General

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

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

Remarks: _____

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

Remarks: _____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

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

Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ 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: Property owner indicated there had been some erosion in the soil on top of the monolith. They consulted with EPA and filled in the eroded ares with concrete.

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: There is no vegetative cover needed. The area is used to drive across and store equipment..

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: There was heavy rain during the site visit. The capped area had areas of water from the rain.

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.)

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.)

D. Cover Penetrations ☐ Applicable ☒ N/A

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

F. Cover Drainage Layer ☐ Applicable ☒ N/A

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

H. Retaining Walls ☐ Applicable ☒ N/A

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

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

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

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

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

C. Treatment System ☐ Applicable ☒ N/A

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☒ Ground water 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 is functioning as designed.

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. There is no long term O&M required at the Site.
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. There are no early indications of potential remedy failure at the Site.
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None.

Site Inspection Participants

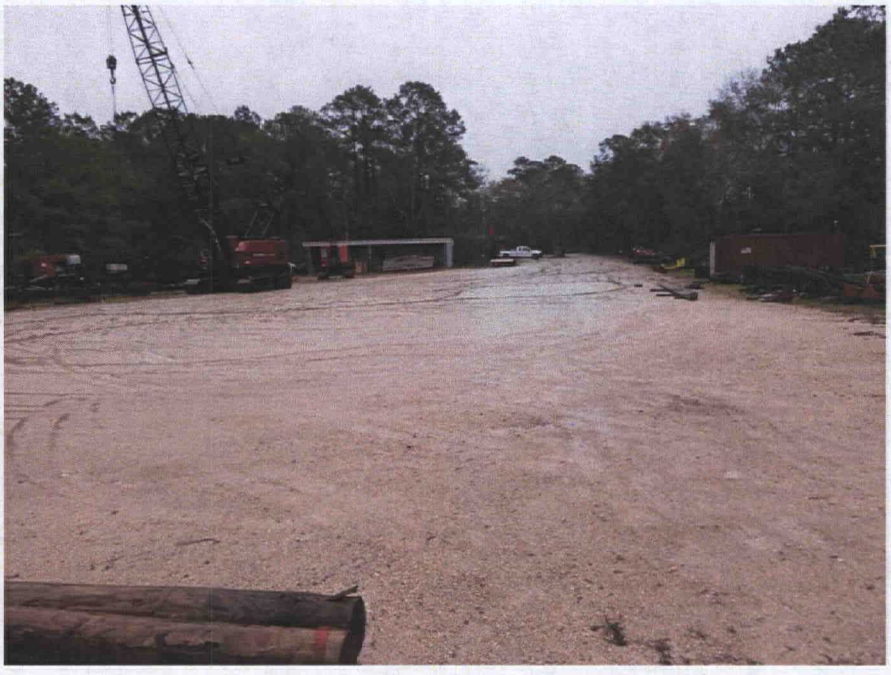
William Joyner, EPA
Chuck Williams, SCDHEC
Greg Cassidy, SCDHEC
Treat Suomi, Skeo Solutions
Johnny Zimmerman-Ward, Skeo Solutions

Appendix E: Photographs from Site Inspection Visit

A panoramic view of the cap at the Site

A view of the gravel cap with logs and trucks in the background

A view of the gravel cap with logs and trucks in the background



An alternate view of the gravel cap

The entry road to the Site, with perimeter fencing and signage

The pond near the Site

A view of the road where the cap boundary starts

Signage for Pile Drivers, Inc.

A Pile Drivers, Inc. storage building next to the cap

Ground water monitoring well MW-2S located on Blufton Road southwest of the Site

Appendix F: Previous and Current ARARs for Ground Water COCs

The 1998 ROD Amendment revised the list of ground water COCs to include only lead and cadmium. Section 6.3 presents the ARAR review for lead and cadmium only, as they are the only two current ground water COCs. This review also compared the 1987 ground water ARARs for the original 11 ground water COCs to the current ARAR values.

As discussed in Section 4.1, the 1987 ROD established ground water cleanup goals for 11 COCs in ground water based on four criteria: proposed recommended maximum contaminant levels (PRMCLs); 10^{-5} cancer risk for carcinogens; MCLs established under the Safe Drinking Water Act; and aquatic life chronic toxicity values. The 1987 ROD established the chemical-specific values for benzo(a)pyrene, benzo(a)anthracene, benzo(b and/or k)fluoranthene, and PCBs based on 10^{-5} cancer risk.

