# EXPLANATION OF SIGNIFICANT DIFFERENCES
# CRATER RESOURCES, INC./KEYSTONE COKE CO./ALAN WOOD STEEL CO. SUPERFUND SITE
# UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

## I. INTRODUCTION

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| Site Name: | Crater Resources, Inc./Keystone Coke Co./Alan Wood Steel Co. Superfund Site (Crater or Site) |
| Site Location: | Upper Merion Township, Montgomery County, Pennsylvania |
| Lead Agency: | U.S. Environmental Protection Agency, Region III (EPA) |
| Support Agency: | Pennsylvania Department of Environmental Protection (PADEP) |

## II. STATEMENT OF PURPOSE

This Explanation of Significant Differences (ESD) is being issued in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA), 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and is now part of the Administrative Record for the Site. The NCP requires the publication of an ESD when modifications to the remedial action selected in the Record of Decision (ROD) are necessary, and such modifications significantly change, but do not fundamentally alter, the remedial action with respect to scope, performance, or cost.

This ESD has been prepared to provide the public with an explanation of a modification to the selected remedy for a portion of the Crater Superfund Site. The ROD for the Site, signed on September 27, 2000 (2000 ROD), included construction of a multi-media cap, in accordance with 25 PA Code Sections 288.234 and 288.236-237, at Quarries 1, 2, and 4 to prevent unacceptable leaching of contaminants from the soils and sediment into groundwater. This ESD eliminates the cap and drainage layer performance standards for Quarry 4 only, in accordance with 25 PA Code Section 288.234(b).

The information that supports this ESD and confirms its compliance with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. § 9621, is provided herein. This ESD significantly changes, but does not fundamentally alter, the remedy selected in the 2000 ROD with respect to scope, performance, or cost.

Copies of the Administrative Record file are located in the information repository at the Upper Merion Township Building in King of Prussia, Pennsylvania, and online at http://www.epa.gov/superfund/crater.

## III. SUMMARY OF THE SITE HISTORY AND SITE CONDITIONS

The Site is located in Upper Merion Township, Montgomery County, Pennsylvania, approximately 10 miles northwest of Philadelphia. The Site covers approximately fifty (50) acres, and consists of both developed and undeveloped portions. The Site consists primarily of four former quarries identified as Quarries 1, 2, 3, and 4, and other features, including a waste pipeline and other impacted areas. The developed portion contains commercial office complexes in various parcels. The remaining undeveloped portions of the Site, except for Quarry 3, are slated for similar development in the near future. The Site is generally bounded by Crooked Lane to the west, Renaissance Boulevard to the north and east, and the Gulph Mills Golf Club to the south. Figure 1 presents the Site location and layout. The area surrounding the Site is made up of industrial, commercial, residential, and undeveloped land parcels.

Quarries 1, 2, and 3 were disposal sites for waste ammonia liquor (WAL) generated at the Keystone Coke/Alan Wood Steel facility in Conshohocken, PA. There are no records indicating that WAL or other waste materials were disposed in Quarry 4.

Quarries 1 and 2 have completed Remedial Designs (RDs) and a temporary cover has been constructed over each quarry. Remedial Actions (RAs) have been completed at Quarry 3, the WAL pipeline, and the other disposal areas. The groundwater remedy is monitored natural attenuation (MNA) and a monitoring program is ongoing.

Quarry 4 is a former sand and gravel quarry that has been filled. Quarry 4 was investigated as part of the Remedial Investigation (RI) conducted for the Site. The RI Report was approved by EPA in June 1999. The results from samples collected from the two soil borings drilled during the RI showed elevated levels of metals and polycyclic aromatic hydrocarbons (PAHs). The development of 2201 Renaissance Boulevard as discussed below occurred prior to completion of the RI.

