



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

SUBJECT: Request for a Change in Scope and Additional Funding to Continue a Non-Time-Critical Removal Action at the Big John Salvage-Hoult Road Superfund Site, Fairmont, Marion County, WV

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I. PURPOSE

The purpose of this Request for a Change in Scope and Additional Funding to Continue a Non-Time-Critical Removal Action (Action Memorandum) is to request and document approval for a change in scope and increase to the cost ceiling to perform non-time critical removal actions described herein for the Big John Salvage-Hoult Road Superfund Site (Site or BJS Site) in Fairmont, Marion County, West Virginia. The Removal Action was selected by EPA pursuant to Section 104(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), in an action memorandum approved on September 30, 2010 (2010 Action Memo) and supported by an Engineering Evaluation/Cost Analysis (EE/CA). The 2010 Action Memo authorized an exemption from the \$2 million and 12-month limitation under the consistency waiver provisions of Section 104(c)(1)(C) of CERCLA, 42 U.S.C. § 9604 (c)(1)(C). [Attachment 1]

The 2010 Action Memo selected response actions for contaminated soil, groundwater, and sediment at the BJS Site, including excavation and off-Site disposal of a “hot spot” of industrial wastes referred to as black semi-solid deposits (BSD) and contaminated sediments closely associated with the toxic hotspot located in the Monongahela River (River Area) portion of the Site. The BSD and contaminated sediments contain high levels of polycyclic aromatic hydrocarbons (PAHs). The response actions required by the 2010 Action Memo are being managed as two areas: the River Area response actions and the Uplands Area response actions.

In October 2012, EPA entered a Consent Decree (Civil Action No. 1:08-cv-124) with the Potentially Responsible Parties (PRPs) for the BJS Site (2012 Consent Decree), wherein Vertellus Specialties, the former owner and operator at the BJS Site, agreed to implement the

selected response action identified in the 2010 Action Memo. Vertellus subsequently filed for bankruptcy protection in 2016 prior to completing response actions and EPA has taken over the work.

Pre-design investigations completed in the River Area have identified a significant increase to the estimated volume of contaminated sediment requiring response action and have determined that unstable riverbanks will require engineered reinforcement. The increase in volume of contaminated sediment triggered 1) a reassessment of the River Area component of the response action in an updated Engineering Evaluation/Cost Analysis (EE/CA Amendment), and 2) preparation of a Consideration Memo discussing how EPA is incorporating the 11 risk management principles, which are outlined in the Office of Solid Waste and Emergency Response (OSWER) Directive 9285.6-08 *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites* (2002), into the selection and implementation of the non-time critical removal action (NTCRA) at the BJS Site. [Attachments 2 and 3, respectfully]. Accordingly, this Action Memorandum requests a change in scope to address the additional contaminated sediment volumes and requisite upgrades to stabilize the riverbank.

Pre-design investigations completed in the Uplands Area describe the same nature and extent of contamination identified in the 2010 Action Memo for the Uplands Area and affirm the appropriateness of the selected response actions to mitigate attendant risks. Nevertheless, this Action Memorandum requests an increase to the approved cost ceiling to fund Uplands Area response actions to account for intervening inflation.

A forty-five (45)-day public comment period on the EE/CA Amendment for the NTCRA proposed in this Action Memorandum included an advertisement placed in the Times West Virginian on November 23, 2022. December 1, 2022, EPA and the West Virginia Department of Environmental Protection (WVDEP) held a public meeting in Fairmont to present the EE/CA Amendment and solicit comments. The Administrative Record File for this NTCRA has been established pursuant to 40 C.F.R. § 300.415 and can be accessed at: <https://semspub.epa.gov/src/collections/03/AR/WVD054827944>, and select **EE/CA Amendment** under Collection Description heading.

The proposed response actions for the River Area include reinforcing unstable riverbanks, dredging the highly contaminated material from the river, dewatering, and off-Site disposal in an appropriately permitted facility. The proposed response activities will remove approximately 46,000 cubic yards (cy) of contaminated waste material over 6.4 acres of riverbed. The estimated cost to implement the proposed response action for the River Area is \$35,153,000, including 5 years of environmental monitoring.

The previously selected response actions for the Uplands Area include containing contaminated soil and sediment on-Site with a low-permeability cap and an enhanced collection and treatment system for contaminated groundwater. Post-removal site controls were selected to preserve the integrity of the response action. The Uplands Area response activities will require approximately 36-48 months to design and complete, and will result in the isolation of contaminated soil, sediment, and groundwater. The updated estimated present net worth cost to implement the proposed response action for the Uplands Area is \$31,089,000, including 5 years of post-removal site controls, which will include water treatment plant operations and environmental monitoring.

To mitigate the threats posed by the releases at the Site, additional CERCLA funding is necessary to continue the Removal Action, pursuant to Section 300.415 of the NCP, to prevent the release, or substantial threat of release, of hazardous substances, pollutants, or contaminants at or from the Site and to protect public health or welfare or the environment. A Removal Action Project Ceiling of \$89,318,000 is necessary to mitigate the threats identified in the EE/CA Amendment. This amount represents an increase of \$67,365,000 over the Removal Action Project Ceiling authorized by EPA in the 2010 Action Memorandum.

The 2010 Action Memo documented Removal Site Evaluation activities performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R Part 300. The Removal Site Evaluation documented a threat to public health or welfare or the environment due to the release of hazardous substances, primarily as constituents of coal-tar derived wastes.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

Please refer to the attached 2010 Action Memo for a description of the completed Removal Site Evaluation, which determined that conditions at the BJS Site present a threat to human health or welfare or the environment due to the release of hazardous substances derived from coal tar and coal tar byproducts such as PAHs¹ including, but not limited to, benzo(a)pyrene and naphthalene.

2. Physical Location

This Action Memorandum addresses the BJS Site and includes an area in the Monongahela River impacted by co-mingled wastes from two contiguous Superfund sites, the BJS Site and the Sharon Steel/Fairmont Coke Works Site (FCW Site). The definition of a Superfund site boundary is generally accepted to be the extent of contamination. The co-mingling of contamination extending from each of these Superfund Sites means that the respective Superfund Sites overlap within the hotspot of PAH contamination in the Monongahela River. Accordingly, site conditions and background information for each of the facilities upgradient of the River Area were discussed in Section II of the 2010 Action Memo. Please refer to the attached 2010 Action Memo.

a. Big John Salvage

The BJS Site (WVD054827944) is in Fairmont, Marion County, West Virginia on the east bank of the Monongahela River (see Figure 1 for a general location map). The Site property lies along the eastern edge of WV Route 150 (Hoult Road), approximately 1,320 feet east of the

¹ Of the hundreds of known PAHs, sixteen have been designated High Priority Pollutants (HPPs) because of their potential toxicity in humans and other organisms and their prevalence and persistence in the environment. The term PAHs, sometimes referred to as total PAH₁₆, refers to the total sum concentration of the sixteen HPPs. Several PAHs are probable or known carcinogens.

Monongahela River. The extent of contamination from the BJS Site consists of both the 20 acres of relatively flat land and adjacent off-property drainage areas sloping down to the Sharon Steel Run and extending into the Monongahela River downstream (north) of the Site property (see Figure 2). In terms of historic industrial use, these 20 acres constitute the most important portion of the 38-acre BJS Site.

The BJS Site also includes 18 acres of adjacent areas, including a low-lying drainage area that is known as the Unnamed Tributary #1 (also referred to as Sharon Steel Run). This portion of the Site is vegetated with trees and shrubs and has steep hillsides dropping off to Sharon Steel Run and the Monongahela River. Surface water runoff from the Site generally flows in a southerly direction toward Sharon Steel Run through three intermittent tributaries (East, Middle and West Tributaries). Sharon Steel Run originates south and east of the BJS Site at the FCW Site and discharges to the Monongahela River. The 2012 Consent Decree established a “release line” that defines the boundary between the BJS Site and the adjacent FCW Site for purposes of liability.

b. Sharon Steel/Fairmont Coke Works

The FCW Site (WVD000800441) is in Fairmont, Marion County, West Virginia. The FCW Site consists of 97 acres along the southern edge of Suncrest Avenue approximately 1,600 feet east of the Monongahela River. The FCW Site (depicted on Figure 3 as the area within the property boundary) is south-southeast of, and adjacent to, the BJS Site. Approximately 55 acres of the FCW Site were used for historical industrial operations. Approximately 7 acres located along the periphery to the north and northeast of the FCW Site were formerly residential and commercial properties that were purchased and incorporated into the FCW Site. The remaining 35 acres include a wooded hillside that descends to the Monongahela River at the western portion of the FCW Site. The western drainage from the FCW Site shares a common drainage system (the Unnamed Tributary) with the BJS Site.

Prior to recent response actions mitigating contamination at the FCW Site, contamination from the FCW Site was located on the developed portions of the FCW Site extending into the Monongahela River downstream (north) of the FCW Site. The PAH-contamination that had once been present at the FCW Site has been remediated as described in Section II.B.1(b) below. Land surrounding the FCW Site is a mixture of industrial, commercial, and residential properties.

3. Site Characteristics

a. Big John Salvage

Please refer to the attached 2010 Action Memo for a summary of historical property ownership and industrial activities.

The parcels subject to removal response actions in the Uplands Area are currently owned by one of two Environmental Trusts established for the purpose of cooperating with the cleanup activities of the Site and promoting beneficial reuse. There is a 14-acre parcel that supported most of the industrial activities during historic operations in the Uplands Area of the BJS Site. The Vertellus Specialties Environmental Restoration Trust (VSERT) acquired the 14-acre parcel (VSERT Parcel) through the Bankruptcy Court in 2017. The VSERT was established for the purpose of supporting remediation of the VSERT Parcel and facilitating the transfer of the VSERT Parcel to a new owner. Other adjacent parcels have been acquired by the Fairmont Coke

Works Site Custodial Trust (FCT) to promote and facilitate the beneficial reuse of the BJS Site property after the appropriate response actions are completed. The State of West Virginia is the Trustee for the FCT.

b. Fairmont Coke Works

Please refer to the attached 2010 Action Memo for a summary of historical property ownership and industrial activities.

