



UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION III

STATEMENT OF BASIS

CONGOLEUM  
4401 WEST RIDGE ROAD

MARCUS HOOK, PENNSYLVANIA

EPA ID NO. PAD002343200

Prepared by  
Office of Remediation  
Land and Chemicals Division  
February 2016

## Table of Contents

|                                                           |    |
|-----------------------------------------------------------|----|
| <b>Section 1: Introduction</b>                            | 1  |
| <b>Section 2: Facility Background</b>                     | 1  |
| <b>Section 3: Summary of Environmental Investigations</b> | 2  |
| <b>Section 4: Corrective Action Objectives</b>            | 4  |
| <b>Section 5: Proposed Remedy</b>                         | 5  |
| <b>Section 6: Evaluation of Proposed Remedy</b>           | 6  |
| <b>Section 7: Financial Assurance</b>                     | 8  |
| <b>Section 8: Public Participation</b>                    | 8  |
| <b>Section 9: Index to Administrative Record</b>          | 10 |

## List of Acronyms

|       |                                                  |
|-------|--------------------------------------------------|
| AR    | Administrative Record                            |
| BGS   | Below Ground Surface                             |
| EI    | Environmental Indicator                          |
| EPA   | Environmental Protection Agency                  |
| FDRTC | Final Decision Response to Comments              |
| GPRA  | Government Performance and Results Act           |
| HSWA  | Hazardous and Solid Waste Amendments             |
| IC    | Institutional Control                            |
| MCL   | Maximum Contaminant Level                        |
| RCRA  | Resource Conservation and Recovery Act           |
| SB    | Statement of Basis                               |
| SVOC  | Semi-Volatile Organic Compound                   |
| UECA  | Pennsylvania Uniform Environmental Covenants Act |
| VOC   | Volatile Organic Compound                        |

## Section 1: Introduction

---

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the Congoleum Corporation (Congoleum) Facility located at 4401 West Ridge Road, Marcus Hook, in Delaware County, Pennsylvania (Facility or Site). EPA's proposed remedy requires maintenance of the integrity of the landfill cap and land and groundwater use restrictions through the implementation and maintenance of institutional controls (ICs). ICs are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination and/or protect the integrity of the remedy by limiting land or resource use. EPA proposes to implement the final remedy for the Facility through an enforceable document such as an order, agreement and/or environmental covenant to be entered pursuant to the Pennsylvania Uniform Environmental Covenants Act, 27 Pa. C.S. Sections 6501-6517, (UECA) and recorded with the deed for the Facility property.

The Facility is subject to the Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 to 6992k. The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have been investigated and that all releases of hazardous waste and hazardous constituents have been remediated. The Commonwealth of Pennsylvania (the Commonwealth) is not authorized for the Corrective Action program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the Commonwealth for the Corrective Action Program.

The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section 8, Public Participation, for information on how you may review the AR. Information on the Corrective Action Program as well as a fact sheet for the Facility can be found by navigating through the EPA website <http://www.epa.gov/reg3wcmd/ca/correctiveaction.htm>.

## Section 2: Facility Background

---

Congoleum is an active manufacturing facility located on 51.4 acres in Marcus Hook, Delaware County, Pennsylvania. The Site consists of approximately fifty-five (55) buildings, most of which are utilized as a manufacturing plant and warehouses. One quarter of the existing buildings are closed and are no longer in use.

The Facility is located one mile northwest of the Delaware River. It is 1.5 miles east of the Delaware state border and 1.5 miles northwest of the New Jersey state border. Land use surrounding the Facility is predominantly heavy industrial with pockets of urban residential areas directly to the north and south. Two large oil refineries and several tank farms are located within one mile south and southwest of the Facility. A layout of the Facility is presented in Figure 1.

Since 1902, the Facility has manufactured floor products. Congoleum originally manufactured linoleum floor coverings and later converted to vinyl floor coverings in the 1960s.

Solvent based inks/paints were historically utilized in the manufacturing process until the early 1980s when the process switched over to water based inks/paints. The manufacturing process consists of three primary steps. In the initial step felt sheets, which are a combination of limestone and fiber, are coated with a gel and baked in an oven. Second, the sheets are fed through one of two rotogravure printing presses. The final step consists of a clear topcoat that is applied to the sheets before they are baked in the oven again.