The parcel which includes the Quarry 4 (Parcel) has been developed with an office building, asphalt parking lot, and lined storm water detention basins. Portions of the building, parking lot, and basin were constructed directly over a portion of Quarry 4. During the redevelopment of the Parcel, a minimum of 3 feet of soil was placed on the quarry surface in the areas of the basins, and a minimum of 7 feet of soil was placed over the remaining area of the quarry. After placement of the 3 feet of soil, the stormwater basins were lined with 40-mil polyvinyl chloride (PVC) impermeable liner. A small portion of the 2201 Renaissance Boulevard building was constructed over Quarry 4.

Previous investigation has determined that no private well is used as a potable supply within the area potentially affected by Quarry 4. In addition, Upper Merion Township requires all of its potable water users to connect to public water if there is a public main available, although non-potable wells are permitted. Surface water drainage is generally eastward towards the Schuylkill River, approximately one mile to the east.

The 2000 ROD requires the construction of a cap to prevent infiltration of surface water into the contaminated soils of Quarries 1, 2 and 4 to prevent the migration of contaminants into groundwater. The ROD further required that the cap be constructed in accordance with the relevant and appropriate requirements of Pennsylvania's Residual Waste Management Regulations for final covers of Class 1 residual waste landfills, set forth at 25 PA Code Sections 288.234 and 288.236. The ROD also required implementation of Institutional Controls (ICs) to restrict on-site soil, sediment, surface water and groundwater use and/or disturbance at the Site,

except as required for implementation of the selected remedy, in order to reduce the potential for human exposure to contamination. ICs (e.g., easements and covenants, title notices and land use restrictions through orders from or agreements with EPA) are required to be established in order to prevent any disturbance of the cap once installed, as well as to preclude the installation of any potable wells in the contaminated aquifer.

Subsequent to EPA's issuing the 2000 ROD, Liberty Property Trust (LPT) requested that EPA and PADEP reconsider the appropriateness of the performance standards required by the Pennsylvania's Residual Waste Management Regulations set forth at 25 PA Code Section 288.234(a) for Quarry 4 because a large area of Quarry 4 was already capped with impermeable materials, i.e., a lined storm water basin, a portion of 2201 Renaissance building and an asphalt parking lot. PADEP advised LPT that in lieu of attempting to demonstrate that the performance standards had already been met with the construction of the impermeable materials, the regulations allow for a change in the performance standards by demonstrating that unacceptable leaching of contaminants through the quarry materials has not been/was not occurring.

As a result, in February 2001, LPT submitted a proposal for Quarry 4, which included a request to eliminate the cap and drainage layer performance standards in accordance with 25 PA Code § 288.234(b). The proposal was based on a demonstration that it was unnecessary to limit infiltration into Quarry 4 under the current land use; a summary of the construction that was completed to verify that compliance with the performance standards for a uniform soil layer, as set forth in PA Code § 288.234, was already met, and a discussion of post-closure land use. In April 2001, EPA informed LPT that if LPT pursued elimination of the cap performance standards, the scope of a demonstration project should be detailed in a Remedial Design Work Plan (RDWP). The draft RDWP was submitted in October 2001 and approved by EPA, after several revisions, on June 29, 2004.

In July 2010 EPA approved an Interim Remedial Design Report (IRDR) submitted by LPT. The IRDR presented an evaluation of available data and proposed investigations required to support LPT's request to eliminate the cap and drainage layer performance standards. Investigation activities commenced in August 2010 and included sampling of soils placed in Quarry 4 as fill and installation and sampling of monitoring wells. Soil sample results were all below site-specific soil screening levels. Eight consecutive quarterly groundwater monitoring events were performed from October 2010 through August 2012. Statistical analysis of results comparing monitoring well results upgradient of Quarry 4 to wells downgradient of Quarry 4 was completed and presented in the Remedial Design Report (RDR) submitted in January 2014. Results indicate that there is no statistical difference in groundwater concentrations in downgradient wells from the upgradient wells; therefore, there is no evidence of leachate production from Quarry 4 into groundwater.