Since 2004, the FCW property has been owned by FCT, described above in Section II.A.3.a., to facilitate the beneficial reuse after cleanup actions are completed. Refer to Sections II.B.1.b and II.B.2.b, below, for remediation activities completed since 2010 on the FCW property. In 2013, the Fairmont Armed Forces Reserve Center (National Guard Armory) was constructed along the southern boundary of the FCW Site. Lafayette Street was extended across the center of the FCW Site where it intersects with 201st Artillery Drive, providing access to the National Guard Armory. In April 2017, the West Virginia State Police Troop 1 Headquarters was constructed and began operations on an approximately 3-acre parcel in the southern portion of the FCW Site.

B. Other Actions to Date

1. Previous Actions

Please refer to the 2010 Action Memo for a summary of response actions prior to 2010. This Section II.B.1 details actions that took place between 2010 and 2017.

a. Big John Salvage

As stated above, the PRPs entered into the 2012 Consent Decree with EPA and WVDEP and agreed to perform the response action selected in the 2010 Action Memo. Vertellus was designated as the “Performing Defendant,” with sole responsibility for implementing the selected response action. The other two PRPs, Exxon Mobil and CBS, were designated as cash-out settlers, or “Non-Performing Defendants.”

Pursuant to the 2012 Consent Decree, Vertellus initiated the work as two separate projects: The “River Area” would address contaminants in the Monongahela River; and the “Uplands Area” would address response actions required on the uplands portion of the BJS Site. In addition to maintaining ongoing groundwater collection and treatment activities, Vertellus conducted some pre-design investigation (PDI) activities to evaluate the sediment, soil, and groundwater in the Uplands Area, and sediment quality within the Monongahela River.

A PDI of the Uplands Area to define the area to be capped in accordance with the 2010 Action Memo was completed by Vertellus in February 2016. The Uplands Area PDI focused on refining the boundaries of contaminated soil requiring mitigation (See 2010 Action Memo Table 1 for performance standards). The PDI mostly confirmed the extent of contamination reported in the 2010 Action Memo with no significant changes. Vertellus began to develop preliminary design documents to support implementation of Uplands Area response actions, but those efforts were terminated upon Vertellus’ bankruptcy.

Vertellus also began to develop draft preliminary and intermediate design documents with the oversight of EPA and WVDEP until 2016, when Vertellus filed for bankruptcy and subsequently informed EPA that it would terminate response actions.

In 2016, EPA invoked the “work takeover” protocols set forth in Paragraph 72 of the 2012 Consent Decree. In 2017, EPA initiated an Interagency Agreement (IA) with the U.S. Army Corps of Engineers (USACE) to complete the PDI and RD for the River Area of the Site.

In April 2017, upon finalization of Vertellus’ bankruptcy settlement, EPA also took over operation of the on-Site groundwater collection and treatment system. The system was designed to collect contaminated water migrating from the Uplands Area down-slope and into collection sumps located at the base of the eastern and middle tributary, respectively, which is then pumped to an on-Site pre-treatment system with the effluent ultimately discharged to the City of Fairmont sewer system for final treatment. Pursuant to the 2010 Action Memo, the collection and treatment of groundwater at the BJS Site will be further upgraded. Section II.B.2, below, details actions that took place after the 2017 bankruptcy.

b. Fairmont Coke Works

Please refer to the 2010 Action Memo for a summary of historical response actions.

As of September 2010, ExxonMobil, the sole PRP at the FCW Site, was nearing completion of Non-Time Critical Removal Actions pursuant to a 1997 Administrative Order on Consent with EPA and WVDEP oversight. Action Memoranda approving the Phase I and Phase II EE/CAs were issued by EPA on June 6, 2000, and July 23, 2003, respectively. In summary, the Phase I and Phase II Action Memoranda selected the following source control response actions:

- Excavate waste materials and contaminated soils from defined source areas exceeding FCW Site-specific cleanup standards;
- Segregate excavated materials with a high British Thermal Unit (BTU) for inclusion with an on-Site recycling process used to generate a synthetic coal fuel product (Synfuel); and
- Transport excavated waste contaminated soil not amenable to the BTU recycling process off-Site to appropriately permitted treatment and/or disposal facilities.

The response actions outlined in the Phase I and Phase II Action Memoranda began in 2003 and were completed in September 2011. All off-Site treatment and/or disposal activities were carried out in accordance with CERCLA § 121(d)(3) and 40 Code of Federal Regulations (CFR) § 300.440. During the period of February 2003 through December 2010, the following material was removed from the FCW Site:

- 6,943 tons of high BTU waste materials was shipped off-Site for energy recovery to the Piney Creek Power Plant in Clarion, PA;
- 24,095 tons of contaminated soil determined to be RCRA-characteristic hazardous waste were shipped to RCRA-permitted facilities for treatment and/or disposal;
- 214,246 tons of contaminated but non-hazardous soils and debris were disposed of at appropriately permitted landfills; and

- 486,111 tons of synthetic fuel were generated by blending excavated wastes from FCW Site landfills with coal and other amendments. This blended material was tested and it was determined that it was not a RCRA-characteristic waste. The product was subsequently shipped off-Site for energy recovery at the Grant Town Power Plant in Grant Town, WV.

A systematic post-excavation confirmation sampling program was conducted using 50 feet (ft) by 50 ft grids to demonstrate that source removal and risk reduction goals were achieved. Detailed descriptions of the removal actions completed at the FCW Site are available in the following area-specific reports:

- Former Process Area Closeout Report (July 2011)
- Former Waste Management Area Closeout Report (August 2011)
- Former Light Oil Storage Area Closeout Report (August 2011)
- Coal Storage Area/Coke Handling Area Hot Spot Removal Report (July 2010)
- Final Pollution Report #455 (September 28, 2011)

The waste/soil removal actions were performed to achieve risk-based cleanup standards that were established for various areas of the FCW Site and protection of underlying groundwater. The primary contaminants of concern (COCs) driving the removal activities were benzene, PAHs, and arsenic.

After completion of the NTCRA, a FCW Site-wide RI/FS was performed to address potentially contaminated groundwater and any other remaining residual contamination requiring action to mitigate unacceptable risk to human health and the environment. In December 2017, EPA issued a final Record of Decision for the FCW Site. The ROD documented that PAHs are no longer present at unacceptable levels on the FCW Site. Therefore, no source material remains on the FCW Site that could potentially re-contaminate the Monongahela River after a response action is completed in the River Area. For additional details related to the FCW Site, the Administrative Record can be viewed online at <https://semspub.epa.gov/src/collections/03/AR/WVD000800441>, and select **Remedial** under Collection Description heading.

2. Current Actions

a. Big John Salvage

1) River Area

In 2017, EPA entered an IA with USACE to complete the PDI and Removal Design (RD) for the River Area portion of the BJS Site. USACE contracted Tetra Tech, Inc (Tetra Tech) to perform remaining field investigations necessary to support RD report. Tetra Tech considered available information in the Administrative Record supplemented with data collection completed by Vertellus prior to the bankruptcy and subsequent work takeover by EPA. The Removal Design Work Plan, including PDI, was approved in March 2018. The RD PDI was completed, and the RD was developed to a 95% complete level in 2019.

The primary objectives of the River Area PDI included:

- Field investigations to refine the 3-dimensional dredge prism required to meet performance standards and identify the presence of debris or utilities that may interfere with contaminated sediment removal;
- Sampling to analyze sediment chemical characteristics necessary to refine and update the ecological and human health-based risk assessments driving the sediment response action and confirm waste profiles for off-site disposal planning; and
- Geotechnical sampling and shoreline evaluation to assess stability of the riverbank and evaluate the potential impact of proposed dredging.

The PDI included sediment borings conducted along transects at 100 ft intervals (nominally) and determined that the BSD/stained sediment deposits (SSD) hotspot footprint extends approximately 3,400 ft and PAH concentrations exceeding 90 milligrams per kilogram (mg/kg) are found at depths of up to 12 feet below the River Area bottom. The current estimate of contaminated material is 46,000 cy, including over-dredge and safe slope requirements (See Figure 4). The River Area transects completed by Tetra Tech confirmed the horizontal extent of the hotspot was adequately defined in the 2010 Action Memo on three sides but was noted to have been incomplete at the downstream boundary. EPA had incorrectly assumed that the potential for additional sediment volume downstream of the known extent was reasonably limited due to shallow depth to bedrock underlying the riverbed. Subsequent post-EE/CA PDIs completed in 2019 determined that the depth to bedrock dips significantly downriver of the terminal point of earlier investigations. The updated 46,000 cy estimate of contaminated material with a 6.4-acre footprint is a significant increase from the 8,900 cy with a 2-acre footprint estimated in the 2010 Action Memo.

Additionally, based on the geotechnical study conducted along riverbank adjacent to the dredge area, EPA has determined that the slopes are unstable. The 95% design document called for the placement of an engineered stabilizing feature such as a combi-wall prior to removal of contaminated sediments along most of the riverbank. This engineered feature adds costs to the planned River Area response action that were not considered in the 2010 Action Memo.

