

**SECOND EXPLANATION OF SIGNIFICANT DIFFERENCES  
For the  
Atlantic Wood Industries, Inc. Superfund Site**



**I. INTRODUCTION**

Site Name: Atlantic Wood Industries, Inc. (AWI) Superfund Site  
 Site Location: Portsmouth, Virginia  
 Lead Agency: U.S. Environmental Protection Agency, Region III (EPA)  
 Support Agency: Virginia Department of Environmental Quality (VADEQ)

**II. STATEMENT OF PURPOSE**

EPA is issuing this second Explanation of Significant Differences (ESD) to modify the selected remedy described in a Record of Decision (2007 ROD) for the Atlantic Wood Industries (AWI) Superfund Site (Site) issued on December 21, 2007. Figure 1 below shows many of the elements of the cleanup and what elements are completed.

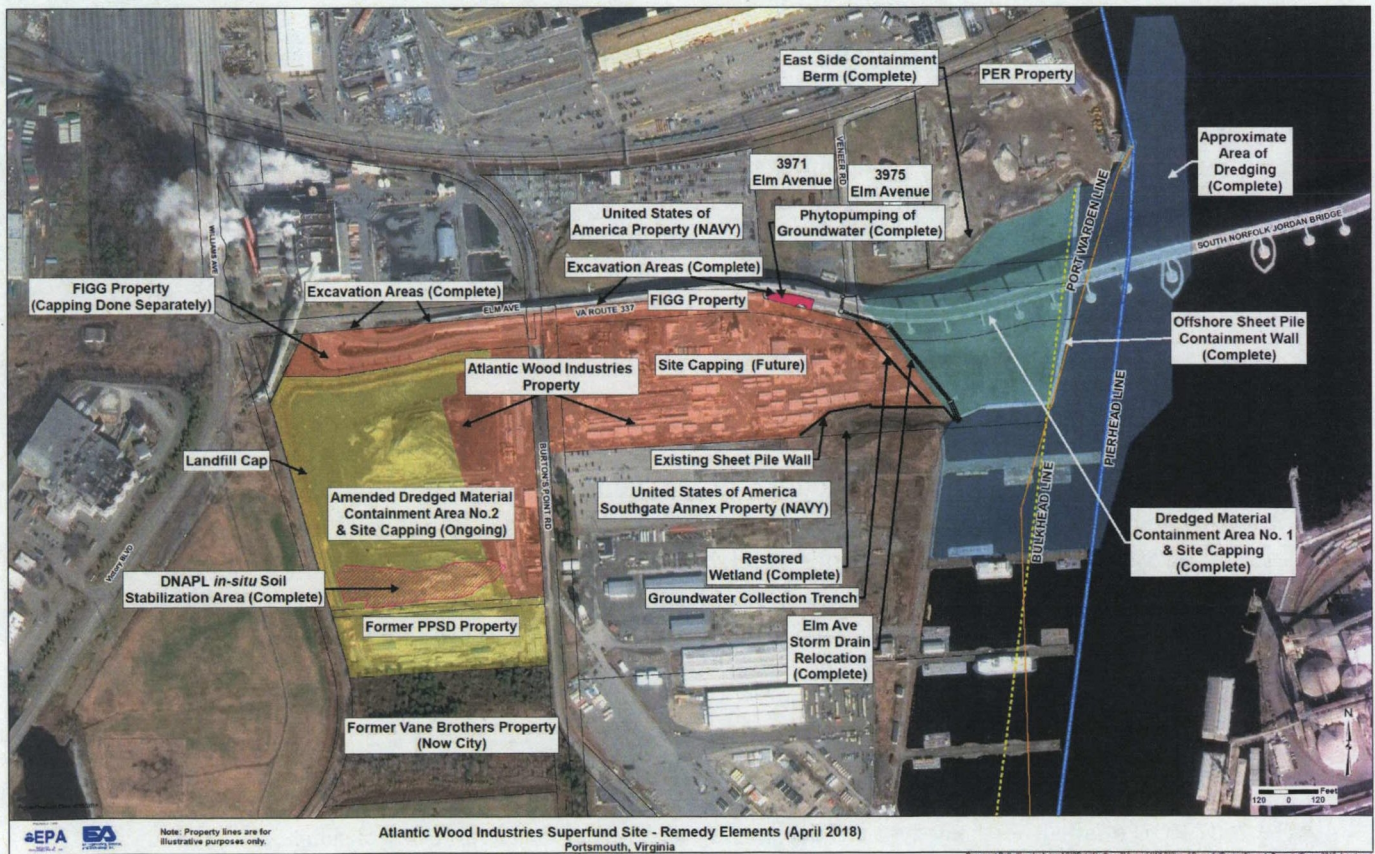


Figure 1: AWI Site showing elements of the cleanup.

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The modifications include:

- Adjusting the size and location of the landfill at the western portion of the Site that will contain approximately 200,000 cubic yards of contaminated sediments that were dredged from the Southern Branch of the Elizabeth River as part of the Site cleanup;
- Increasing the thickness of the cap at the AWI property (except for the new land created by the consolidation of dredged sediments) to protect the low-permeable layer of the cap from equipment AWI uses to move the large concrete products that it produces;
- The addition of a ground water treatment plant, if necessary, to treat ground water captured by the collection trench before it is discharged to the river; and
- Documenting the increase on the overall estimated cost of the cleanup from \$98.2 to \$126.6 million.<sup>1</sup>

This second ESD is issued by EPA to formally document and communicate this modification of the remedy in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), 42 U.S.C. § 9617(c), and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.435(c)(2)(i). Section 117(c) of CERCLA and Section 300.435(c)(2)(i) of the NCP require the publication of an Explanation of Significant Differences when modifications to the remedial action selected in a Record of Decision are necessary, and such modifications significantly change, but do not fundamentally alter, the remedial action with respect to scope, performance, or cost. Since cleanup technologies are not changing, EPA considers this remedy modification to be a significant change but not a fundamental change.

This second ESD and all documents that form the basis for the modifications are being added to the Site Administrative Record file in accordance with Section 300.825(a)(2) of the NCP, 40 C.F.R. § 300.825(a)(2). The Administrative Record file is available for public review at the locations listed in Section VIII of this ESD.

