



SDMS DocID 2179982

**RECORD OF DECISION AMENDMENT**  
**OPERABLE UNIT 1**  
**FIRST PIEDMONT ROCK QUARRY (ROUTE 719) SUPERFUND SITE**  
**DANVILLE, VIRGINIA**

**UNITED STATES ENVIRONMENTAL**  
**PROTECTION AGENCY**

**REGION 3**  
**PHILADELPHIA, PENNSYLVANIA**

**September 2014**

**TABLE OF CONTENTS**

**I. THE DECLARATION ..... iii**

- A. Site Name: First Piedmont Corp. Rock Quarry (Route 719)..... iii
- B. Statement of Purpose ..... iii
- C. Assessment of the Site..... iii
- D. Description of the Selected Remedy ..... iii
- E. Statutory Determinations .....iv
- F. ROD Certification Checklist.....iv
- G. Authorizing Signature .....v

**II. THE DECISION SUMMARY ..... 1**

- A. Site Name, Location and Description..... 1
- B. Site History and Enforcement Activities ..... 1
- C. COMMUNITY PARTICIPATION ..... 6
- D. SCOPE AND ROLE OF OPERABLE UNIT .....6
- E. SITE CHARACTERISTICS .....6
- F. CURRENT AND POTENTIAL FUTURE LAND USE AND RESOURCE USE ..... 11
- G. SUMMARY OF SITE RISKS ..... 11
  - G.1 Human Health Risks..... 11
  - G.2 Ecological Risk Assessment..... 11
- H. REASONS FOR ISSUING THE RECORD OF DECISION AMENDMENT ..... 12
- I. REMEDIAL ACTION OBJECTIVE (RAO)..... 12
- J. DESCRIPTION OF ALTERNATIVES..... 13
  - J.1 Common Elements ..... 13
  - J.2 Remedial Alternatives ..... 13
- K. COMPARATIVE ANALYSIS OF ALTERNATIVES ..... 14
  - Detailed Analysis of the Proposed Remedial Alternatives ..... 15
  - 8. State Acceptance .....20
- L. PRINCIPLE THREAT WASTE.....20
- M. GENERAL DESCRIPTION OF THE AMENDED WETLAND REMEDY .....21
- N. STATUTORY DETERMINATIONS.....22
- O. DOCUMENTATION OF SIGNIFICANT CHANGES.....24

State Role .....24

**III. THE RESPONSIVENESS SUMMARY .....25**

A. Introduction .....25

B. ORAL COMMENTS FROM THE PUBLIC MEETING .....26

C. WRITTEN COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD (August 12, 2013 to September 28, 2013) .....28

**APPENDIX A TABLES**

Table 1 Applicable or Relevant and Appropriate Requirements (ARARs)  
And To-Be-Considered Material for the Selected Remedy

**APPENDIX B – FIGURES**

Figure 1 – Site Location

Figure 2 – Site Layout

Figure 3 – Wetland Area

Figure 4 – Excavation Areas

Figure 5 – Sampling Locations

Figure 6 – Landfill Location

**APPENDIX C - STATE CONCURRENCE**

**APPENDIX D - ADMINISTRATIVE RECORD FILE INDEX OF DOCUMENTS**

## **I. THE DECLARATION**

### **A. Site Name: First Piedmont Corp. Rock Quarry (Route 719)**

The First Piedmont Corp. Rock Quarry Superfund Site (the Site) is located along Route 719 in Pittsylvania County, Virginia near the intersection with Route 360. It is approximately six miles north of the city of Danville. The National Superfund Database Identification Number is VAD980554984. This action addresses the wetland portion of Operable Unit 1 (OU1). A Site Location Map is located Site Layout are included in Appendix B (Figure 1 and Figure 2, respectively).

### **B. Statement of Purpose**

This Record of Decision Amendment (ROD Amendment) modifies the remedy selected by EPA in the June 28, 1991 OU1 ROD. This is the final action for OU1, Excavation with Backfill and Restoration and Institutional Controls. The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. §§ 9601 *et seq.*

This decision document is based on the Administrative Record for the Site, which was developed in accordance with Section 113 (k) of CERCLA, 42 U.S.C. § 9613 (K). The Administrative Record file is available for review online at <http://www.epa.gov/arweb>, at the U.S. Environmental Protection Agency Region III Records Center in Philadelphia, Pennsylvania, and at the Pittsylvania County Public Library in Chatham, Virginia. The Administrative Record index (Appendix D) identifies each document contained in the Administrative Record upon which the selection of the remedy is based.

The Commonwealth of Virginia concurs with the Selected Remedy (Appendix C).

### **C. Assessment of the Site**

The response action selected in this ROD Amendment is necessary to protect human health and the environment from actual or threatened releases of substances into the environment.

### **D. Description of the Selected Remedy**

This ROD Amendment modifies the remedy selected for the wetlands area of OU1 which consists of contaminated sediment and soil located at the entry of the Southern Drainage to the Lawless Creek Floodplain of the Site. Based on the findings of a 2005 Five Year Review (2005 FYR) Report; 2006 Supplemental Remedial Investigation Report; 2009 Removal Action Report; the 2010 Focused Feasibility Study; and the Focused Feasibility Addendum of 2011, that were conducted following issuance of the 1991 OU1 ROD, EPA determined that modifications to the

remedy were necessary to effectively address the wetland area of OU1. This ROD Amendment modifies the remedy selected by the 1991 ROD.

The excavation with backfill and restoration and institutional controls remedy set forth in this ROD Amendment consists of the following components:

- Excavation of zinc contaminated sediment and soil from the Southern Drainage and Lawless Creek floodplain.
- Transportation of zinc contaminated sediment and soil off-site to a permitted disposal facility.
- Reclamation of the excavated area which includes backfilling of soils, and planting of vegetation. Monitoring for sediment and erosion control will be required until the wetland portion of OU1 is successfully re-vegetated.
- Wetland impacts will be further mitigated through the purchase of wetland credits from a mitigation bank at a ratio of 2:1.
- Institutional Controls will be implemented to ensure that sediments and soils in the wetland area are not disturbed through any activity.
- Institutional Controls will be required to prevent the surface cap, the leachate collection system, and the temporary tank in which the leachate is stored in OU1 from being disturbed.

## **E. Statutory Determinations**

The remedy modification meets the requirements of Section 121 of CERCLA 42 U.S.C § 9621 and the regulatory requirements of the National Contingency Plan (NCP) 40 C.F.R. Part 300. This remedy, as modified, is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate requirements (ARARs) to the remedial action, is cost effective, and utilizes a permanent solution to the maximum extent practicable.

A statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and environment. Five year reviews will be conducted at least every five years after the date of the initiation of the remedial action and continue until hazardous substances are no longer present above levels that allow for unlimited use and unrestricted exposure.

## **F. ROD Certification Checklist**

The following information is included in the Decision Summary (Part II) of this ROD Amendment, while additional information can be found in the Administrative Record file for the Site:

- Chemicals of Concern (COCs) and respective concentrations
- Baseline risk represented by the COC;


- Cleanup levels established for chemicals of concern and the basis for these levels;
- How source materials constituting principal threats are addressed;
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD;
- Potential land and ground-water use that will be available at the Site as a result of the Selected Remedy.
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected.
- Key factor(s) that led to selecting the remedy

### G. Authorizing Signature

This ROD Amendment documents a remedy modification for the wetlands area of OU1, at the First Piedmont Rock Quarry (Route 719) Superfund Site. EPA selected this remedy modification with the concurrence of the Virginia Department of Environmental Quality (VDEQ). The Director of the Hazardous Site Cleanup Decision (HSCD) for EPA Region III has approved and signed this ROD Amendment.

Approved by:

Date:

  
Cecil Rodrigues, Director  
Hazardous Site Cleanup Division

9/23/2014

## **II. THE DECISION SUMMARY**

### **A. Site Name, Location and Description**

The First Piedmont Corporation Rock Quarry Superfund Site (the Site) (CERCLIS Identification No. VAD980554984) is located along Route 719 in Pittsylvania County, Virginia, near the intersection with Route 360 (See Appendix B, Figure 1). It is approximately six miles north of the city of Danville. The Site covers approximately four acres, consisting of a former rock quarry and the adjacent land. Industrial and agricultural wastes were landfilled at the Site and were restricted almost exclusively to the former rock quarry area. The quarrying operation left a cut into the rock outcrop bounded on three sides by the quarry high walls. The fourth side of the cut is open to the west. The land surface in the immediate vicinity of the Site slopes gently westward. Drainage from the area is to Lawless Creek, which lies to the northwest of the Site. Lawless Creek is a tributary of Fall Creek, which is a tributary of the Dan River. The majority of the land use in the immediate Site vicinity is open space/woodlands.

The wetlands area addressed in this ROD Amendment as Operable Unit -1 (OU-1) consists of sediment and soil located at the entry of the Southern Drainage to the Lawless Creek floodplain in the western part of the Site. The wetland occasionally is underwater but is dry most of the time.

EPA is the lead Agency for the Site and the Virginia Department of Environment Quality (VDEQ) is the support Agency.

### **B. Site History and Enforcement Activities**

The Site was initially operated as a quarry for crushed stone. The Site was leased by the First Piedmont Corporation (First Piedmont) to be used as a landfill for industrial and agricultural waste from April 1, 1970 to April 1, 1975. Wastes were disposed of in the landfill from April 1970 to July 1972, at which point the Virginia Department of Health ordered waste disposal operations to cease due to a fire on the landfill.

The landfilling operations were historically restricted, almost exclusively, to the two-acre quarry area, although Piedmont leased the approximately four acre Site. The quarry was not filled in a systematic fashion; no cells or segregated disposal areas were used for specific wastes. Hundreds of drums were buried in the landfill in random fashion with other solid waste. Upon arrival at the Site, wastes were generally dumped at the high wall along the eastern edge of the landfill, where the quarry is approximately 35 feet deep, and pushed down with a bulldozer. Subsequent investigation by EPA indicated that wastes were not covered at the end of each day.

The landfill contained approximately 65,000 cubic yards of industrial and agricultural waste and approximately 3,000 cubic yards of soil used as a cover when the land filling operations were stopped. The industrial wastes were generated by the Goodyear Tire and Rubber Company (Goodyear) and Corning Glass Works (Corning); the agricultural wastes were generated by

Southern Processors, Inc. (Southern Processors). The wastes from Goodyear consisted of tires, general plant refuse, scrap rubber, rubber buildup and approximately 15,000 gallons of a mixture of residual MS-20 (a floor degreaser), water, carbon black (a reinforcement additive used in tire manufacturing that is comprised almost entirely of carbon) and detergent. The MS-20 contained ten percent by volume of tetrachloroethylene, which is a listed hazardous waste under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 et seq. The wastes from Corning consisted of paper, glass, cardboard and off-specification batch materials which contained trace amounts of lead oxide. The wastes from Southern Processors, a tobacco processing company, consisted of soil removed from tobacco leaves, tobacco scrap, paper and wood.

Separate and apart from the landfill there were two other areas of waste disposal on the Site associated with the landfilling operation: the "Carbon Black Pile" and the "Waste Pile" (See Appendix B, Figure 2). The Carbon Black Pile consisted of approximately 100 cubic yards of carbon black and contaminated soils. Zinc oxide bags were reportedly observed in the pile during the construction of access roads for the Remedial Investigation. The Carbon Black Pile was approximately 150 feet from the most western edge of the landfill. The Waste Pile contained approximately 10 cubic yards of waste material consisting of steel and nylon cords. Also, some glass, waste rubber strips and contaminated soils. The Waste Pile was located about 75 feet from the western edge of the landfill.

Another disposal area, not associated with the landfilling operations is located about 100 feet southwest of the Carbon Black Pile. This area, denoted as the "Old Disposal Area," (see Appendix B, Figure 2) contains miscellaneous refuse including bottles, cans and metal debris. Based on visual observation of this material, disposal in this area was estimated to have occurred 20 to 30 years prior to the land filling operation and, as such, was not within the scope of the Record of Decision.

In June 1981, Goodyear notified First Piedmont that some of the wastes deposited at the First Piedmont Rock Quarry Landfill were hazardous. First Piedmont filed a "Notification of Hazardous Waste Site" form with EPA on June 5, 1981 listing solvents as one of the wastes disposed of at the landfill. The EPA Field Investigation Team subcontractor sampled the media in the landfill vicinity in July 1983, to provide data in order for EPA to determine whether the landfill should be proposed for listing on the National Priorities List (NPL). Based on the results of this sampling, a Hazard Ranking Score (HRS) of 37.85 was calculated in 1985 for the Site. Based on comments received by EPA, the HRS was recalculated to 30.16. The Site was listed on the NPL on July 22, 1987, pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

In 1986 EPA sent Special Notice Letters to the potentially responsible parties (PRPs), First Piedmont, Corning, and Goodyear, to begin negotiations to perform a Remedial Investigation /Feasibility Study (RI/FS) for the Site. On December 31, 1987, EPA signed an Administrative Order on Consent with the PRPs to undertake performance of the RI/FS for the Site, designed to determine the nature and extent of contamination at the Site and to identify and evaluate remedial alternatives for implementation at the Site.



The RI field activities and analytical program were designed to define the extent of environmental media contamination, identify contaminant migration pathways, and provide data to support a FS of potential remedial actions. Samples from the leachate seeps, subsurface soils, subsurface soils, surface waters, sediments, bioassays, shallow and deep groundwater, and residential wells were analyzed to characterize the quality of these media.

The final Risk Assessment was submitted to EPA in January 1991. The final RI Report was submitted on February 4, 1991 and the Final FS Report was submitted to EPA on March 31, 1991. The RI/FS for the Site summarized the results of previous investigations conducted at the Site, which began in 1987. Based on a review of the chemical sampling data, antimony, arsenic, barium, cadmium, lead, nickel, vanadium, and zinc were detected in the soil, sediments, leachate, and surface water on the Site. The RI/FS included a Conceptual Site Model (CSM) that was summarized in the 1991 ROD. The findings and the CSM from the RI/FS and the ROD are summarized below.

