



WEST VIRGINIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATEMENT OF BASIS

AXIALL CORPORATION FACILITY
(FORMERLY PPG NATRIUM PLANT)

NEW MARTINSVILLE, WV
EPA ID NO. WVD004336343

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I. INTRODUCTION

The West Virginia Department of Environmental Protection (WVDEP) has prepared this Statement of Basis (SB) to solicit public comments on its proposed decision for the Axiall Corporation Facility (Facility) located in New Martinsville, West Virginia. WVDEP's proposed decision consists of requiring the Facility to maintain an inward gradient for groundwater to ensure that contaminated groundwater underlying the Facility is captured and treated as necessary and monitored under a National Pollutant Discharge Elimination System (NPDES) Permit. The Facility will implement a groundwater monitoring program to demonstrate that the inward gradient is maintained and to monitor the contaminant mass and concentration of the constituents of concern (COCs). Furthermore, the Facility will continue to identify source areas of contamination and, where possible, apply a remediation technique to reduce the impacts of the source areas and, develop and maintain property restrictions known as Institutional Controls (ICs). This SB highlights key information relied upon by the WVDEP in making its proposed decision.

The Facility is subject to the Corrective Action (CA) Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. §§ 6901 et seq. (Corrective Action Program). The RCRA CA Program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at their property.

The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which WVDEP's proposed decision is based. See Section XVII Public Participation, for information on how you may review the AR.

II. FACILITY LOCATION AND SETTING

The Axiall property consists of approximately 3,600 acres of contiguous land; however, the manufacturing and other developed portions of the Facility encompasses approximately 400 acres. The Facility is situated within the Ohio River Valley at the base of the West Virginia Northern Panhandle in Marshall County, approximately seven miles north of New Martinsville, West Virginia and is located on a series of relatively flat, river terraces known as Wells Bottom and is underlain by up to 90 feet of river alluvium and glacio-fluvial sediments. The topography rises steeply to the east of the plant. The Facility is bounded by an industrial facility (Bayer MaterialScience, LLC) to the south, the Ohio River to the west and north, and steeply sloped terrain to the east (primarily owned by Axiall Corporation, but undeveloped).

III. FACILITY BACKGROUND

The Facility began operations in 1943, originally producing chlorine, hydrogen, and caustics using electrolysis, commonly referred to as the chlor-alkali process. In response to the U.S. Government's need for chlorine, PPG determined that a salt deposit beneath the Facility could be solution mined and processed to produce chlorine. Periodic expansions of the Facility occurred during PPG's seventy years of ownership. Axiall acquired the Facility on January 28, 2013 and currently produces chlorine, caustic soda, solid sodium hydroxide pellets (PELS[®]), hydrochloric acid, and calcium hypochlorite.

In the past, the Facility produced several inorganic and organic chemical products. Some of the products that are no longer produced at the Facility include chlorinated benzene compounds, sodium hydrosulfide, titanium oxide, benzene hexachloride, carbon disulfide, barium compounds, and ammonia.

Part of the Facility known as the Marshall Plant, which was originally owned, developed, and operated by the U.S. Army Chemical Corps, was built as a sub-tropical bleach plant and manufactured perchloroethylene (PCE), tetrachloroethane, trichloroethane, and possibly several other compounds. The Marshall Plant was operated by DuPont for the Army in 1943 and 1944. Glyco operated the plant sporadically between 1944 and 1952 and produced more than 100 specialty compounds including glycols, glycerines, amines, and amides. PPG leased the Marshall plant from the U.S. Government prior to purchasing it in 1964, but never operated the facility. The organic compound manufacturing was phased out in 2008 with chlorine, sodium hydroxide, calcium hypochlorite, and hydrochloric acid currently being the primary products.

IV. SUMMARY OF ENVIRONMENTAL INVESTIGATIONS

The Facility currently operates under a RCRA CA Permit (WVD004436343). As part of the RCRA CA process, a number of environmental studies have been performed, including: a Verification Investigation (VI), RCRA Facility Investigation (RFI), Baseline Groundwater Monitoring, Remedial Technology Evaluation, and Pore Water and Sediment Sampling. A summary of the reports completed is provided in **Table 1**.

A Description of Current Conditions (DOCC) prepared in 1992 summarized key findings of the previous investigations to serve as a baseline for subsequent data gathering and analysis during the RCRA Facility Investigation (RFI). The DOCC identified 82 solid waste management units (SWMUs)/areas of concern (AOCs); however, several of the original SMWUs/AOCs were identified as needing no further action/investigation based on the results of the DOCC and interim actions. The RFI Report, dated October 2000, summarized the investigation of 46 SWMUs and 21 AOCs at the Facility identified in the DOCC for further investigation. Based on discussions between the Facility and EPA, 45 of the 46 SWMUs required no further action.

Additionally, the risk assessment performed as part of the RFI concluded there were no unacceptable risks associated with the direct exposure pathway for 66 of the 67 SWMUs and AOCs. Only SWMU, 13-3 identified unacceptable risks with the direct exposure pathway, which were addressed through an engineered soil cover with riverbank stabilization and Institutional Controls (ICs). No further action was needed to address the direct exposure pathway for the remaining 66 SWMUs/AOCs. The RFI further concluded that the Corrective Measures Study (CMS) was not required and that the presumptive remedies would address the unacceptable risks at SWMU 13-3. However, a Streamlined CMS was submitted on March 21, 2014 to explain the proposed remedy to address various SWMUs and AOCs at the Facility, to provide a summary of investigation, interim actions, institutional controls, and corrective measures studies used in the remedy selection process.