ARARs are enforceable standards and therefore would not include health-based values or PRMCLs. Based on that, the 1987 ROD established ARARs for only chromium and lead, and the 1998 ROD Amendment established ARARs for only lead and cadmium.

This review examined current federal and South Carolina MCLs and found that the regulatory levels associated with ground water ARARs became less stringent for chromium (50 µg/L to 100 µg/L). The ARARs associated with lead and cadmium have not changed since 1998. New MCLs have become available for benzo(a)pyrene, PCB (Aroclor 1254), trans-1,2-dichloroethylene, toluene and 1,2-dichlorobenzene (Table F-1). The new MCLs for those COCs are less stringent than the cleanup goals established in the ROD.

Table F-1: Previous and Current ARARs for Ground Water COCs

COCs	Cleanup Goals (µg/L) Established in the 1987 ROD	Cleanup Goals (µg/L) Established in the 1998 ROD Amendment [a]	Current ARARs (µg/L) as of 2013[b]	ARAR Changes
Benzo(a)pyrene	No ARAR Identified (NAI)[c]	-	0.2	New Value
Benzo(a)anthracene	NAI[c]	-	-	None
Benzo (b and/or k) fluoranthene	NAI[c]	-	-	None
PCB (Aroclor 1254)	NAI[c]	-	0.5	New Value
Benzene	NAI[d]	-	5	None
Trans-1,2-dichloroethylene	NAI[d]	-	100	New Value
Chromium	50[e]	-	100	Less Stringent
Lead	50[e]	15	Action Level: 15[f]	None
Toluene	NAI[g]	-	1,000	New Value
1,2-dichlorobenzene[i]	NAI[g]	-	600	New Value
1,1-dichloroethane	NAI[h]	-	-	None
Cadmium	-	5	5	None

Notes:

[a] The 1998 ROD Amendment revised the list of ground water COCs to include only cadmium and lead.

[b] This review examined current federal and South Carolina MCLs. The federal and state MCLs for the ground water COCs are the same. Therefore, they are listed as the current ARARs in Table 5. The source for the National Primary and Secondary Drinking Water MCLs is http://water.epa.gov/drink/contaminants/index.cfm (accessed on 11/5/2013). State standards are based on South Carolina State Primary Drinking Water MCLs: http://www.scdhec.gov/environment/water/regs/r61-58.pdf (accessed on 11/5/2013).

[c] The 1987 cleanup goal is based on risk-based equivalent levels based on a 10^{-5} cancer risk: benzo(a)pyrene, benzo(a)anthracene, and benzo(b and k)fluoranthene (0.03 µg/L); Aroclor 1254 (0.079 µg/L).

[d] 1987 cleanup goal based on PRMCL or Maximum Contaminant Level Goal published in the Federal Register, Vol. 50, No. 219, November 13, 1985, 46935: benzene (5.0 µg/L) and trans-1,2-dichloroethylene (70 µg/L).

[e] The 1987 MCL.

[f] Lead is regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps.

[g] The 1987 cleanup goal is based on aquatic life chronic toxicity value of 175 µg/L (toluene) and 15.8 µg/L (1,2-dichlorobenzene) due to the absence of a South Carolina Department of Health and Environmental Control Water Classifications and Standards Regulation 61-68 (June 25, 2004): http://www.scdhec.gov/environment/water/regs/R.61-68.pdf.

[h] The 1987 cleanup goal is based on the required contract laboratory program detection level of 5 µg/L.

[i] The 1987 ROD lists 1,1-dichlorobenzene as the COC. According to the 1987 final feasibility study (Table 1-3), 1,1-dichlorobenzene was not identified in site ground water. The study identified 1,2-dichlorobenzene as a site ground water contaminant.

NAI – no ARAR identified in the 1987 ROD.

Appendix G: Institutional Controls

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

SITE: Geiger C.M.O.I.I
BREAK: 1710
OTHER:

October 15, 2001

Cynthia M. Spieth, Esquire
Buist, Moore, Smythe & McGee, P.A.
Post Office Box 999
Charleston, South Carolina 29402

File Reference: Pile Drivers
Restrictive Covenant
Charleston County

Dear Cynthia:

Enclosed please find the original Declaration of Covenants and Restrictions for Pile Drivers which has been signed by our Commissioner and is now fully executed. Please properly record it in the RMC Office in Charleston County and forward me a copy of the notice that the restrictive covenant has been recorded.

Thank you for your assistance in this matter.