The increased area and volume of contaminated sediment along the River bottom, and determination that riverbank stabilization will be required prior to dredging, triggered a reassessment of the River Area response action. A series of studies were completed as part of the reassessment of the River Area response action, including, but not limited to:

- Engineering Evaluation/Cost Analysis Amendment (EE/CA Amendment) – River Area [Attachment 2].
- Hydrodynamic and Sediment Transport Modeling and Remedial Alternative Analysis Technical Memorandum dated December 2020. [Attachment A to the EE/CA Amendment]
- Updated Baseline Human Health Risk Assessment (HHRA) for Monongahela River Sediment and Surface Water, dated October 2020. [Attachment C to the EE/CA Amendment] The updated risk assessment findings are summarized in Section II.C, below.
- 11 Principles Consideration Memorandum dated August 4, 2022. [Attachment 3] This memorandum discusses how risk management principles unique to contaminated

sediment risks at hazardous waste sites have been incorporated into the selection of the NTCRA for contaminated sediment in the Monongahela River at the BJS Site.

The EE/CA Amendment reconsidered an array of removal response options to mitigate the contaminated sediment at the BJS Site. The EE/CA Amendment included hydrodynamic and sediment transport modeling to support development of design considerations and comparative analysis of removal alternatives for contaminated sediment. The hydrodynamic modeling established that the majority of the River Area is characterized by a neutral depositional state, where net erosion or deposition is zero.

Based on the additional information provided by the hydrodynamic modeling and sediment deposition modeling, EPA developed potential sediment response action alternatives involving monitored natural recovery and capping and compared them to an updated dredging and off-Site disposal response action from that selected in the 2010 Action Memo.

Due to the limited sediment deposition rate, EPA determined that monitored natural recovery would not be expected to occur over a reasonable timeframe. Capping scenarios that were reassessed include establishing dredging setbacks along unstable sections of the shoreline and capping those areas; partial dredging with placement of a conventional sand cap; and partial dredging with placement of an amended sand cap.

Cap modeling of PAH flux from underlying sediment indicates that a conventional 12-inch sand cap may be protective over 100 years for a scenario where the BSD is fully dredged and the SSD is dredged by a depth of 3 feet. Cap modeling also indicates that a cap profile that is comprised of an amended 12-inch sand cap (six inches of sand amended with carbon followed by six inches of sand) may be protective over 100 years for a scenario where the BSD and SSD are dredged by a depth of three feet. To prevent scouring of the cap, an erosion protection layer of gravel would need to be placed over the sand cap. See Section VI.A, below, for a more complete description of response alternatives evaluated in the EE/CA Amendment.

2) Uplands Area

A PDI of the Uplands Area to define the area to be capped in accordance with the 2010 Action Memo was completed by Vertellus in February 2016. Vertellus began to develop preliminary design documents to support implementation of Uplands Area response actions but those efforts were terminated upon Vertellus' bankruptcy. EPA has identified the Uplands Area as a potential sediment processing site to support River Area response actions (in the event that a more suitable river-side property cannot be acquired for that purpose). Accordingly, scheduling construction of the RCRA-Subtitle D cap on the Uplands Area may be influenced by the River Area removal action. In April 2022, EPA entered into an IA with USACE to complete the RD for the Uplands Area. EPA expects to complete the design of the cap component of the Uplands Area removal in 2024.

EPA has been operating the on-Site groundwater seep collection and treatment system since April 2017. Aging equipment that had been on-Site at the time of Vertellus' bankruptcy has been replaced and relocated outside the area to be capped. In April 2022, EPA began the RD for expansion of the existing water containment system which will continue to discharge to the publicly owned treatment works (POTW).

b. Fairmont Coke Works

As stated in Section II.B.1.b, above, there are no significant continuing sources of river sediment contamination at the FCW Site. The western portion of the FCW Site does have limited groundwater contamination that resembles acid mine drainage with low pH and elevated metals concentrations, primarily iron, manganese and aluminum. This area also has elevated concentrations of benzene in the groundwater. The 2017 ROD requires the design, installation, and maintenance of a Permeable Reactive Barrier (PRB) at the western end of the FCW Site so that non-point source subsurface discharge to the Unnamed Tributary does not contribute to an exceedance to the West Virginia [Surface] Water Quality Standards appropriate for secondary use recreation and protection of aquatic life. In accordance with a consent decree, ExxonMobil is designing the selected remedy. A pilot-scale section of the PRB was installed in September 2020 and upgraded in September 2021. The FCW Site residual COCs, the extremely low discharge volumes and the relative distance from the subject Monongahela River hotspot removal provide a high certainty that there are no continuing sources on the FCW Site that could potentially re-contaminate the Monongahela River sediment after a response action is completed in the River Area.

C. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Please refer to the 2010 Action Memo for documented releases of hazardous substances at the BJS Site. Field Investigations conducted as part of the PDIs confirmed previous findings and added further details defining the depth and downstream extent of the SSD.

Environmental investigations have documented BSD of industrial wastes spread over approximately one acre of the Monongahela River bottom extending from the Sharon Steel Run confluence (Figure 4). The BSD and downstream SSD contain high levels of PAHs creating a toxic hotspot and potentially serving as a source of contamination to the Monongahela River sediments further downstream. The BSD area ranges from 50 to 130 feet wide, extending approximately 100 feet upstream to approximately 480 feet downstream from the Sharon Steel Run confluence. The BSD is typically 6 inches to 3 feet thick, with a limited area extending up to 13 feet in thickness in front of the Sharon Steel Run outfall. Analytical results from samples of BSD indicate that PAH concentrations range from 1,500 to over 20,000 mg/kg (>2.0%). Visible SSD, or sediments that contain high enough mass of BSD to be visible, appear to be an erosion/deposition feature extending downgradient of the BSD area. The SSD normally occurs in the upper 6 feet of sediment, approximately 80 to 90 feet wide by 3,000 feet long. The depth of SSD sediments extends up to 12 feet in thickness. Analytical results from samples of SSD indicate that PAH concentrations generally range between 200 and 1,500 mg/kg with some pockets of contaminated sediments greater than 1,500 mg/kg. Sediment PAH concentrations outside of the BSD/SSD impacted area range from 2 to 5 mg/kg in surface sediment. There is a 2 to 3-inch layer of discolored sediment between two and five feet below the sediment surface that contains 20 – 52 mg/kg PAH outside of the BSD/SSD hotspot area.

Analysis of contaminated sediments in the hotspot include elevated concentrations of many specific PAHs, including but not limited to benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and naphthalene; each of these specific PAHs are

listed as hazardous substances at 40 C.F.R. § 302.4 and as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

To evaluate the ecological impact of PAH contaminated SSD in the River Area, fish sampling for histopathology, macroinvertebrate (clam) sampling for PAH uptake, and sediment sampling for laboratory benthic toxicity testing was conducted. The fish histopathology findings concluded that a number of changes observed in the fish (abnormal bile ducts, altered foci, and abnormal hepatocytes) suggests exposure to contaminants, most likely those metabolized by the liver. Clam samples were collected from two locations in the River – one from a location with relatively non-impacted sediments (PAH concentrations less than 2 mg/kg), and one from a location heavily impacted (PAH concentrations ~ 1,300 mg/kg). The PAH concentration in clam tissue collected from the less impacted location was 0.71 mg/kg, whereas the PAH concentration in clam tissue collected from the impacted sediment location was 220 mg/kg, indicating uptake of bioavailable PAHs within the impacted area. Sediment toxicity tests revealed that the sediment collected from the vicinity of the BSD caused significant mortality to *Hyalella azteca*, a sensitive freshwater invertebrate that inhabits the water column and sediment surface feeding on detritus, after 28 days of exposure. The 42-day *Hyalella azteca* toxicity test produced a BJS Site-specific no observed effect concentration (NOEC) of 60 mg/kg PAH and a lowest observed effect concentration (LOEC) of 135 mg/kg PAH, the geometric mean of which provides an ecological risk-based cleanup goal of 90 mg/kg PAH. This dose-response study indicated statistically significant differences between the reference sample and undiluted BJS Site sediment samples for survival and growth and decreased toxic effects with increased dilution of impacted sediment.

The human health risk assessment for the Site RI considered potential exposure to Monongahela River surface water and sediments by recreational users. The risk assessment used BJS Site-specific exposure assumptions for recreational users and toxicological values for carcinogenic PAHs (e.g., benzo(a)pyrene and benzo(a)anthracene). EPA's generally acceptable risk range for Site-related exposures is between 1 in 10,000 (1×10^{-4}) and 1 in 1,000,000 (1×10^{-6}).

In December 2020, EPA completed an updated HHRA associated with potential exposures to Monongahela River sediment and surface water. The updated HHRA for Monongahela River sediment determined a cancer risk of 4.0×10^{-4} for PAHs in surface sediment and 2.9×10^{-4} for PAHs in subsurface sediment, exceeding the 1×10^{-4} upper bound of EPA's risk management range. Preliminary remedial goals (PRG) of 20 mg/kg and 486 mg/kg were determined for total benzo(a)pyrene equivalents and naphthalene respectively, which would correspond to a total PAH₁₆ concentration of 226 mg/kg in shallow sediment and 178 mg/kg in subsurface sediment. PRGs differ for shallow and deep sediment due to different relative proportions of carcinogenic PAHs contributing to the total PAH concentration. Both PRGs are greater than the ecologically based PRG of 90 mg/kg PAH, indicating that a removal action targeting that PAH concentration for the protection of ecological receptors should be additionally protective of human recreational receptors at the BJS Site.

The updated HHRA did not identify any contaminants of potential concern in surface water.

PDIs completed in the Uplands Area confirmed the findings reported in the 2010 Action Memo for surface soil, groundwater, and sediment in on-Site waterways. The environmental data collected since the 2010 Action Memo has been added to the Administrative Record. There were no new contaminants of concern or areas of contamination identified in the Uplands Area.

D. National Priorities List

The 38-acre BJS Site is located on Hoult Road in Fairmont, West Virginia and was placed on the National Priorities List (NPL) on July 27, 2000.

The 97-acre FCW Site is located on Dixie Avenue in Fairmont, West Virginia and was placed on the NPL on December 23, 1996.

E. State and Local Authorities' Roles

Please refer to the attached 2010 Action Memo for historical activities.