A Baseline Groundwater Monitoring Program (GMP) was implemented subsequent to the completion of the RFI to monitor the stability of the groundwater plume delineated during the RFI. The *Baseline Groundwater Monitoring Report* was issued in December 2004 and indicated that the plume was stable or decreasing in size and concentration.

A pore water and sediment investigation was conducted during August 2012 in the Ohio River adjacent to the Facility to evaluate potential impacts of site-related groundwater contamination on the River. The results of the pore water and sediment investigation revealed that constituents in on-site groundwater at the Facility were significantly higher than in sediment or pore water, or background samples; confirming that the gradient pumping system is effective in capturing and treating groundwater contamination and should be continued. Additionally, in some cases there were no detections, or low detections of constituents in groundwater, but elevated concentrations in either sediment and/or pore water. This scenario suggests there are other point sources contributing to the contaminant load in the Ohio River and does not appear to be the result of the conditions at the Facility. This may also be related to possible legacy or historical discharge of contaminants (either site-related or non-point sources). Other data indicated that constituent concentrations are present in groundwater, pore-water, and sediment, but at the same or below levels of concentrations reported in background samples

V. SWMU/AOC SUMMARY

The Final RFI Report for the Facility identified 67 SWMUs and AOCs that were investigated during the RCRA Facility Investigation. In addition to the SWMUs and AOCs, site-wide groundwater was also evaluated. Only SWMU 13-3 (BHC Waste Storage Pile) was identified during the RFI as requiring additional measures to control exposure risks. As indicated, the unacceptable risks associated with SWMU 13-3 were addressed through an engineered soil cover with riverbank stabilization. The *Work Plan for the Engineered Soil Cover* and the *Construction Completion Report* (IT Corporation, 2001) was approved by USEPA, and no further action is required. **Table 2** provides the SWMU/AOC status based on the RFI; a more in-depth description of the SWMUs and AOCs, as well as, the results of the RFI can be found in the Administrative Record.

VI. INTERIM MEASURES

During the completion of the RFI, the Facility performed Interim Measures (IM) to address immediate environmental concerns at the following SWMUs and AOCs: SWMUs 2-2 (soil removal), 3-2 (soil removal), 6-7 (asphalt pavement), and 8-6 (soil removal); and AOCs 3-1A (soil removal), 8-7A (soil removal), and 10-2A (tank removal). The results of the IMs were documented in reports presented to EPA and summarized in the RFI report. Additionally, the Facility has also initiated an Institutional Control Plan which includes land use designations and soil excavation requirements (i.e. no dig areas; facility safety permits, etc.).

VII. SITE-WIDE GROUNDWATER

Groundwater occurs in three types of deposits at the Facility: sand and gravel outwash, alluvium, and colluvium. The sand and gravel outwash is present beneath most of the facility and is overlain in places by the alluvium and colluvium deposits. The alluvium is primarily composed of silty clay deposits and is limited to the areas immediately adjacent to the Ohio River. The colluvium is comprised of silty to sandy clay and is limited to the areas at the base of the uplands on the eastern portion of the facility. Hydraulic containment of site groundwater has been demonstrated for the sand and gravel outwash based on site measurements and groundwater flow modeling. The colluvium and alluvium also show containment, with the exception of

seasonal measurements in a few wells. Evaluation of groundwater flow near these few wells indicates that the overall annual flow is inward and that the low permeability of the alluvium restricts any significant offsite movement of groundwater.

The Facility currently utilizes eleven wells pumping at an average of 4.5 million gallons per day. This pumping rate maintains an inward hydraulic gradient throughout the plant and due to the long-term pumping, the water table has depressed by over ten feet in places. Additionally, the inward gradient can be maintained at much lower pumping rates. The Facility replaces wells or augments the groundwater supply system as demand dictates. The U. S. Environmental Protection Agency's (EPA) and U. S. Army Corps of Engineers (USACE) reviewed the groundwater model utilized to evaluate well placement and to ensure the hydraulic gradient captures site groundwater. The model was also used to evaluate the impact of pumping scenarios on the plume of impacted groundwater, with the goal of maintaining or reducing the footprint of the plume. It is conceivable that pumping rates at the plant will be reduced in the future, if plant processes change or process efficiencies are achieved. The groundwater flow model and groundwater measurements will continue to be utilized to monitor the hydraulic control of the site as the Facility's water demands change

The RFI data indicated organic and inorganic constituent plumes are present above Region III Risk Based Concentrations (RBCs) for Tap Water and the Federal Maximum Contaminant Limits (MCLs) for drinking water in the sand and gravel outwash and the silty clay (fine grained) alluvium. Although water can be extracted from the alluvium, the unit itself is limited in both thickness and areal extent and groundwater extraction wells are not completed in this unit. The sand and gravel is seen as the primary aquifer in the plant area. Extracted groundwater is utilized within the plant and discharges are regulated under the Facility's NPDES Permit.

Although the RFI concluded that the hydraulic containment criteria are being met, a Baseline Groundwater Monitoring Program (GMP) was completed to evaluate the plume stability and to determine if the contaminant mass was being effectively reduced. The four-year GMP was completed in 2004 and indicated that the plume was stable and not migrating. The groundwater quality monitoring also indicated that constituent concentrations were being reduced; however, the rate of reduction and time to meet groundwater quality standards could not be readily estimated due to punctuated events that made long-term projections of the decreasing concentration trend difficult.