### **III. SITE HISTORY AND SITE CONDITIONS**

The Site is generally located south of Elm Avenue and adjacent to the Southern Branch of the Elizabeth River in Portsmouth, Virginia. Prior to the recently completed dredging, the Site included approximately 48 acres of industrialized waterfront land with contaminated soil and ground water and approximately 35 acres of contaminated sediment in the river. The Site is bounded on land by the Norfolk Naval Shipyard (NNSY) and several smaller parcels of land (see Figure 1).

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<sup>1</sup> The 2007 ROD originally estimated the cleanup would cost \$44.9 million. During the cleanup design, EPA determined the amount of soil requiring treatment and the volume of sediment requiring dredging were significantly greater than estimated in 2007. These volume changes increased the estimated cost of the cleanup to approximately \$98.2 million. This cost increase was documented in an ESD dated August 6, 2012 (2012 ESD).

A wood treating facility operated at the Site from 1926 to 1992. Both creosote and pentachlorophenol (PCP) were used to treat wood. Facility operations included wood treatment, storage of treated wood, and waste disposal activities. These practices lead to the contamination of the Site. Historical Site operations also impacted sediments in the Southern Branch of the Elizabeth River. Ground water and soil at the Site are heavily contaminated with creosote. Creosote contamination previously migrated into a storm sewer. The storm sewer pipe discharged to an inlet of the river on the south side of Elm Avenue.

A significant portion of the western half of the AWI property was leased to the Navy during World War II. The Navy filled low lying areas of the AWI property with contaminated material for use as a storage area. The Navy conducted sand blasting activities adjacent to the Site. Abrasive blast media (ABM) contaminated with heavy metals such as copper, zinc, lead and arsenic have impacted the Site. Calcium hydroxide waste from the Navy's acetylene production was pumped across the Site and was discharged into a wetland that straddled the property line between the NNSY and the AWI facility contaminating both the wetland and the river.

The former Portsmouth Public School District (PPSD) property<sup>2</sup> located adjacent to the AWI property (see Figures 1 and 2) was at one time owned by the U.S. Navy. At some point, the Navy no longer needed the property and gave the property to the school district. The Navy used the property in a similar fashion as to how it used the western parcel of AWI during World War II—as a storage area for war materiel. The PPSD used the property as its operations center, which included bus maintenance and parking. The Portsmouth Port and Industrial Commission (PPIC) currently owns the property.

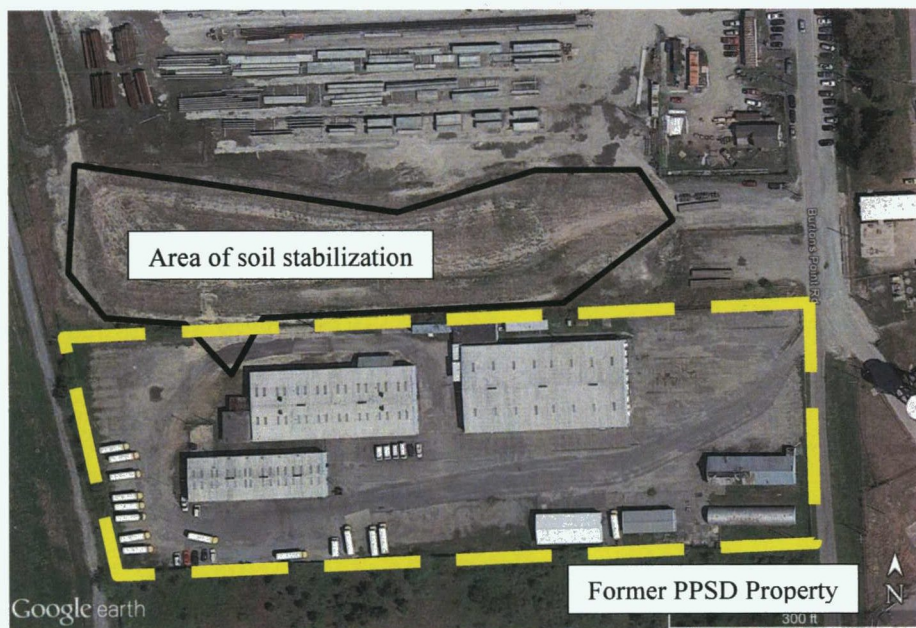


Figure 2: Former PPSD property immediately south of the western portion of the AWI property. Google Earth photo dated 4/2014.

<sup>2</sup> The former PPSD operations center property consisted of a narrow strip of land owned by the City of Portsmouth bordering the AWI property and a larger parcel owned by the school district.

During the remedial investigation, EPA found ground water contamination from the AWI facility that had migrated to the former PPSD property. During the soil stabilization project conducted as part of the cleanup of the AWI Site (see Figure 2), EPA found additional contamination including visible contamination called non-aqueous phase liquid (NAPL) contamination.

Sediments contaminated by both AWI and Navy operations extended from the AWI facility shoreline east to the federal navigation channel, north to near a railroad bridge that is located just south of the main portion of the NNSY, and south to Pier B of the Southgate Annex of the NNSY. The Site also includes contaminated ground water mostly located underneath the AWI facility.

EPA evaluated the Site during the 1980s and determined that the Site qualified for detailed evaluation and, if necessary, cleanup by EPA's Superfund program. The Site was formally added to the National Priorities List in 1990.

#### **IV. DESCRIPTION OF SELECTED REMEDY AND REMEDY IMPLEMENTATION**

##### **A. Selected Remedy**

The 2007 ROD remedy addresses risks to human health and the environment from soil, ground water, and sediment contamination. The main remedial components included: 1) a clean soil cover over the areas of contaminated soil; 2) stabilization of creosote and pentachlorophenol (PCP) soaked soils on the west side of the Site; 3) monitored natural attenuation (natural restoration) of ground water; 4) installation of a sealed sheet pile wall in the Southern Branch of the Elizabeth River to prevent creosote and metals migration to the river; 5) dredging of contaminated river sediments beyond the wall with consolidation of the dredged sediments either behind the sheet pile wall to form new land or on the west side of the AWI property in a landfill; 6) enhanced monitored natural recovery of sediments; 7) creation of wetlands to replace wetlands lost due to sediment consolidation behind the wall; and 8) institutional controls (ICs) to further protect human health and the environment.