The WVDEP has assumed the role of a support agency for the ongoing Superfund removal and remedial activities at both the BJS Site and the FCW Site. WVDEP provided technical support during preparation of all the removal response reports described herein and participated in the public meeting held to present the EE/CA Amendment to stakeholders for comment. West Virginia has been informed about, and concurs with, the proposed non-time-critical removal action described in this Action Memorandum. WVDEP informed EPA that the State of West Virginia does not have the resources to undertake the work.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415(b)(2) of the NCP, 40 C.F.R. §300.415(b)(2), outlines the factors which should be considered in determining the appropriateness of a removal action. Paragraphs (b)(2)(i), (iv), (v), and (vii) of Section 300.415 directly apply as follows to the conditions as they exist at the BJS Site.

A. 300.415(b)(2)(i) “Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants”

High concentrations of hazardous substances, pollutants, or contaminants in tar seeps are present on the ground surface and the BSD and visibly stained sediments closely associated with the hotspot extending from the point that Sharon Steel Run discharges to the Monongahela River. The BSD and SSD are contaminated with PAHs, including but not limited to benzo(a)pyrene, in an area of approximately 6.4 acres along the Monongahela River bottom. Access to the Monongahela River is unrestricted to humans using the area along the eastern riverbank for recreational activities including fishing and swimming. Privately owned properties along the northern edge of the River Area have floating boat docks and a frequently utilized rails-to-trails-type public hiking and biking path extends along the River Area between the contiguous BJS Site and FCW Site and the hotspot in the river. Wildlife in the area also has unrestricted access. Sediment toxicity tests revealed that contaminated sediments from the hotspot area caused statistically significant toxicity to laboratory test species due to elevated levels of PAHs. The 42-day *Hyaella azteca* toxicity test produced a BJS Site-specific NOEC of 60 mg/kg PAH and a

LOEC of 135 mg/kg PAH. Analytical results from samples of BSD indicate that PAH concentrations range from 1,500 to over 20,000 mg/kg (>2.0%).

Conditions at the BJS Site pose an imminent threat to human health. EPA conducted a baseline risk HHRA to support the 2010 Action Memo and updated the HHRA to consider additional Monongahela sediment data in 2020. For potential carcinogenic risks, EPA's acceptable risk range is 10^{-4} to 10^{-6} . The cumulative carcinogenic risk estimate for the Recreational Reasonable Maximum Exposure scenario is greater than 1×10^{-3} and was related primarily to carcinogenic PAHs, evaluated as benzo(a)pyrene equivalents. The updated HHRA for Monongahela River sediment determined a cancer risk of 4.0×10^{-4} for PAHs in surface sediment and 2.9×10^{-4} for PAHs in subsurface sediment, exceeding the 1×10^{-4} upper bound of EPA's risk management range.

B. 300.415(b)(2)(iv) "High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate"

High concentrations of PAHs (>20,000 mg/kg) are in the BSD and BSD-stained sediments at or near the surface of the River Area bottom. The BSD are cohesive along the River Area bottom and not likely to scour away during a single flood event as evidenced by the continued presence of the BSD hotspot 30-40 years after coal tar processing has been terminated at the BJS Site and FCW Site. However, the visibly stained sediments extending downriver of the BSD area appear to contain small particles of BSD material which have eroded from the larger mass, along with colloidal non-aqueous droplets deposited from historic discharges, and subsequently contaminated adjacent sediments with approximately 1,000 mg/kg PAH. Ecological toxicity tests conducted on sediment with greater than 135 mg/kg PAH demonstrated toxicity to laboratory test organisms. Native aquatic organisms in the vicinity are being exposed to the contaminated sediments. The BSD/SSD is susceptible to erosion and the contaminants in the BSD area act as a source of sediment contamination further down the Monongahela River.

Tar seeps containing high concentrations of PAHs and contaminated soils containing elevated concentrations of PAHs, arsenic, and mercury are exposed on the surface of the BJS Site. The contaminated soils and tar seeps at the surface are exposed and susceptible to erosion from water and wind and may migrate from the Uplands Area and act as a continuing source of sediment contamination in the Uplands Area drainage ways and the Monongahela River.

C. 300.415(b)(2)(v) "Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released"

The Monongahela River is subject to periodic extreme weather conditions as heavy spring rains and/or summer storms increase river volume and current velocity, which lead to increased scouring of the River Area bottom. The high concentrations of PAHs (>20,000 mg/kg) in the BSD and stained sediments at or near the surface of the River Area bottom are more likely to be transported and deposited further down-river during periods of high energy. The BSD are cohesive along the River Area bottom and not likely to scour away during a single flood event but the visibly stained sediments extending downriver of the BSD area appear to contain small particles of BSD material which have eroded from the larger mass and subsequently contaminated adjacent sediments with approximately 1,000 mg/kg PAH. The BSD is susceptible to erosion during extreme precipitation and the contaminants in the BSD area act as a source of sediment contamination further down the Monongahela River.

D. 300.415(b)(2)(vii) “The availability of other appropriate federal or state response mechanisms to respond to the release”

The WVDEP, the City of Fairmont, and Marion County do not possess the resources to undertake a removal response of this magnitude at this time. Updating the 2010 Action Memo for a non-time critical removal action is the best mechanism to address the hotspot of PAHs exhibiting toxicity to aquatic animals in the River Area and the unacceptable risks presented by hazardous substances in soil, sediment, and groundwater in the Uplands Area in a timely manner. All removal activities will be consistent with any future remedial actions.

IV. ENDANGERMENT DETERMINATION

See 2010 Action Memo.

This Action Memorandum describes how contaminated sediments extend deeper and further downriver than previously known. The endangerment determination otherwise remains unchanged.

V. EXEMPTION FROM STATUTORY LIMITS

Section 104(c)(1) of CERCLA limits a removal action to 12 months and to a ceiling of \$2 million unless certain criteria are met. Exemption from the 12-month and the \$2,000,000 statutory limits was formally approved in the 2010 Action Memo (see attached). It was determined that Site conditions at the BJS Site continue to meet the criteria in Section 104(c) of CERCLA, 42 U.S.C. § 9604 (c), continued response action is otherwise appropriate and consistent with the remedial action to be taken at this NPL Site.

The Removal Action Project Ceiling in the 2010 Action Memo was \$21,953,000. This Action Memorandum proposes to increase the Removal Action Ceiling to \$79,490,673. See Section VII.G, below, for more detail on the increase in costs.

VI. IDENTIFICATION AND ANALYSIS OF UPDATED REMOVAL ACTION ALTERNATIVES

A. River Area Sediments

The EE/CA Amendment evaluates four response action alternatives for the BSD and heavily contaminated SSD in the Monongahela River based on the additional information developed during River Area PDIs. The 90 mg/kg PAH target cleanup goal for river sediment was established to achieve levels protective of both environmental receptors and human health and the environment. A summary of the four alternatives initially developed and considered by EPA in the 2010 Action Memo and recently revised in the EE/CA Amendment for contaminated River Area sediment are described immediately below.

1. Alternative 1 - No Action

Alternative 1 provided a baseline for comparing the other three alternatives evaluated. In this alternative no active remediation, treatment, or engineering controls would be implemented and no long term monitoring would be performed. There are no costs associated with this alternative. Under this alternative, potential exposure to wastes and contaminated sediments in the hotspot area would continue and hazardous substances would continue to migrate downstream.

2. Alternative 2 – Excavation and Off-Site Disposal

Alternative 2 extends the response action selected in the 2010 Action Memo to additional contaminated sediment volumes with upgrades to stabilize the riverbank. Alternative 2 includes excavating the BSD and SSD from the Monongahela River and disposing of it in an off-Site landfill or treating² it off-Site.

For cost estimation purposes it is assumed that the remediation area will extend to the ordinary highwater mark. An estimated 42,000 cy of contaminated material exceeds the performance standards. An estimated 46,000 cy would be removed including over-dredge (See Figure 4).

The dredged sediment would initially be dewatered by gravity drainage on a barge within a silt curtain before being hauled to a dewatering pad and containment system. Water generated from handling the sediment dredged from the Monongahela River would be managed to reduce total suspended solids content and contaminant concentrations so that treated water meets effluent limitations for final discharge. The production rate of dredging is expected to be 300 cy to 500 cy per day, averaging 2,400 cy per week.

Dewatered sediment would be stockpiled and sampled for waste profiles prior to transport to appropriately permitted landfill(s). All contaminated sediment samples tested during design activities have profiled as non-characteristic hazardous waste. Stabilization agents, such as fly ash, may be blended with sediment to ensure the material meets landfill acceptance requirements.

To permit safe dredging in unstable areas, a structural measure such as a reenforcement wall (referred to as a combi-wall) would be utilized to stabilize riverbanks prior to dredging.

The dredged areas will be restored by placing a layer of sand as a residual management layer (RML) to control any residual sediment deposits and to promote natural recovery of sediments. A 4-inch coarse gravel erosion protection layer (EPL) will be placed over the RML in areas determined to be subject to scour by the hydrodynamic and sediment transport modeling. Areas along the riverbank susceptible to erosion (areas with estimated water velocities of 6 to 8 feet per second) would be protected with an additional 12 inches of mid-sized riprap. The toe of the riprap slope along the river bottom will be supported additional large riprap. The erosion protection features of the design were developed based on hydrodynamic modeling of a 100-year storm flow in the Monongahela River.

² All PDI testing of BSD and contaminated sediments indicate that the material is not RCRA-characteristic waste, therefore, treatment will not likely be required for any dredged material.

Water, gas, and sanitary sewer utility lines have been identified crossing the Monongahela River within the dredge area. Contaminated sediments in utility corridors will be dredged to the degree determined to be reasonable and protective of the underlying utility lines. An EPL will be placed over areas within utility corridors which have greater than 90 mg/kg PAH to control scour. Informational advisories will be communicated to local government and utility companies with utility lines beneath contaminated sediment containment corridors to minimize potential disruption of the response action if utility line repairs become necessary.