The GMP also indicated that monitoring wells in suspected residual source areas, principally the Marshall Plant Pond and the BHC Storage Pile areas, have not shown significant improvement in groundwater quality. It is believed that contributions from these source areas in the fine-grained alluvium, punctuated by precipitation events and groundwater extraction patterns, have resulted in most of the impacts currently seen in the sand and gravel aquifer and are prolonging the attainment of groundwater quality standards. Based on the GMP results through the fourth year, three areas were identified that appears to be continuing sources of groundwater contamination. These three areas were recommended for additional evaluation. The proposed areas included SWMU 4-2, the Marshall Plant Pond (MW-220); groundwater in the area near SWMU 13-3; SWMU 6-7, the BHC Storage Pile (MW-221); and, groundwater in the area near SWMU 6-7 (MW-207). These areas are to be further evaluated and treated to enhance groundwater remediation.

Additionally, the Facility has been voluntarily pursuing source reduction in the Marshall Plant Pond (MW-220) and the BHC Storage Pile (MW-221) areas. A series of five groundwater circulation wells with ozone addition are being used in the Marshall Plant Pond area. The groundwater circulation wells strip volatile organics from the groundwater as well as introducing oxygen into the subsurface. In addition to the mechanical stripping of volatile organic compounds, the oxygen stimulates aerobic biological activity near each of the groundwater circulation wells. The oxygen not only travels with the groundwater but also permeates the overlying capillary zone stimulating biological activity in the saturated soils. Almost immediate constituent reductions have been seen in the groundwater circulation wells themselves; however, the groundwater clean-up in this area is expected to take a minimum of several years. Clean-up progress will be periodically evaluated to refine the time to meet clean-up objectives.

The Facility also voluntarily performed pilot testing in the area near the BHC Storage Pile (MW-221). Base-catalyzed persulfate additions have been applied to this area to address the mobile contaminant mass. However, the pilot test was not effective due to the low permeability of the formation and delivery method. An additional voluntary evaluation is being performed in this BHC Storage Pile area to identify additional source reduction approaches to supplement the hydraulic containment approach to site-wide groundwater.

VIII. ENVIRONMENTAL INDICATORS

EPA sets national goals to measure progress toward meeting the nation's major environmental goals. For RCRA Corrective Action, EPA evaluates two key environmental indicators for each Facility: (1) current human exposures are under control, Environmental Indicator Form CA725; and (2) migration of contaminated groundwater under control, Environmental Indicator Form CA750. EPA determined that the Facility met both the HHEI CA725 and GWEI CA750 in September 2000, respectively.

IX. CORRECTIVE MEASURES STUDY

The Corrective Measures Study (CMS) was conducted to identify and evaluate Corrective Measures alternatives for the Facility and recommended the best-balanced Corrective Measures alternative. As indicated, a Streamlined CMS was submitted by the Facility on March 21, 2014.

WVDEP acknowledges that an evaluation of multiple alternatives is not always necessary, particularly if a remedy decision can be determined based on previous investigations, remedial actions and RCRA site characterization investigations. In this case, a review of several investigation reports that documented sources of contamination had been identified and remediated. Because of the aggressive approach taken by the Facility in addressing environmental problems through IMs and ICs, the only environmental concern to be addressed is site-wide groundwater contamination.

With Agency approval, the Facility agreed to address the groundwater issue by identifying and treating remaining soil and groundwater hot spots to accelerate the groundwater remediation process. The remaining soil and groundwater contamination does not pose a human

health threat and can therefore be addressed through ICs and hot spot remediation. Furthermore, a 2012 comprehensive pore water and sediment assessment investigation revealed that the existing production well operation is effectively capturing the on-site groundwater and processing it through the on-site wastewater treatment plant.

X. CORRECTIVE ACTION OBJECTIVES

The Corrective Action Objectives (CAOs) for the facility would be met through the implementation of “hot spot” treatment and the continuation of the groundwater capture and treatment program. Key premises and features of the proposed Remedy are:

- Site use will remain industrial.
- ICs will be an important protective element of the Corrective Measures.
- Development and implementation of site-specific cost effective in-situ biological and in-situ chemical oxidation treatments identified through a tiered technology demonstration program to address sources of contaminants in Facility soils that may leach to Site groundwater.
- Long-term containment of Facility groundwater will be required during the time needed to improve Site groundwater quality.
- Protection of human health and the environment will be maintained and assured for the long-term throughout implementation of the Corrective Measures and confirmed on an ongoing basis by performance monitoring.

Additionally, WVDEP, in consultation with EPA, has identified the following CAOs for soils and groundwater at the Facility:

1. Soils

CAOs for Facility soils is the prevention of unacceptable human exposure to contaminated soils at all levels, with “unacceptable exposure” defined as carcinogenic risks $> 1 \times 10^{-6}$ and a Hazard Index for non-carcinogenic risks of > 1 , by requiring the compliance with and maintenance of land use restrictions at the Facility.

2. Groundwater

CAOs for Facility groundwater is to restore groundwater to drinking water standards established by MCLs or WVDEP acceptable limits; to control the migration of Site-related groundwater contamination at concentration levels that are protective of surface water quality; and to control and reduce the sources of groundwater contamination.

XI. PROPOSED DECISION

WVDEP’s, in consultation with EPA, proposed decision consists of requiring the Facility to maintain an inward gradient for groundwater to ensure that contaminated groundwater underlying the Facility is captured and treated as necessary and monitored under a NPDES

permit. The Facility will maintain a groundwater monitoring program to demonstrate that the inward gradient is maintained and monitor the contaminant mass and concentration of the COC's. Furthermore, the Facility will continue to identify source areas of contamination and, where possible, apply a remediation technique to reduce the impacts of the source areas. The Facility will maintain a groundwater-monitoring program to demonstrate that the inward gradient is maintained and that the contaminant mass is being reduced.

