Draft Document for Public Comment

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

I. <u>INTRODUCTION</u>

| 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. <u>STATEMENT OF PURPOSE</u>

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.





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.¹

This draft of this second ESD is being released for public comment. EPA, in consultation with VADEQ, will issue a final second ESD after reviewing and considering all substantive comments and information submitted during the 30-day public comment period held between June 25, 2018 and July 25, 2018. See Section VIII "Public Participation" for details about how to submit comments about this draft ESD to EPA.

After the comment period and EPA's consideration of the comments, this second ESD will be 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.

¹ 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).

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).

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) property² 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.

² 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.



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

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 yards³ 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 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).

³ 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).



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 5⁴.



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

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.

⁴ 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.

The USACE quickly collected information from additional soil borings which showed NAPL evidence in the area shown below:⁵



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 either excavated, consolidated in the landfill, and backfilled or mixed with portland cement 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.

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.

⁵ Google Earth photo dated 4/2014 with overlays.

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. <u>DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR</u> <u>SUCH DIFFERENCES</u>

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 precast 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 it 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 AMI 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/cover⁶ 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

⁶ "Cap" and "cover" are used interchangeably.

permeability of 1×10^{-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.⁷ (See attached cost estimate for the overall remedy, as modified by this ESD.)

⁷ 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 Sturdy" (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. <u>SUPPORT AGENCY COMMENTS</u>

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 reviewed the draft. VADEQ will evaluate the public comments before it makes a final decision about concurring on this ESD.

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.

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

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

This draft of this second ESD is being released for public comment. EPA, in consultation with VADEQ, will issue a final second ESD after reviewing and considering all substantive comments and information submitted during the 30-day public comment period held between June 25, 2018 and July 25, 2018.

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

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

Norfolk Public Library <u>Horace C. Downing Branch</u> 555 E. Liberty Street Norfolk, VA 23523

Chesapeake Public Library Indian River Library 2320 Old Greenbrier Road Chesapeake, VA 23325 <u>Hours</u>: Monday - Friday 8AM – 4PM (215) 814-3157

<u>Hours</u> Monday – Thursday 10AM – 5:30PM Saturday 10AM-3PM

<u>Hours</u> Monday – Thursday 10AM – 7PM Friday – Saturday 10AM – 5PM

<u>Hours</u> Monday – Thursday 10AM – 8PM Friday 10AM – 6PM Saturday 10AM – 5PM Sunday 1PM – 5PM

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

Written comments and questions concerning EPA's action should be directed to:

Larry Johnson Community Involvement Coordinator U. S. EPA Region III Mail Code: 3HS52 1650 Arch Street Philadelphia, PA 19103 (215) 814-3239 (800) 553-2509 johnson.larry-c@epa.gov

EPA will publish a notice summarizing this ESD pursuant to Section 117(c) of CERCLA, 42 U.S.C. § 9617(c), and Section 300.435(c)(2)(i)(B) of the NCP, 40 C.F.R.

§ 300.435(c)(2)(i)(B). The notice will include reasons for the change to the selected remedy, and inform the public of its availability in *The Virginian-Pilot*. This paper is published in the Tidewater area of Virginia, including the City of Portsmouth and other communities near the Site.

IX. <u>SIGNATURE</u>

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:

E. Scott Pruitt Administrator U.S. Environmental Protection Agency Date

Atlantic Wood Industries Superfund Site: Second ESD Cost estimate

| | | | | | | Contingency O | | | | 3&M Net Present Valu |
|---|----------|------------|--------|----------------------------------|--------------------------|-------------------------------------|------------|------------------|------------------------------------|---------------------------------|
| EPA Remedy Costs from ESD Soil Stabilization | Quantity | Unit ea | | Unit cost \$10,216,557 | Cost data source 3 | Capital Cost \$10,216,557 | % | \$ | Total Direct Costs \$10,216,557 | 7% discount rate/30 yrs |
| Off chore pile well (OSPW) | | | | | | | | | | |
| 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 | | ea | | \$70,000 | 4 | \$70,000 | 30% | \$21,000 | \$91,000 | |
| Concrete coating | | ea | | \$160,000 | 4 | \$160,000 | 10% | \$16,000 | \$176,000 | |
| Underwater inspection | | ea | ~ | \$10,000 | 5 | \$10,000 | 0% | \$0 ¢500.240 | \$10,000 | |
| Stabilization benind sneet pile wall Subtotal | 1 | ea | Ş | 1,967,700 | 1 | \$1,967,700 | 30% | \$590,310_ | \$2,558,010 \$26,018,885 | \$939,630 |
| Dredging and sediment consolidation | | | | | | | | | | |
| 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 Subtotal | 1 | ea | | \$127,085 | 1 | \$127,085 | 30% | \$38,126_ | \$165,211 \$44,558,123 | |
| Storm water/ground water control (necessary because of wall and | | | | | | | | | | |
| sediment consolidation at landfill) | | | | 64 247 747 | - | 64 247 747 | 00/ | A.C. | 64 247 717 | |
| Storm drain extension/ground water trench construction | 1 | ea | ć | \$4,247,717 | 3 | \$4,247,717 | 0% | \$0 ¢0 | \$4,247,717 | ¢746 107 |
| Storm drain inlets, sewer nine, and road renair | 1 | ea | Ş | \$739 566 | 1 | \$200,000 | 25% | ېں 12/ 202 | \$200,000 | \$240,187 \$601 581 |
| Additional storm drain inlets | 1 | 60 | | \$130,500 | 1 | \$733,300 | 25/0 | \$120 560 | \$524,450 | <i>5051,501</i> |
| Additional storm drain inlets Tree planting | 4 | ea ea | | \$130,560 | 1 | \$522,240 \$107.045 | 25% 30% | \$130,560 | \$652,800 | |
| Tree maintenance | | | | , | | | | , | ,, | \$793,251 |
| Subtotal | | | | | | | | - | \$6,164,133 | |
| Landfill construction | | | | | _ | | | 40 | | |
| excavation Grading of amonded sediment at AWI property | 1 | ea | Ş ¢ | 2,365,658 | / | \$2,365,658 | 20% | \$U \$166 172 | \$2,365,658 | |
| PPSD property preparation including building demolition | 1 | ea | ې د | 486 662 | 1 | \$486 662 | 20% | \$100,173 \$0 | \$997,040 | |
| 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 Subtotal | 1 | ea | \$ | 126,242 | 1 | \$126,242 | 40% | \$50,497_ | \$176,739 \$5,032,418 | |
| 6 | | | | | | | | | | ¢778.040 |
| Lover AWI west of Burton's Point Rd | 10.8 | acre | ć | 80 251 | 1 | \$1 767 172 | 20% | \$353 434 | \$2 120 606 | \$778,049 |
| AWI west of Burton's Point Rd | 15.0 | acre | ڊ خ | 132 885 | 1 | \$2,046,427 | 40% | \$818 571 | \$2,120,000 | |
| 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 dredgding and sediment consolidation Berm and swale maintenance | | | | | | | | | \$540,987 | |
| Subtotal | | | | | | | | | \$5,969,605 | |
| Institutional Controls | 1 | ea | | \$300,000 | | \$300,000 | 35% | \$105,000 | \$405,000 | |
| Long Term Groundwater and DNAPL Monitoring | | | | | | \$300,000 | 100% | \$300,000 | \$600,000 | |
| Sampling first five years (6 total events) | | | | | | | | | | |
| Sampling once per five years (years 6 to 30) Subtotal | | | | | | | | | \$600,000 | \$273,651 |
| | | | | | | | | | | |
| MNR of sediments and long-term monitoring | | | | 4 | | 4= | | A 4 9 | · | \$2,619,778 |
| Wetland mitigation (replace one acre) | | acre | | \$542,720 | 3 | \$542,720 | 20% | \$108,544 | \$651,264 | 40.0 |
| Ground Water Treatment Plant | 1 | | | | | \$2,300,000 | 20% | \$460,000 | \$2,760,000 | \$6,288,585 |
| Restored wetlands | | | | | | | | | | \$15,504 |
| Engineering (design/treatibility studies/contruction support) | 1 | ea | \$ | 11,000,000 | 7 | \$11,000,000 | 0% | \$0 | \$11,000,000 | |
| Total | | | | | | | | | \$113,375,983 | \$13,225,481 |
| | | | | | | TOTAL | | | \$126,601,464 | |
| | | | - | | | | | | | |

Notes:

EA Engineering, Science and Technology planning level cost estimate dated 11/3/2017
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