The final configuration of the design components, including erosion protection, riverbank stabilization, and sediment dewatering and water treatment details would be determined during the final Remedial Design and constructability review.

Environmental monitoring, including bathymetry would be performed to document post-removal baseline conditions and continue for five years to document the effectiveness of the response action in achieving performance standards.

Alternative 2 is estimated to take six months in the field, but with planning time it may take 18 months to complete. The cost for Alternative 2 is estimated at approximately \$33,546,000 capital costs, \$1,606,994 post-removal monitoring, and \$35,152,994 present net worth cost.

3. Alternative 3 – Monitored Natural Recovery (MNR)

Alternative 3 considers the continued use of naturally occurring physical, biological, and/or chemical mechanisms to reduce risk to human and/or ecological receptors, and the prevention of contact with contaminated sediments through implementation of institutional controls. MNR relies on source control and dispersion through erosion or isolation and natural sedimentation for mixing of contaminants, and thereby reducing exposure. Institutional controls (ICs) in the form of current fishing advisories and related information devices (e.g., signage for public education) would be included to minimize the potential for unacceptable exposure to contaminated sediments.

The hydrodynamic modeling software Environmental Fluid Dynamic Code (EFDC) was used to determine whether accumulation of clean sediment, once source control is in place, would allow the Monongahela River sediments to reach the Site removal objectives in a reasonable time frame (e.g., within 10-20 years). This would consist of controlling the on-Site sources of sediment and groundwater to prevent the continued migration of contamination into the river from the BJS Site. Therefore, source control is an essential component to successfully implement this alternative. Since the 2010 Action Memo, significant removal actions have been conducted to control sources. The NTCRA source removal completed in September 2011 at the FCW Site is a significant factor in ensuring that the Monongahela River will not be re-contaminated with FCW Site-related contaminants.

EFDC modeling results for a 10-year simulation scenario indicate that the study area is not depositional. The majority of the area with contaminated sediments is characterized by a neutral depositional state, meaning that net erosion or deposition is zero. Therefore, natural recovery of contaminated sediment due to clean sediment deposition is not anticipated within a reasonable timeframe.

The cost for Alternative 3 is estimated to include no capital costs, \$3,239,935 post-removal monitoring, and \$3,239,935 total cost.

4. Alternative 4 – Partial Excavation and Capping Options

The EE/CA Amendment described multiple options which combined partial excavation followed by sediment cap placement that are predicted to achieve the remedial goals. For each option, mathematical modeling was used to estimate contaminant concentration profiles in the sediment cap and overlying layers. The maximum porewater and bulk sediment contaminant concentrations within the bioturbation layer at steady state conditions were also estimated. Refer to the EE/CA Amendment, Appendix A, for a detailed presentation of the cap modeling and profile options considered.

Alternative 4 (referred to as Alternative 4-2A in the EE/CA Amendment, Appendix A) is the sediment capping option predicted to best meet performance objectives. Alternative 4 involves 3-foot contaminated sediment removal across the same remediation footprint as Alternative 2 followed by the addition of a two-layer cap, including a 6-inch layer of sand amended with organic carbon overlain by a 6-inch clean sand bioturbation³ layer. The model assumed over time that the organic carbon content in the bioturbation layer would increase with the deposition of new sediment that would become mixed in the upper layer of the cap through bioturbation. In addition, the amended sand would increase the substrate for contaminants to bind to. The amended sand would sequester organic constituents migrating from underlying residual contamination, resulting in higher bulk sediment contaminant concentrations in the long term, but would reduce contaminant bioavailability and associated risk. Total contaminated sediment dredge volume removed from the river bottom under Alternative 4 would be approximately 28,000 cy. Total volume of material placed back into the River Area as a cap would be approximately 11,200 cy.

Alternative 4 would require the same riverbank/slope stabilization measures, dewatering, off-Site disposal of dredged contaminated sediments activities, and placement of EPL (including the utility corridors) as in Alternative 2.

Alternative 4 would also require implementation of ICs and post-removal site controls.

The effectiveness of a sediment cap to reduce exposure from contaminants is most strongly influenced by two parameters: the concentration of the contaminant in the underlying sediment porewater and the vertical groundwater velocity, as explained in Appendix C of the EE/CA Amendment. Sensitivity of the sediment cap models to these parameters can be seen in the full evaluation presented in Appendix A of the EE/CA Amendment. If capping is selected as the remedy, additional data collection would allow for refinement of estimates and assumptions used in the preliminary sediment cap modeling. Sediment porewater data would provide Site-specific data on concentration estimates in the sediments beneath the placed cap. Sediment hydraulic conductivity and hydraulic gradient data would allow for refinement of the vertical groundwater velocities that are better representative of the Monongahela River sediment area of the Site. As these two characteristics are primary influences on the effectiveness of a sediment cap, refinements with Site-specific data would provide more certainty for the sediment cap design approach. If capping is selected, the sediment cap modeling would need to be completed and the

³ Uppermost 6 inches of sediment subject to disturbance by plants (root growth) and animals (burrowing).

impact of capping on 100-year flood elevations would need to be further evaluated through more robust hydraulic modeling.

Alternative 4 is estimated to take six months in the field, but with planning time it may take 18 months to complete.

The cost for Alternative 4 is estimated at approximately \$30,210,948 capital costs, \$4,913,792 post-removal monitoring, and \$35,124,740 present net worth cost.

B. Uplands Area Response Actions – Soil, Drainage-way Sediments, and Groundwater

The response action for the Uplands Area remains unchanged from the 2010 Action Memo; however, this Action Memorandum updates the estimated costs to account for intervening inflation. Please refer to the 2010 Action Memo for a detailed summary of the response actions selected for Uplands Soil, Drainage-way Sediments, and Groundwater, as well as Section VII.A.2, below, for an updated cost estimate.

VII. PROPOSED ACTION AND ESTIMATED COSTS

A. Removal Action Selection Process

1. River Area Response Action

EPA completed the EE/CA Amendment focusing on the River Area response action. The EE/CA Amendment re-considered removal action alternatives for the River Area 1) to mitigate direct exposure of human and ecological receptors to hazardous substances in industrial waste deposits (BSD) and contaminated sediments in the Monongahela River, and 2) to mitigate the release or potential release of hazardous substances from the hotspot area further down river. The River Area alternatives address an estimated 42,000 cy of contaminated sediments extending approximately 3,000 ft down river. Each removal response alternative included actions to stabilize unstable riverbanks defined in the 95% Removal Design Report, as appropriate. The potential response actions for the River Area developed in the EE/CA Amendment and summarized in Section VI.A, above, were primarily analyzed in terms of effectiveness, implementability, and cost. In accordance with the “Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA” (OSWER, August 1993), the following additional criteria were also used in this removal response action selection process: overall protection of human health and the environment; compliance with applicable or relevant and appropriate requirements (ARARs); long-term effectiveness and permanence; reduction of toxicity, mobility or volume through treatment; short-term effectiveness; state acceptance; and community acceptance.

The comparative analysis completed in the EE/CA Amendment determined that Alternative 4 (Partial Excavation and Capping) is rated similar to Alternative 2 (Dredging and Off-Site Disposal) in terms of compliance with ARARs, reduction in toxicity, mobility, and volume through treatment, short term effectiveness, and technical feasibility. However, Alternative 4 contaminated sediment capping scenarios are rated lower than the full dredging alternative (Alternative 2) in terms of overall protection of human health and the environment, long-term effectiveness and performance, and administrative feasibility. This lower rating is due to less

contaminated sediment being removed and the reliance on long term monitoring and maintenance programs, and institutional controls to maintain protectiveness. The costs between the full dredging alternative and partial dredging and capping alternative are similar, within approximately 10%. Based on Site-specific hydrodynamic and sediment transport modeling, Alternative 3 (Monitored Natural Restoration) would not be expected to achieve environmental protectiveness goals within a reasonable timeframe.

After careful consideration of public comments and based on the information contained in the EE/CA Amendment and the Administrative Record, Alternative 2 (Excavation and Off-Site Disposal) described in Section VII.B.1 is the proposed removal action for the Monongahela River downgradient of the BJS Site and FCW Site. This removal action is designed to mitigate direct contact risk to potential human and ecological receptors associated with highly contaminated wastes and river sediments and mitigate the potential risk from the release of hazardous substances, pollutants, or contaminants from those wastes and sediments further down river. EPA expects that implementation of removal action described in Section VII.B.1 for the River Area will achieve PAH concentrations of 90 mg/kg. Materials removed from the River Area will be sampled and disposed of in an appropriately permitted facility.

2. Uplands Area Response Action – Updated Cost Estimate

The response actions selected for the Uplands Area of the BJS Site remain unchanged from the 2010 Action Memo; however, the cost estimate has been updated to include additional details and account for inflation. EPA completed the 2010 EE/CA in accordance with Section 300.415 of the NCP, and applicable guidance, in support of the 2010 Action Memo. Please refer to the 2010 Action Memo Sections VII.B.2 through 4 (Attachment 1) for a description of activities completed to select the most appropriate response action for the Uplands Area of the BJS Site. A brief summary of Uplands Area response actions include, but are not limited to:

- Capping/Containment of Contaminated Soil with a RCRA Subtitle D cap
- Consolidating contaminated sediment from Uplands Area drainage-ways beneath cap
- Expansion of Existing Groundwater Containment System with Discharge to POTW

This removal action is designed to mitigate direct contact risk to human and potential ecological receptors associated with buried wastes, contaminated soils, and sediment in the drainage ways. The removal action will also prevent contaminated groundwater from migrating beyond the waste management area. EPA expects that implementation of the removal action will prevent exposure to concentrations of hazardous substances in excess of performance standards and achieve EPA's target risk range.