EPA issued the Proposed Plan for the Site on April 10, 1991 and held a public comment period from that date until May 9, 1991. A public meeting to present the Proposed Plan was held on April 16, 1991. Following consideration of comments, the Record of Decision (ROD) was signed by EPA on June 28, 1991. The Commonwealth of Virginia concurred with the selected remedy. The remedy selected for the Site addressed all of the contaminated media at the Site except the contaminated sediment and soil in the Southern Drainage and Lawless Creek floodplain. The remedy consisted of excavation and off-site disposal of the non-landfill wastes; off-site disposal of the surface drums and debris; installation of a RCRA Subtitle C cap over the landfill; collection and treatment of leachate; groundwater monitoring; and land use restrictions.

Following the issuance of the ROD, on July 23, 1992 the Regional Administrator issued a Section 106 of CERCLA Administrative Order to the PRPs (1992 Order), ordering the PRPs to implement the Remedial Design/Remedial Action (RD/RA) for the Site.

The following is a summary of the activities that have been conducted at the Site pursuant to the 1991 ROD, as described in the 1999 Five-Year Review Report.

- *Carbon Black Pile Excavation.* Excavation began on September 8, 1994. Excavation and off-Site disposal of an estimated 1,260 cubic yards of soil from the Carbon Black Pile was completed on October 4, 1994.
- *Waste Pile.* Soil and debris were removed from the Waste Pile on September 12, 1994. 95 cubic yards of material was removed.
- *Drum and Debris Removal.* Removal of drums and debris from the surface of the landfill began on September 21, 1994. A total of 96 drums and 100 cubic yards of tires and debris were removed from the Site. The drum and debris removal operation was completed on October 5, 1994.
- *Gas Venting Layer.* Placement of the gas venting layer on the landfill portion of the Site began on October 26, 1994. Three gas vents were installed to release any methane build up. Placement and grading of this layer was completed on November 9, 1994.

- ***Installation of Landfill Cap.*** Placement of a Geosynthetic Clay Liner (GCL) began on November 26, 1994. Panels were laid out so that the length of the panel was parallel to the slope of the gas venting layer. The liner placement was completed on January 9, 1995.
- ***Leachate Collection System.*** Construction of a leachate collection system began on October 17, 1995 and it took approximately two weeks to complete. The leachate collection system collects leachate in a collection trench excavated below the top of bedrock at the western edge of the landfill. The leachate in the trench collects in a 4-inch slotted polyvinyl chloride (PVC) pipe, which is surrounded by select fill material, and flows into the leachate collection sump at the southern end of the trench. Leachate is then pumped from the leachate collection sump to primary and secondary 20,000 gallon storage tanks. The leachate is sampled quarterly and disposed of at Danville's publicly owned treatment works (POTWs).
- ***Wetland Monitoring.*** The remedial action included the planting of vegetation and berry-producing shrubs in the disturbed portion of the Northern Drainage Area. The Operation and Maintenance plan calls for an annual "walk through" inspection by a qualified biologist for the first five years following the completion of the 1994-1995 remedial work. The biologist checks the Northern drainage Area for evidence of plant and vegetation succession and makes recommendations regarding maintenance or corrective action required.
- ***Groundwater Monitoring.*** Groundwater monitoring is conducted at existing wells up-gradient and down-gradient of the landfill. Groundwater monitoring is to be conducted as long as leachate is collected at the Site, or for 30 years, whichever is longer.
- ***Site Use Restrictions.*** Appropriate Site use restrictions will be placed for future use scenarios to ensure protection of public health and the environment

The EPA 1999 Five-Year Review Report found that the remedy was not protective of the environment at that time and recommended that the PRPs perform additional investigations to further delineate the nature and extent of metal contamination in sediment of the southern drainage and Lawless Creek from past loading. The small amount of sediment found in the Southern Drainage indicated that many of the metals detected in surface water may have migrated directly to Lawless Creek. The PRPs had conducted some limited sampling as part of the monitoring program required by the ROD. Sampling results showed elevated levels of metals in surface water and sediments in the Southern Drainage in excess of the acute and chronic freshwater ambient water quality criteria. Toxicity tests indicated that both surface water and sediment collected from the Southern Drainage were acutely toxic to all organisms tested.

In June 30, 2000, the Regional Administrator signed an Amendment to the 1992 Administrative Order, ordering the PRPs, as part of the work to be performed, to conduct the additional investigations described in the 1999 Five Year Review. Groundwater monitoring results from 1995 through 2004 indicated that zinc contamination decreased significantly after the Carbon Black Pile was removed. However, one monitoring well, which is located approximately 100 feet north of the Southern Drainage channel, had an average zinc concentration of 97µg/l over a nine-year period. This is above the background level of 61.3 µg/ L.

The second Five-Year Review Report (2005) also determined that the remedy was not protective of the environment because sediments in the Southern Drainage area and portions of Lawless Creek were found to have elevated levels of zinc, and institutional controls to restrict land use had not been implemented. Groundwater at the Site is not contaminated. However, leachate from the landfill is still being collected. In the 1991 ROD, use restrictions included fencing and restrictions to prohibit future development of the Site were selected as components of the remedy. To date, only the fencing has been done. As part of the ROD Amendment additional institutional controls will be required. The PRPs developed a work plan to delineate the nature and extent of the zinc contamination in the Southern drainage and Lawless Creek Floodplain areas. EPA approved the work plan in March 2005.

The PRPs submitted a report to EPA entitled "Additional Remedial Investigation Report First Piedmont Rock Quarry Superfund Site, Pittsylvania County, Virginia" in March 2006. The report documented field activities and laboratory analyses, which EPA found to be equivalent to a supplemental RI under the National Contingency Plan (NCP), 40 C.F.R. Part 300, in the Southern Drainage area and Lawless Creek floodplain area.

In May 2007, EPA issued an Explanation of Significant Difference (ESD), in order to document the basis for a modification of the excavation and off-site disposal of the Carbon Black component of the selected remedy in the 1991 ROD, to summarize the information that supports the modification, and to affirm that the revised remedy complied with the statutory requirements of CERCLA. The modification included the excavation of residual zinc in the soil that remained after the Carbon Black Pile was excavated and the selection of the cleanup standards for zinc contaminated soil at the Site. The ESD required that soil in the source area with zinc concentrations above 200.2 mg/kg be excavated and disposed of off-site to prevent runoff from contaminated areas to reach clean, down- gradient areas.

In April 2010, a Focused Feasibility Study (FFS) was submitted to EPA by the PRPs for the zinc-impacted sediment and soil within the Southern Drainage and Lawless Creek floodplain. This FFS was prepared following the source area excavation activities, which were completed in January 2009. At the request of EPA, the PRPs submitted an FFS Addendum on July 6, 2011 to EPA to address and incorporate, comments, new and revised information resulting from correspondence and a meeting held after the FFS was submitted; provide an update on the remedial action and; provide remedial alternatives. With the excavation of the up-gradient zinc source area, the FFS evaluated alternative cleanup measures for the remaining zinc-contaminated sediment and soil within the down-gradient drainage area.

## **C. COMMUNITY PARTICIPATION**

During the Proposed Plan process for the OU1 remedy modification, EPA hosted a public meeting to engage the local community, and distributed a fact sheet to update the community on EPA's activities. These community participation activities meet the public participation requirements in CERCLA Section 121 and the NCP, 40 C.F.R. §300.430(f) (3).

On August 30, 2013, EPA released for public comment the proposed Amendment to the ROD setting forth EPA's preferred remedial amendment for the First Piedmont Corporation Rock Quarry Site. EPA made this document, as well as historic documents, available to the public in the Administrative Record located at the EPA Region III offices, Philadelphia, PA; the Pittsylvania County Public Library, 24 Military Drive, Chatham, Virginia 24531 and online at [www.epa.gov/ar](http://www.epa.gov/ar). The notice announcing the availability of the proposed Amendment to the ROD and public meeting was published in the Danville Register Bee on August 30, 2013.

A fact sheet detailing the Proposed Plan was mailed to local citizens on August 22, 2013. The public meeting was held on September 5, 2013, to present the Proposed Plan to the community and solicit their comments. At this meeting, representatives from EPA answered questions about the Site and the remedial alternatives. EPA's responses to comments received during this period are included in the Responsiveness Summary, which is part of this ROD Amendment.

## **D. SCOPE AND ROLE OF OPERABLE UNIT**

As indicated above, EPA selected a remedy in the 1991 ROD for the Site, and an ESD modifying the ROD on May 30, 2007. This ROD Amendment addresses the wetlands portion of the selected remedy, referred to as OU1, which consists of the zinc contaminated sediment and soil located at the entry of the Southern Drainage to the Lawless Creek floodplain of the Site and is expected to be the final action for OU1. Contamination in other Site media was addressed by the implementation of the 1991 ROD and May 2007 ESD.

## **E. SITE CHARACTERISTICS**

This Section of the ROD Amendment provides an overview of the Site's geology and hydrogeology, the sampling strategy used during the Site investigations and the nature and extent of contamination.

### **E.1 Site Hydrology and Geology**

Groundwater occurrence in the Piedmont Province is principally limited to a depth of less than 150 feet; most groundwater is found within 30 feet of the surface. Most of the groundwater within each groundwater basin discharges to the surface at low points in the topography. The seeps and springs up-gradient of the landfill and south of the Beaver Park community, which are located to the southeast of the Site, are groundwater discharge points.

Drainage from the area is to Lawless Creek, which lies approximately 1,400 feet to the northwest of the quarry. Lawless Creek is a tributary of Fall Creek, which is a tributary of the Dan River.

The regional geology of the area generally consists of weathered residuum overlying Precambrian metamorphic rocks. Field investigation of outcrops at and near the Site indicates that the bedrock is moderately fractured. Most fractures are near vertical with little parting displacement. Regional data indicate that the shallow bedrock is fractured, but the occurrence of fractures decreases with depth. Fractures probably do not occur at depths much greater than 50 to 100 feet.

## **E.2 Nature and Extent of Contamination Gathered During the 1991 RI**

The RI/FS included a CSM that was summarized in the 1991 ROD. The findings and the CSM from the RI/FS and the ROD are summarized below.

The RI field activities and analytical program were designed to define the extent of environmental media contamination, identify contaminant migration pathways, and provide data to support a FS of potential remedial actions. Samples from the leachate seeps, subsurface soils, subsurface soils, surface waters, sediments, bioassays, shallow and deep groundwater, and residential wells were analyzed to characterize the quality of these media.

Evidence gathered during the RI indicated that groundwater that flowed through the wastes in the landfill surfaced as leachate along the western edge of the quarry. This leachate discharged to the north pond and eventually into the Northern Drainage, as identified in Appendix B, Figure 2. Sampling indicated that contamination from the landfill contents migrated via the transport and deposition of sediments in the leachate. The highest concentrations of contaminants detected in the Northern Drainage were in the samples closest to the quarry and levels decreased with distance from the quarry area. The contaminants of concern found in the leachate were arsenic, lead, antimony, and barium.

Surface water samples were collected from the south pond, north pond, Southern Drainage, Northern Drainage, and Lawless Creek. Sampling data from the south pond indicated that surface water there was not adversely affected by landfill contamination. A very low level of 20 micrograms/liter ( $\mu\text{g}/\text{l}$ ) of zinc was the only significant heavy metal contaminant detected in the south pond. The zinc concentration detected was below the background level for surface water zinc concentrations.

In the North Pond, concentrations of arsenic, barium, cadmium, lead, and zinc were detected in concentrations of  $58\mu\text{g}/\text{l}$ ,  $8420\mu\text{g}/\text{l}$ ,  $8\mu\text{g}/\text{l}$ ,  $21\mu\text{g}/\text{l}$ , and  $219\mu\text{g}/\text{l}$ , respectively, which were slightly above the Site background levels. The background levels for arsenic, barium, cadmium, lead, and zinc were  $13.7\mu\text{g}/\text{l}$ ,  $5,600\mu\text{g}/\text{l}$ ,  $4.1\mu\text{g}/\text{l}$ , and  $48.1\mu\text{g}/\text{l}$ , respectively.

Leachate that had accumulated in the north pond ultimately flowed into the Northern Drainage area. The Northern Drainage flows from near the former landfill and the north Pond through the phragmites stand and the cat tail stand, and into the cat tail marsh which is near Lawless Creek as identified in Appendix B, Figure 2. Sampling results indicated that contamination from the

landfill contents migrated to the north pond and Northern Drainage. In general, the highest concentrations of contaminants detected in the Northern Drainage were in samples closest to the quarry. In the Northern Drainage arsenic, barium, iron, lead, manganese, and zinc were detected at concentrations of 13.7 µg/l, 5600 µg/l, 59,800 µg/l, 4.1 µg/l, 1540 µg/l and 48.1 µg/l, respectively, which were above background levels. The concentrations of these contaminants significantly decreased downstream from the landfill. In fact, where the Northern drainage meets the Lawless Creek floodplain, only very low levels of barium, lead, and zinc (109.9 µg/l, 2.4 µg/l, and 32.8 µg/l, respectively) were detected, which were below background concentrations.

Zinc and cadmium were detected in the Southern Drainage at the maximum level of 111,000 µg/l and 18.2 µg/l, respectively. The source of these high levels of zinc and cadmium were considered to be the Carbon Black Pile for a number of reasons: (1) the Carbon Black Pile was located up-gradient of the Southern Drainage; (2) based on sampling results, concentrations of zinc were higher down-gradient of the pile than up-gradient of the Carbon Black Pile; (3) the reported empty zinc oxide bags sighted in the vicinity of the Carbon Black Pile during the construction of access roads during the RI. Therefore, infiltration of precipitation and surface water into the Carbon Black Pile was likely to have mobilized zinc from the pile in high concentrations. The zinc-contaminated water is likely to have migrated down-gradient through the shallow subsurface soil (and possibly rock fractures) and appears to have discharged into the surface water in the Southern Drainage. Sampling data gathered at that time indicated that the lower the flow the higher the zinc concentration the zinc levels were not due to surface water runoff but to shallow subsurface flow. The highest zinc levels were detected when there was no surface water runoff flow except at a very small seep in the lower Southern Drainage. The Southern Drainage also received surface water from the Waste Pile.

Samples were collected from three locations in Lawless Creek (one was background and two non-background samples). At one non-background sampling location, barium, iron, manganese, and zinc were detected at concentrations of 20.5 µg/l, 647 µg/l, 79 µg/l, and 26.5 µg/L, respectively, all of which are above the background concentrations. At the other non-background sampling location, iron, manganese, and zinc were detected at concentrations of 604 µg/L, 57.7 µg/l, and 16.3 µg/l, respectively, which were above background concentrations.