The 2007 ROD envisioned that a portion of the contaminated soil and sediments would be consolidated in a landfill on the western side of the AWI property as outlined by the orange line in the Figure 3 below. The 2007 ROD also anticipated that the landfill would contain 120,000 cubic yards<sup>3</sup> of contaminated sediments compared to the approximately 200,000 cubic yards that now are being consolidated in the landfill. The 2007 ROD envisioned that the elevation of the landfill would be approximately 3-4 feet above the original land elevation once the sediments were capped (see pg. 65 of the 2007 ROD).

The selected remedy in the 2007 ROD required that ground water be released passively through weep holes in the off-shore wall to prevent ground water from mounding and causing further migration of contaminated ground water to adjacent properties. If the ground water was contaminated such that it could not go directly to the river, the selected remedy called for treatment zones to be constructed just inside the wall next to the weep holes to filter out

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<sup>3</sup> See the discussion in the 2007 ROD about the expected dredge volume, the capacity behind the original wall, and the expected swell of sediments after they are removed from the river (see pgs. 65-67).

contamination before the ground water discharged to the river. If the passive treatment did not work, the 2007 ROD envisioned the addition of a pumping wells and a treatment plant to prevent the ground water mounding (see pg. 136 of the 2007 ROD).



Figure 3: Orange outline shows where the 2007 ROD envisioned landfill.

EPA issued an Explanation of Significant Differences (2012 ESD) on August 6, 2012 to document modifications to the 2007 ROD. The estimated cleanup cost increased from \$44.9 million to \$98.2 million, due to the increase in the amount of sediment requiring dredging and the quantity of soil requiring *in-situ* soil stabilization.

### B. Remedy Implementation

EPA began the detailed design for the cleanup in early 2008. Construction started in 2010. This was about one year earlier than expected, due to \$3.7 million in funding made available from the American Recovery and Reinvestment Act (ARRA). These funds were used for several projects including the construction of a berm along the banks of the Southern Branch of the Elizabeth River. Contaminated soil was excavated from the Elm Avenue right-of-way and berms were also built around part of the area of the west landfill, which contains dredged sediments.

FIGG Bridge Engineers, Inc. completed construction of the South Norfolk Jordan Bridge (see Figure 1) across the Southern Branch of the Elizabeth River in 2012. To construct the new bridge, FIGG purchased the northern portion of the AWI property. FIGG implemented a portion of the cleanup on the property it purchased.

On behalf of EPA, the U.S. Army Corps of Engineers (USACE) conducted *in-situ* soil stabilization of the creosote and PCP saturated soils at the southwest portion of the AWI property (called the Historic Disposal Area in Figure 4) beginning in late 2012. This activity was completed in the summer of 2013. This work involved mixing portland cement and organoclay into the soil to bind the creosote and PCP non-aqueous phase liquid contamination so that the contamination cannot migrate downward and so that it severely limits any on-going contribution of this contamination to area ground water contamination.

The 2007 ROD selected remedy for the Historic Disposal Area located in the southwest portion of the AWI property (see Figure 4) called for excavation or *in-situ* soil stabilization (S/S) of dense non-aqueous phase liquid (DNAPL). During the design, EPA determined that S/S was the best option. The remedial investigations and 2002 pre-design investigation resulted in an estimated area of DNAPL as shown in purple below (see Figure 4) containing approximately 7,200 cubic yards of DNAPL contamination.

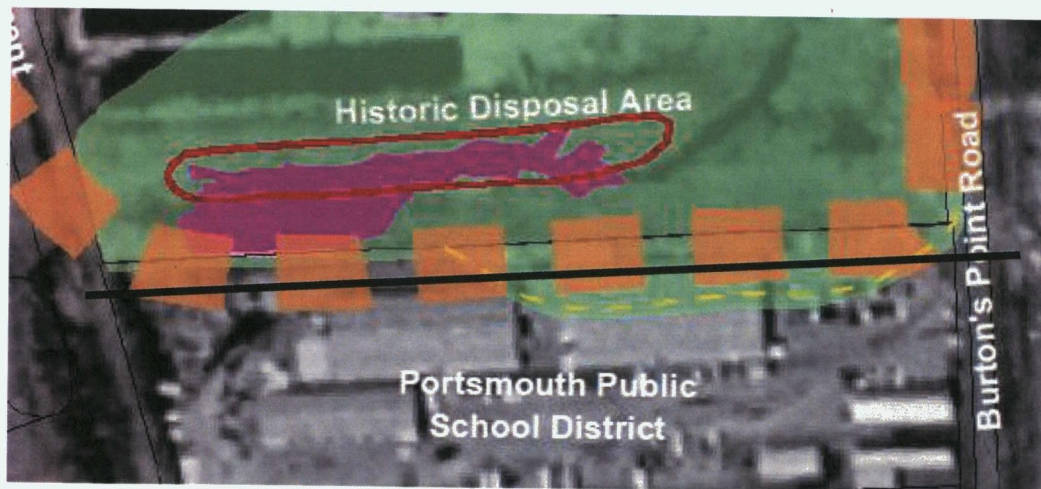


Figure 4: The Historic Disposal Area at the southwest portion of the AWI property. The figure taken from Figure 2 of the 2007 ROD.

Additional borings collected as part of the S/S design showed that the area was much larger, extended onto PPSD property, and contained approximately 45,000 cubic yards of DNAPL-contaminated soil that required soil stabilization as shown in Figure 5<sup>4</sup>.