1. No Further Action:

The RFI concluded that for a number of SWMUs investigated, the data demonstrated that the unit presented no unacceptable risk to human health or the environment. These units have been recommended for No Further Action and are listed in Attachment A.

2. Facility-Wide Groundwater:

Facility-wide groundwater has been hydraulically controlled via groundwater extraction wells with treatment in the Facility's NPDES permitted wastewater treatment plant. The Facility-wide groundwater pumping and treating program will continue until CAOs are accomplished. The proposed remedy for groundwater includes groundwater monitoring until drinking water standards are met and complied with and maintenance of groundwater use restrictions at the Facility. Based on the pore-water and sediment study, the groundwater plume appears to be stable (not migrating), and concentrations of COCs are either stable or declining over time.

3. Institutional Controls (ICs):

ICs are non-engineered instruments, such as administrative and legal controls, that minimize the potential for human exposure to contamination and/or protect the integrity of the decision by limiting land or resource use. Under this proposed decision, some contaminants remain in the groundwater and soil at the Facility above levels appropriate for residential uses. Because some contaminants remain in the soil and groundwater at the Facility at levels that exceed residential use, WVDEP's proposed decision requires the compliance with and maintenance of land and groundwater use restrictions. The ICs shall include, but not be limited to, the following land and groundwater use restrictions:

- a. Groundwater at the Facility shall not be used for any purpose other than 1) industrial use and non-contact cooling water; and 2) the operation, maintenance, and monitoring activities required by WVDEP and/or EPA, unless it is demonstrated to WVDEP, in consultation with EPA, that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and WVDEP, in consultation with EPA, provides prior written approval for such use;
- b. The Facility property shall not be used for residential purposes unless it is demonstrated to WVDEP, in consultation with EPA, that such use will not pose a threat to human health or the environment or adversely affect or interfere with the

selected remedy, and WVDEP, in consultation with EPA, provides prior written approval for such use;

- c. All earth moving activities, including excavation, drilling and construction activities, in the areas at the Facility where any contaminants remain in soils above EPA's Screening levels for non-residential use or groundwater above Federal MCLs/Tap Water RBCs, shall be prohibited unless it is demonstrated to WVDEP, in consultation with EPA, that such activity will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy, and WVDEP, in consultation with EPA, provides prior written approval for such use;
- d. The Property will not be used in a way that will adversely affect or interfere with the integrity and protectiveness of the final remedy;
- e. No new wells will be installed on Facility property unless it is demonstrated to WVDEP and EPA, that such wells are necessary to implement the final remedy and WVDEP provides prior written approval to install such wells;
- f. Owner agrees to provide WVDEP and EPA with a "Certified, True and Correct Copy" of any instrument that conveys any interest in the Facility property or any portion thereof;
- g. Owner agrees to allow the WVDEP, EPA and/or their authorized agents and representatives, access to the Property to inspect and evaluate the continued effectiveness of the final remedy and if necessary, to conduct additional remediation to ensure the protection of the public health and safety and the environment based upon the final remedy to be selected by WVDEP in the Final Decision and Response to Comments (FDRTC);
- h. A new Groundwater Monitoring Plan will be developed for the entire Facility, which will be submitted to the WVDEP for their review and comments within 90 days of final remedy approval. The plan will include monitoring wells to be sampled, analyses to be performed, and a schedule for implementing the sampling activities. WVDEP will provide guidance to Axiall staff as to the content and format of the Groundwater Monitoring Plan.

XII. IMPLEMENTATION OF INSTITUTIONAL CONTROLS

WVDEP proposes to implement the land and groundwater use restrictions necessary to prevent human exposure to contaminants at the Facility through enforceable ICs, such as an Order and/or an Environmental Covenant, pursuant to the Uniform Environmental Covenants Act, West Virginia Code Chapter 22, Article 22B. If an Environmental Covenant is to be the institutional control mechanism, it will be recorded in the chain of title for the Facility property. In addition, WVDEP acknowledges that the West Virginia Department of Health issues drinking water permits for wells and does not allow the use of contaminated groundwater as a drinking water source. The continuation of an existing groundwater-monitoring program until groundwater clean-up standards are met will be enforceable through the final enforceable instrument, such as a permit, order, or an Environmental Covenant. If WVDEP, in consultation

with EPA, determines that additional institutional controls or other corrective actions are necessary to protect human health or the environment, WVDEP will have the authority to require and enforce such additional corrective action under that instrument.

XIII. EVALUATION OF WVDEP'S PROPOSED DECISION

This section provides a description of the criteria used to evaluate the proposed decision consistent with EPA guidance, "Corrective Action for Releases from Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule," 61 Fed. Reg. 19431, May 1, 1996. The criteria are applied in two phases. In the first phase, WVDEP evaluated three decision threshold criteria as general goals. In the second phase, for those remedies that meet the threshold criteria, WVDEP then evaluated seven balancing criteria.

1. Threshold Criteria

a. Protect Human Health and the Environment

Overall protection of human health and the environment addresses the ability of an alternative to eliminate, reduce or control threats to public health or the environment through institutional controls, engineering controls, removal or treatment.

Groundwater pumping and treating technology employed at the Facility has been a primary tool in effectively and reliably protecting public health and the environment over the past twenty-five (25) years of operation.