The portion of the removal action project ceiling in the 2010 Action Memo attributed to the Uplands Area components was \$15,663,600. This Action Memorandum updates that estimated cost for the Uplands Area response actions to \$31,089,234, including five years of post-removal site controls after construction.

B. Proposed Action Description

1. River Area Sediment Alternative 2: *Excavation and Off-Site Treatment and/or Disposal*

- a) Perform final sampling and surveying in the black semi-solid deposits (BSD) and visibly stained sediment deposits (SSD) area of the Monongahela River near the confluence with Sharon Steel Run (see Figure 4 for map of area). Finalize the dredging prism which will define the excavation area (River Excavation Area) including utility corridors as appropriate.
- b) Implement shoreline stabilization measures, such as combi-wall structures, to support unstable riverbank areas.
- c) Isolate the River Excavation Area with turbidity curtains or other appropriate methods to reduce/prevent erosion and limit migration of re-suspended contaminants during removal activities.
- d) Measure upstream and downstream turbidity levels in the river during dredging/excavation to ensure that engineering controls are effective in minimizing the migration of residual contamination re-suspended by removal operations.
- e) Remove BSD and visibly stained sediment deposits with greater than 90 mg/kg PAH from the River Excavation Area using dredging/excavation techniques appropriate to the BJS Site conditions and employ methods to minimize re-suspension and residual materials.
- f) Dewater and stabilize excavated wastes and sediments (i.e., BSD and SSD) with additives (i.e., polymers, kiln dust, etc.) as required to meet off-Site disposal facility acceptance criteria.
- g) Discharge water collected during the dewatering process to the Monongahela River or to the Sanitation Sewer in accordance with National Pollution Discharge Elimination System (NPDES) and State discharge limits.
- h) Sample excavated BSD/SSD for RCRA characteristics to determine appropriate disposal requirements. Preliminary waste characterization profiling and landfill approval will be completed to the extent practicable prior to excavation.
- i) Transport dewatered BSD/SSD by truck or other means to an appropriately permitted facility for treatment and/or disposal.
- j) Dispose excavated BSD/SSD at an off-Site treatment and/or disposal facility operating in accordance with CERCLA § 121(d)(3) and 40 CFR § 300.440.
- k) Conduct a post-excavation evaluation to verify the adequate removal of contaminated sediment and assess residual contamination.
- l) Restore excavation area and isolate any remaining layer of residual contaminated sediments from the benthic and aquatic ecosystems by placing a layer of sand or other earthen materials above such stained areas. Place erosion protection layer of stone or other material to reduce potential for scour and support riverbanks. Material selection shall be appropriate for the nature of contamination, the physical and hydraulic characteristics of the waterway (including scour) and permitting requirements. Design

will re-establish aquatic habitat in shallow shoreline areas to the extent practicable. Post-removal elevations within the excavation and restoration area shall not be greater than pre-removal elevations (i.e., no net fill to river bottom).

- m) Conduct an environmental monitoring program to document post-removal baseline conditions and continue for five years to document the effectiveness of natural restoration in reducing toxicity to aquatic organisms and producing a downward trend of PAH concentrations in sediments and relevant biota.
- n) Implement post-removal site controls to preserve the integrity of the response action.

2. Uplands Area Response Actions – Soil, Drainage-way Sediment and Groundwater

Please refer to the attached 2010 Action Memo at Section VII.B.2-4 for a description of the selected response actions for the Uplands Area.

C. Contribution to Remedial Performance

The BJS Site is an NPL Site. The proposed removal action is consistent with accepted removal practices and is expected to abate the threats that meet NCP removal criteria. Further, the proposed removal action is consistent with the long-term remedial actions at the BJS Site.

D. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Pursuant to 40 CFR § 300.415(j), the proposed removal action set forth in this Action Memorandum will comply with all federal and state applicable or relevant and appropriate environmental and health requirements, to the extent practicable considering the exigencies of the situation. A list of federal and state ARARs identified for the proposed River Area removal action included in Table 1.

E. Project Schedule

EPA expects planning work for the removal of contaminated sediments from the River Area will be completed in 2025. Field work for the River Area is expected to require 6 months and will be scheduled during a period of anticipated lower flows in the Monongahela River. Work will be coordinated with the West Virginia Department of Environmental Protection, U.S. Fish & Wildlife Service, and the U.S. Army Corps of Engineers. EPA expects planning and construction of the RCRA Subtitle D type cap and the enhanced groundwater containment system in the Uplands Area will require 36-48 months to plan and complete if implemented concurrently. Post-removal site controls will follow.

F. Public Participation

Pursuant to the NCP, 40 C.F.R. § 300.415, a public comment period on the EE/CA Amendment and Administrative Record concluded on January 7, 2023. A forty-five (45)-day public comment period on the EE/CA Amendment, for the non-time critical action proposed in this Action Memorandum, included an advertisement placed in the Times West Virginian on

November 23, 2022. The Administrative Record for this non-time critical removal action has been established pursuant to 40 C.F.R. § 300.415.

Significant comments received during the public comment period and EPA’s response to these comments can be found in the Responsiveness Summary. [Attachment 4]

G. Estimated Costs

The total cost estimate is \$89,318,000. The cost estimate was prepared in accordance with OSWER Directive 9360.0-42, “Amendment to the Action Memorandum Guidance and Removal Cost Management System to Address Calculation of Removal Action Project Ceilings.” Project will be funded with remedial funding starting with site-specific special account funds, BIL funding for eligible costs and remedial funds for expenses not eligible for BIL funding. EPA Region 3 does not anticipate using funds from the Regional Removal Allowance.

Extramural Costs	September 2010 Ceiling	Added Action	Total
Total Cleanup Contractor Costs (ERRS contractors, RAF contractors, subcontractors, letter contracts, orders for services, notices to proceed, alternative technology contracts, and inter-agency agreements with other Federal Agencies)	\$18,294,000	\$56,137,500	\$74,431,500
Extramural Costs Contingency (20% of Extramural Costs)	\$ 3,659,000	\$11,227,500	\$14,886,500
Total Removal Project Ceiling	\$21,953,000	\$67,365, 000	\$89,318,000

As of January 2023, a balance of \$12,126,000 remains in available funding under the previous Removal Action Project Ceiling.

VIII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If no action is taken or the action is delayed, the release or threat of potential release of hazardous substances from BSD and contaminated sediments in the vicinity of the hotspot will continue. The release or threat of release of hazardous substances from the Uplands Area, contaminated soil, sediment, and groundwater will also continue. The potential threat to human health and the environment from an uncontrolled release of hazardous substances from the soil, groundwater, submerged wastes, and contaminated sediments will remain.

IX. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues pertaining to the removal action proposed herein for the BJS Site.

X. ENFORCEMENT

Based on the information currently available, it is proposed that Superfund monies be allocated to complete the removal activities at the BJS Site. A confidential enforcement addendum has been prepared and is included as an attachment to this document (Attachment 5).

EPA's estimated costs for this removal action, based upon full-cost accounting practices, are calculated as follows:

The total cumulative EPA costs for this Removal Action, based on full cost accounting practices that will be eligible for cost recovery are estimated below as:

Direct Extramural Cost:	\$89,318,000
Direct Intramural Costs:	\$ 1,000,000
Subtotal	\$90,318,000
Indirect Costs (67.27% of above)	\$60,756,918
Estimated EPA Costs for the Removal Action:	\$151,074,919

The total EPA costs for this Removal Action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$151,074,919.⁴

⁴Direct Costs include direct extramural and direct intramural costs. Indirect Costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a Removal Action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

XI. RECOMMENDATIONS

This Action Memorandum represents the proposed Removal Action for the River Area and the Uplands Area at the BJS Site, located in Fairmont, Marion County, West Virginia, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the Administrative Record for the BJS Site.

Pursuant to Section 113(k) of CERCLA and EPA Delegation No. 14-22, I hereby establish the documents listed in the attached Index (Attachment 6) as the Administrative Record supporting the issuance of this Action Memorandum.

Conditions at the BJS Site meet the NCP Section 300.415(b) criteria and the CERCLA Section 104(c) consistency exemption from the \$2 million and 12-month limitation for a non-time critical removal action and I recommend your approval of the proposed non-time critical removal action described above.