At the landfill portion of the Site, soil samples revealed concentrations of arsenic, barium, cadmium, chromium, lead, nickel, vanadium, and zinc exceeding Site background levels. Barium, lead, and zinc were found in the highest concentrations.

The Waste Pile soil samples generally showed concentrations of arsenic, barium, cadmium, lead, and zinc at levels exceeding background, with barium, lead, and zinc found in highest relative concentrations. The concentrations range from twice the background level for arsenic to ten times the background concentration for lead.

The Carbon Black Pile soil samples had concentrations of arsenic, barium, cadmium, lead, and zinc exceeding background levels. Lead concentrations were about twice the background level while zinc was detected at concentrations ten times the background level.

Shallow and deep groundwater at the Site flows to the west, toward Lawless Creek. Zinc was detected in three monitoring wells at concentrations of 504µg/l, 2050 µg/l, and 213µg/l, which exceeded the background level of 61.3µg/l. One monitoring well had lead concentrations of 28.8 µg/l, which exceeded background and the proposed action level of 15µg/l. EPA sampled the residential water sources of 10 homes in the Beaver Park community near the Site. Only two of the ten residential wells sampled showed levels of contamination above drinking water standards. One well had a detection of 466 µg/l of iron, which exceeded the Secondary Drinking Water<sup>1</sup> criterion for iron of 300µg/l. The other well had a detection of 333 µg/l of iron and 65.1µg/l of manganese, which exceeded the Secondary Drinking Water criteria for iron and manganese of 300µg/l and 50µg/l, respectively. Because none of the major Site contaminants were detected in the residential water, these results indicated that the Site contamination had not affected any residential wells in the Site vicinity.

Solid samples were collected from the contents of two of the drums on the surface of the landfill. Low concentrations of chromium, copper, and lead and higher concentrations of cadmium and zinc were detected in one drum. Low concentrations of cadmium, chromium, lead, nickel, selenium and vanadium and higher concentrations of copper and zinc were detected in the other drum sampled.

### **E.3 2006-2007 Remedial Investigation and Feasibility Study (Zinc Source area and Wetlands Area)**

As indicated above, in the Second Five-Year Review, EPA determined that the remedy was not protective because elevated levels of zinc were found in the Southern Drainage and Lawless Creek floodplain area. The PRPs developed a work plan to delineate the nature and extent of the zinc contamination in these areas. EPA approved the work plan in March 2005.

The PRPs submitted two reports to EPA in January 2006 and March 2006, respectively entitled “Interim-Phased Data Submission Report” and “Additional Remedial Investigation Report First Piedmont Rock Quarry Superfund Site, Pittsylvania County, Virginia.” The reports documented the field activities and laboratory analyses, which EPA found to be equivalent to a supplemental RI under the NCP, in the Southern Drainage area and Lawless Creek floodplain area.

As shown on Appendix B, Figure 3, the floodplain/wetland limits were delineated from near the confluence of the Southern Drainage and Lawless Creek, extending eastward, where it crosses the Southern Drainage between sampling points AI-05 and AI-06. The delineation extends northward along a line that passes just east of sampling points AI-06, AI-07, AI-08, AI-09, and AI-11. After evaluating the soils, hydrology, and botany, it was determined that the delineated wetland is a forested wetland drained by a series of intermittent drainage channels and swales.

<sup>1</sup> Secondary drinking water criteria are non-mandatory water quality standards. They are established as guidelines to assist public water systems in managing their drinking water for aesthetic conditions such as taste, color and odor. They are not considered to present a risk to human health or the environment.

Samples were collected from the former Carbon Black Disposal Area on August 15, and 16, 2005. The sampling locations are shown on Appendix B Figure 5. A total of six samples were collected from each sample locations at depths of between 0"-6", 6"-12", 12"-24", 2'-4', 4'-6', and 6' -bedrock or auger refusal. Also, 38 near-surface samples were collected at depths of between 0"-6" below the ground surface. Nine background samples were collected from depths of 0"-6", 6"-24", and 24"-48" at locations SS-14, SS-15, and SP-16-16-B.

Sediment and surface water samples were collected at various times from the Southern Drainage between October 2005 and January 2006. Sediment samples and surface water were collected from location points AI-01, AI-03, AI-4, AI-05, AI-06, AI-07, and AI-08.

The investigation completed in January 2006 identified zinc-contaminated soil and sediment with concentrations above 200.2 mg/kg in the Southern Drainage and Lawless Creek Wetland area. The report concluded that storm water runoff from the former Carbon Black Disposal Area was the most likely source of the zinc contamination in the Southern Drainage surface water, soil and sediment.

During a September 19, 2006 meeting with EPA, the PRPs proposed additional soil excavation in the vicinity of the former Carbon Black Pile area. EPA prepared the above mentioned ESD in order to document the basis for modification to the excavation and off-site disposal of the Carbon Black component of the selected remedy set forth in the ROD. In the ESD, EPA selected 200.2 mg/kg or less of zinc in soil as the cleanup criteria. The ESD required that soil in the source area with zinc concentrations above 200.2 mg/kg be excavated and disposed of off-site to prevent runoff from contaminated areas to reach clean, down-gradient areas.

In October 2007, the PRPs submitted a report to EPA entitled "Addendum to the Remedial Action Work Plan." The addendum was prepared at the request of EPA based on the findings of the January 2006 Additional Remedial Investigation Work Report and the ESD. The addendum addresses the excavation of soils with residual zinc concentrations in excess of 200.2 mg/kg in the vicinity of the former Carbon Black Pile.

In April and September 2009, the PRPs submitted two reports, respectively titled "Removal Action Field Services Report" and "Revised Removal Action Field Service Report." The reports summarized the implementation of the excavation activities under the ESD, which occurred at the Site between December 2008 and January 2009. Approximately 608 tons of zinc-contaminated soils were excavated from two areas referred to as the eastern excavation area and the western excavation area (See Appendix B, Figure 4). Excavated soils generated by the remedial action to implement the ESD, together with approximately 10 yards of debris and trash and 1,600 gallons of storm water that accumulated in the excavation, were disposed of in accordance with the EPA-approved Waste Removal and Disposal Plan. Final confirmation sampling results indicated that zinc concentrations in the bottom of the excavation ranged from 55.6 mg/kg to 161 mg/kg, with an average concentration of 94.7 mg/kg, which is below the cleanup criteria of 200.2 mg/kg.

In April 2010, the abovementioned FFS was prepared for zinc-impacted sediment and soil within the Southern Drainage and Lawless Creek floodplain. This FFS was prepared following the



source area excavation activities, which had been completed in January 2009. At the request of EPA, the PRPs submitted a Focused Feasibility Study Addendum on July 6, 2011. With the excavation of the up-gradient zinc source area, the FFS evaluated alternative cleanup measures to be part of this ROD Amendment, for the remaining zinc-contaminated sediment and soil within the down-gradient southern drainage area and the Lawless Creek floodplain.

## **F. CURRENT AND POTENTIAL FUTURE LAND USE AND RESOURCE USE**

According to the 1991 ROD, institutional controls were to be implemented, including fencing of the Site and implementing deed restrictions to prohibit residential development of the Site. The ROD Amendment alternative requires institutional controls to prevent the surface cap, the leachate collection system and the temporary tank in which the leachate is stored in OU1 from being disturbed. Also institutional controls such as an environmental covenant would be required to ensure that sediments and soils in the wetlands area are not disturbed in the future through digging and construction or any other activities.

Lawless Creek is classified as warm water stream and is inhabited by a variety of fish species, which include sunfish, bluegills, catfish, and possibly white suckers. Lawless Creek is used for recreational fishing. Lawless Creek is used for recreational activities (children wade and play in the creek) within 1 mile downstream of the Site.

The Northern Drainage is located northwest of the Site, and the Southern Drainage is located southwest of the Site. These two streams are small and ephemeral.

## **G. SUMMARY OF SITE RISKS**

### **G.1 Human Health Risks**

A human health risk assessment was undertaken as part of the RI for OU1 to determine risks posed to people by contact with Site media through various routes of exposure (such as dermal contact, ingestion, or inhalation of dust). This risk assessment did not include the Southern Drainage and Lawless Creek Floodplain area. The maximum zinc soil concentration in samples collected within the Southern Drainage and Lawless Creek floodplain during 2005 was 597 mg/kg. The U.S. EPA Regional Risk Screening Level for human direct exposure to residential soil is 23,000 mg/kg. Thus, there is no unacceptable human health risk posed by any route of direct exposure to soil because the concentrations in soil are well below the risk screening level. There is no human health risk posed from the ingestion of fish because, based on the surface water samples collected from Lawless Creek, zinc has not been deposited into the creek.

### **G.2 Ecological Risk Assessment**

An ecological risk assessment was undertaken in March 2005 to evaluate the potential ecological risk that zinc-contaminated soil and sediment may have on plants and animals in the wetland

area. The potential exposure pathways to zinc contaminated soil and sediment are direct contact and uptake by plants and ingestion by animals. Zinc is the only contaminant of concern in the wetland area.

EPA's Ecological Soil Screening Levels (Eco-SSLs) and site-specific sediment toxicity testing data were used to develop a cleanup standard for zinc-contaminated soils. A site-specific soil cleanup level equal to the geometric mean of the site-specific sediment toxicity testing data No Observable Adverse Effect Level (NOAEL; 124 mg/kg) and the Lowest Observable Adverse Effect Level (LOAEL; 178 mg/kg) for zinc in sediment has been selected as the site-specific cleanup level for zinc-impacted soils in the Southern Drainage and Lawless Creek floodplain. The NOAEL is an exposure level at which there is no statistically or biologically significant increase of severity of any effect between the exposed population and its appropriate control. The LOAEL is the lowest concentration or amount of a substance, found by experiment or observation, that causes any alteration in morphology, functional capacity, growth, development, or life span of target organisms distinguishable from normal (control) organism of the same species and strain under the same defined conditions of exposure. The geometric mean of the NOAEL and LOAEL, the site-specific cleanup level for zinc in soil, is 148.6 mg/kg.

As presented by the 148.6 mg/kg isoconcentration line (representing the zinc-cleanup level) in Figure 2, the area with concentrations of zinc exceeding the cleanup level is a contiguous, 0.7-acre area of alluvial fan and floodplain soils located at the entry of the Southern Drainage to the Lawless Creek floodplain. An abrupt change in gradient occurs in the Southern Drainage. This is the cause of the zinc-contaminated sediment being deposited as an alluvial fan.

## **H. REASONS FOR ISSUING THE RECORD OF DECISION AMENDMENT**

The response action selected in this ROD Amendment is necessary to protect the environment from actual or threatened releases of hazardous substances into the environment, from the wetlands portion of the selected remedy, referred to as OU1. The selected action will address zinc contaminated soils within the Southern Drainage and Lawless Creek floodplain, which is the final part of OU1. Contamination in other Site media was addressed by implementation of the June 1991 ROD and May 2007 ESD.

## **I. REMEDIAL ACTION OBJECTIVE (RAO)**

To protect the environment from potential current and future ecological risk, the following Remedial Action Objective (RAO) has been developed to amend the 1991 ROD and address the contaminated soils and sediments in the wetlands area located at the entry of the Southern Drainage to the Lawless Creek floodplain in order to:

- Reduce zinc concentrations to levels protective of ecological receptors (less than or equal to 148.6 mg/kg) in soils and sediment within 2 feet of the existing ground surface within the Southern Drainage and Lawless Creek floodplain.

## **J. DESCRIPTION OF ALTERNATIVES**

During the 2010 FFS and the 2011 FFS Addendum, remedial alternatives to address the ecological risk posed by zinc contamination in the entry of the Southern Drainage and Lawless Creek floodplain were developed and analyzed. The Remedial Alternatives developed for the wetlands area of OU1 are presented below.

### **J.1 Common Elements**

Alternative 2 and Alternative 3 would require five-year reviews, which are required by statute at all Superfund sites when there are hazardous substances left in place. Both alternatives would require Institutional Controls to prevent hazardous substances from being disturbed. Institutional Controls will be required to prevent the surface cap, the leachate collection system, and the temporary tank in which the leachate is stored in OU1 from being disturbed. Also, Institutional Controls will be required to ensure that sediments and soils in the wetland area are not disturbed through digging and construction or any other activities.

### **J.2 Remedial Alternatives**

The following are the remedial alternatives evaluated for the wetlands area of OU1.

#### Alternative 1: No Action

*Estimated Cost: \$0*

*Estimated Annual Cost: \$0*

*Estimated Present Value Cost: \$0*

*Estimated Time to Completion: hundreds of years*

This alternative is developed and retained as a baseline scenario to which the other alternatives may be compared. Under this alternative EPA would take no action at the Site to prevent exposure to the soils and sediment contamination.

#### Alternative 2: Phytoremediation

*Estimated Capital Cost: \$800,093*

*Estimated Annual Cost: \$53,339*

*Estimated Present Value: \$370,419*

*Estimated Time to Completion: 15 years*

This alternative would involve the use of vegetation to remove zinc from soils. Because zinc is an essential plant nutrient, it may be removed from soils through the roots of plants and incorporated into plant material. Although natural phytoremediation is occurring within the wetland area, the application of phytoremediation as a remedial alternative would include monitoring, enhancing, supplementing, or replacing some species with one or more new selected species. Plant harvesting would be conducted to provide mass removal from the treatment area.

Institutional Controls will be implemented to ensure that sediments and soils in the wetland area are not disturbed through any activity.

It could take 15 years to achieve the clean-up standard under this alternative.

### Alternative 3: Excavation with Backfill and Restoration and Institutional Controls

*Estimated Capital Cost: \$395,500*

*Estimated Annual Cost: \$0*

*Estimated Present Worth: \$0*

*Estimated Time to Completion: 1 year*

This alternative would involve excavation of zinc-contaminated soils from the Southern Drainage and Lawless Creek floodplain. Excavated soils would be transported off-site to a permitted solid waste facility. The reclamation of the excavated area would include backfilling of soils, planting of vegetation, and wetland restoration conducted in an effort to return the area to its prior ecological value and function. Institutional Controls will be implemented to ensure that sediments and soils in the wetland area are not disturbed through any activity. Monitoring for sediment and erosion control will be required until the wetland portion of OU1 is successfully re-vegetated. Wetland impacts will be further mitigated through the purchase of wetland credits from a mitigation bank at a ratio of 2:1. There is no treatment involved with this alternative.