With respect to Facility soils, all contaminated soil is below the surface and contained within Facility property. There is no direct exposure of industrial workers to subsurface soil under current land use, and direct exposure of construction / excavation workers is controlled by the existing Facility administrative controls, including the Facility-wide excavation permitting process, and appropriate health and safety plans. Land use restrictions are proposed in order to minimize the potential for human exposure to contamination.

b. Achieve Media Cleanup Objectives

The Facility has achieved the EPA's non-residential Risk Based Concentrations (RBCs) for industrial soils. The groundwater plume appears to be stable (not migrating), and Constituents of Potential Concern (COPCs), though above Federal MCLs, are either stable or declining over time. In addition, a groundwater monitoring program will be implemented and continue until groundwater clean-up standards are met. The Facility meets EPA risk guidelines for human health and the environment. The proposed decision requires the implementation and maintenance of institutional controls to ensure that Facility property is not used for residential purposes and groundwater beneath Facility property is not used for any purpose except for industrial use and non-contact cooling water and to conduct the operation, maintenance, and monitoring activities required by WVDEP and EPA.

c. Remediating the Source of Releases

In all proposed decisions, WVDEP seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment. Groundwater is not used for potable purposes at the Facility or at neighboring facilities. In addition, a groundwater-monitoring program will be developed and implemented until groundwater clean-up standards are met. The West Virginia Department of Health issues drinking water permits for wells and does not allow use of contaminated groundwater as a drinking water source. There are no known unaddressed discrete sources of waste from which constituents would be released to the environment. Implementation of the technology demonstration program will provide site-specific data on the feasibility of various in-situ technologies, pursuant to the COIs, in the selected areas and treatability design data information. The technology demonstrations are designed to be bench scale followed by pilot-scale, in-situ /ex-situ tests for a selected technology within the selected SWMUs. If the technology demonstrations are shown to be successful, the full-scale application will be implemented on a selective basis, leading to significant reductions in SWMU constituent levels and mass loading to the groundwater. These reductions should result in an acceleration of long-term improvements in groundwater quality. The effect of these reductions on water quality improvement will be assessed at significant milestones during the technology demonstrations.

2. Balancing/Evaluation Criteria

a. Long-Term Effectiveness

The proposed ICs will maintain protection of human health and the environment over time by controlling exposure to the hazardous constituents remaining in soils and groundwater. The proposed decision requires the compliance with and maintenance of land use and groundwater use restrictions at the Facility. WVDEP anticipates that the land use and groundwater use restrictions will be implemented through an order and/or an environmental covenant to be recorded in the chain of title for the Facility property. If the mechanism is to be an environmental covenant, the environmental covenant will run with the land and as such, will be enforceable by WVDEP and/or other stakeholders against future landowners. In addition, a new Groundwater Monitoring Plan (GMP) addressing the entire Facility will be submitted to WVDEP for approval. The new GMP will provide data to provide analyses of the long-term effectiveness of the remedy.

b. Reduction of Toxicity, Mobility, or Volume of the Hazardous Constituents

The reduction of toxicity, mobility and volume of hazardous constituents at the Facility has already been achieved, as demonstrated by the data of the groundwater monitoring showing that the plume appears to be stable (not migrating), and concentrations of COPCs are either stable or declining over time.

c. Short-Term Effectiveness

The proposed decision does not involve any activities, such as construction or excavation that would pose short-term risks to workers, residents, and the environment. WVDEP anticipates that the land use and groundwater use restrictions will be fully implemented shortly after the issuance of the Final Decision and Response to Comments (FDRTC). In addition, the groundwater-monitoring program will provide data to provide analyses of the effectiveness of the remedy.

d. Implementation

The proposed decision is readily implementable. WVDEP proposes to implement the institutional controls through an enforceable mechanism such as an order or an Environmental Covenant, pursuant to the Uniform Environmental Covenants Act, West Virginia Code Chapter 22, Article 22B. WVDEP proposes to implement the groundwater monitoring through an enforceable mechanism, such as an environmental covenant or order. Environmental Covenants are readily implemented. In addition, WVDEP does not anticipate any regulatory constraints in issuing orders.

e. Cost-Effectiveness

The proposed decision is cost effective. The costs associated with this proposed administrative remedy and the implementation of a groundwater monitoring program is minimal. The costs to record an environmental covenant in the chain of title to the Facility property are minimal. Likewise, the costs associated with issuance of orders are also minimal. The costs to perform various in-situ, ex-situ, or incineration activities will be estimated and provided to WVDEP once potential remedies are proposed for specific areas of contamination at the Facility. WVDEP might require the Facility to provide a yearly cost estimate for planned activities in advance of each calendar year. The potential technologies that the Facility has identified are recognized in the business as viable remedies to various types of contamination. None of the potential remedies appears to be costs prohibitive.

f. Community Acceptance

WVDEP will evaluate Community acceptance of the proposed decision during the public comment period, and it will be described in the FDRTC.

g. Federal/Support Agency Acceptance

EPA has reviewed and concurred with the proposed remedy for the Facility. Furthermore, WVDEP has solicited EPA input and involvement throughout the investigation process at the Facility.

XV. FINANCIAL ASSURANCE

WVDEP will require the Facility to provide assurances of financial responsibility for completing the Remedy. Financial Assurance details for RCRA CA will be incorporated into the WVDEP-issued RCRA Permit after the Final Remedy is approved.

XVI. PUBLIC PARTICIPATION

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

West Virginia Department of Environmental Protection
601 57th St. S.E.
Charleston, WV 25304

Interested parties are encouraged to review the AR and comment on WVDEP's proposed decision. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, or e-mail to the WVDEP RCRA Corrective Program Manager at the address listed below.