The final RDR indicated that the performance standards pursuant to 25 PA Code § 288.234(b) have been met and therefore, it is unnecessary to limit the infiltration into Quarry 4. Based on the results of the Demonstration Project, LPT submitted a request to eliminate the cap and drainage layer performance standards pursuant to 25 PA Code § 288.234(b) to PADEP in January 2014. PADEP provided its response in a letter dated March 18, 2014, which informed EPA that the request appeared warranted, was allowable pursuant to the requirements found in Pa Code § 288.234(b) relating to final cover and grading requirements for residual waste landfills, and would, if granted, satisfy PADEP's residual waste regulations for the final cover at Quarry 4.

## IV. DESCRIPTION OF SELECTED REMEDY AND REMEDY IMPLEMENTATION

EPA signed the ROD for the Site on September 27, 2000. The contaminants of concern (COCs) detected for each medium, and the range of concentrations, are presented in Table 2 of the ROD. For groundwater, COCs include several metals and cyanide, PAHs and volatile organic compounds (VOCs). Metals, cyanide, and PAHs were detected in surface and subsurface soils and sediments throughout the Site including the four quarries and soils associated with the WAL pipeline.

Remedial action objectives (RAOs) are medium-specific environmental goals to address the COCs and potential exposure routes and receptors, which have been identified by either the Human Health Risk Assessment or the Ecological Risk Assessment. The Site-wide RAOs have been developed to address the following site-specific concerns:

**Soil/Sediment**:

- Eliminate exposure to soil/sediment which presents an unacceptable risk to human health or the environment.
- Prevent contact of soil/sediment constituents with other media such as groundwater and surface water which may transport the contamination so that the transport does not create an unacceptable risk to human health or the environment.

**Surface Water**:

- Limit exposure of ecological receptors to affected surface water in the Quarry 3 pond water.

**Groundwater**:

- Prevent future potential exposure to ingestion of Site-related groundwater so that the exposure risk level is between $10^{-4}$ and $10^{-6}$ excess cancer risk and the hazard index is less than 1.
- Restoration of the aquifer to a beneficial use.

Based on an evaluation of providing the best attainment of the RAOs, EPA selected the remedy for the Site as described in the ROD and as summarized in Table 1:

Table 1: Summary of Selected Remedy

| Components of Selected Remedy |
|---|
| 1. Removal of all contaminated soils and sediments in Quarry 3 |
| 2. Construction of a multi-layer cap to prevent infiltration of surface water into the contaminated soils of Quarries 1, 2, and 4 and other contaminated soil areas |
| 3. Monitored natural attenuation of the groundwater[1] |
| 4. Further investigation of the former WAL pipeline that was located between the Alan Wood Steel facility and Quarries 1, 2, and 3 located on the Site |
| 5. Institutional controls |

Adapted from the ROD, page 53.

The Selected Remedy for the Site allows for development of the Site property once the design and construction activities are complete, and after implementation of the ICs. An Institutional Controls Implementation and Assurance Plan (ICIAP) for the entire Site detailing the ICs required to meet the ROD requirements has been implemented.

## V. DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR SUCH DIFFERENCES

This ESD is seeking to change elements of the remedy for Quarry 4 only.

**2000 ROD Cap Requirements:**

Construction of a cap to prevent infiltration of surface water into the contaminated soils of Quarries 1, 2 and 4 and other contaminated soil areas: A multi-media cap consisting of a series of low-permeability clays, geotextile liners, sand drainage layers, and soil or other appropriate covers will be installed to prevent unacceptable leaching of contaminants from the soils and sediment into the groundwater. The cap will be constructed in accordance with the Commonwealth's Residual Waste Management Regulations, for final cover of Class 1 residual waste landfills, set forth at 25 Pa. Code §§ 288.234 and 288.236-237.

**Modification to Quarry 4 Cap Requirements:**

Construction of a multi-layer cap to prevent infiltration of surface water into the contaminated soils of Quarries 4 is unnecessary based on the Demonstration Project conducted pursuant to 25 PA Code § 288.234(b).

[1] The MNA remedy relied on the completion of remedial action at all OUs with impacted soils. The remedy at OU1 and OU2 has not been completed and are continuing sources of contaminants to groundwater. The contingent groundwater remedy included extraction and on-site treatment of contaminated groundwater, with discharge to Schuylkill River or Matsunk Creek.