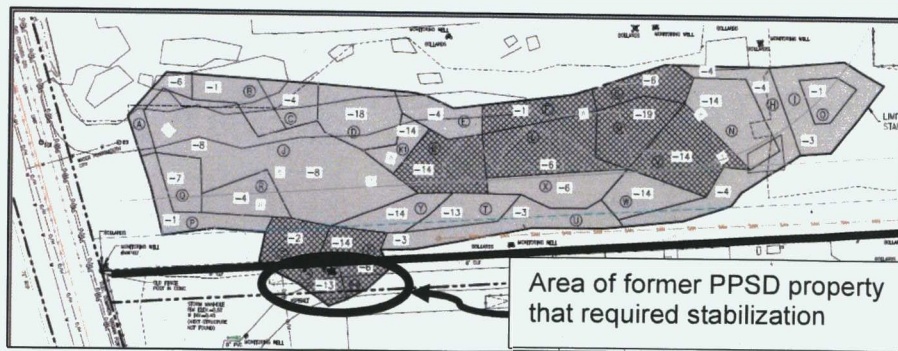
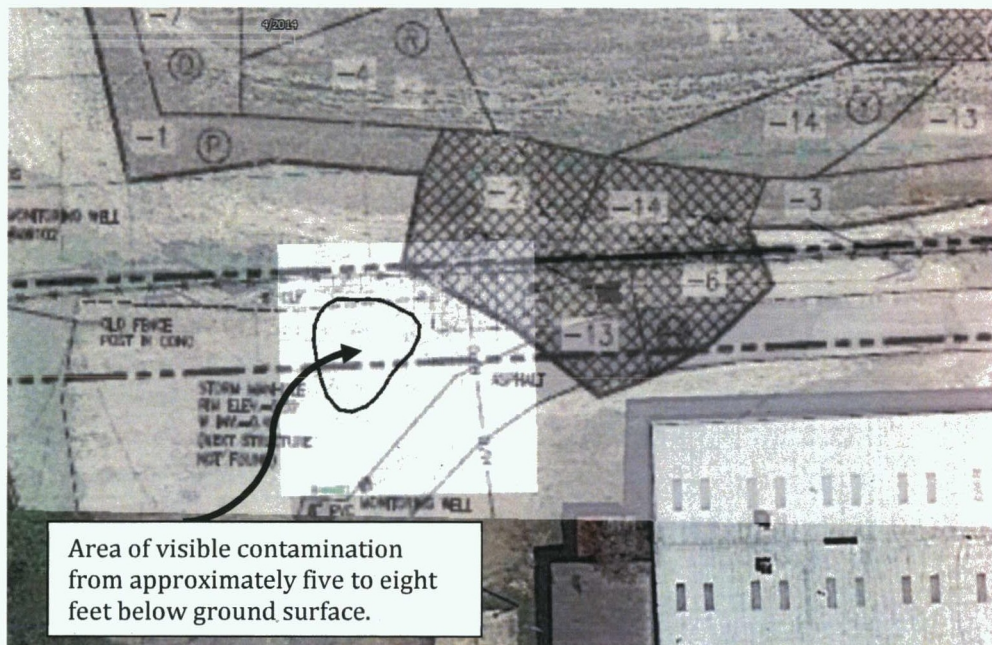


Figure 5: Area of former PPSD property that was stabilized.

<sup>4</sup> Taken from Figure 12 "DNAPL Treatment Area Designation Map", Final Remedial Design Report – Phase 1, Atlantic Wood Industries (AWI) Superfund Site, Portsmouth, Virginia, AMENDMENT NO. 1 – Phase 1B Design by EA Engineering, Science and Technology, Inc., September 2011.

During implementation of the S/S on the PPSD property, an electric power pole and transformer on the PPSD property had to be moved from the stabilization area. During an attempt to move it to the west, additional NAPL was found beyond the extent of the S/S area. The USACE quickly collected information from additional soil borings which showed NAPL evidence in the area shown below:<sup>5</sup>



*Figure 6: Additional area of visible contamination found during the stabilization project.*

EPA determined that the NAPL was related to the Site due to the presence of PCP and due to the fact that the ratios of various individual contaminants matched those of creosote. By the time the determination was made, this area was not able to be added to the S/S contract. Other factors which influenced the decision to not stabilize this area of soils were the disruptions to the operations at the PPSD property that would have been caused by adding to the area of S/S; how S/S of this area might affect the ground water remedial action; and that based on field observations, this area could be excavated and consolidated to the AWI property if necessary. Therefore, the NAPL impacted soils will be mixed with portland cement in the ground before the landfill is constructed in that area.

The USACE began construction of the off-shore pile wall in late 2011. Construction was completed in the summer of 2013. This work included dredging of contaminated sediments along the outside base of the wall. Since the wall blocked water that discharged from the storm sewer along Elm Avenue from reaching the river, EPA extended the storm sewer across the AWI facility to the southwest terminus of the off-shore wall. As part of that project, EPA also constructed a ground water collection trench that will eventually be used to help control the water table since the ground water can no longer discharge directly to the river.

<sup>5</sup> Google Earth photo dated 4/2014 with overlays.

During the fall of 2017, EPA began passively discharging ground water to the river from the ground water collection trench. Initially, the water was stored in a tank and tested before it was determined that it could be released to the river without treatment. Currently, the ground water is discharged from the trench directly to the river. On-going sampling will determine if treatment becomes necessary.

The USACE began dredging operations in the Southern Branch of the Elizabeth River in the late spring of 2015 and completed the dredging in the summer of 2017. Approximately, 338,000 cubic yards of contaminated sediments were dredged and consolidated upland of the off-shore pile wall creating new land or moved to the western portion of the Site for consolidation in the landfill (see Figure 1).

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

This ESD documents the modifications necessary to implementing the cleanup outlined in the 2007 ROD.

The modifications include:

- Adjusting the size and location of the landfill at the Site that will contain approximately 200,000 cubic yards of contaminated sediments that were dredged from the Southern Branch of the Elizabeth River as part of the Site cleanup;
- Increasing the thickness of the cap at the AWI property (except for the new land created by the consolidation of dredged sediments) to protect the low-permeable layer of the cap from equipment AWI uses to move the large concrete products that it produces;
- The addition of a ground water treatment plant, if necessary, to treat ground water captured by the collection trench before it is discharged to the river; and
- Documenting the increase on the overall estimated cost of the cleanup from \$98.2 to \$126.6 million.

To understand the necessity for the landfill expansion and the increased cap thickness, one must understand the anticipated land use of the Site at the time the 2007 ROD was issued as well as other Site conditions that have changed since issuance of the 2007 ROD. The “Current and Potential Future Sites Uses” section of the 2007 ROD states:

The AWI facility is currently the location of pre-stressed, pre-cast concrete manufacturing operations. AWI recently upgraded the facility by building a concrete batch plant at the facility.