Very truly yours,

Gail Rawls Jeter
Site Assessment & Remediation
Bureau of Land & Waste Management

C: Sheri Cresswell, USEPA, with enclosure
Samuel L. Finklea, Office of General Counsel. without enclosure
File # 52182 with enclosure

10468447

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

THIS IS CERTIFIED AS A TRUE AND CORRECT COPY

SIGNATURE Daniels

STATE OF SOUTH CAROLINA)
)
COUNTY OF CHARLESTON)

DECLARATION OF COVENANTS AND RESTRICTIONS

THIS DECLARATION OF COVENANTS AND RESTRICTIONS is made and entered into this 11th day of October, 2001, by Pile Drivers, Inc., a South Carolina corporation (hereinafter referred to as "Pile Drivers").

RECITALS

WHEREAS, Pile Drivers is the owner of certain property in Charleston County, South Carolina, more particularly described in the Title to Real Estate recorded in Book W127 at page 390 in the Charleston County RMC Office, being **Exhibit "A"** attached hereto and incorporated herein by reference (the "Property"); and

WHEREAS hazardous substances in excess of allowable concentrations for unrestricted use remain on a portion of the Property more particularly described in a plat designated as Geiger (C&M Oil) Superfund Site: Soil Treatment Plan, File No. K-4-2008, March 1993, being **Exhibit "B"** attached hereto and incorporated herein by reference (the "Soil Treatment Area"); and

WHEREAS the Soil Treatment Area may be used for certain purposes without further remediation so long as appropriate restrictions are placed on development and use of the Soil Treatment Area, to include but not be limited to, restrictions on disturbance of any caps placed on the Soil Treatment Area; limitations on subsurface disturbance or excavations; and restrictions on use of the Soil Treatment Area for residential or agricultural purposes; and

WHEREAS, Pile Drivers desires to use or transfer the Property without conducting additional remediation and at the request of the South Carolina Department of Health and Environmental Control ("SCDHEC") has agreed to impose certain restrictions on the manner in which the Property may be developed, said restrictions to run with the land and inure to the benefit of and be enforceable by, SCDHEC and its successor agencies; and

WHEREAS SCDHEC agrees not to require the Property to meet standards more stringent than those required for industrial use under applicable state and Federal law so long as the Soil Treatment Area is used and maintained consistently with the requirements of this Covenant;

NOW, THEREFORE, KNOW ALL MEN THESE PRESENTS that Pile Drivers hereby covenants and declares on behalf of itself, its heirs, successors, and assigns, that the Soil Treatment Area described in Exhibit "B" shall be held, mortgaged, transferred, sold, conveyed, leased, occupied and used subject to the following restrictions, which restrictions shall touch and concern and run with the title to the Soil Treatment Area.

1

THIS IS CERTIFIED AS A TRUE AND CORRECT COPY

SIGNATURE

1. Pile Drivers hereby covenants for itself, its successors and assigns, that the Soil Treatment Area shall not be used for residential or agricultural purposes; by way of example and not of limitation, prohibited activities include but are not limited to: filling; drilling; excavation; anchoring; removal of topsoil, rock, or minerals; plowing; planting; cultivation (other than maintenance of groundcover); and change of the topography in any manner.

2. Pile Drivers covenants for itself, its successors and assigns, that no wells, sumps, ditches, French drains, (the foregoing list being by way of example and not by limitation) or other facilities shall be constructed or used to extract groundwater without prior approval from SCDHEC or its successor agency. Notwithstanding any other provisions contained herein, Pile Drivers has the unrestricted right to remove water or any other substances from any and all ponds or water retention areas on the Property, by draining or any other means, provided that all such activities are conducted in accordance with all applicable laws and regulations.

3. Pile Drivers covenants for itself, its successors and assigns, that the ponds on the Soil Treatment Area located approximately as shown on Exhibit "B" shall be posted against fishing, swimming, or wading; and that water from the ponds shall not be used for any purpose without prior approval from SCDHEC.

4. Pile Drivers covenants for itself, its successors and assigns, that if any future construction or maintenance activities, other than routine utility maintenance or landscaping, result in removal or damage of the cover or any portion thereof, Pile Drivers shall replace or repair the removed or damaged portion of the cover, or conduct additional remediation to a Department-approved standard that is consistent with the activities being conducted on the Soil Treatment Area.

5. Pile Drivers covenants for itself, its successors and assigns, that any facilities, including outbuildings, parking lots, and all other improvements and appurtenances on the Soil Treatment Area, shall be constructed at or above ground level.

6. Pile Drivers covenants for itself, its successors and assigns, that SCDHEC or its successor agency shall be provided reasonable access to inspect the Soil Treatment Area and activities conducted thereon and to take samples as may be necessary to enforce this Covenant.