**Basis for Modification:**

The Demonstration Project consisted of eight consecutive quarterly groundwater monitoring events performed from October 2010 through August 2012. Statistical analysis of results comparing monitoring well results upgradient of Quarry 4 to wells downgradient of Quarry 4 was completed and presented in the RDR submitted in January 2014. Results indicate that there is no statistical difference in groundwater concentrations in downgradient wells from the upgradient wells; therefore, there is no evidence of leaching of contaminants from Quarry 4 into groundwater.

Given that there is no evidence of leaching of contaminants from Quarry 4, EPA and PADEP have determined, in accordance with 25 PA Code § 288.234(b), that it is unnecessary to further limit infiltration into Quarry 4 and therefore, the cap and drainage layer requirements in 25 PA Code § 288.234(a) are no longer appropriate performance standards.

The selected remedy, as revised by this ESD, will comply with all identified state and federal Applicable or Relevant and Appropriate Requirements (ARARs); meets all RAOs; and, with implementation and enforcement of institutional controls as selected in the ROD, will remain protective of human health and the environment.

The 2000 ROD considers the closure requirements, 25 Pa. Code §§ 288.234 and 288.236-237, for residual waste landfills to be relevant and appropriate. These requirements are satisfied with the existing cover at Quarry 4, which includes a soil cover, lined retention basins, asphalt parking areas, and a building over portions of the quarry. Based on LPT's RDR, PADEP determined that it is not necessary to further limit infiltration into Quarry 4 via an impermeable cap and that elimination of the impermeable cap and drainage layer components are consistent with the provisions of 25 Pa. Code § 288.234 (b).

EPA believes the selected remedy, as revised by this ESD, meets all RAOs. Placement of soil cover as described in Section III and implementation of ICs mitigates unacceptable exposures to soil. The results of the Demonstration Project indicate that elimination of infiltration into Quarry 4 is not required and the current conditions of the quarry, which included placement of soil cover and construction of lined retention basins, asphalt parking areas, and a building over portions of the quarry, satisfy ARARs. The RAO of "preventing contact of soil/sediment constituents with other media, such as groundwater and surface water which may transport the contamination, so that the transport does not create an unacceptable risk to human health or the environment" has been met.

## VI. SUPPORT AGENCY COMMENTS

EPA has consulted with PADEP concerning the changes to the ROD as described in this ESD in accordance with 40 CFR § 300.435(c)(2). PADEP supports the changes set forth herein and has provided its concurrence on this ESD in a letter dated October 27, 2016.

## VII. STATUTORY DETERMINATIONS

EPA has determined that the modified remedy as described in this ESD complies with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. § 9621. EPA believes that the selected remedy, as revised by this ESD, is protective of human health and the environment and will meet the Federal and State requirements that are applicable or relevant and appropriate to the remedial action as described in the 2000 ROD.

## VIII. COMMUNITY INVOLVEMENT

In accordance with Section 117(d) of CERCLA, 42 U.S.C. Section 9617(d) and Section 300.435(c)(2)(i)(B) of the National Oil and Hazardous Substances Pollution Contingency Plan, EPA will publish a notice of availability of this ESD.

The Administrative Record includes the documents that form the basis for EPA's selected remedy for the Site, including the documents supporting this ESD. The Administrative Record is available for public review at the following locations:

Upper Merion Township Library
175 W. Valley Forge Road
King of Prussia, PA 17406
610-265-2600

And online at http://www.epa.gov/superfund/crater

Questions concerning EPA's action should be directed to:

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## IX. SIGNATURE

This Explanation of Significant Differences modifies the selected remedy for the Crater Resources, Inc./Keystone Coke Co./Alan Wood Steel Co. Superfund Site and eliminates the cap and drainage layer performance standards for Quarry 4 only.