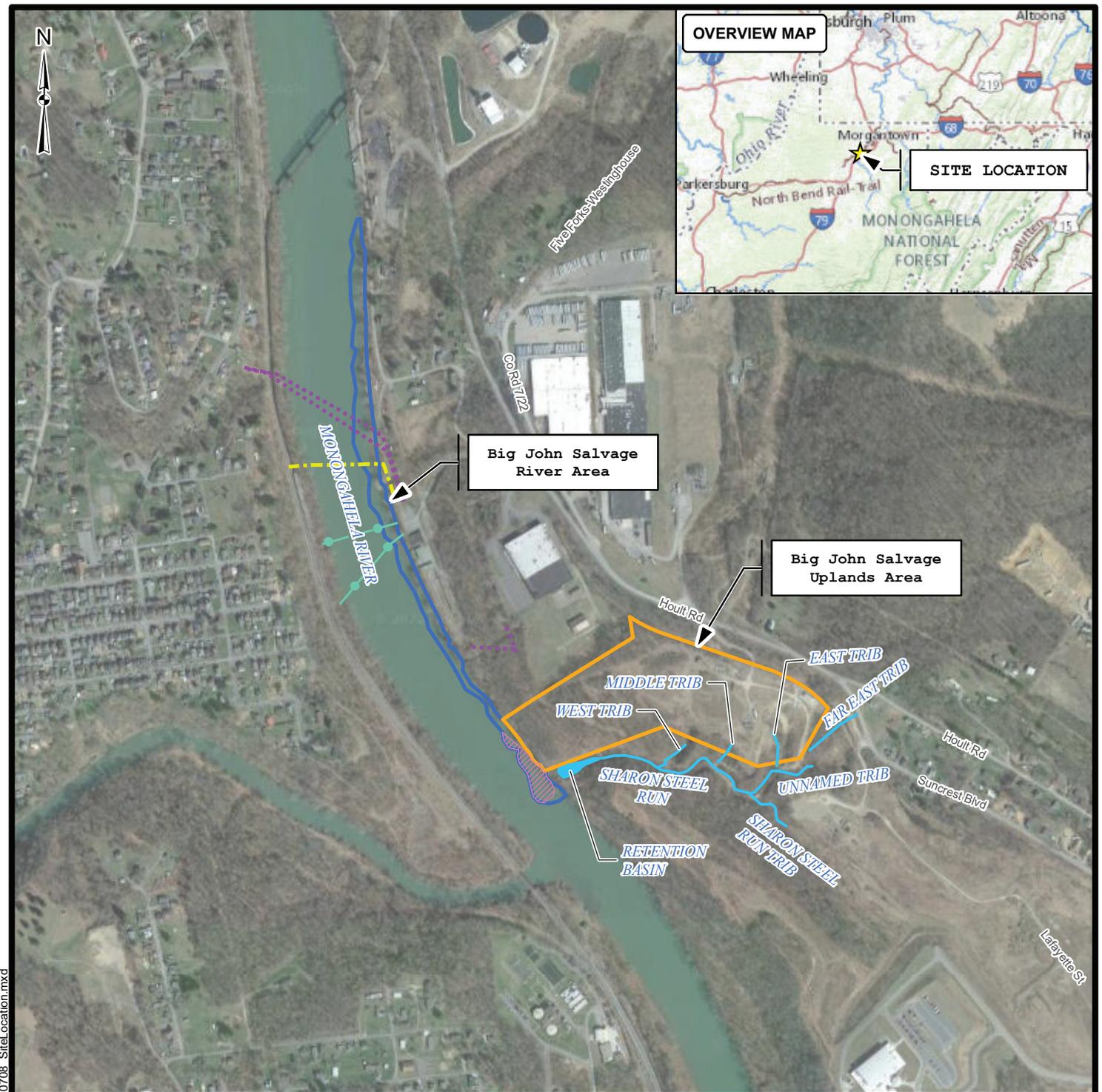
Action by the Approving Official:

I have reviewed the above-stated facts and based upon those facts and the information compiled in the documents described above, I hereby determine that the release or threatened release of hazardous substances presents or may present an imminent and substantial endangerment to the public health or welfare or to the environment. I concur with the proposed Removal Action as outlined in this Action Memorandum.

APPROVED: **PAUL LEONARD** Digitally signed by PAUL LEONARD
Date: 2023.03.22 11:21:11 -04'00' **DATE:**
Paul Leonard, Director
Superfund and Emergency Management Division
EPA Region 3

- Attachment 1: 2010 Action Memorandum
- Attachment 2: Engineering Evaluation/Cost Analysis Amendment
- Attachment 3: 11 Principles Memorandum
- Attachment 4: Responsiveness Summary
- Attachment 5: Confidential Enforcement Addendum
- Attachment 6: Index to the Administrative Record





Legend

- Big John Salvage - River Area
- Big John Salvage - Uplands Area
- Estimated Extent of BSD
- Natural Gas
- Sanitary Sewer
- Water Line



U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY
Buffalo District

SITE LOCATION MAP

Document Name: 220708_SiteLocation.mxd
Drawn By: H5TDESPM
Date Saved: 21 Jul 2022
Time Saved: 11:54:21 AM

**BIG JOHN SALVAGE
HOULT ROAD SITE
FAIRMONT, WEST VIRGINIA**

FIGURE 1

CITY: SYRACUSE, NY DIV: GROUP: ENV/IM/DV DB: P: LISTER, PM/TM: R. PRICE TR: D: MACK LVR: ON=OFF=REF (FRZ)
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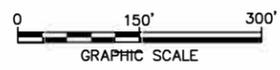
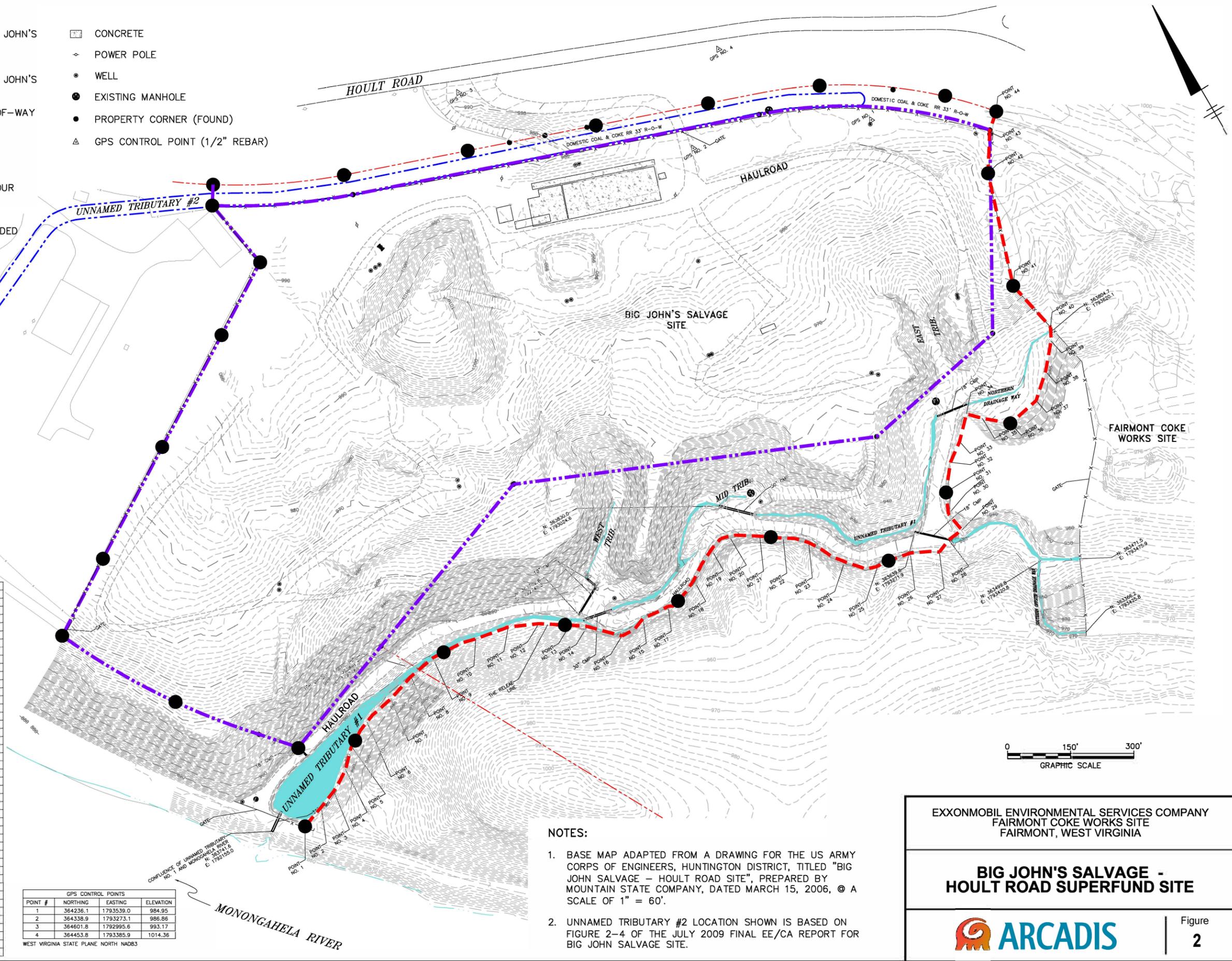
LEGEND:

- APPROXIMATE LOCATION OF BIG JOHN'S SALVAGE SITE BOUNDARY (SEE CONSENT DECREE DEFINITION)
- APPROXIMATE LOCATION OF BIG JOHN'S SALVAGE PROPERTY BOUNDARY
- - - OTHER PROPERTY LINE/RIGHT-OF-WAY (R-O-W)
- - - THE RELEASE LINE
- - - INDEX ELEVATION CONTOUR
- - - INTERMEDIATE ELEVATION CONTOUR
- - - CHAINLINK FENCE
- - - UNNAMED TRIBUTARY #2 (INCLUDED AS PART OF BIG JOHN'S SALVAGE SITE)
- CONCRETE
- POWER POLE
- WELL
- EXISTING MANHOLE
- PROPERTY CORNER (FOUND)
- △ GPS CONTROL POINT (1/2" REBAR)

POINT	NORTHING	EASTING	ELEVATION
1	363722.229	1792203.829	918.91
2	363735.664	1792241.333	915.98
3	363747.307	1792270.980	914.81
4	363767.498	1792304.283	918.77
5	363794.587	1792330.599	915.68
6	363815.386	1792371.344	917.26
7	363828.026	1792422.332	918.10
8	363842.657	1792467.643	917.08
9	363850.749	1792512.341	918.43
10	363842.478	1792586.169	923.87
11	363832.806	1792639.926	925.07
12	363813.123	1792684.168	928.19
13	363786.333	1792725.689	930.70
14	363770.866	1792748.620	933.83
15	363737.235	1792831.367	938.52
16	363733.883	1792875.263	939.48
17	363730.233	1792788.474	902.41
18	363748.994	1792930.848	904.50
19	363776.934	1792979.505	906.28
20	363781.169	1793014.253	910.45
21	363756.699	1793056.249	915.11
22	363735.472	1793086.601	916.55
23	363709.172	1793118.028	921.23
24	363654.460	1793152.140	924.93
25	363621.699	1793193.559	927.97
26	363614.106	1793248.801	930.21
27	363592.247	1793289.393	931.01
28	363601.366	1793311.727	931.99
29	363604.421	1793337.639	933.00
30	363636.845	1793332.001	933.10
31	363668.626	1793346.069	934.37
32	363705.980	1793375.797	935.24
33	363727.008	1793404.670	937.51
34	363759.320	1793435.960	939.78
35	363740.824	1793454.225	939.10
36	363711.332	1793488.919	942.45
37	363722.155	1793541.942	942.26
38	363754.418	1793578.007	943.95
39	363791.541	1793609.687	947.14
40	363810.910	1793620.020	946.46
41	363897.010	1793601.560	969.35
42	364070.510	1793656.390	982.69
43	364125.600	1793691.290	986.79
44	364148.370	1793716.610	989.67