It could take 1 year to achieve the clean-up standard under this alternative.

## **K. COMPARATIVE ANALYSIS OF ALTERNATIVES**

As required by the NCP, nine criteria are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. The first two criteria, *Overall Protection of Human Health and the Environment* and *Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)*, are threshold criteria, satisfaction of which is required for a selected alternative. The remaining criteria are balancing criteria, which must be weighed against one another to identify a preferred alternative, and modifying criteria, which take into account the preference of the state and the community.

This section of the ROD Amendment profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. Analysis of the alternatives against the nine criteria is discussed below. A detailed analysis of alternatives can be found in the FFS and the FFS Addendum.

## EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES

1. **Overall Protection of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
2. **Compliance with ARARs** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.
3. **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time.
4. **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principle contaminants, their ability to move in the environment, and the amount of contamination present.
5. **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
7. **Cost** includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total of an alternative over time in today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
8. **State/Support Agency Acceptance** considers whether the State agrees with EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.
9. **Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

### Detailed Analysis of the Proposed Remedial Alternatives

#### 1. Overall Protection of Human Health and the Environment

Alternative 1, would not provide any protection of the environment because ecological receptors would remain exposed to unacceptable levels of zinc contamination in the soils and sediments in the Southern Drainage Area and in Lawless Creek. Although some phytoremediation is likely occurring naturally, no risk reduction is anticipated under the "no action" alternative. Uptake of zinc by existing plants is minimal and plants that do uptake zinc would not be harvested and removed, thus resulting in no significant reduction of zinc mass at OU1.

Alternative 2, the Phytoremediation would result in overall protection of human health and the environment through mass removal of zinc from impacted soils and sediments; however, overall protection would not be achieved for an estimated 15 years. A monitoring program, outlining monitoring activities for evaluating changes in soil zinc concentrations and plant tissue concentration, would also be used to confirm a zinc removal rate that is acceptable.

A degree of disruption and modification of the existing wetland ecosystem, in the form of environmental sampling, native vegetation removal, new plant propagation, and harvesting, would be required to implement phytoremediation.

Alternative 3 would also result in overall protection of human health and the environment through the excavation and off-site disposal of soils containing concentrations of zinc exceeding the cleanup level. Under this alternative, the zinc-contaminated soil would be excavated to a depth of 2 feet below ground surface, followed by backfilling of clean soil, re-vegetation, and restoration of wetlands disturbed by the excavation. A relative high degree of disruption of the existing wetland ecosystem would be required to implement Alternative 3. Overall protection would be achieved in approximately one year.

## **2. Compliance with ARARs**

The risk assessment process identified soil zinc concentrations as a source of potential ecological risk. The cleanup level was calculated to reduce the risk posed to plants and animals to acceptable levels. No statutory or regulatory cleanup standard exists for the situation presented at the wetlands portion of OU1 and, therefore, no chemical-specific ARARs for the risk scenario were identified in the FFS.

The wetlands portion of OU1 is located in a floodplain/wetland area. Clean Water Act Section 404 33 U.S.C. § 1344, (which imposes steps to minimize damage to, protect, and restore wetlands related to filling operations) is a location- and action- specific ARAR. Alternative 3 will require excavation, and re-grading of wetland areas. Dewatering will not be required, because the work will be performed during the year when the area is not inundated with water. The damage to the wetland area by excavating soil and sediment to a depth of 2 feet below ground surface will be mitigated by backfilling of soils and by planting of vegetation. In addition, wetland impacts will be further mitigated through the purchase of wetland credits from a mitigation bank at a ratio of 2:1. Alternative 3 will meet the wetland ARARs. Alternative 2 will cause some disruption of the ecosystem during harvesting and planting of vegetation.

Work at the Site will conform with the substantive requirements to the following performance criteria for erosion control and storm water management established by Virginia's Chesapeake Bay Preservation Area Designation and Management Regulations, 9 VAC 25-830-130: the disturbance of land for Alternative 2 and Alternative 3 will be limited to that necessary for completion of the remedy; indigenous vegetation will be preserved to the maximum extent possible; and any nonpoint source pollution loading from runoff after the work is completed for Alternative 2 or Alternative 3 will not exceed pre-development nonpoint source pollution loading.

All work at the Site done during the implementation of Alternative 2 or Alternative 3 will be performed in accordance with the minimum standards for soil stabilization and sedimentation control established by the Virginia Erosion and Sediment Control Regulations, at 9 VAC 25-840-40 and 60.

The Virginia Wetlands Mitigation Compensation Policy 4 VAC 20-390-10,-30, 40 and 50 addresses the requirements to mitigate or minimize the loss of wetlands and the adverse ecological effects of all permitted activities. To preserve the wetlands as much as possible in their natural state and to consider appropriate requirements for compensation only after it has been proven that the loss of the natural resource is unavoidable. The determination as to whether compensation is warranted and permissible is conducted on a case-by case basis. All work at the Site done during the implementation of Alternative 2 or Alternative 3 will be performed in accordance with this policy.

The Virginia Water Protection Permit Program Regulation 9 VAC 25-210-10, 45, 50, 60, 90, 115(c), and 116 governs additional Virginia permitting requirements in addition to complying with the U.S. Army Corps of Engineers (USACE) applicable requirements (Nationwide Permits) and Virginia Wetland Mitigation Policy. While CERCLA actions are not required to obtain permits they must comply with all substantive provisions of the permits. All work at the Site done during the implementation of Alternative 2 or Alternative 3 will be performed in accordance with this regulation.

Virginia Solid Waste Regulation 9 VAC 20-81-35, 40 and 95 governs the determination of solid waste generated during activities at the site. Alternative 2 and Alternative 3 will comply with this regulation.

Virginia Hazardous Waste Regulation 9 VAC 20-60-261 and 262 governs determining whether waste generated during activities at the Site, including excavated sediment is hazardous. Alternative 2 and Alternative 3 will comply with this regulation.

The Virginia Water Quality Standards 9 VAC 25-260-10, 20, 30, 50, 140, and 185 is relevant and appropriate in the event potential pollution enters State waters via runoff from the Site during construction of the remedy. The standard is relevant to determine whether zinc-contaminated soil and sediments excavated during the remedial action is hazardous and if so, to handle, store and prepare for transport to a permitted facility for proper disposal. Alternative 2 and Alternative 3 will comply with this standard.

Surface runoff from the Site during and after the work of Alternative 2 or Alternative 3 will be controlled to prevent nonpoint source pollutant loads from exceeding historical levels, consistent with the Virginia Storm Water Management Regulations at 9 VAC 25-870-10 et. seq. Storm water drainage features during the work of Alternative 2 or Alternative 3 will be constructed to provide non-erosive flow velocities. Drainage features will use existing natural drainage channels to the maximum extent possible.

No ARARs would apply to Alternative 1, No Action; however, Alternative 1 provides no protection to the environment and fails as a viable alternative pursuant to threshold criterion 1, above.

Both alternatives 2 and 3 will meet the ARARs of Federal and State laws and regulations. Prior to disposal in an off-site solid waste facility in accordance with the Virginia Department of Environmental Quality (VDEQ), the non-landfill solid waste will undergo a Toxicity

Characteristic Leaching Procedure (TCLP) to determine if they are RCRA characteristic waste. If such wastes are determined to be characteristic, they will be treated by stabilization/solidification (see the 1991 ROD).

### **3. Long-Term Effectiveness and Permanence**

Alternative 1 would have no long-term effectiveness and permanence, although there is likely some natural phytoremediation ongoing, because there would be no removal and minimal natural treatment of zinc-contaminated soils resulting in no overall decrease of zinc in soil and sediment at OU1.

Alternative 2, phytoremediation, may require a degree of physical impact to the wetland ecosystem through clearing, planting, sampling, and harvesting activities. Plants native to Virginia with habitats matching that of the remediation area (and/or existing vegetation) would be selected for use during phytoremediation. If the planting of native plants would replace non-native or invasive species that degrade the ecological value of the wetland, phytoremediation may provide a net positive effect.

Alternative 2 and Alternative 3 are expected to meet remedial objectives in an acceptable timeframe through the removal of zinc mass from the Southern Drainage and Lawless Creek floodplain sediment and soils. Although the long-term effectiveness and permanence of phytoremediation or excavation are expected to be high, Alternative 2 will take 15 times longer to achieve than Alternative 3.

### **4. Reduction of Toxicity, Mobility, or Volume through Treatment**

Alternative 1 would not reduce the toxicity, mobility, or volume since no excavation or treatment will occur. Additionally, Alternative 1 would not meet the statutory preference for treatment since remedial activities would not be performed.

Alternative 2 would remove zinc from soils through harvesting of plants and transporting the harvested plants out of the remediated area. Vegetation within the remedial area reduces mobility of zinc-impacted soil by physical stabilization. Wetlands provide natural geochemical conditions that reduce the bioavailability of zinc through slightly acidic to neutral pH coupled with typically low oxidation-reduction potential, resulting in precipitation of zinc compounds; an abundance of organic matter to which zinc is strongly adsorbed; and the presence of fine-grained soils that typically provide ample sorption sites. Therefore, these natural mechanisms, highly associated with wetlands, reduce the toxicity and mobility of zinc in soil. However, Alternative 2 does not include any active treatment as part of the remedy.

Alternative 3 would reduce the toxicity, mobility and volume of zinc by physically removing zinc-contaminated soils from the remediation area. Zinc-contaminated soils would be excavated and removed from the Site and transported to a permitted solid waste facility for proper disposal. Since the solid waste facility is designed to be protective of human health and the environment,



an excavation remedy reduces potential future exposure of ecological receptors to the zinc-impacted soils. However, Alternative 3 would not include any active treatment as part of the remedy, unless treatment is required as part of disposal for any RCRA characteristic waste.

#### **5. Short-term Effectiveness**

Alternative 1 would have no short-term impacts since no remedial actions would be performed.

The short-term effectiveness of Alternative 2 is less than for Alternative 3. The zinc mass removal rate for phytoremediation is anticipated to be measurable within 5 to 10 years and completed within 15 years, compared to 1 year to effect the excavation and removal of zinc contaminated soils. However, the risk posed to workers implementing the remedy and short-term negative impacts of implementation on the environment are greater for Alternative 3 since excavation would require operation of large machinery and severe disturbance of the natural ecosystems before restoration.

#### **6. Implementability**

There are no implementation issues related to Alternative 1 since no actions would be taken. Alternatives 2 and 3 are both readily implementable.

Phytoremediation will likely require some degree of disturbance to the wetland and associated restoration and mitigation efforts. However, no difficult technical or administrative obstacles are predicted for the implementation of phytoremediation.

Excavation would require a relatively high degree of impact to the wetland. However, due to the relatively dry nature of the upland forested wetland, the proximity of roads for the entry and exit of equipment, and past experience with excavation within the region of the Southern Drainage, the implementability of excavating of the top 2 feet of soil within the remediation area is moderate to high. Additionally, the time of year in which excavation will be undertaken may be selected based on relatively dry conditions and/or low-water table to aid in the implementability of the remedy. Historical stream flow conditions within Lawless Creek may provide sample data to schedule an excavation timeframe.

#### **7. Cost**

The retained alternatives are ranked from least to most expensive using the present value. Alternative 1 is not included in the table, below, since no actions would be taken and there would be no associated costs.

The estimated cost for 15 years of phytoremediation, monitoring, and reporting is an estimated total cost (remedial life time) of \$800,093, which is more expensive than the estimated total cost of \$395,500 for Alternative 3.

For Alternative 3, an estimated total cost for excavation of the top 2 feet of soil, disposal of impacted soils, the purchase of wetland mitigation credits, and reclamation of the remediation area wetland is \$395,000. This cost will include approximately 6 months of field work for excavation, reclamation, and associated remedial action reports.

An estimate of present-value for an estimated 15-year phytoremediation period (5-year pilot study followed by 10 years of full-scale implementation) is \$370,419. The estimated cost for 15 years of phytoremediation, monitoring, and reporting is \$800,093.

<b>Alternative</b>	<b>Capital Cost</b>	<b>Present Value of O&amp;M Costs (remedial lifetime)</b>	<b>Estimated Total Cost (Remedial Lifetime)</b>
Alternative 3	\$380,500	\$0	\$395,500
Alternative 2	\$93,000	\$370,419	\$800,093
Alternative 1	0	0	0

#### **8. State Acceptance**

VDEQ concurs with EPA's Selected Remedy for the Site; a concurrence letter was received by EPA on September 18, 2014 (Appendix C).

#### **9. Community Acceptance**

On September 5, 2013, a public meeting was held at the Blairs Fire and Rescue, 7100 US Highway 29, Blairs, Virginia 24527 to discuss EPA's Preferred Alternative for the ROD Amendment. EPA's Preferred Alternative was well received by those in attendance. Questions and concerns raised during the public meeting along with EPA's responses are provided in the Responsiveness Summary of this ROD Amendment. Additional comments that were submitted to EPA during the comment period are also addressed in the Responsiveness Summary.

### **L. PRINCIPAL THREAT WASTE**

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site whenever practicable (40 C.F.R. Section 300.430(a) (1) (iii) (A)). The principal threat concept is applied to the characterization of source materials at a Superfund Site. A source material is material that includes or contains hazardous substances, pollutants or contaminants that acts as a reservoir for migration of contamination, for example, to groundwater. Principal threat wastes are those source materials considered to be highly toxic or highly mobile, which would present a significant risk to human health or the environment should exposure occur.

The 1991 ROD identified zinc in the Carbon Black pile as the principal waste. This ROD Amendment selects a remedy to address zinc, principal threat waste, which is located in the

southern drainage and wetland area of the Lawless Creek floodplain, which was not addressed in the 1991 ROD.

## **M. GENERAL DESCRIPTION OF THE AMENDED WETLAND REMEDY**

Based on consideration of the CERCLA requirements and analysis of alternatives using the nine evaluation criteria, including public comments, EPA has selected Alternative 3 Excavation with Backfill and Restoration and Institutional Controls.