7. The covenants and restrictions set forth herein shall run with the title to the Soil Treatment Area and shall be binding upon Pile Drivers, its successors and assigns.

8. The covenants and restriction set forth herein shall remain in place until such time as SCDHEC has made a determination that such covenants and restrictions set forth herein are no longer necessary. This Declaration shall not be amended without the written consent of SCDHEC or its successor agency.

THIS IS CERTIFIED AS A TRUE AND CORRECT COPY

SIGNATURE

IN WITNESS WHEREOF, Pile Drivers has caused this DECLARATION OF COVENANTS AND RESTRICTIONS to be executed as of the date first above written.

WITNESSES:

Pile Drivers, Inc.,

By: Kay G. Shealy
Its: ~~Vice President~~ Sec-Treas.

WITNESSES:

SC Department of Health and Environmental Control

By: ~~Douglas E. Bryant~~
Commissioner

THIS IS CERTIFIED AS A TRUE AND CORRECT COPY
SIGNATURE Pamela

STATE OF SOUTH CAROLINA)
) ACKNOWLEDGMENT
COUNTY OF CHARLESTON)

I, Marsha C. Fitts (Notary Public), do hereby certify that Pile Drivers, Inc., by Kay G. Shealy, its ~~Vice-President~~ Sec.-Treas., personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal this the 21st day of Sept., 2001.

Marsha C. Fitts
Notary Public for South Carolina
My commission expires: December 9, 2008

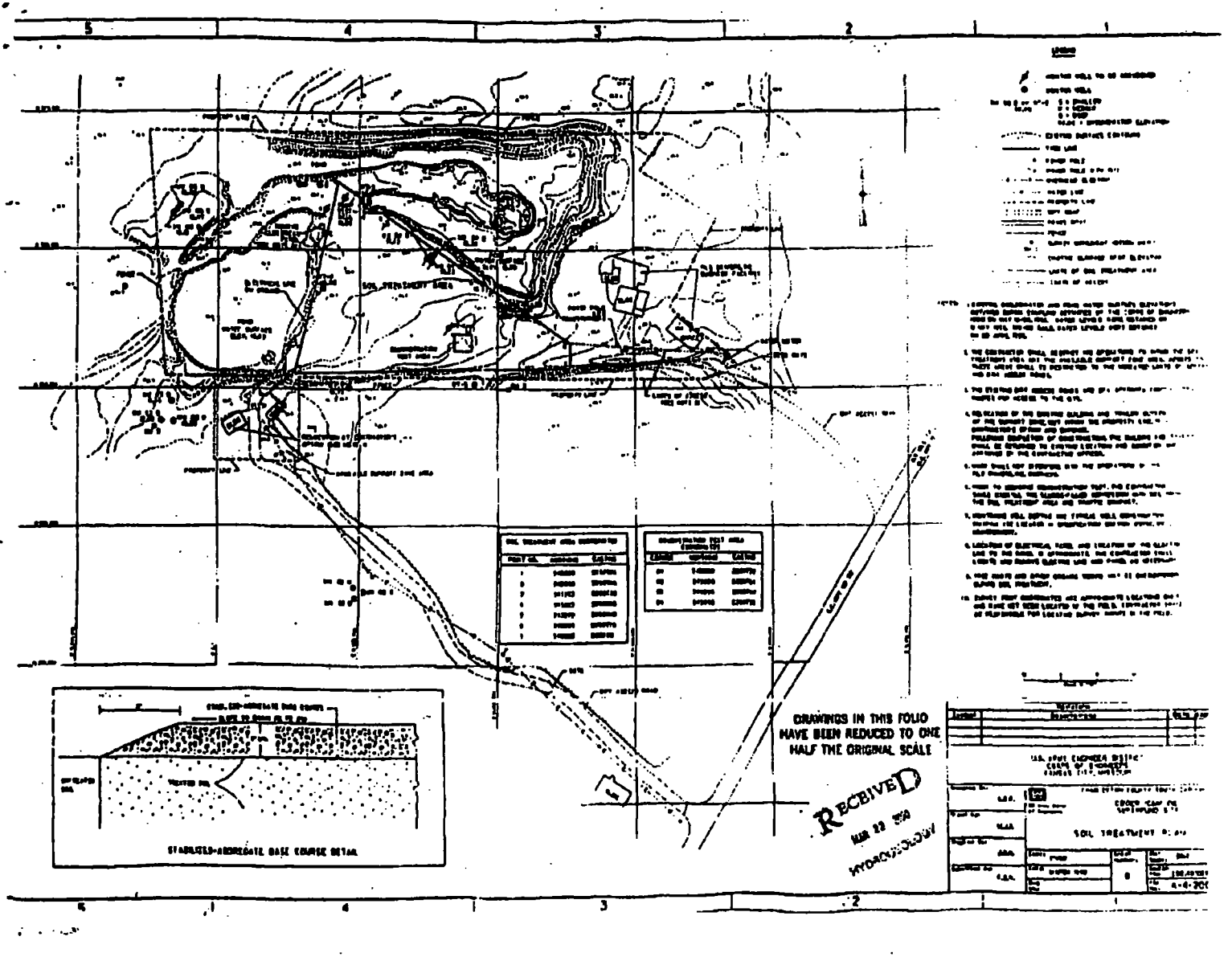
STATE OF SOUTH CAROLINA)
) ACKNOWLEDGMENT
COUNTY OF Richland)