POINT #	NORTHING	EASTING	ELEVATION
1	364236.1	1793539.0	984.95
2	364338.9	1793273.1	986.86
3	364601.8	1792995.6	993.17
4	364453.8	1793385.9	1014.36

WEST VIRGINIA STATE PLANE NORTH NAD83



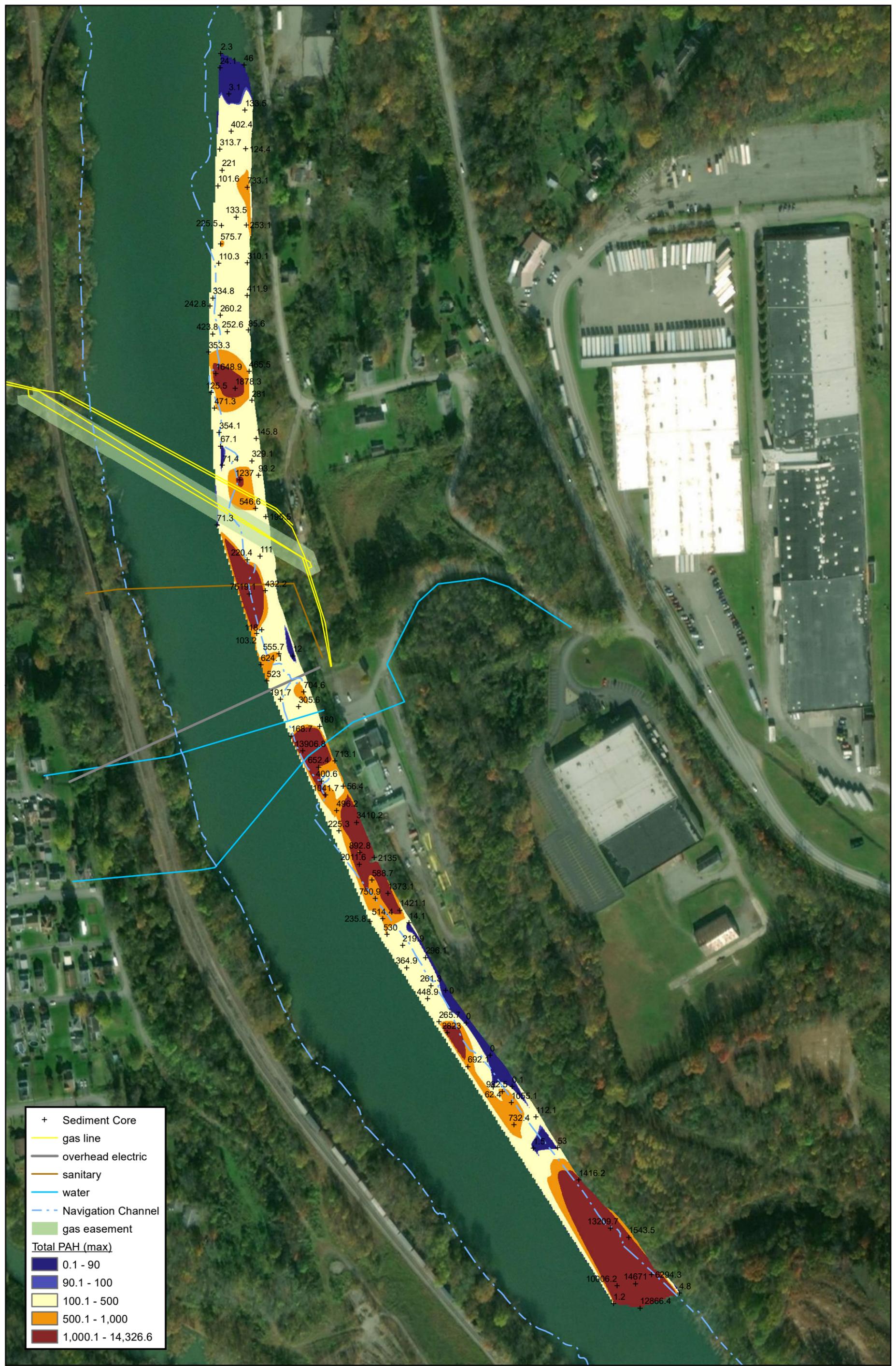
NOTES:

- BASE MAP ADAPTED FROM A DRAWING FOR THE US ARMY CORPS OF ENGINEERS, HUNTINGTON DISTRICT, TITLED "BIG JOHN SALVAGE - HOULT ROAD SITE", PREPARED BY MOUNTAIN STATE COMPANY, DATED MARCH 15, 2006, @ A SCALE OF 1" = 60'.
- UNNAMED TRIBUTARY #2 LOCATION SHOWN IS BASED ON FIGURE 2-4 OF THE JULY 2009 FINAL EE/CA REPORT FOR BIG JOHN SALVAGE SITE.

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
 FAIRMONT COKE WORKS SITE
 FAIRMONT, WEST VIRGINIA

**BIG JOHN'S SALVAGE -
 HOULT ROAD SUPERFUND SITE**





+	Sediment Core
—	gas line
—	overhead electric
—	sanitary
—	water
- - -	Navigation Channel
—	gas easement
Total PAH (max)	
Dark Blue	0.1 - 90
Blue	90.1 - 100
Yellow	100.1 - 500
Orange	500.1 - 1,000
Red	1,000.1 - 14,326.6

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 4
PAH Concentration Contours
Big John's Salvage - Hout Road Superfund Site

0 75 150 300 Feet

NAD 1983 West Virginia North State Plane (Feet)

TABLE 1

SUMMARY OF KEY ARARs FOR BIG JOHN SALVAGE RIVER AREA REMOVAL ALTERNATIVES

ARAR OR TBC	LEGAL CITATION	CLASSIFICATION	SUMMARY OF REQUIREMENT	FURTHER SPECIFICATION AND/OR DETAILS REGARDING ARARs IN THE CONTEXT OF RIVER AREA RESPONSE
Chemical Specific				
WV Requirements Governing [Surface] Water Quality Standards	WV 47 CSR 2-3.2(a)-(f), 4.1, 4.1(a) and 4.1(b), 6, 7.1(c) and Appendix E	Relevant and Appropriate	These regulations control the discharge of industrial wastes and other wastes into the waters of the State and establishes water quality standards for the waters of the State standing or flowing over the surface of the State.	Relevant and Appropriate to discharge of contaminants to the Monongahela River or other surface water body. The regulation requires that the in-stream water quality be protective of the respective State-designated use(s) and cites both quantitative and narrative standards which must be met in-stream.
Action Specific				
WV Air Pollution Control Act	WV 45 CSR 25-4.3	Relevant and Appropriate	Facilities shall be designed, constructed, maintained and operated in a manner to minimize unplanned releases of hazardous constituents to the air.	During the sediment removal and dewatering activities measures will be employed to prevent unplanned releases of hazardous constituents, including fugitive air emissions.
Location Specific				
Federal Protection of Wetlands Executive Order	Executive Order 11990	TBC	Requires the federal agencies to minimize the destruction, loss, or degradation of wetlands and preserve and enhance the natural and beneficial values of wetlands.	Cleanup will be conducted in a manner which minimizes loss or degradation of wetland areas.
Fish and Wildlife Coordination Act	16 U.S.C. §§ 661, 662; 40 CFR § 6.302(g)	Relevant and Appropriate	If waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or otherwise controlled or modified for any purpose, by any department or agency of the United States, consultation with the United States Fish and Wildlife Service is required, with a view to the conservation of wildlife resources.	EPA will continue to consult with USFWS and consider reasonable steps to minimize any adverse impact to wildlife resources during dredging of contaminated sediment from the Monongahela River bottom and restoration of the impacted habitat.

ARAR OR TBC	LEGAL CITATION	CLASSIFICATION	SUMMARY OF REQUIREMENT	FURTHER SPECIFICATION AND/OR DETAILS REGARDING ARARS IN THE CONTEXT OF REMEDIATION
Section 10, Rivers and Harbors Act	33 USC § 403 33 CFR § 322.2(b)	Applicable	Requires coordination of activities occurring in navigable waters with the Army Corps of Engineers including dredging, filling, or altering any navigable waterway.	EPA will coordinate with US Army Corps to meet any substantive requirements deemed applicable during the removal of contaminated sediment from the River bottom and placement of residual management and erosion protection components.

2023 Action Memorandum Attachments

Attachment 1: 2010 Action Memorandum

Action Memorandum and Responsiveness Summary

<https://semspub.epa.gov/src/document/03/2121902>

2010 Engineering Evaluation/Cost Analysis

<https://semspub.epa.gov/src/document/03/2117409>

Attachment 2: Engineering Evaluation/Cost Analysis Amendment

<https://semspub.epa.gov/src/document/03/2336340>

Attachment 3: 11 Principles Memorandum

<https://semspub.epa.gov/src/document/03/2336330>

Attachment 4: Responsiveness Summary

<https://semspub.epa.gov/src/document/03/2339383>

Attachment 5: Confidential Enforcement Addendum

Not publicly available

Attachment 6: Index to the Administrative Record

<https://semspub.epa.gov/src/collections/03/AR/WVD054827944>