The amended wetland remedy consists of the following components:

- Excavation of zinc contaminated sediment and soil from the Southern Drainage and Lawless Creek floodplain.
- Transportation of zinc contaminated sediment and soil off-site to a permitted disposal facility.
- Reclamation of the excavated area would include backfilling of soils, and planting of vegetation.
- Institutional Controls will be implemented to ensure that sediments and soils in the wetland area are not disturbed through any activity.
- Monitoring for sediment and erosion control will be required until the wetland portion of OU1 is successfully re-vegetated.
- Wetland impacts will be further mitigated through the purchase of wetland credits from a mitigation bank at a ratio of 2:1.
- Institutional Controls will be required to prevent the surface cap, the leachate collection system, and the temporary tank in which the leachate is stored in OU1 from being disturbed.

This alternative would involve the excavation of sediments and soils located within the top 2 feet containing zinc at concentrations that are not protective of ecological receptors (soils and sediments containing zinc concentrations above 148.6 mg/kg). Excavated soils from the Southern Drainage and the Lawless Creek floodplain would be transported off-site to a permitted solid waste disposal facility. Reclamation of the excavated area would consist of backfilling of soils, planting vegetation, and/or wetland restoration conducted in an effort to return the area to its prior value and function. This alternative also requires institutional controls to prevent the surface cap, the leachate collection system, and the temporary tank in which the leachate is stored in OU1 from being disturbed. Also, Institutional Controls such as an environmental covenant under the Virginia Uniform Environmental Covenants Act will be required to ensure that sediments and soils in the wetland area are not disturbed in the future through digging, construction or any other activities (see Appendix B Figures 2 and 6). Wetland impacts will be further mitigated through the purchase of wetland credits from a mitigation bank at a ratio of 2:1. EPA prefers Alternative 3 over the other alternatives because it is expected to achieve long-term ecological risk reduction through excavation and off-site disposal of zinc-contaminated soils and sediments. The Selected Alternative would reduce ecological risk in much less time and for a lower cost than Alternative 2.

Based on the information presently available, EPA has determined that the Selected Alternative would be protective of the environment, would comply with ARARs, would be cost effective, and would utilize permanent solutions for cleaning up zinc-contaminated soils and sediments in the wetland area.

The remedy selected addresses zinc contaminated soil and sediment located in the wetlands area, and consists primarily of excavation and off-site disposal of contaminated soil and sediment. By instituting this remedy, the Site's ecological risk would be reduced to levels within the EPA acceptable risk range.

To reduce the risks to the environment attributed to the contaminated soil and sediment in the Lawless Creek and Southern Drainage floodplain area, all soils and sediment with a concentration of zinc above 148.6 mg/kg for soils and sediment within 2 feet of the existing ground surface will excavated and disposed of off-site. Prior to disposal in an off-site waste facility, the solid wastes would undergo a TCLP. If it is determined through the TCLP that the soil and sediment are characteristic RCRA wastes, they shall be solidified/stabilized prior to disposal. The excavated area shall be filled with clean soil, contoured to promote run-off, and planted with vegetation to control erosion.

## **N. STATUTORY DETERMINATIONS**

Under CERCLA and the NCP, EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences that the selected remedy must meet. Section 121 of CERCLA specifies that when complete, the selected remedial action for the Site must comply with ARARs established under federal and state environmental laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as their principal element. The following sections discuss how the selected remedy for the Site meets these statutory requirements.

### **N.1. Protection of Human Health and the Environment**

The selected remedy would result in overall protection of human health and the environment through the excavation and off-site disposal of soils and sediments containing concentrations of zinc exceeding the cleanup level. Under this alternative, the zinc-contaminated soil would be excavated to a depth of 2 feet below ground surface, followed by backfilling of clean soil, re-vegetation, and restoration of wetlands disturbed by the excavation. Institutional Controls will be implemented to ensure that sediments and soils in the wetland area are not disturbed through any activity. These institutional controls are in addition to those included as part of the 1991 Record of Decision; complete fencing of the Site to restrict access; and a deed restriction to prohibit future development of the Site. Wetland impacts will be further mitigated through the

purchase of wetland credits from a mitigation bank at a ratio of 2:1. Overall protection would be achieved in approximately one year.

**N.2. Compliance with and Attainment of Applicable or Relevant and Appropriate Requirements**

The selected remedy will comply with all location-specific and action-specific ARARs (see Appendix A, Table 1)

**N.3. Cost-Effectiveness**

The selected remedy provides the best overall protection in proportion to cost and it meets all other requirements of CERCLA. Section 304.430(f)(ii)(D) of the NCP requires EPA to evaluate cost-effectiveness by comparing all of the alternatives which meet the threshold criteria – overall protection of human health and the environment and compliance with ARARs – against three additional balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility or volume through treatment; and short-term effectiveness. In EPA’s judgment, the selected remedy (Alternative No. 3) is the most cost-effective of the remedial alternatives. The estimated total cost of the amended remedy is \$395,500, and it less expensive than Alternative 2.

**N.4. Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable**

Alternative No. 3 is expected to meet remedial objectives in an acceptable timeframe through the removal of zinc mass from the Southern Drainage and Lawless Creek floodplain sediment and soils. This alternative could take 1 year to achieve the clean-up standard. There is no treatment involved with this alternative. Alternative 3 would reduce the toxicity, mobility and volume of zinc by physically removing zinc-contaminated soils from the remediation area.

**N.5 Preference for Treatment as a Principal Element**

Alternative 3 would reduce the toxicity, mobility and volume of zinc by physically removing zinc-contaminated soils from the remediation area. Zinc-contaminated soils would be excavated and removed from the Site and transported to a permitted solid waste facility for proper disposal. However, Alternative 3 would not include any active treatment as part of the remedy, unless treatment is required as part of disposal for any RCRA characteristic waste.

## **N.6. Five Year Review**

Long-term monitoring, and operation and maintenance of the floodplain, the Cap, and Leachate Collection System shall continue over a period of time as EPA, in consultation with VDEQ, determines to be necessary, and based on the statutory reviews of the remedial action in the 1991 ROD and the Amended ROD. Five year reviews began in 1999; the next review is due in September 2015. Reviews shall continue to be conducted no less often than five years from the previous five year review in accordance with the EPA guidance document, *Comprehensive Five-Year Review Guidance* [OSWER Directive 9355.7-03B-P (June 2001)]. Five-year statutory reviews under Section 121(c) of CERCLA, 42 U.S.C. § 9621 (c), will be required as long as hazardous substances remain on-site to prevent unlimited use of the Site and to assure that the remedy continues to be protective of human health and the environment.

## **O. DOCUMENTATION OF SIGNIFICANT CHANGES**

The Proposed Plan was released for public comment on August 30, 2013. The public comment period for the Proposed Plan was held from August 30, 2013 to September 29, 2013. EPA held a public meeting on August 29, 2013 to present the Preferred Alternative in the Proposed Plan. EPA has reviewed and responded to verbal and written comments submitted during the public comment period in Part III of this ROD Amendment, the Responsiveness Summary. As a result of these comments, there were no significant changes from the Preferred Alternative in the Proposed Plan.

The following additional ARARs were determined to be either applicable or relevant and appropriate to the remedy modification following the issuance of the Proposed Plan and are included in this ROD Amendment. The selected remedy will comply with all ARARs as discussed in Appendix A, Table 1.

- Virginia Wetlands Mitigation Compensation Policy 4 VAC 20-390-10,-30,-40 and 50
- Virginia Water Protection Permit Program Regulation 9 VAC 25-210-10, 45, 50, 60, 90, 115(c), and 116.
- Virginia Solid Waste Regulation 9 VAC 20-81-35, 40, and 95
- Virginia Hazardous Waste Regulation 9 VAC 20-60-261 and 262
- Virginia Water Quality Standards 9 VAC 25-260-10, 20, 30, 50, 140, and 185.

## **State Role**

VDEQ has reviewed the Remedial Alternatives presented in the ROD and has indicated its concurrence with the remedy modification. VDEQ has reviewed the list of ARARs to determine if the remedy modification is in compliance with appropriate State environmental laws and regulations.

### **III. THE RESPONSIVENESS SUMMARY**

#### **A. Introduction**

This Responsiveness Summary provides a summary of significant public comments and concerns regarding the Proposed Plan for the ROD Amendment for the First Piedmont Corporation Rock Quarry Superfund Site (the Site) and provides the U.S. Environmental Protection Agency's (EPA) responses to those comments. After reviewing and considering all public comments received during the public comment period, EPA has selected a remedy to address the contamination at the Site.

The Proposed Plan and supporting documentation were made available to the public in the Administrative Record at <http://www.epa.gov/reg3hscd/super/sites/VAD980554984/>. EPA provided notice to the public that the Administrative Record could also be viewed at the following locations:

Pittsylvania County Library  
24 Military Drive  
Chatham, VA 24531

U.S. Environmental Protection Agency  
EPA Administrative Records Room  
1650 Arch Street  
Philadelphia, PA 19103

EPA issued a public notice in the *Danville Register and Bee* newspaper on August 30, 2013, which contained a list of the components of EPA's preferred alternative, information relevant to the duration of the public comment period, the date of the public meeting, and the availability of the Proposed Plan and the entire Administrative Record. The initial 30-day comment period began on August 12, 2013 and ended at midnight, September 12, 2013. This comment period was extended to allow comments until midnight, September 28, 2013.

EPA conducted a public meeting in Blairs, Virginia to inform local officials, interested citizens, and other stakeholders in attendance, about EPA's proposed cleanup plan and the Superfund process, to respond to questions and to receive comments on the Proposed Plan. The public meeting was held by EPA on September 5, 2013 at Blairs Fire and Rescue, located at 7100 U.S. Highway 29, Blairs, Virginia. Responses to the comments received at the public meeting and during the public comment period are included in this Responsiveness Summary.

This Responsiveness Summary provides a comprehensive summary of significant questions, comments, concerns, and responses by summarizing oral and the written comment received during the public comment period and EPA's responses. Section B below contains a detailed list of comments along with EPA's responses.

## **B. ORAL COMMENTS FROM THE PUBLIC MEETING**

The following are the comments provided during the September 5, 2013 public meeting and the EPA responses provided. EPA has clarified some of the responses. These clarifications are reflected in the italicized text.

**Question 1:** Is the area [Southern Drainage wetlands] contaminated?

**Response:** Yes. The Southern Drainage Wetland is contaminated with zinc.

**Question 2:** When was the zinc contamination noticed for the first time in the Southern Drainage area and the Lawless Creek?

**Response:** Zinc contamination was detected for the first time in the Southern Drainage area during the performance of the Remedial Investigation/Feasibility Study for the Site, which is summarized in the 1991 ROD.

**Question 3:** What was the source of the zinc contamination?

**Response:** The source of the zinc contamination was the former Carbon Black Pile. The soil from the Carbon Black Pile was excavated down to ground surface in 1994. Residual zinc soil below the ground surface continued to be a source of zinc contamination in the Southern Drainage and Lawless Creek floodplain area. The residual zinc contaminated soils were excavated and disposed offsite from December 2008 through January 2009.

**Question 4:** What type of testing was performed while monitoring the Carbon Black Pile to find if it was the source of the zinc contamination?

**Response:** Chemical analysis and toxicity tests were conducted in order to determine if the Carbon Black Pile was the source of contamination.

**Question 5:** Is there any way that the zinc can get into the streams in the Lawless Creek?

**Response:** Yes, there are ways that zinc can get into the Lawless Creek streams, if the zinc contamination is not addressed. Geological hazards such as flooding and landslides may cause the zinc to move into Lawless Creek, which is a tributary of the Dan River. The contaminated soils and sediments are located within the floodplain of the Lawless Creek. In addition, the contaminated sediments and soils are located at the bottom of a steeply sloping hill which may be prone to landslides during heavy precipitation.

**Question 6:** Is it safe for animals to drink from the Lawless Creek?

**Response:** It is safe for animals to drink from the Lawless Creek. Sampling of surface water from the Lawless Creek have shown that the creek is not contaminated with zinc.

**Question 7:** How long will the Site be monitored by EPA?

**Response:** The 1990 ROD for the Site provides that EPA will continue monitoring the groundwater as long as leachate is collected and treated. The ROD specifies that



the groundwater monitoring shall be performed for thirty years or as long as the leachate remains at the Site.

Question 8: Is there leachate still at the Site?

Response: Yes, there still is leachate at the Site. A leachate collection system has been installed to collect leachate. The leachate is pumped into above ground storage tanks on site. Periodically, the leachate is transported by trucks to the Danville POTW where it is treated.

Question 9: When was the last review [report] done at the site? Has it been completed?

Response: The Third Five-Year Review Report was signed by EPA on February 3, 2010.

Question 10: EPA mentions a 2010 report, however it is not in the EPA website, where is it?

Response: The report (the Third Five-Year Review) is currently available on EPA's website.

Question 11: Does EPA have a timetable for when the work will begin and how long it will take?

Response: Once the ROD Amendment is signed by the EPA, the Potentially Responsible Parties (PRPs) will prepare for EPA's approval a Remedial Design (RD). After the remedial design is approved, the PRPs will begin the work. The work should begin by early 2015 and it will probably take about 3 months to complete the work. *The PRPs have performed all the work at the Site to date and EPA expects them to participate in future actions.*

Question 12: Does EPA have an estimate of the costs [of the proposed remedy]?

Response: The estimated cost of the proposed remedy is \$395,500.

Question 13: What was the basis under the 1990 ROD to leave the waste at the Site and place a cap over it?

Response: The PRPs removed a total of 96 drums, a total of 100 cubic yards of tires and debris from the surface of the quarry. Solid samples were collected from the contents of two of the drums on the surface of the landfill. Low concentrations of chromium, copper, and lead and higher concentrations of cadmium and zinc were detected in one drum. Low concentrations of cadmium, chromium, lead, nickel, selenium and vanadium and higher concentrations of copper and zinc were detected in the other drum sampled. After the removal, the RCRA Cap was constructed over the landfill. *Containment, such as the landfill, is the preferred engineering control for low level long-term threats.*

Question 14: Could EPA elaborate on its position that the Site does not pose a health risk?