A public meeting will be held upon request. Requests for a public meeting should be made to:

Mr. Charles Armstead
RCRA Corrective Action Program Manager
West Virginia Department of Environmental Protection
601 57th Street
Charleston, WV 25301
Office: (304) 926-0499 ext. 1130
Fax: (304) 926-0457
E-mail: charles.w.armstead@wv.gov

WVDEP will respond to all relevant comments received during the comment period. If WVDEP determines that new information warrant a modification to the proposed decision, WVDEP will modify the proposed decision or select other alternatives based on such new information and/or public comments. WVDEP will announce its final decision and explain the rationale for any changes in a document entitled the Final Decision and Response to Comments (FDRTC). All persons who comment on this proposed decision will receive a copy of the FDRTC. Others may obtain a copy by contacting the RCRA Corrective Action Program Manager at the address listed above.

Date:

Interim Director, Division of Land Restoration
WV Department of Environmental Protection

TABLE 1
ENVIRONMENTAL REPORTS

Report Title	Content	Author / Date Submitted
Verification Investigation	Identified documented releases and/or potential releases that required further investigation under RCRA Corrective Action protocols	IT Corporation, 1992
Description of Current Conditions	Facility background, history, SWMUs and history of releases	ICF Kaiser, 1992
RCRA Facility Investigation Report	The RFI discussed the nature and extent of releases of hazardous wastes or hazardous constituents from regulated units, solid waste management units, and other source areas at the facility. During investigation, all necessary data was gathered to support the environmental indicator determinations and a Corrective Measures Study. The RFI Report also included a human health risk assessment and/or ecological evaluation	IT Corporation, October 2000, Rev 1. (Revised as requested in USEPA approval letter)
Institutional Control Plan	The institutional control plans identifies areas where special excavation and soil management procedures are in place to control unacceptable risks to workers	June 2, 2000
Baseline Groundwater Monitoring Plan	Provided an evaluation of pumping rates to maintain hydraulic capture of groundwater beneath the Facility	IT Group, May 2000
Baseline Groundwater Monitoring – 4th Annual Report	Provided a summary of the Baseline Groundwater Monitoring program	Shaw Group, 2004
Remedial Action Construction Report – SWMU 13-3	Documented the implementation of corrective measures for SWMU 13-3 (Soil cover and river bank stabilization)	IT Corporation, June 2001
Remedial Technology Evaluation	Evaluates in-situ groundwater treatment technologies for MW-207, MW-220, and MW-221 areas	Environmental Resources Management, 2008
PORE Water and Sediment Sampling	Summary of Sampling and Analyses	Tetra Tech, Inc. Dec 2012

TABLE 2
SWMU/AOC IDENTIFICATION WITH STATUS

SWMU / AOC Number	Name	Description	Status	Institutional Controls Required
2-1	Bottom/Fly Ash Landfill Units J-3, J-4, and J-5	Landfill cell Units J-3 and J-4 accepted bottom ash from the power facility until closure in 1975 and covered with six inches of soil and vegetation. Cell J-5 opened in late 1975.	NFA	Yes
2-2	Oil Storage Tank Area	The two former aboveground steel storage tanks were used from 1966 to 1991 to store oils related to salt cavity development.	NFA	No
3-1	Oil/Water Separator	This steel vessel used from 1956 to 1995 to separate waste oil and condensate water generated by the liquefied ammonia process.	NFA	No
3-2	Vehicle Repair Facility	The Vehicle Repair area operated from 1956 to 1995 and consisted of a maintenance building and outside storage areas.	NFA	No
3-3	Storm Sewers, Trenches and Drains	The storm sewer system was constructed in 1955 in the Ammonia plant area and consists of varying diameters of salt glazed vitrified clay pipe. Storm water runoff collects in this unit and discharges directly to the Ohio River.	NFA	No
3-1A	Acid Storage Tank	This 30-foot long and 6-foot diameter aboveground steel storage tank was used from 1956 to 1993 to store hydrochloric acid (HCl) for acidifying cooling water to reduce calcium buildup in piping.	NFA	No
4-1	Bottom/Fly Ash Landfill Units J-1 and J-2	Landfill cell units J-1 and J-2 occupies an area of approximately 10 acres and accepted bottom and fly ash from the facility power plant until 1975. Barium wastes were also disposed of in J-1 and J-2.	NFA	No
4-2	Marshall Plant Waste Pond	This unit was used from 1954 to 1979 as a disposal site for waste streams generated at the chlor-alkali plant, chlorinated benzene plant, and titanium tetrachloride plant.	NFA	No
5-1A	Soil in Area 5	The soil located in the Marshall Plant Area potentially affected with hazardous waste during routine operations in the Marshall Plant.	NFA	No
5-2	Used Oil Storage Tank	This former 15,000-gallon above ground metal storage tank that was used until 1992 to store lubricating oil.	NFA	No
5-2A	Above Ground Fuel Oil Storage Facility	This 10,000-gallon aboveground storage tank is currently used to store fuel oil.	NFA	No
5-3A	Former Gasoline Storage Facility	The former gasoline storage tanks were installed during the fuel shortage in World War II and were removed in 1992.	NFA	No
5-5	Process and Sanitary Sewers	The sewers, which may have historically collected spills or process wash waters, were constructed of varying diameter vitrified clay pipe.	NFA	Yes