From discussions with AWI, EPA expects the operation to remain for the foreseeable future. AWI is planning on consolidating its operations to just one side of the property (most likely the east side). This would allow redevelopment to take place on the other side. EPA has had discussions with AWI and the Economic Development Department of



the City of Portsmouth in an effort to facilitate redevelopment. The current plan is for the property to remain industrial. (pg. 35)

Besides requiring remediation of the Site to industrial cleanup standards, EPA included Performance Standards in the 2007 ROD to address the current and potential future use:

### **11.2.5 On-going Business Operations**

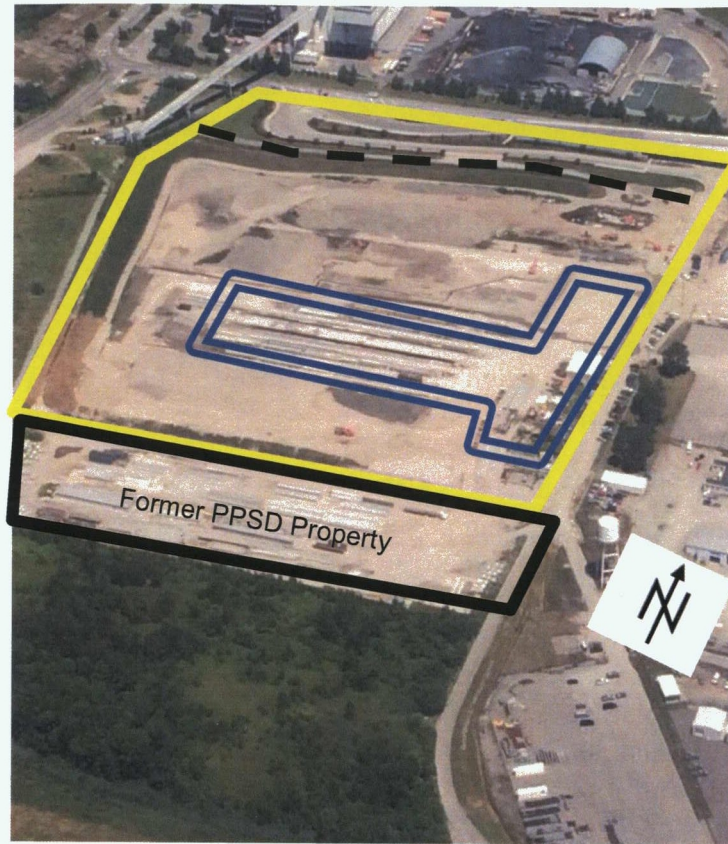
#### **11.2.5.1 AWI Facility**

**11.2.5.1.1** Efforts shall be taken to minimize the disruptions to AWI's on-going pre-cast concrete manufacturing operations.

**11.2.5.1.2** The following are examples of steps that shall be considered or taken in an effort minimize disruptions: capping/paving operations shall abut foundations of equipment, building, etc. without requiring destruction of the foundations if the equipment, buildings, etc. have a significant expected remaining useful life; the dredged sediment containment area off-shore from the AWI property may need to be constructed in two cells such that AWI can continue to access the river for product deliveries; coordinate with AWI during the installation of the sheet pile wall and dredging, if AWI decides to rebuild its pier to allow water access during remedial action; and schedule and/or construct the soil cover/pavement at times that minimize disruptions to AWI's manufacturing process. (p. 93)

When FIGG Bridge Engineers, Inc. purchased part of the AWI property to construct the South Norfolk Jordan Bridge (SNJB) (see Figure 7 below), AWI stated that there was no longer the space available to operate its pre-cast concrete manufacturing plant only on the east side of Burton's Point Road. For example, AWI made most of the pieces of the new bridge. Due to the size of the bridge pieces and the number that had to be pre-cast before construction could begin, AWI utilized much of its property to store bridge segments. The area necessary to store this type of product likely contributed to AWI's decision to keep the parcels on both the east and west side of Burton's Point Road.

FIGG's purchase of the northern portion of the AWI property which reduced the area for sediment consolidation and the increase in sediment volume that required dredging from the river (discussed in detail in the 2012 ESD) created the need for additional area to construct the landfill so that the height of the landfill would not adversely interfere with the usability of the land for AWI's manufacturing operation.



*Figure 7: The yellow line outlines the original west AWI parcel for the landfill when EPA issued the 2007 ROD. The double blue line is the area that AWI currently can use of the west parcel for its business. The area north of the black dashed line was purchased by FIGG for the bridge construction. The black solid line outlines the approximate area of the landfill expansion which is first being used to provide storage area for AWI product during the landfill construction. Picture from Ross Worsham, 6/17/2016.*

During the development of the feasibility study that described cleanup options that were eventually evaluated in the 2007 ROD, AWI utilized less than half its property. The 2007 ROD described two types of covers for the contaminated soil and sediments at the AWI facility: one foot of low-permeable soil with six inches of top soil and vegetation or six inches of asphalt in areas of use. Currently, AWI uses all its property for its pre-cast concrete business and the use of the soil cover described in the 2007 ROD would limit its business to a small area. Additionally, a six-inch asphalt cover would be destroyed very quickly (possibly even at the first use) due to the weight of the products that AWI currently makes. Therefore, to allow for the intended future use of the property to continue, the cap/cover<sup>6</sup> design requires modification in portions of the Site. Through discussions with AWI, an engineering analysis, and lab tests; EPA determined that using 12 inches of compacted Virginia Department of Transportation (VDOT) 21A stone, which is readily available, as the low-permeable layer, with an additional four inches of stone (separated from the low-permeable layer by a geogrid) provides adequate bearing capacity for AWI's equipment and products and will provide significant longevity and ease of maintenance. Therefore, this ESD modifies the cap at the portions of the AWI property that are currently being used by AWI to require the 12 inches of compacted VDOT 21A stone (to achieve a maximum

<sup>6</sup> "Cap" and "cover" are used interchangeably.

permeability of  $1 \times 10^{-5}$  centimeters per second [cm/s]) separated from the contaminated soil or sediment by a geofabric, then covered by a geogrid and an additional four inches of stone.

The new land that was formed by filling behind the off-shore pile wall was capped with 12 inches of VDOT 21A stone. Before any future use of the new land, a protective layer must be added to the current cap sufficient to provide for the long-term life of the cover. This protective layer may vary depending on the future use of the new land. EPA and/or VADEQ must approve any proposed protective layer.

Implementation of the remedy requires close coordination between EPA and AWI to minimize disruptions to AWI's business and minimize EPA downtime and costs. AWI must provide timely access by moving and/or ceasing operations in those areas where EPA is implementing the cleanup at that time.