Response: The site does not pose a human health risk due to the *previous* work that has been conducted at the Site. The zinc located in the wetland area poses an ecological health risk to animals and plants.

Question 15: Has groundwater been monitored since 1994? Are those the wells?

Response: Groundwater has been monitored since 1994. Groundwater monitoring is to be conducted as long as leachate is collected at the Site or for 30 years whichever is longer from the existing ground water monitoring wells on Site placed during the remedial work conducted at the Site. .

### **C. WRITTEN COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD (August 12, 2013 to September 28, 2013)**

On September 30, 2013, EPA received an email message from Mr. Kenneth O. Shelton. Mr. Shelton's comment was;

“Your guys are white washing this very serious damage to the environment to our county. If it was someone other than Ben Davenport you would have thrown the book at him. Look at your 2015 inspection report. The report states that above levels of arsenic, barium, and other heavy metals are still leaching out of the site. How can you state that only zinc is a problem? Why don't you talk to the people who live around the site? They won't be able to use their land for any reason. Your earlier inspection report states that no activities or development can happen around or adjacent to the site. This is a waste and terrible burden for the people who live there. Why can't you be honest and tell the entire truth as included in your 2010 inspection report. No one can rely on the EPA or Federal Government for protection anymore from predators or business people like Ben Davenport. It's a shame that he can get away with this type of contamination to our environment without having to pay for it or being challenged for knowingly contaminating our county for profit. I own a farm in Pittsylvania County and want it to be protected from unscrupulous profiteers like Mr. Davenport”.

Response: EPA did not prepare an inspection report in 2010. A leachate collection system was installed at the landfill in October 1995. The leachate from the landfill flows into the leachate collection sump. The leachate is then pumped from the leachate collection sump to two storage tanks, which are located on the Site. The leachate is sampled quarterly and disposed of at Danville's publicly owned treatment works. No leachate is migrating to the surrounding properties. Institutional controls include completely fencing of the Site to restrict access and a deed restriction to prohibit future development of the Site. Deed restrictions will not affect the surrounding or nearby properties. EPA has conducted three Five Year Reviews; 1999, 2005 and 2010, respectively. *These* reports indicated that zinc is the only metal present in the Wetland Area at the Site. As a result of previous actions taken at the site and based on historical data, no other heavy metals were found in surface water, soils, sediments or groundwater. EPA is not aware of any report which states that heavy metals, other than zinc, are present at the Site.

Residents in the area were provided an opportunity to review and comment on the Proposed Remedial Action Plan during the public comment period and the availability session. Additionally, community interviews are a component of the five year review process.

## APPENDIX A TABLES

**Table 1 Applicable or Relevant and Appropriate Requirements (ARARs) And To-Be-Considered Material for the Selected Remedy**

<b>ARAR or TBC</b>	<b>Legal Citation</b>	<b>Classification</b>	<b>Summary of Requirement</b>	<b>Further Detail Regarding ARARs in the Context of the Selected Remedy</b>
Clean Water Act, Section 404	33 U.S.C. § 1344	Applicable	Section 404 of the CWA, regulates the discharge of dredged or fill material into the navigable waters of the U.S. It imposes steps to minimize damage to, protect, and restore wetlands related to filling operations.	The ROD Amendment requires the excavation of zinc- contaminated soil from the Southern Drainage and the Lawless Creek floodplain. The reclamation of the excavated area will include backfilling of soils, planting of vegetation, and wetland restoration in an effort to return the area to its prior ecological value and function. This is a location-specific ARAR.
Clean Water Act Regulations	40 CFR 230 Guidelines for specification of disposal sites for dredged or fill material	Applicable	Regulates the discharge of dredged fill materials into navigable waters of the U.S. at specified disposal sites. Any proposed discharge must avoid, to the fullest extent practicable, adverse effects, especially on aquatic ecosystems. While no permit is required and compliance with procedural requirements is not required for work conducted onsite, compliance with the substantive requirements of 40 CFR Part 230 is required.	The ROD Amendment contains the rationale for the need of excavation with backfill to provide protection of human health and the environment. The remedy will include the excavation of the zinc-contaminated soil and sediment in the Southern Drainage to the Lawless Creek floodplain with backfill with clean soil, and to harvesting and the planting of vegetation.

ARAR or TBC	Legal Citation	Classification	Summary of Requirement	Further Detail Regarding ARARs in the Context of the Selected Remedy
Virginia's Chesapeake Bay Preservation Area Designation and Management Regulations	9VAC25-830-10, Application. 9VAC25-830-130, General Performance Criteria.	Relevant and Appropriate	Provides direction to local governments, regarding the use and development of land in the Chesapeake Bay Preservation Area. Land development is subject to limitations regarding land disturbing activities, removal of vegetation, erosion and sediment control, and other aspects of land use that may have effects on water quality.	The Site is located in a Chesapeake Bay Preservation Area. Applies to the wetlands restoration. Activities on land shall comply with the substantive requirements. No permit is required. Compliance with any procedural requirements is not required.
Virginia Erosion and Sediment Control Regulations	9 VAC25-840-40 and 60	Applicable	Establishes minimum standards for the control of soil erosion, sediment deposition, run-off, and soil stabilization, and requires that an erosion and sediment control plan be implemented and maintained for land-disturbing activities.	Applicable since the remedy includes land disturbing activities by the excavation of the zinc-contaminated soil and sediment.
Virginia Wetland Mitigation Compensation Policy	4 VAC 20-390-10,-30,-40 and 50	Applicable	Provides the requirements to mitigate or minimize the loss of wetlands and the adverse ecological effects of all permitted or regulated activities, to preserve wetlands as much as possible in their natural state and to consider compensation for loss of wetlands only if the	The ROD Amendment requires that the wetlands impacted will be further mitigated through the purchase of wetland credits from a mitigation bank at a ratio of 2:1.

ARAR or TBC	Legal Citation	Classification	Summary of Requirement	Further Detail Regarding ARARs in the Context of the Selected Remedy
			loss of the natural resource is unavoidable.	
Virginia Storm Water Management Regulations	9VAC25-870-10, et seq.	Applicable	State regulatory requirements for surface runoff from the site to prevent nonpoint source pollution.	Applicable to possible runoff from the site as a result of the zinc-contaminated soil and sediment excavation.
Virginia Water Protection Permit Program Regulation	9 VAC 25-210-10, 45, 50, 60, 90, 115(c), and 116	Applicable	Establishes VWP individual or general permit authorization, exclusions, prohibitions and requirements. Also regulates activities conducted in wetlands In addition, it establishes the requirements for compensatory mitigation for wetland impacts.	Substantive requirements shall apply to wetland filling that will be necessary after excavation of the zinc-contaminated soil and sediment.
Virginia Solid Waste Regulation	9 VAC 20-81-35,40, and 95	Applicable	The regulation governs the determination of solid waste generation during site activities.	Applicable to handling and storage of excavated contaminated soil and sediment and preparation for transport to a state-permitted solid waste facility for proper disposal.
Virginia Hazardous Waste Regulation	9 VAC 20-60-261 and 262.	Relevant and Appropriate	Specifies through testing or listing whether specific compounds are hazardous substances and at what concentrations, and if so requires certain handling, storage and transportation requirements.	Relevant to determine whether the zinc-contaminated soil and sediments excavated during the remedial action is hazardous and if so, to handle, store and prepare for transport to a RCRA permitted facility for proper disposal.

<b>ARAR or TBC</b>	<b>Legal Citation</b>	<b>Classification</b>	<b>Summary of Requirement</b>	<b>Further Detail Regarding ARARs in the Context of the Selected Remedy</b>
Virginia Water Quality Standards	9 VAC 25-260-10, 20, 30, 50, 140, and 185	Relevant and Appropriate	Designation of uses for all state waters, including wetlands: recreational uses; the propagation and growth of a balanced, indigenous population of aquatic life; wildlife; and the protection of edible and marketable natural resources.	State regulation is relevant and appropriate in the event potential pollution enters State waters via runoff from the site from construction activities.