## **Section 3: Summary of Environmental Investigations**

---

### **Environmental Investigations**

In 2005 and as part of the EIs determination, EPA and its consultant, the US Army Corps of Engineers, conducted a surface and subsurface soil and groundwater investigation at the Facility. Samples were taken from a closed debris and rubble landfill. The investigation targeted volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and heavy metals.

No VOCs or heavy metals were detected above the EPA industrial risk-based concentrations in subsurface soils. Seven SVOCs were detected in surface soils. Those SVOCs concentrations in soils are within EPA's acceptable cancer risk range. The respective EPA risk range standards and the range of detected concentrations procured in 2005 are listed below:

| <b>Constituents</b>        | <b>Industrial Stds. (mg/kg)</b> | <b>Concentrations (mg/kg)</b> |
|----------------------------|---------------------------------|-------------------------------|
| Benzo(a)anthracene         | 4.5 - 450                       | 0.14 - 22                     |
| Benzo(a)pyrene             | 0.45 - 45                       | 0.09 - 17                     |
| Benzo(b)fluoranthene       | 4.5 - 450                       | 0.40 - 20                     |
| Bis (2-chloroethyl) ether  | 3.0 - 300                       | 0.38 - 4.2                    |
| 3,3-Dichlorobenzidine      | 7.3 - 730                       | 0.76 - 8.3                    |
| Dibenz (a,h) anthracene    | 0.45 - 45                       | 0.05 - 4.2                    |
| N-Nitroso-di-n-propylamine | 0.47 - 47                       | 0.38 - 4.2                    |

EPA notes that the detected SVOCs are commonly found in asphalt and paving materials. The majority of the Facility is covered with asphalt or under a building structure so direct exposures are minimal.

The groundwater investigation did not detect VOCs or SVOCs levels above the EPA Maximum Contaminant Levels (MCLs), levels that EPA determines to be protective for public consumption in drinking water. However, several monitoring wells detected levels of arsenic, beryllium, chromium, lead and vanadium that exceeded the MCLs.

The list of heavy metals of concern in groundwater and their respective MCLs and the range of detected concentrations are:

| <b>Heavy Metals</b> | <b>Detected Concs. (µg/L)</b> | <b>MCLs (µg/L)</b> |
|---------------------|-------------------------------|--------------------|
| Arsenic             | 11- 38                        | 10                 |
| Chromium            | 40 - 393                      | 100                |
| Beryllium           | 2 - 15                        | 4                  |
| Lead                | 13 - 106                      | 15                 |
| Vanadium            | 43 - 437                      | 100                |

The aforementioned heavy metals were detected in the shallow aquifer. The depth of the shallow aquifer varies from thirteen to twenty-eight feet below ground surface (bgs). The shallow depth and low groundwater yield in this aquifer makes it unsuitable as a potential source for drinking water. The regional hydrogeology consists primarily of the Wissahicken Formation where groundwater withdrawal for industrial or domestic use is at a depth of at least 125 feet bgs. Given the characteristics of the regional hydrogeology and the low yield and depth to groundwater, EPA considers the shallow aquifer beneath the Facility a non-use aquifer.

The potential human exposure risks to the contaminated groundwater and its impact to the environment are minimal. Land use surrounding the Facility is predominantly heavy industrial with pockets of urban residential areas to the north and south of the Facility. As required by the local ordinance, residences in the area are connected to public water. Potable water is provided by the Chester Water Authority. There are no direct human exposures to the heavy metals in groundwater. The groundwater flow direction is to the south-southeast of the Facility and discharges into the Delaware River, located less than 1 mile from the Site. The levels of heavy metals detected beneath the Facility are less than 10 times the MCLs. EPA determined that the levels of heavy metals detected at the Facility will not significantly impact the Delaware River.