A major component of any industrial pre-cast concrete manufacturing facility is large areas to store product since construction sites where the products are used almost never have adequate storage area. The landfill will occupy a large area of land that AWI uses and needs for storage. The landfill is being constructed in such a way as to allow AWI to use the area on top of the landfill for storage of their pre-cast concrete products. However, during construction of the landfill, EPA must temporarily occupy a large area that AWI will not have access to, and therefore EPA will provide a temporary area for AWI to use during construction for storage.

To construct the landfill on AWI's west property, AWI must relocate its pile forming beds, which consist of permanent concrete foundations, steel forms and associated equipment, and utilities. The beds are currently surrounded on three sides by the new landfill and occupy space that will be used to complete the consolidation of dredged sediments. Everything except the concrete foundations can be moved. The foundations will be buried in the landfill. Once a portion of top of the landfill cap is complete, new foundations for the forming beds will be poured to allow AWI to relocate their steel forms and associated equipment and utilities.

Therefore, this ESD modifies the selected remedy by including the construction of new concrete foundations on top of the landfill to replace the ones being buried in the landfill and running electrical power to the new location for AWI's connection. This likely includes relocating several power poles and associated equipment during this phase of construction.

To allow AWI to continue to use its property west of Burton's Point Road as part of its on-going operation, the expansion of the landfill footprint area is necessary to consolidate the larger volume of contaminated sediments, thus reducing the height of the landfill. The 2007 ROD anticipated that "the ground surface elevation of the west side of the property would increase by approximately two feet prior to placement of the soil cover." (p. 67)

To accommodate the additional sediment volume without adjusting the footprint of the landfill would have required the landfill to be over 20 feet high and included an imbedded storm sewer system and concrete retaining walls along Burton's Point Road. AWI's gantry cranes used to move its large pre-cast concrete products have limited ability to drive on slopes. If the landfill gets too high, there is not space to construct a ramp that the gantry cranes can use. EPA believes expanding the landfill footprint is necessary to allow AWI to continue to use its property as envisioned in the 2007 ROD. Through many discussions with AWI, EPA and AWI reached an

agreement on a landfill design that was cost effective for EPA to construct and provided maximum area for use in AWI's business (see Figure 1).

The 2007 ROD contained applicable or relevant and appropriate requirements (ARARs) that the cleanup must meet. ARARs are the substantive requirements of federal and Commonwealth environmental laws and regulations. The modifications in this ESD do not alter any of the ARARs.

The PPSD, the City of Portsmouth, and PPIC (for the sake of this discussion, collectively the City), VADEQ, and EPA collaborated such that the City and VADEQ would support the landfill expansion to the PPIC property. The City is allowing AWI to use its property (the former PPSD property) for temporary storage while EPA is constructing the landfill on AWI's property. The City will benefit from the expansion of the landfill onto its property because it will prevent the property from flooding and make it available for redevelopment. The City and VADEQ have an agreement(s) whereby the City will pay VADEQ's cost share of the additional construction costs from the expanded landfill and will conduct the operations and maintenance on the expanded portion of the landfill that would normally be VADEQ's responsibility.

EPA is including a ground water treatment plant in this ESD even though it is not completely known if one will be required. The 2007 ROD envisioned that one may be necessary. By including it in this ESD, the cost estimate can more fully reflect the potential cost of the cleanup. During the dredging and sediment consolidation behind the pile wall, the extracted water (which included water from the dredging operation, from the compression of pre-existing sediment behind the wall, and ground water) was so contaminated that EPA was fairly certain that a treatment plant would be needed. Once the dredging was complete, EPA started controlling the ground water mound by discharging water from the collection trench. This water is much cleaner than expected, but it does have low levels of contamination. Since the cap is not complete over all the Site, EPA is uncertain as to what the long-term contamination level will be in the discharge and as such is uncertain about the need for a treatment plant.

The cost described in the 2012 ESD included capital costs of approximately \$94 million and the net present value of operations and maintenance (O&M) costs of approximately \$4 million. The current estimated cost of the overall cleanup is \$126.6 million which includes approximately \$113.4 million in capital costs and \$13.2 million in O&M costs.<sup>7</sup> (See attached cost estimate for the overall remedy, as modified by this ESD.)

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<sup>7</sup> To evaluate O&M costs, EPA takes on-going future costs associated with operations and maintenance and calculates a total O&M cost as if all the costs were incurred today. This is done by calculating the net present value of future costs taking into account the time value of money (the discount rate). In 2000, EPA and the USACE issued a guidance document entitled "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" (EPA 540-R-00-002, OSWER 9355.0-75, July 2000). The guidance states (page 4-4):

USEPA policy on the use of discount rates for RI/FS cost analyses is stated in the preamble to the NCP (55 FR 8722) and in Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-20 entitled "*Revisions to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis*" (USEPA 1993). Based on the

The cost increase associated with the dredging and sediment consolidation is approximately \$10 million. The increased cost associated with the remedy changes called for in this ESD due to the landfill expansion/improved cover, the forming bed foundation, and the ground water treatment plant is also approximately \$11 million with about \$8 million associated with the ground water treatment plant.

The new cost estimate of the cleanup includes, for example, more accurate costs of the dredging and sediment consolidation since the work has been completed (but not all costs are settled), the increased cost of the landfill construction due to the expansion, and the additional cap material. The new overall cost estimate includes actual costs for completed items and estimated costs for on-going or future actions and is within the level of accuracy of +50/-30% for a ROD-level cost estimate per EPA's ROD guidance.

## **VI. SUPPORT AGENCY COMMENTS**

EPA has consulted with VADEQ, in accordance with 40 C.F.R. § 300.435(c)(2), concerning the changes to the 2007 ROD as described in this ESD. VADEQ has concurred with the changes to the selected remedy described in this ESD (see attached letter).

## **VII. STATUTORY DETERMINATIONS**

EPA has determined that the selected remedy set forth in the 2007 ROD, and modified by the 2012 ESD and this ESD, complies with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. § 9621. EPA believes that the selected remedy remains protective of human health and the environment, meets the Federal and State requirements that are applicable or relevant and appropriate to the remedial action in accordance with 40 C.F.R. § 300.430(f)(1)(ii)(B), and is cost effective. In addition, the modified remedy uses permanent solutions and alternative treatment technologies to the maximum extent practicable for the Site.