## **APPENDIX B - FIGURES**



Figure 1 - Site Location

First Piedmont Corp. Rock Quarry

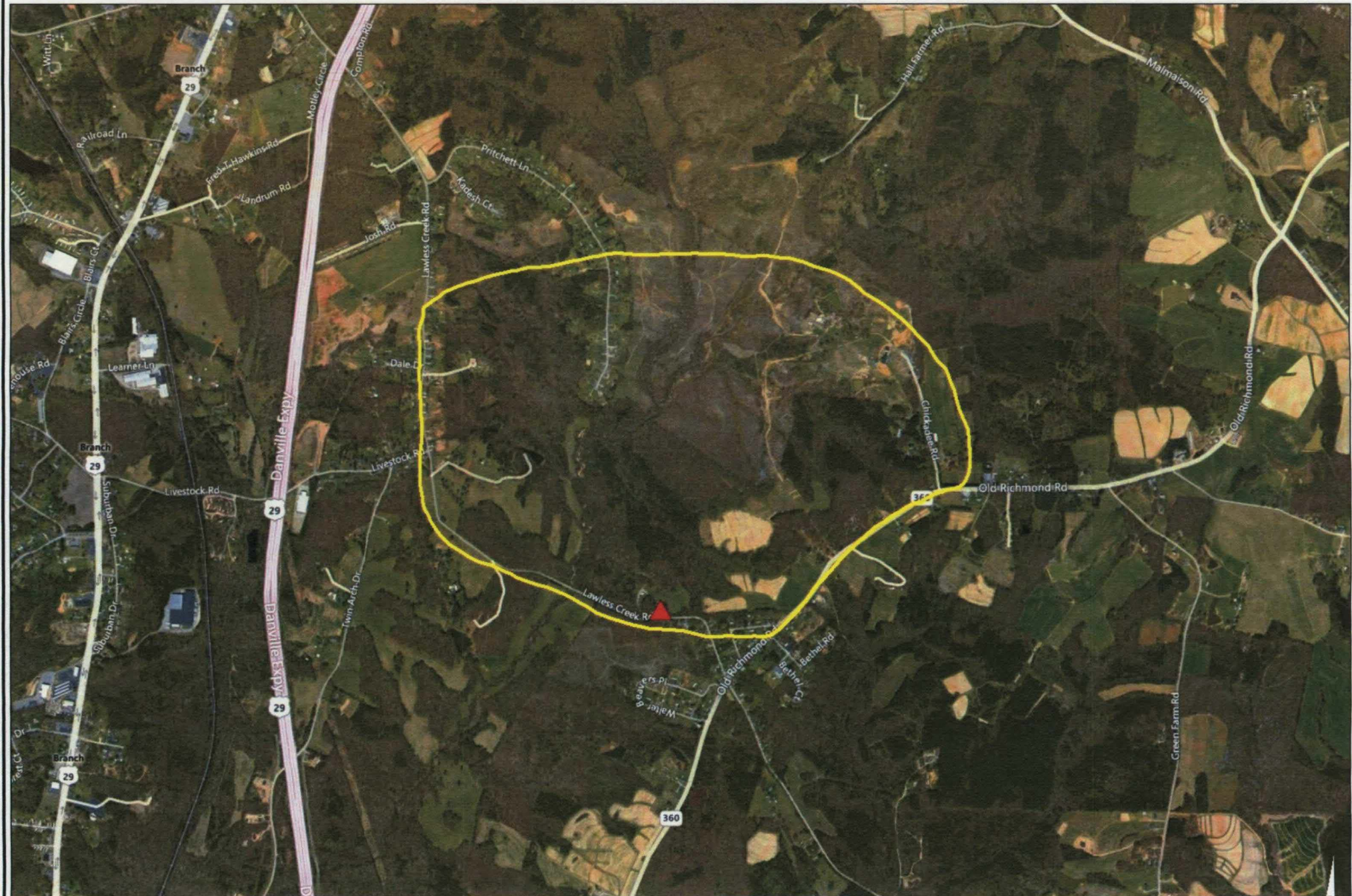


Figure 2 - Site Layout

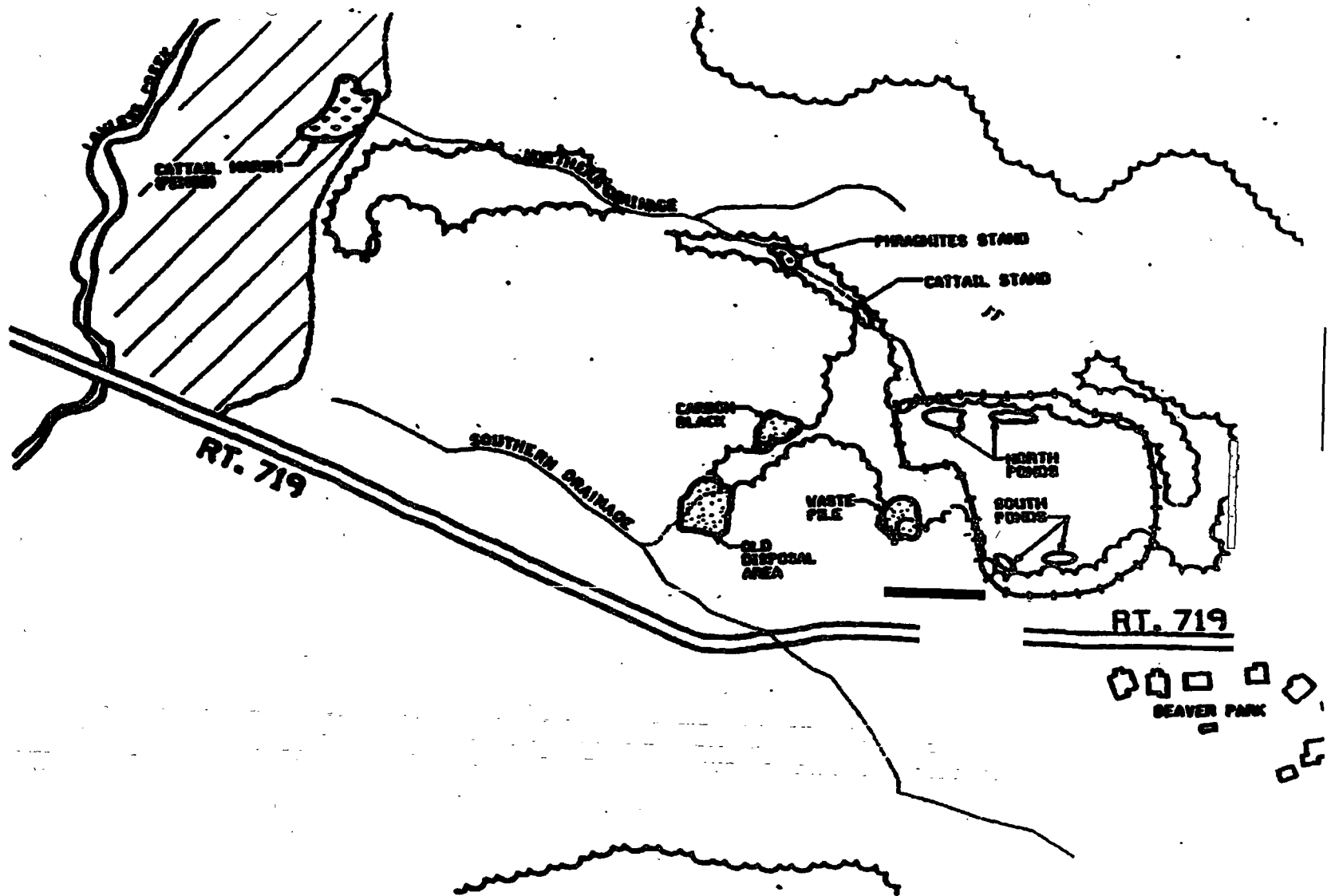




Figure 3 - Wetland Area

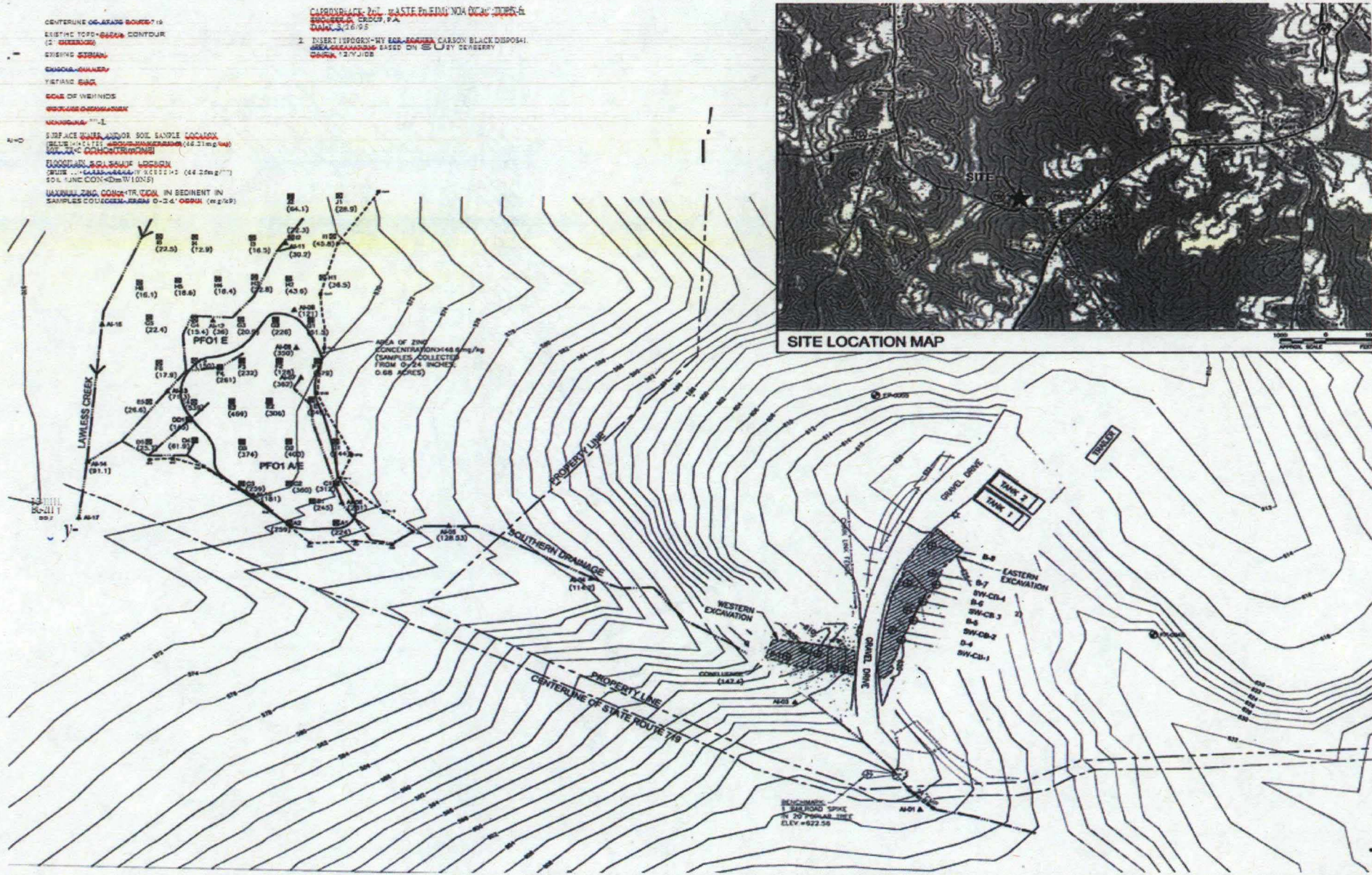




Figure 4 - Excavation Areas

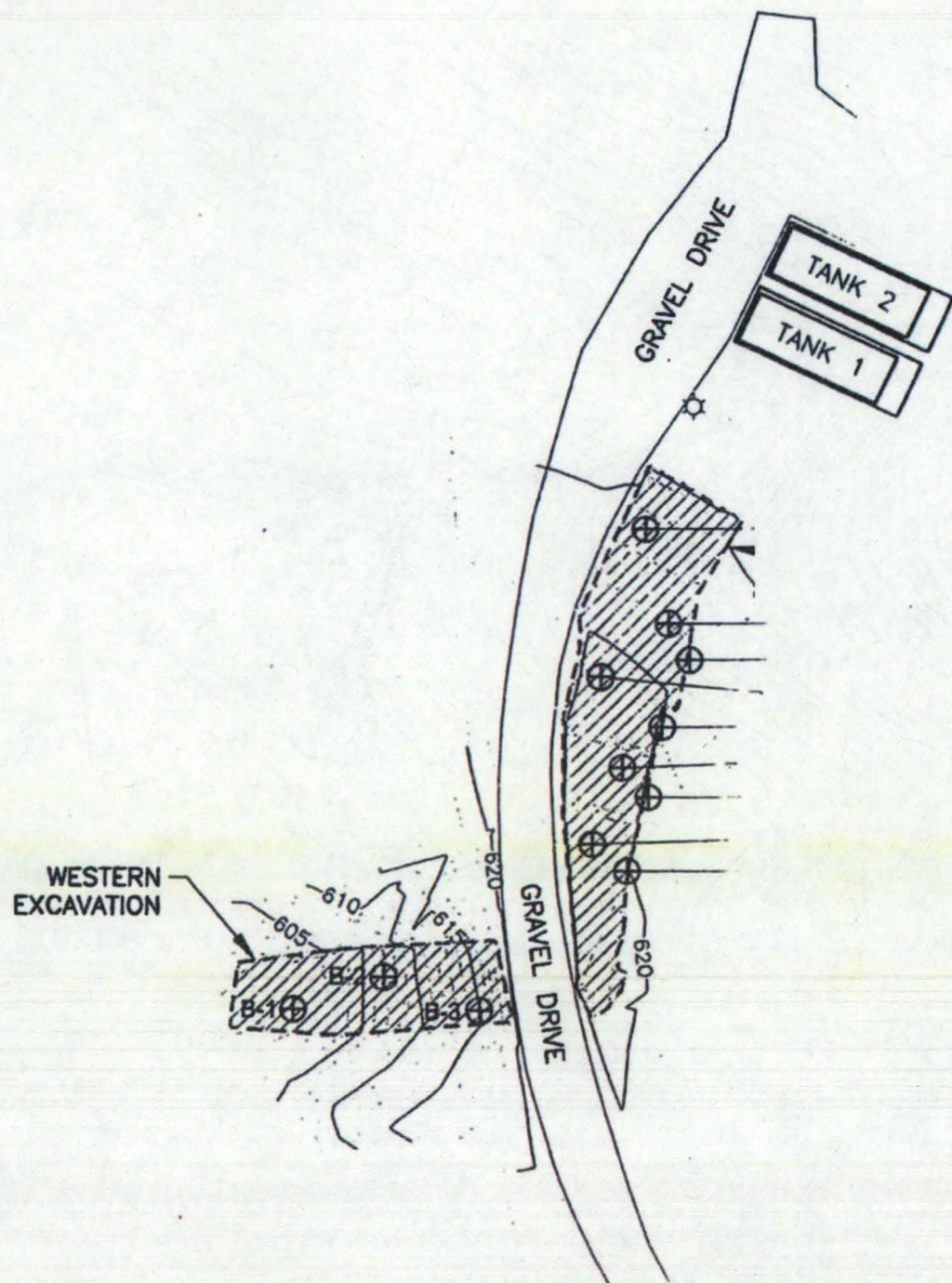




Figure 5 - Sampling Locations

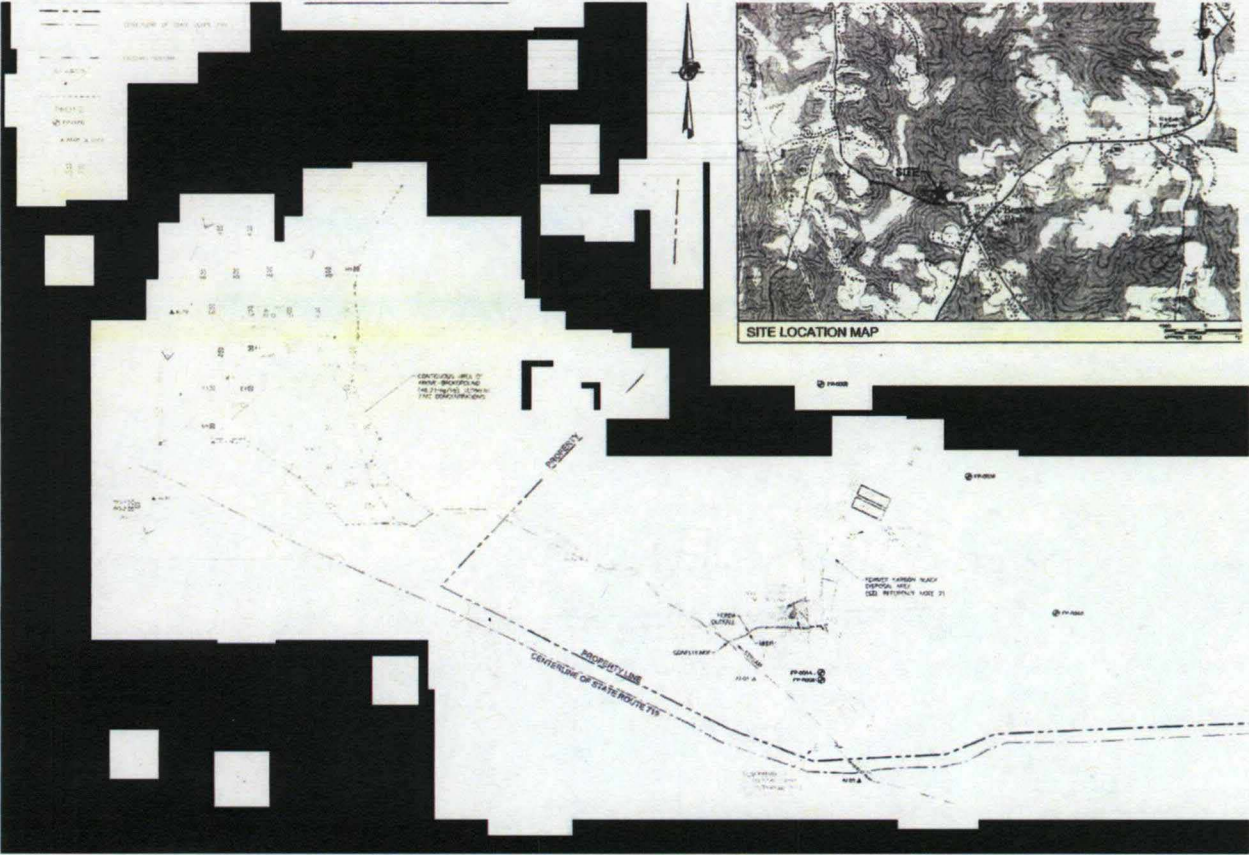
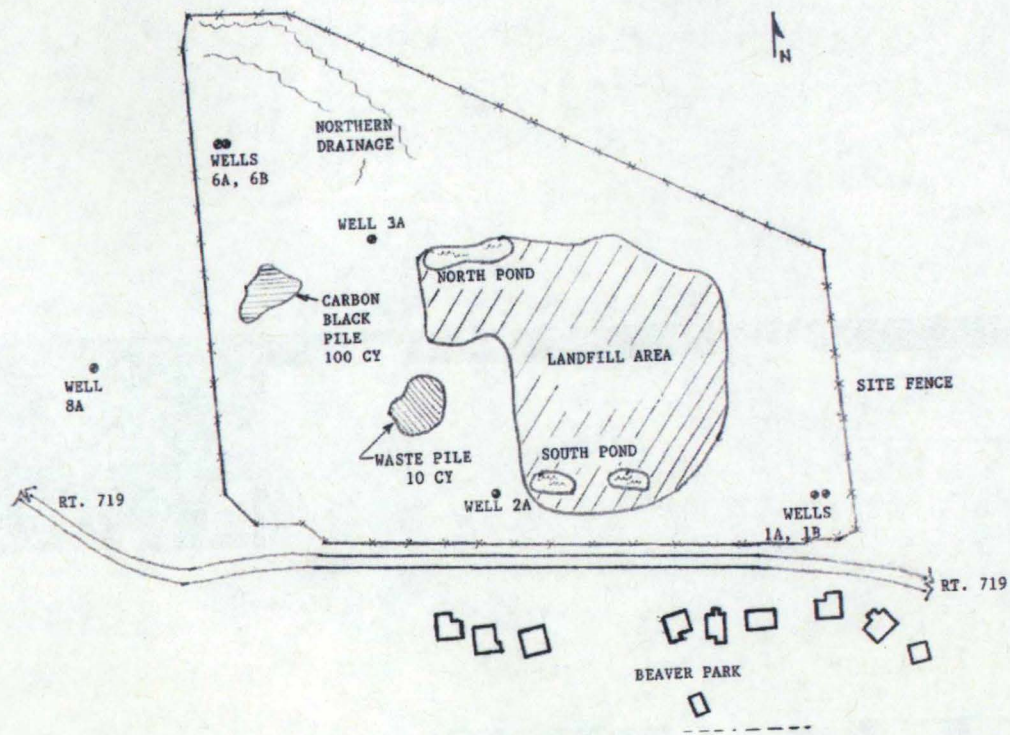




Figure 6 - Landfill Location



**APPENDIX C - STATE CONCURRENCE**



## COMMONWEALTH of VIRGINIA

### DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address P.O. Box 1105, Richmond, Virginia 23218  
www.deq.virginia.gov

Molly Joseph Ward  
Secretary of Natural Resources

David K. Taylor  
Director

(804) 698-4000  
1-800-592-5482

September 18, 2014

Mr. Cecil A. Rodrigues, Director  
Hazardous Sites Cleanup Division (3HS00)  
U. S. EPA, Region III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

Re: First Piedmont Corporation Superfund Site, Chatham, VA  
EPA ID No. VAD980554984 –ROD Amendment, dated September 2014  
DEQ Concurrence Letter

Dear Mr. Rodrigues:

The staff of the Virginia Department of Environmental Quality (DEQ) has reviewed the draft final Record of Decision (ROD) Amendment, dated September 2014 (received 9/16/2014), for the First Piedmont Corporation Superfund Site, Chatham, Virginia, for Operable Unit OU-1. The DEQ concurs with U.S. EPA's selected remedy.