To determine the source of the heavy metals in groundwater, EPA conducted an independent and comprehensive file review of the Facility. EPA considered environmental investigations, inspection reports, interim measure activities and any other relevant data to determine if past or current operations at the Facility could have contributed to the levels of arsenic, chromium, beryllium, lead and vanadium detected in groundwater. Based on the file review, EPA determined that the heavy metals detected in the shallow aquifer are not related to the operations at the Facility. EPA investigated several facilities in the vicinity of the Facility to determine the potential source(s) of the elevated heavy metals in groundwater. The investigation was inconclusive. EPA was unable to identify the source(s) that contributes to the heavy metals in groundwater and has determined that the detected concentrations could be attributable to background levels.

Despite the presence of heavy metals in the shallow aquifer, EPA has determined that the groundwater contamination is confined to a non-use aquifer, there are no direct human exposure risks and any potential impact via discharge to the Delaware River is negligible.

## **Environmental Indicators**

Under the Government Performance and Results Act (GPRA), EPA has set national goals to address RCRA Corrective Action facilities. Under the GPRA, EPA evaluates two key environmental cleanup indicators for each facility: (1) Current Human Exposures Under Control and (2) Migration of Contaminated Groundwater Under Control. On July 28, 2015, EPA determined that both environmental indicators had been met. These approved environmental indicator determinations are available at:

<http://www.epa.gov/reg3wcmd/ca/pa/pdf/pad061779815.pdf>.

## **Section 4: Corrective Action Objectives**

---

EPA's Corrective Action Objectives for the specific environmental media at the Facility are the following:

### **A. Subsurface Soils**

Hazardous constituents in the former landfill will remain in place. EPA's corrective action objective for subsurface soils is to control exposure to the hazardous constituents remaining in the subsurface.

### **B. Surface Soils**

SVOCs levels detected in surface soils are within EPA's acceptable risk range of  $10^{-6}$  to  $10^{-4}$  for industrial facilities. EPA's corrective action objective for surface soils is to control exposure to the hazardous constituents remaining in surface soils.

### **C. Groundwater**

EPA expects final remedies to return usable groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. At this Facility, EPA determined that the shallow aquifer beneath the Facility is not a current or potential source of drinking water. The aquifer has a low depth to groundwater of approximately thirteen to twenty-eight feet bgs and generates an inadequate yield for suitable water consumption. In addition, given the magnitude and flow of the Delaware River, the levels of heavy metals detected at the Facility will not significantly impact that river. For projects where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use MCLs. However, EPA has determined that the heavy metals in groundwater are not Facility-related and are likely from background sources, i.e. naturally occurring.

In addition, arsenic, chromium, beryllium, lead, and vanadium concentrations in groundwater are 1-3 times greater than their respective MCLs. Given the magnitude and flow of the Delaware River, the levels of heavy metals detected at the Facility will not significantly

impact the river. Therefore, EPA has determined that there are no direct human exposure risks nor any potential impact to the environment. Local ordinance requires residences in the area to be connected to public water

As long as the heavy metals remain in the groundwater above applicable MCLs, EPA's Corrective Action Objective for groundwater at the Facility is to prevent exposure to the heavy metals by requiring compliance with and maintenance of groundwater use restrictions.

## **Section 5: Proposed Remedy**

---

Under this proposed remedy, some contaminants remain in the soil and groundwater at the Facility above levels appropriate for residential uses. Because some contaminants remain in the soil and groundwater at the Facility at levels which exceed residential use, EPA's proposed remedy requires the compliance with and maintenance of soil and groundwater use restrictions. EPA proposes to implement the land and groundwater restrictions necessary to prevent human exposure to contaminants at the Facility through an enforceable institutional control such as a permit, order, or environmental covenant.

### **A. Subsurface Soils**

Because hazardous constituents will remain in the former landfill, this proposed remedy requires that the integrity of the landfill cap be maintained and Facility use must be restricted to non-residential.

### **B. Surface Soils**

SVOCs levels detected in surface soils are within EPA's acceptable risk range of  $10^{-6}$  to  $10^{-4}$  for industrial facilities. EPA's proposed remedy requires that Facility land use be restricted to non-residential use.

### **C. Groundwater**

EPA's proposed remedy requires that groundwater use restrictions be implemented through ICs to restrict onsite groundwater use to non-potable purposes only. Congoleum and all subsequent owners will be required to comply with this restriction.