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NCP and this directive, a discount rate of 7% should be used in developing present value cost estimates for remedial action alternatives during the FS.

The guidance does state that "there may be circumstances in which it would be appropriate to consider the use of a lower or higher discount rate than 7% for the FS present value analysis." (pg. 4-5) VADEQ requested that EPA use a discount rate of 0.7%, which was the 2017 interest rate stated in Appendix C of the Office of Management and Budget (OMB) Circular A-94. The interest rate in the circular is based on the interest rates of Treasury notes and bonds. The 2018 rate is 0.87%. Over the past 30 years, the interest rate presented in the circular has averaged 4.95%.

In accordance with EPA guidance and to allow the cost estimate to be compared to those in the 2007 ROD and the 2012 ESD, the time value of money was assumed to be 7%. A higher discount rate would reduce the present value of future costs and a lower discount rate would increase the present value of future costs.

## VIII. PUBLIC PARTICIPATION

EPA issued a draft of this ESD on June 25, 2018, and held a 30-day public comment period during which the public could submit comments for EPA's consideration before the issuance of the final ESD. A notice of this comment period was published in *The Virginian-Pilot* on June 25, 2018. EPA received comments from two parties. The PPIC, the owner of the former PPSD property, provided a letter of support for the changes, stating the "changes will provide the opportunity for both the AWI site and the Former PPSD Property to be returned to a productive industrial use, and will provide significantly greater long-term benefits and stability for the area." The U.S. Navy, which owns property immediately west of the Site, mainly expressed concern that the landfilling activities may change ground water flow patterns. EPA is aware that the ground water flow direction and the water table elevation may change because of the landfilling. EPA has recently installed wells to monitor the conditions in the ground water. EPA does not anticipate landfilling activities causing contaminated ground water to flow to Navy property.

All documents that form the basis for the decision to modify the remedy are being added to the Administrative Record file for the Site. This is done in accordance with Section 300.825(a) (2) of the NCP, 40 C.F.R. § 300.825(a) (2). This ESD and the Administrative Record file is available for public review on computers at the locations listed below:

U.S EPA, Region III  
6th floor Docket Room  
Attn: Paul Van Reed  
1650 Arch Street  
Philadelphia, PA 19103

Hours:  
Monday - Friday 8AM - 4PM  
(215) 814-3157

Portsmouth Public Library  
Craddock Branch  
28 Prospect Parkway  
Portsmouth, VA 23702

Hours  
Monday - Thursday 10AM - 5:30PM  
Saturday 10AM-3PM

Norfolk Public Library  
Horace C. Downing Branch  
555 E. Liberty Street  
Norfolk, VA 23523

Hours  
Monday - Thursday 10AM - 7PM  
Friday - Saturday 10AM - 5PM

Chesapeake Public Library  
Indian River Library  
2320 Old Greenbrier Road  
Chesapeake, VA 23325

Hours  
Monday - Thursday 10AM - 8PM  
Friday 10AM - 6PM  
Saturday 10AM - 5PM  
Sunday 1PM - 5PM

The Administrative Record file is also available online at:  
<https://semspub.epa.gov/src/collection/03/AR65647> or [www.epa.gov/superfund/atlanticwood](http://www.epa.gov/superfund/atlanticwood).

**IX. SIGNATURE**

This second ESD modifies the selected remedy described in the 2007 ROD (and modified by the 2012 ESD) for the Atlantic Wood Industries Superfund Site to address the need to expand the landfill at the Site to contain a larger volume of contaminated river sediments; to increase the thickness of the cap at the AWI property (except for the new land created by the consolidation of dredged sediments) to protect the low-permeable layer of the cap from equipment AWI uses to move the large concrete products that it produces; to add a ground water treatment plant, if necessary, to treat ground water captured by the collection trench before it is discharged to the river; and to document the increase on the overall estimated cost of the cleanup from \$98.2 to \$126.6 million.

Approved By:



Cosmo Servidio  
Regional Administrator  
U.S. Environmental Protection Agency  
Region 3