SWMU / AOC Number	Name	Description	Status	Institutional Controls Required
5-6	Sanitary Landfill	This Class III landfill operated from 1970 to 1990 and managed waste consisting of paper, paper products, lumber, cement blocks, bricks, and various scrap metal; according to available information, this unit did not receive chemical waste. The landfill is currently covered and vegetated	NFA	No
6-1	K085 Accumulation Area	The K085 Accumulation Area collects wastes from the production of chlorinated benzenes in-line during process operations.	NFA	No
6-1A	Intermediate and Product Storage Containment and Sump	The MCB system and associated sump temporarily stores intermediate and product material generated in the MCB production area prior to its removal.	NFA	No
6-2A	Soil Beneath Carbon Bisulfide Tank	This 5,000-gallon, 44-foot diameter tank was installed in 1965 and located in a fence-enclosed tank farm along the Ohio River.	NFA	No
6-3	Organics Treatment Area	This treatment system consists of a steam stripper and carbon adsorption column that is used to treat organic constituents in wastewaters collected in sewers and sumps throughout the MCB process area.	NFA	No
6-3A	Soil Throughout MCB Production Area	The soil throughout the MCB production area, approximately 40,000 feet ² and covered with asphalt and gravel. MCB process equipment was cleaned in a portion of the unpaved area prior to installation of the concrete pad in the clean-out area.	NFA	No
6-4	MCB Process Sewers	The MCB Process Sewers were originally installed in 1947 during the construction of the MCB facility. All wastewater handled via the MCB process sewers were discharged directly to the Ohio River until the system was upgraded in 1989-1990. The current MCB process sewer system collects pad containment, cooling water, and process wastewaters from the MCB production area. The wastewaters are then treated in an organics treatment system then discharged to the Ohio River.	NFA	Yes
6-5	MCB Product Tank Car Loading Area	The railcar loading area was installed in 1948 and occupies approximately 8,000 feet ² . Mono-, tri-, and para-benzene products are loaded here at seven locations.	NFA	No
6-6	Clean-out Area for Process Equipment	These two areas were used for cleaning MCB process equipment.	NFA	No
6-7	Former Location of BHC Pile	The former benzene hexachloride (BHC) waste pile was located in an open area approximately 400 feet north of the MCB production area offices; unknown quantities and the removal date is not known.	NFA	Yes

SWMU / AOC Number	Name	Description	Status	Institutional Controls Required
7-1	Laboratory Sewer System	The Laboratory Sewer System was installed in 1955; various constituents were discharged into the sewer then discharged to the Ohio River.	NFA	No
7-1A	R&D Area Northeast of Laboratory	The research and development area is located northeast of the laboratory building. This vacant area is where small buildings and pilot plants were once located.	NFA	Yes
8-1A	Former BHC Production Area	The BHC Production Facility was removed from service in the late 1950's or early 1960's; this location is now part of the chlorine production area.	NFA	Yes
8-2A	Gasoline Storage Facility	This area consists of a 6,300-gallon capacity aboveground, steel storage tank that contains gasoline.	NFA	No
8-3A	Caustic Tank Car and Truck	This area consists of separate trailer truck and railroad tank car loading facilities.	NFA	No
8-4	Chlorine Cooling and Drying System	The chlorine cooling/drying system was installed in 1984 and cools saturated chlorine in a staged non-contact cooling process and in the process removes water vapor.	NFA	No
8-4A	Graphite Cell Construction Area	This approximately 1600 feet ² concrete paved area was formerly used for refitting lead/graphite asbestos cells.	NFA	No
8-5	Lead/Asbestos Treatment System	Lead/graphite electrodes were cleaned and maintained by this system.	NFA	No
8-5A	Chlorine Area (Former) Once Through Sewer	The system consists of concrete and vitrified clay pipes of various diameters. Historically process wastewater from the #6 and #7 chlorine circuits passed through this system and discharged directly to the Ohio River. After removal of the majority of the piping, the storm sewer system now connects to process sewers near the #6 and #7 chlorine circuits.	NFA	Yes
8-6	Oil Storage Tank Area	The two aboveground steel storage tanks stored a mixture of various oils used for brine well development in the No. 1 brine field area until 1983. The tanks were removed in 1993.	NFA	No
8-6A1	Caustic Six Pack	These six, 835,000-gallon capacity aboveground storage tanks located near Skyline Drive in the caustic department contain caustic and brine solutions.	NFA	No
8-6A2	South Caustic Storage Tanks	These thirty aboveground storage tanks, ranging from less than 20,000 to 835,000 gallons, located in the southern portions of the caustic department, contain or were previously used to store caustic solutions.	NFA	No
8-7A	Oil Transformer Storage Tanks	These were two former above ground storage tanks, each with a capacity of 1,250 gallons, that were located north of the #5 chlorine circuit. The 30-year old tanks removed 1994.	NFA; Further soil removal after building removed.	No

SWMU / AOC Number	Name	Description	Status	Institutional Controls Required
8-8	Non-mercury Process Sewer, Trenches, and Sumps	The non-mercury process sewer, trenches, and sumps located within the chlorine process area were installed in 1988 prior to the installation of the current sewer system. Wastewaters from this process are treated to remove asbestos and heavy metals in the lead/asbestos treatment system.	NFA	No
8-9	Brine Treatment System	Installed in 1943, the brine treatment system purifies extracted brine for chlorine production.	NFA	No
8-12	Mercury Brine Treatment System	The mercury brine treatment system was installed in 1957 and consists of a series of saturators, scrubbers, tanks, and filters, through which brine, used in the mercury cell process, passes to remove impurities and replenish the salt content.	NFA	No
8-14	Mercury Treatment System	The system consists of two large circular clarifiers (mercury settling tanks) in which the mercury in the wastewaters is removed, treated, and discharged to the Ohio River.	NFA	No
8-15	Mercury Process Sewer, Trenches and Sumps	Originally constructed in 1957, mercury wastewaters were discharged to the surface impoundment for settling of mercury contaminants prior to discharge to the Ohio River. Upgraded in 1980, wastewaters are now treated to remove mercury before flowing through a carbon adsorption bed and discharged to the Ohio.	NFA	No
8-16	Ditch Below Mercury Treatment System	This concrete ditch is situated below the mercury treatment system and is approximately 3 feet wide by 190 feet long.	NFA	No
8-17	Circuit #7 Hydrogen Gas Purifying System	Cools, compresses hydrogen, and extracts mercury vapor.	NFA	No
8-18	Mercury Wastewater Collection Tanks	A series of rubber lined carbon steel collection tanks for mercury cell wastewater.	NFA	No
8-19	Weak Caustic Collection Tanks	Large steel tanks located near caustic process area.	NFA	No
8-20	Process Sewers In Caustic Area	Includes process sump and process wastewater collection system for caustic process building.	NFA	No
9-1	Bottom / Fly Ash Storage Facility / Hopper	The bottom/fly ash storage facility is utilized as a temporary storage and truck-loading area for bottom/fly ash before final disposal of ash is landfill Cell J5.	NFA	No
9-2	Former Bottom / Fly Ash Lagoon	This approximately 320 feet by 120 feet former lagoon, situated south of the powerhouse adjacent to the Ohio River, no longer accepts bottom/fly ash.	NFA	Yes