Karen Melvin, Director
Hazardous Site Cleanup Division
EPA Region III

DEC 16 2016
Date

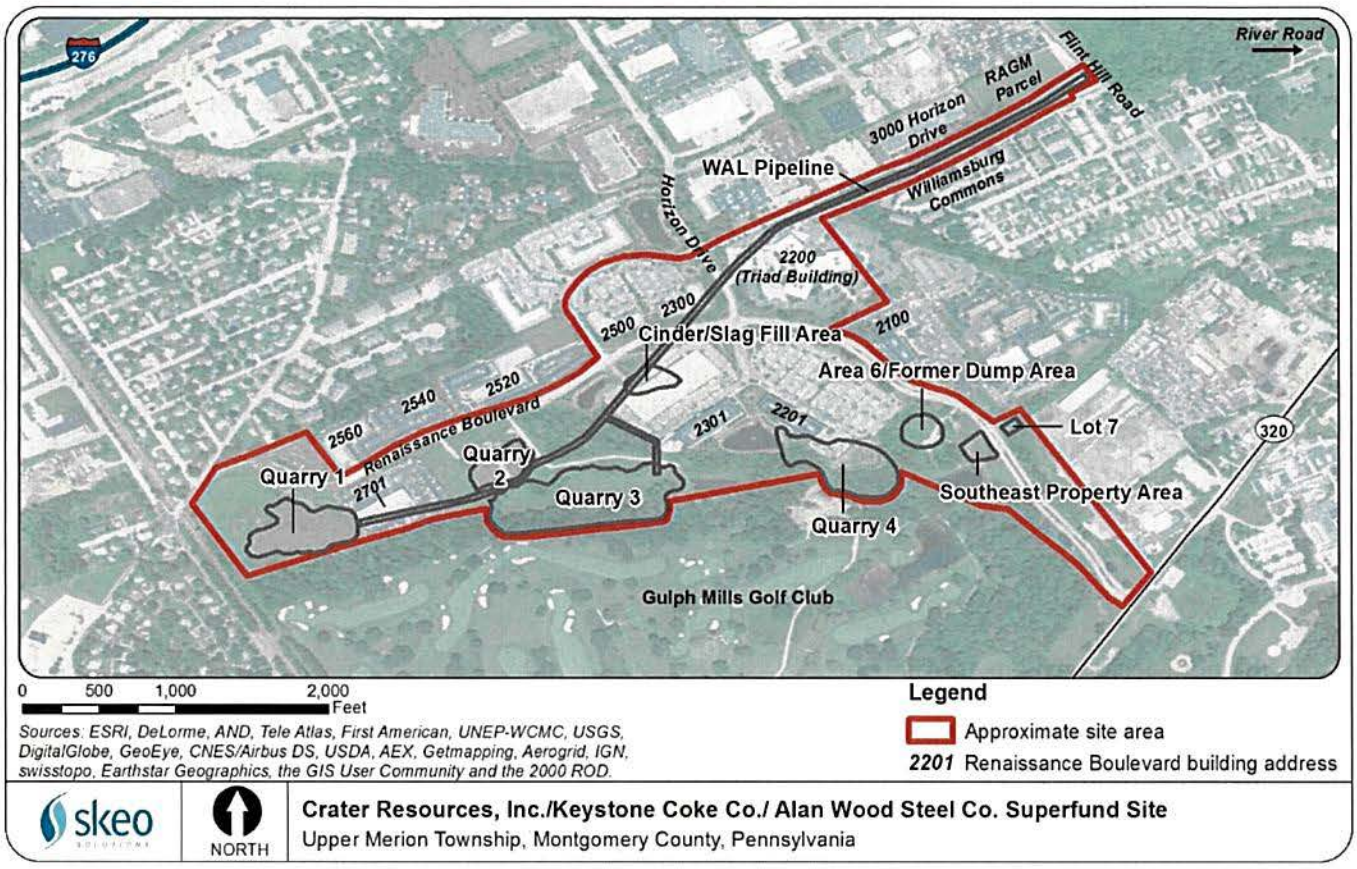


FIGURE 1: SITE LOCATION AND LAYOUT