Thank you for the opportunity to comment. If you have any questions regarding this information, please contact me at (804) 698-4192 or Richard J. Criqui, Jr., C.P.S.S., at (804) 698-4013.

Sincerely,

Durwood H. Willis  
Director  
Office of Remediation Programs

Enclosures

cc: Kevin Greene, DEQ  
Thomas Modena, DEQ  
Richard Criqui, DEQ  
Michelle Hollis, DEQ  
Bob Nicholas, DEQ  
Ron Davis, EPA Region 3  
Stacie Driscoll, EPA Region 3



**APPENDIX D – ADMINISTRATIVE RECORD INDEX OF DOCUMENTS**

FIRST PIEDMONT CORP. ROCK QUARRY (ROUTE 719)

OU1 RECORD OF DECISION (ROD) AMENDMENT  
ADMINISTRATIVE RECORD FILE \*

INDEX OF DOCUMENTS

II. REMEDIAL ENFORCEMENT PLANNING

1. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Donald Smith, First Piedmont Corporation, re: EPA Order Requiring Additional Investigation, 8/8/00. P. 200001-200002.
2. **Administrative Order, in the Matter of: First Piedmont Rock Quarry (Route 719) Superfund site, Docket No. III-92-49-DC, 7/23/92. P. 2179974.**
3. **Amendment to Administrative Order, in the Matter of: First Piedmont Rock Quarry (Route 719) Superfund Site, Docket No. III-92-49-DC, 6/30/00. P. 2179973. A July 10, 2000, transmittal letter to Mr. Tommy Stump, First Piedmont Corporation, Mr. Richard Geiger, Counsel for Corning Incorporated, Mr. Neal Rountree & Mr. James Wren, The Goodyear Tire & Rubber Company, and Mr. Stephen Rahaim, Duane, Morris & Heckscher, from Mr. Abraham Ferdas, U.S. EPA, is attached.**

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\* Administrative Record File available 8/29/13, **updated 9/17/14**. The First Piedmont Rock Quarry Site OU1 Administrative Record File is included by reference. The Index of Documents is attached.

### III. REMEDIAL RESPONSE PLANNING

1. Memorandum to File, from Mr. Ron Davis, U.S. EPA, re: Completion of Source and Extent of Investigation Study, 7/16/07. P. 300001-300001.
2. Report: Addendum to the Remedial Action Work Plan, First Piedmont Rock Quarry Superfund Site, Pittsylvania, VA, prepared by Golder Associates, Inc., 10/1/07. P. 300002-3000118. An October 1, 2007, letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Michael Williams and Mr. Terri Phillips, Golder Associates, Inc., regarding the Addendum to the Remedial Action Work Plan, is attached
3. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Thomas Modena, Virginia Department of Environmental Quality (VADEQ), re: Review of the Addendum to the Remedial Action Work Plan, 10/31/07. P. 300119-300119.
4. Memorandum to Mr. Ron Davis, U.S. EPA, from Mr. Bruce Pluta, U.S. EPA, re: Comments on Addendum to the Remedial Action Work Plan, 11/26/07. P. 300120-300121.
5. Letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, re: Comments on Addendum to the Remedial Action Work Plan, 11/27/07. P. 300122-300123.
6. Electronic memorandum to Mr. Ron Davis, U.S. EPA, from Mr. John McCloskey, U.S. Fish and Wildlife Service, re: Response to comments on the Remedial Action Work Plan Addendum Supplement, 1/11/08. P. 300124-300124.
7. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Michael Williams and Mr. Terri Phillips, Golder Associates, Inc., re: October 2007 Remedial Action Work Plan Addendum, Revised Supplement, 3/6/08. P. 300125-300129. A January 14, 2008 letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, regarding response to comments dated December 18, 2007, is attached.
8. Letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, re: Response to comments dated March 6, 2008, 4/9/08. P. 300130-300131.
9. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Michael Williams and Mr. Terri Phillips, Golder Associates, Inc., re: October 2007 Remedial Action Work Plan Addendum, April 2008 Revised Supplement, 4/28/08. P. 300132-300137. An April 9, 2008 letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, regarding response to comments dated March 6, 2008, is attached.
10. Electronic memorandum to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ron Davis, U.S. EPA, re: Review of the October 2007 Remedial Action Work Plan, 5/1/08. P. 300138-300138.
11. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Michael Williams and Mr. Terri

- Phillips, Golder Associates, Inc., re: Updated Project Schedule, Zinc Source Removal, 5/20/08. P. 300139-300141. A May 2008, Removal Action Work Plan Addendum Schedule, is attached.
12. Electronic memorandum to Mr. Michael Williams, Golder Associates, Inc., from Mr. Ron Davis, U.S. EPA, re: Comments on proposed type of organic matter, 9/25/08. P. 300142-300143.
  13. Letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, re: Review of the Addendum to the Remedial Action Work Plan, 11/17/08. P. 300144-300144.
  14. Electronic memorandum to Mr. Ron Davis, U.S. EPA, from Mr. Michael Williams, Golder Associates, Inc., re: Draft Summary of Supplemental Removal Action, 1/13/09. P. 300145-300146.
  15. Report: Removal Action Field Services Report, First Piedmont Rock Quarry/Route 719 Superfund Site, Pittsylvania, VA, prepared by Golder Associates, Inc., 4/09. P. 300147-300339. An April 6, 2009, letter to Mr. Ron Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., regarding the Removal Action Field Services Report, is attached.
  16. Letter Report to Mr. Ron Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: 90-Day Site Inspection and Spring Planting, 5/29/09. P. 300340-300352.
  17. Report: Revised Removal Action Field Services Report, First Piedmont Rock Quarry/Route 719 Superfund Site, Pittsylvania, VA, prepared by Golder Associates, Inc., 9/09. P. 300353-300555. A September 9, 2009, letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., regarding the Revised Removal Action Field Services Report, is attached.
  18. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Thomas Modena, VADEQ, re: Review of the Removal Action of Field Services Report dated September 2009, 10/15/09. P. 300556-300556.
  19. Letter Report to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: Fourth Quarter 2009 Surface Water Monitoring, 1/21/10. P. 300557-300586.
  20. Third Five-Year Review Report, First Piedmont Rock Quarry/Route 719 Superfund Site, Pittsylvania County, Virginia, 2/3/10. P. 300587-300617.
  21. Letter Report to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: First Quarter 2010 Surface Water Monitoring, 3/23/10. P. 300618-300656.

22. Report: Focused Feasibility Study, Zinc Impacts to Soils within the Southern Drainage and Lawless Creek Floodplain, First Piedmont Rock Quarry/Route 719 Superfund Site, Pittsylvania, VA, prepared by Golder Associates Inc., 4/10. P. 300357-300720. An April 28, 2010, letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., regarding the Focused Feasibility Study, is attached.
23. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Thomas Modena, VADEQ, re: Review of the Focused Feasibility Study, Zinc Impacts to Soil within the Southern Drainage and Lawless Creek Floodplain, 5/27/10. P. 300721-300721.
24. Letter Report to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: Second Quarter 2010 Surface Water Monitoring, 8/11/10. P. 300722-300764.
25. Letter Report to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: Third Quarter 2010 Surface Water Monitoring, 9/24/10. P. 300765-300806.
26. Letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, re: Comments on the Focus Feasibility Study Zinc Impacts to Soils within the Southern Drainage and Lawless Creek Floodplain, 10/28/10. P. 300807-300812.
27. Letter Report to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: Response to Comments on April 2010 Focused Feasibility Study, 1/17/11. P. 300813-300822.
28. Map, Drawing 1, Zinc Isoconcentration Map (148.6 MG/KG Cleanup Level), 5/26/11. P. 300823-300823.
29. Report: Focused Feasibility Study Addendum, Zinc Impacts to Soils within the Southern Drainage and Lawless Creek Floodplain, First Piedmont Rock Quarry/Route 719 Superfund Site, Pittsylvania, VA, prepared by Golder Associates, Inc., 7/11. P. 300824-300872.
30. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: Focused Feasibility Study Addendum, Zinc Impacts to Soils within the Southern Drainage and Lawless Creek Floodplain, 7/6/11. P. 300873-300873.
31. Letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, re: Comments on Focused Feasibility Study Addendum, Zinc Impacts to Soils within the Southern Drainage and Lawless Creek Floodplain, 9/19/11. P. 300874-300875.
32. Letter to Mr. Ronnie Davis, U.S. EPA, from Mr. Jeffrey Frazier and Mr. Michael Williams, Golder Associates, Inc., re: Response to September 2011 Comment letter from the EPA regarding the July 2011 Focused Feasibility Study Addendum, 10/7/11. P.

- 300876-300883. A September 19, 2011, letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. Ronnie Davis, U.S. EPA, regarding comments on Focused Feasibility Study Addendum, Zinc Impacts to Soils with in the Southern Drainage and Lawless Creek Floodplain and an October 2011 Table 5, Summary of Remedial Alternative Estimated Costs, is attached.
33. Proposed Remedial Action Plan, First Piedmont Corporation Rock Quarry (Route 719), Operable Unit 1, Pittsylvania County, Virginia, 8/1/13. P. 300884-300908.
  34. Letter to Mr. Tommy Stump, First Piedmont Corporation, from Mr. James Webb, U.S. EPA, re: Revised Removal Action Field Services Report and 90-Day Site Inspection and Spring Planning Letter Report, undated. P. 300909-300909.
  35. Report: Remedial Action Report, First Piedmont Rock Quarry/Route 719 Superfund Site, Pittsylvania County, Virginia, prepared by ENSCI Engineering Group, P.A. (ENSCI), 7/25/95. P. 2179978.
  36. Report: Sediment Toxicity Results for First Piedmont Rock Quarry, Danville, Virginia, prepared by Central Virginia Laboratories and Consultants, Inc., 2/20/98. P. 2179980.
  37. Report: Analytical Results for First Piedmont Rock Quarry, Route 719 Superfund Site, prepared by Central Virginia Laboratories and Consultants, Inc., 9/17/98. P. 2179981.
  38. Report: Analytical Results for First Piedmont Rock Quarry, Route 719 Superfund Site, prepared by Central Virginia Laboratories and Consultants, Inc., 11/16/98. P. 2179979.
  39. U.S. Army Corps of Engineers (USACE) Jurisdictional Delineation Confirmation Project Form, 6/14/06. P. 2185643.
  40. Memorandum Ms. Pat McMurray and Mr. Richard Criqui, VADEQ, from Ms. Michelle Hollis, VADEQ, re: Amendment to the Record of Decision, 7/26/13. P. 2185641.
  41. Memorandum to Mr. Ron Davis, U.S. EPA, from Mr. Bruce Pluta, U.S. EPA, re: Biological Technical Assistance Group (BTAG) review of VADEQ comments on the Draft Record of Decision Amendment, Operable Unit 1, August 12, 2013, 12/3/13. P. 2185642.
  42. Letter to Mr. Ron Davis, U.S. EPA, from Mr. Kevin Greene, VADEQ, re: Comments on 8/12/13 Draft ROD Amendment, 10/30/13. P. 2189659. An October 15, 2013, list of site contacts is attached.

**V. COMMUNITY INVOLVEMENT/CONGRESSIONAL CORRESPONDENCE/IMAGERY**

1. **U.S. EPA Fact Sheet: First Piedmont Corporation Rock Quarry Site, Pittsylvania County, Virginia, entitled: "EPA Seeks Public Comment on Proposed Cleanup Plan," 8/13. P. 500001-500004.**
2. **Draft for Release U.S. EPA Public Notice, First Piedmont Corporation Rock Quarry Site, re: EPA Holds Public Comment Period and Public Meeting Regarding Proposed Cleanup Plan, undated. P. 500005-500005.**
3. **Draft for Release U.S. EPA Public Notice, First Piedmont Corporation Rock Quarry Site, re: EPA Seeks Public Comment on Proposed Cleanup Plan, undated. P. 500006-500006.**
4. **Transcript of Public Meeting Minutes to Discuss the Proposed Plan, First Piedmont Corp. Rock Quarry Superfund Site, 9/5/13. P. 2185639.**
5. **Electronic memorandum to Mr. Ron Davis, U.S. EPA, \*\* from Mr. Kenneth Shelton, Resident, re: EPA's handling of the Site, 9/9/13. P. 2189658.**

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**\*\* Document has been redacted to protect the privacy of individuals. The redaction is evident from the face of the document.**