9.17-2018

Date

# Atlantic Wood Industries Superfund Site: Second ESD Cost estimate

EPA Remedy Costs from ESD	Quantity	Unit	Unit cost	Cost data		Contingency		Total Direct Costs	O&M Net Present Value 7% discount rate/30 yrs
				source	Capital Cost	%	\$		
<b>Soil Stabilization</b>		1 ea	\$10,216,557	3	\$10,216,557			\$10,216,557	
<b>Off-shore pile wall (OSPW)</b>									
Construction	1	ea	\$22,819,428	3	\$22,819,428			\$22,819,428	
Install dolphins to protect wall	12	ea	\$23,362	1	\$280,344	30%	\$84,103	\$364,447	
Concrete repair	1	ea	\$70,000	4	\$70,000	30%	\$21,000	\$91,000	
Concrete coating	1	ea	\$160,000	4	\$160,000	10%	\$16,000	\$176,000	
Underwater inspection	1	ea	\$10,000	5	\$10,000	0%	\$0	\$10,000	
Stabilization behind sheet pile wall	1	ea	\$ 1,967,700	1	\$1,967,700	30%	\$590,310	\$2,558,010	
<b>Subtotal</b>								<b>\$26,018,885</b>	\$939,630
<b>Dredging and sediment consolidation</b>									
Sediment dredging/capping with consolidation of sediments behind the wall and transport to landfill	1	ea	\$31,646,792	3	\$31,646,792	20%	\$6,329,358	\$37,976,151	
Dredging and sediment consolidation project oversight/QA	1	ea	\$5,045,787	7	\$5,045,787	0%	\$0	\$5,045,787	
Sediment containment berm along riverbank	1	ea	\$1,370,975	3	\$1,370,975	0%	\$0	\$1,370,975	
Grading/fill behind berm at 3975 Elm Ave	1	ea	\$127,085	1	\$127,085	30%	\$38,126	\$165,211	
<b>Subtotal</b>								<b>\$44,558,123</b>	
<b>Storm water/ground water control (necessary because of wall and sediment consolidation at landfill)</b>									
Storm drain extension/ground water trench construction	1	ea	\$4,247,717	3	\$4,247,717	0%	\$0	\$4,247,717	
Ground water trench drain system and shakedown	1	ea	\$ 200,000	6	\$200,000	0%	\$0	\$200,000	\$246,187
Storm drain inlets, sewer pipe, and road repair	1	ea	\$739,566	1	\$739,566	25%	\$184,892	\$924,458	\$691,581
Additional storm drain inlets	4	ea	\$130,560	1	\$522,240	25%	\$130,560	\$652,800	
Tree planting	1	ea	\$107,045	1	\$107,045	30%	\$32,114	\$139,159	
Tree maintenance									\$793,251
<b>Subtotal</b>								<b>\$6,164,133</b>	
<b>Landfill construction</b>									
Partial landfill berm construction/debris removal/ROW soil excavation	1	ea	\$ 2,365,658	7	\$2,365,658	0%	\$0	\$2,365,658	
Grading of amended sediment at AWI property	1	ea	\$ 830,867	1	\$830,867	20%	\$166,173	\$997,040	
PPSD property preparation including building demolition	1	ea	\$ 486,662	3	\$486,662	0%	\$0	\$486,662	
Grading of amended sediment on PPSD property	1	ea	\$ 581,817	1	\$581,817	20%	\$116,363	\$698,180	
Concrete foundations for pile forming beds	1	ea	\$ 205,425	1	\$205,425	50%	\$102,713	\$308,138	
Utility work at PPSD	1	ea	\$ 126,242	1	\$126,242	40%	\$50,497	\$176,739	
<b>Subtotal</b>								<b>\$5,032,418</b>	
<b>Cover</b>									\$778,049
AWI west of Burton's Point Rd	19.8	acre	\$ 89,251	1	\$1,767,172	20%	\$353,434	\$2,120,606	
AWI east of Burton's Point Rd	15.4	acre	\$ 132,885	1	\$2,046,427	40%	\$818,571	\$2,864,998	
Other property(ies) west of Burton's Point Rd	9	acre	\$ 68,333	1	\$615,000	20%	\$123,000	\$738,000	
Other property(ies) east of Burton's Point Rd	3	acre	\$ 68,333	1	\$205,000	20%	\$41,000	\$246,000	
New land behind off-shore pile wall cost included in dredging and sediment consolidation									\$540,987
Berm and swale maintenance									
<b>Subtotal</b>								<b>\$5,969,605</b>	
<b>Institutional Controls</b>	1	ea	\$300,000		\$300,000	35%	\$105,000	\$405,000	
<b>Long Term Groundwater and DNAPL Monitoring</b>					\$300,000	100%	\$300,000	\$600,000	
Sampling first five years (6 total events)									
Sampling once per five years (years 6 to 30)									
<b>Subtotal</b>								<b>\$600,000</b>	\$273,651
<b>MNR of sediments and long-term monitoring</b>									\$2,619,778
Wetland mitigation (replace one acre)	1	acre	\$542,720	3	\$542,720	20%	\$108,544	\$651,264	
Ground Water Treatment Plant	1				\$2,300,000	20%	\$460,000	\$2,760,000	\$6,326,865
Restored wetlands									\$15,504
<b>Engineering (design/treatability studies/contruction support)</b>	1	ea	\$ 11,000,000	7	\$11,000,000	0%	\$0	\$11,000,000	
<b>Total</b>								<b>\$113,375,983</b>	<b>\$13,225,481</b>
<b>TOTAL</b>								<b>\$126,601,464</b>	

**Notes:**

- 1 EA Engineering, Science and Technology planning level cost estimate dated 11/3/2017
- 2 Pellissier (EA Eng) email to Sturgeon (EPA) "RE: lab analysis cost..." dated 3/12/2012
- 3 Actual Cost
- 4 EA Eng Remedial Action Work Plan, Remedial Action Services at Containment Areas 1 and 2, V3, dated 2/7/2018
- 5 EPA RPM estimate
- 6 Removal program actual and estimated cost
- 7 Actual and estimated costs
- 8 Value of Interagency agreement with USACE to conduct real estate services for new deeds





# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

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Matthew J. Strickler  
Secretary of Natural Resources

David K. Paylor  
Director

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

August 28, 2018

Mrs. Karen Melvin, Director  
Hazardous Site Cleanup Division  
United States Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

Re: Atlantic Wood Industries Superfund Site (Site), Portsmouth, Virginia  
Explanation of Significant Differences  
Letter of Concurrence

Dear Mrs. Melvin:

The Virginia Department of Environmental Quality (Department) has reviewed the draft second Explanation of Significant Differences (ESD) of the Site.

This ESD was prepared to provide the public with an explanation of proposed modifications to the components of the Record of Decision (ROD) remedy, to summarize the information that supports the modifications and to affirm that the Selected Remedy as revised by this ESD complies with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The modifications to the ROD do not fundamentally alter the basic features of the Selected Remedy with respect to performance but do alter the cost and scope.

The footprint of Containment Area 2, located on the western portion of the Site, was expanded to include the adjacent, former Portsmouth Public School Department property.

The Department hereby concurs with the Environmental Protection Agency's (EPA) draft second ESD with the following conditions:

The Department expresses concern over the escalating costs associated with Site. Costs increased from \$44 million when the ROD was concurred with in 2007 to \$94 million in 2012 and is now projected to cost \$126 million. The Department appreciates the

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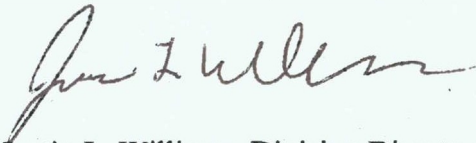
continued efforts by EPA to address these concerns with the Commonwealth and the Commonwealth reserves its concern regarding these costs.

The Department understands that EPA has identified an interest rate of 7% in the present value calculus in the 2018 ESD as identified in EPA guidance; however, the Commonwealth believes that this rate overestimates the actual value of return. The Commonwealth, in evaluating its O&M cost, does not agree this is an appropriate interest rate to be utilized.

The Department reserves the rights and responsibilities to take independent enforcement actions pursuant to state and federal law.

This letter documents the Department's concurrence with EPA's draft: second ESD for the Site. If you have any questions regarding this matter, please contact me.

Sincerely,



Justin L. Williams, Division Director  
Land Protection and Revitalization

cc: Chris Evans, Office of Remediation Programs Director