SWMU / AOC Number	Name	Description	Status	Institutional Controls Required
9-3	Bottom / Fly Ash Lagoon	This approximately 375 feet by 110 feet lagoon is used as a settling pond for fly ash slurry that is pumped from the adjacent power station.	NFA	Yes
9-4	Coal Pile Runoff Collection System	The coal pile runoff collection system, installed in 1991, is a clay-lined pond that collects runoff from the adjacent coal piles. After collection, this runoff water is pumped and treated for pH at the lead/asbestos treatment system.	NFA	Yes
10-1	Inorganics Waste Pond	This approximately 225 feet by 140 feet former settling unit accepted waste sludge from the old barium oxide process from 1962 to 1972.	NFA	No
10-1A	Soil in the Inorganics Area	This includes all of the soil in the Inorganics Process Area	NFA	No
10-2	Sewer System for Former Barium and TiCl ₄ Plants	This sewer system, associated with the former Barium and TiCl ₄ Plants, accepted wastewater generated during the production in this area.	NFA	No
10-2A	Oil/TiCl ₄ Storage Tanks	These ten, 75 feet long and 10 feet diameter aboveground tanks were used first to store TiCl ₄ and later for oil storage. All ten tanks were removed in 1993.	NFA	No
10-3	Process Sewers for Inorganics Area	This process sewer system was installed in 1990 and manages process wastewater from the Inorganics Area.	NFA	No
11-1	Cal-Hypo Reagent Preparation Area	The Cal-Hypo Reagent Prep Area stores filter cake material containing CaCO ₃ , CaSO ₄ , and elemental sulfur until off-site disposal.	NFA	No
12-1	PELS® Area Process Sewer	This sump collection system, which was installed in 1990, collects wastewaters that are pumped back to the caustic process area for recovery.	NFA	No
12-2	PELS® Bulk Loading Area	This area is used for loading PELS® and solid NaOH tablets into railroad hopper cars.	NFA	No
13-1	Barium Landfill	The approximately 200 feet by 200 feet former landfill was used in 1963 for disposal of solid wastes generated during the operation of the barium carbonate/chloride plant.	NFA	No
13-1A	Drip Gas Drum Storage	Drums of drip gas were stored in this area from 1992 to 1996.	NFA	No
13-2	TiO ₂ Ponds	The ponds were a series of settling ponds for inert material from the TiO ₂ plant. The unit operated from 1968-1971, inactive from 1971, and closed in August 1980.	NFA	No
13-3	Former BHC (benzene hexachloride) Storage Pile Location	From 1952-1962, approximately 330,000 pounds of BHC isomers and trace amounts of chlorinated organic solvent wastes were stored each year at this location. After approval by EPA, as a corrective measure, impacted soil excavation, cap construction and riverbank stabilization activities were completed in 2001.	NFA	Yes

SWMU / AOC Number	Name	Description	Status	Institutional Controls Required
13-4	Sewers Inside and Surrounding Paint Shop Area	These concrete trenches located inside of the Paint Shop Area collect wash waters and spills.	NFA	No
13-6	Oil Storage Tank Area	These two former aboveground storage tanks were used to hold well development oil for brine field No. 2.	NFA	No
14-1	RCRA Carbon Bisulfide (also known as Disulfide) D001 Drum Storage Area	Drums containing D001 waste were stored here.	NFA	No
14-1A	Soil In CS ₂ Process Area	All soils in the CS ₂ Process Area	NFA	No
14-2	CS ₂ Area Process Sewers	The CS ₂ process sewer system was installed in 1964 during the construction of the CS ₂ facility; all wastewaters flow through an internal oil/water underflow weir prior to connecting with the MCB storm sewer system	NFA	No
14-2A	Tank Car Loading Area	Located along the western side of the CS ₂ process area, railroad tank cars are loaded with finished product from overhead pipes for shipment off-site.	NFA	No

APPENDIX A
ADMINISTRATIVE RECORD
AXIAL CORPORATION FACILITY (FORMERLY PPG INDUSTRIES, INC.)

IT Corporation, October 2000. *Final RFI Report for the PPG Industries, Inc. Natrium Plant, New Martinsville, West Virginia.* Revision I

Tetra Tech, Inc., December 2012. *Sediment and Pore Fluid Investigation Results Ohio River.* Prepared for PPG Industries, Inc.

Axial Corporation, March 2014. *Streamlined RCRA Corrective Measures Study.*