### **D. Implementation**

EPA proposes that requirements and use and groundwater restrictions for the Facility be implemented through an enforceable IC such as an order, agreement and/or an environmental covenant to be entered pursuant to the Pennsylvania Uniform Environmental Covenants Act, 27 Pa. C.S. Sections 6501-6517, (UECA) and recorded with the deed for the Facility property. The IC shall include, but not be limited to the restriction of groundwater use for non-portable purposes only, restricting the Facility to non-residential use, and maintaining the integrity of the landfill cap.

## Section 6: Evaluation of Proposed Remedy

---

This section provides a description of the criteria EPA used to evaluate the proposed remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three remedy threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

| Threshold Criteria                          | Evaluation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Protect human health and the environment | <p>EPA's proposed remedy is protective of human health and the environment. The primary human health and environmental threats posed by elevated heavy metal concentrations in groundwater are direct consumption of the contaminated groundwater and the potential to adversely impact the Delaware River, the nearby surface water body. In addition, while there are no direct human exposures to the groundwater contamination heavy metals in groundwater are found only in the non-use aquifer that is not a current or potential source of drinking water. Residences in the area are connected to public water. Groundwater flow discharges to the Delaware River. The levels of heavy metals are less than 5 times the MCLs. EPA determined that based on the magnitude and flow of the Delaware River, the levels of heavy metals detected at the Facility will not significantly impact that river.</p> <p>SVOCs levels detected in surface soils are within EPA's acceptable risk range of <math>10^{-6}</math> to <math>10^{-4}</math> for industrial facilities. EPA's proposed remedy requires the implementation of ICs to ensure that the cap of the former landfill remains intact and to restrict land and groundwater use to nonresidential use only.</p> |
| 2. Achieve media cleanup objectives         | <p>EPA has determined that heavy metals detected in the shallow aquifer beneath the Facility are attributable to background levels. EPA determined that the shallow aquifer is a non-use aquifer and is not a current or potential source of drinking water. Regardless of the potential source(s), there are no direct human exposures to the elevated heavy metals in groundwater. Residences in the area are connected to public water. The Facility utilizes the groundwater for industrial purposes only. The potential impact of the groundwater contamination to the Delaware River is insignificant. SVOCs levels detected in surface soils are within EPA's acceptable risk range of <math>10^{-6}</math> to <math>10^{-4}</math> for industrial facilities. EPA's proposed remedy restricts the Facility to non-residential use and prohibits onsite groundwater for potable use.</p>                                                                                                                                                                                                                                                                                                                                                                               |

|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Remediating the Source of Releases                                       | <p>In all remedy decisions, EPA seeks to eliminate or reduce further releases of hazardous wastes or hazardous constituents that may pose a threat to human health and the environment. EPA has determined that the heavy metals detected in the non-use aquifer beneath the Facility are attributable to background levels. Regardless of the potential source(s) there are no direct human exposures to the elevated heavy metals in groundwater. As required under the local ordinance, residences in the area are connected to public water. Groundwater flow discharges into the Delaware River. The concentrations of heavy metals in groundwater do not significantly impact the Delaware River. The Facility utilizes the groundwater for industrial purposes only. The potential impact of the groundwater contamination to the Delaware River is insignificant. SVOCs levels detected in surface soils are within EPA's acceptable risk range of <math>10^{-6}</math> to <math>10^{-4}</math> for industrial facilities.</p> |
| <b>Balancing Criteria</b>                                                   | <b>Evaluation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4. Long-term effectiveness                                                  | <p>The proposed remedy will maintain protection of human health and the environment over time by controlling exposure to the hazardous constituents remaining in soils and groundwater. EPA's proposed remedy requires the compliance with and maintenance of land use and groundwater use restrictions at the Facility. EPA anticipates that the land use and groundwater use restrictions will be implemented through an environmental covenant to be recorded with the deed for the Facility property. The environmental covenant will run with the land and as such, will be enforceable by EPA and the State against future land owners.</p>                                                                                                                                                                                                                                                                                                                                                                                      |
| 5. Reduction of toxicity, mobility, or volume of the Hazardous Constituents | <p>The proposed remedy does not reduce the toxicity, mobility or volume of hazardous constituents remaining in soil and groundwater at the Facility. However, the levels of heavy metals are restricted to the non-use aquifer and do not significantly impact the Delaware River, where groundwater discharges. Residences are connected to public water. There are no direct exposures to the heavy metals in groundwater. SVOCs levels detected in surface soils are within EPA's acceptable risk range of <math>10^{-6}</math> to <math>10^{-4}</math> for industrial facilities. The majority of the Facility is covered with asphalt or under a building structure so direct exposures are minimal.</p>                                                                                                                                                                                                                                                                                                                          |
| 6. Short-term effectiveness                                                 | <p>EPA's proposed remedy does not involve any additional activities, such as construction or excavation that would pose short-term risks to workers, residents, and the environment. In addition, EPA anticipates that the land use and groundwater use restrictions will be fully implemented shortly after the issuance of the Final</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