I, Pamela G. Hawley (Notary Public), do hereby certify that SC Department of Health and Environmental Control, by ~~Douglas E. Bryant~~ Lecil Hunter, its Commissioner, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal this the 11th day of Oct., 2001.

Pamela G. Hawley
Notary Public for South Carolina
My commission expires: Feb. 15, 2005

Exhibit B


DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO ONE HALF THE ORIGINAL SCALE
RECEIVED
MAR 22 1990
HYDROLOGY

Appendix H: 2009 Sampling Data

Table 1
Metals Analytical Data Summary
Groundwater Sampling Investigation
Geiger (C&M Oil) Superfund Site
Rantowles, Charleston County, South Carolina

		Station ID:	MW2S		MW2S		TW02A		TW02B		MW6S		TW06A		TW06D	
		Sample ID:	MW2S0709		MW2S0709D		TW02A0709		TW02B0709		MW6S0709		TW06A0709		TW06D0709	
		Sample Date:	07/21/2009		07/21/2009		07/21/2009		07/21/2009		07/21/2009		07/21/2000		07/21/2009	
Analyte	Regional Screening Level[1]	Units														
Antimony	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Arsenic	0.045 (TW) / 10 (MCL)	ug/l	0.22	J	0.2	J	0.21	J	0.12	R	0.2	J	0.59	J	0.24	J
Barium	7,300 (TW) / 2,000 (MCL)	ug/l	27		28	J	17	J	20	J	160	J	140	J	88	J
Beryllium	73 (TW) / 4 (MCL)	ug/l	0.1	J	0.072	J	0.038	J	0.039	J	0.8	J	0.68	J	0.32	J
Cadmium	18 (TW) / 5 (MCL)	ug/l	5.8		6.9		1	U	1	U	0.13	J	0.12	J	1	U
Chromium	100 (MCL)	ug/l	2	J	1.3	J	0.46	J	0.4	J	1.3	J	2.4	J	0.33	J
Cobalt	11 (TW)	ug/l	0.77	J	0.78	J	0.13	J	0.18	J	1.5	J	0.85	J	0.079	J
Copper	1,500 (TW) / 1,300 (MCL)	ug/l	2.1	J	2.2	J	0.88	J	0.38	J	0.58	J	0.52	J	0.43	J
Lead	15 (AL)	ug/l	150		140		0.078	UJ	0.031	UJ	14		0.16	UJ	0.13	UJ
Manganese	880 (TW)	ug/l	22		22		8.4		7.2		43		45		68	
Nickel	730 (TW)	ug/l	16		16		2.1		1.5		4.5		3.1		2.1	
Selenium	180 (TW) / 50 (MCL)	ug/l	1.9	J	2	J	2.9	J	2.8	J	0.33	J	0.53	J	0.22	J
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Vanadium	180 (TW)	ug/l	0.14	R	0.14	J	1.7		1.6		7.4		7.6		1.7	
Zinc	11,000 (TW)	ug/l	990		1000		150		40		28		5.7		110	

Notes.

1 - U.S. Environmental Protection Agency, "Regional Screening Level Table (RSL) MASTER April 2009", http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm, April 2009

TW - Tap Water / MCL - EPA MCL / AL - EPA Action Level

[ ] Value exceeds RSL Tap Water Screening Level

[shaded] Value exceeds EPA Action Level

Data Qualifiers.

U - Analyte not detected at or above reporting limit.

J - Identification of analyte is acceptable; reported value is an estimate

R - The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are considered rejected and unusable.