|                                     |                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | Decision and Response to Comments (FDRTC).                                                                                                                                            |
| 7. Implementability                 | EPA's proposed remedy is readily implementable. EPA anticipates that the land use and groundwater use restrictions will be fully implemented shortly after the issuance of the FDRTC. |
| 8. Cost                             | EPA's proposed remedy is cost effective. The cost in implementing ICs at the Facility is minimal.                                                                                     |
| 9. Community Acceptance             | EPA will evaluate community acceptance of the proposed remedy during the public comment period for this SB and will describe community acceptance in the FDRTC.                       |
| 10. State/Support Agency Acceptance | EPA will evaluate State acceptance of the proposed remedy during the public comment period and will describe the State's position in the FDRTC.                                       |

## Section 7: Financial Assurance

---

EPA has evaluated whether financial assurance is necessary to implement the proposed remedy as described in Section 5. Given the minimal cost in implementing ICs at the Facility, EPA is proposing that financial assurance not be required

## Section 8: Public Participation

---

Before EPA makes a final decision on its proposal for the Facility, the public may participate in the proposed remedy selection process by reviewing this SB and documents contained in the Administrative Record (AR) for the Facility. The AR contains all information considered by EPA in reaching this proposed remedy. It is available for public review during normal business hours at:

U.S. EPA Region III  
1650 Arch Street  
Mail code: 3LC30  
Philadelphia, PA 19103  
Contact: Mr. Khai Dao  
Phone: (215) 814-5467  
Fax: (215) 814-3113  
Email: [dao.khai@epa.gov](mailto:dao.khai@epa.gov)

and

PADEP Southeast Regional Office  
2 E. Main Street  
Norristown, PA 19401-4915  
Phone: (484) 250-5900

Interested parties are encouraged to review the AR and comment on EPA's proposed remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. You may submit comments by mail, fax, or e-mail to Mr. Khai Dao. EPA will hold a public meeting to discuss this proposed remedy upon request. Requests for a public meeting should be made to Mr. Khai Dao.

EPA will respond to all relevant comments received during the comment period. If EPA determines that new information warrant a modification to the proposed remedy, EPA will modify the proposed remedy or select other alternatives based on such new information and/or public comments. EPA will announce its final remedy and explain the rationale for any changes in the FDRTC. All persons who comment on this proposed remedy will receive a copy of the FDRTC. Others may obtain a copy by contacting Mr. Khai Dao at the address listed above.

\_\_\_\_\_  
Date

\_\_\_\_\_  
John A. Armstead, Director  
EPA Region III  
Lands and Chemicals Division

Attachment: Figure 1 Facility Layout

## **Section 9: Index to Administrative Record**

---

Congoleum Phase I Environmental Site Assessment Report Volume 1 &2, prepared by CIT Group, January 1991.

USEPA Congoleum Environmental Indicator Inspection Report, prepared by Tetra Tech FW Inc., October 2003.

Congoleum Groundwater Investigation Report, prepared by the US Army Corps of Engineers, March 2005.

Congoleum Soil Results, prepared by the US Army Corps of Engineers, April 2005.

Congoleum Limited Site Investigation Report, prepared by Hillman Environmental Group, LLC, July 2009.

Congoleum Phase I Environmental Site Assessment Report, prepared by Hillman Environmental Group, LLC, May 2009.

DRAFT

## **Attachments**

DRAFT