



Long-Term Stewardship Assessment Report

AdvanSix Resins & Chemicals, LLC

EPA ID #: VAD023690183

Chester, Virginia 23836

Assessment Date: September 20, 2022

Introduction: Long-term stewardship (LTS) refers to the activities necessary to ensure that engineering controls (ECs) are maintained and that institutional controls (ICs) continue to be enforced. The purpose of the EPA Region 3 LTS program is to periodically assess the efficacy of the implemented remedies (i.e., ECs and ICs) and to update the community on the status of the RCRA Corrective Action facilities. The assessment is conducted in twofold, which consists of a record review and a field inspection, to ensure that the remedies are implemented and maintained in accordance with the final decision.

Facility Background: The AdvanSix Resins & Chemicals, LLC (AdvanSix) Facility is an active nylon resins manufacturing plant located at 4101 Bermuda Hundred Road in Chester, Virginia, on the southern shoulder of a large meander of the James River, situated near its confluence with the Appomattox River. The Facility is comprised of approximately 552 acres of land, with the operations area of the Facility occupying 93 acres. The Facility is currently owned and operated by AdvanSix, which is a successor to Honeywell Resins & Chemicals LLC. AdvanSix and its corporate predecessors have operated the Facility since 1954.

Based on historical information about Facility operations, EPA identified 11 Solid Waste Management Units (SWMUs) from which releases were possible (SWMUs 1, 3, 4, 5, 6, 8, 12, 13, 14, 17, and 18), and the Western Cooling Water Ditch (WCWD), which received historical releases from plant operations (Figure 1). The 11 SWMUs remaining no longer receive process waste and are inactive.

Current Site Status: On April 19, 2017, EPA issued the Final Decision and Response to Comments (FDRTC) in which a final remedy for the Facility was selected. EPA's Final Remedy for the Facility consists of the following: 1) monitored natural attenuation until drinking water standards are met; 2) operation and maintenance of a slurry wall, cover containment structure, and the contingent groundwater extraction system at SWMU 4; 3) excavation and removal of sludge materials at SWMU 12; 4) installation and maintenance of a multi-layer sediment cover with long-term monitoring at discrete sections of the WCWD; 5) installation and maintenance of a vapor control system in the onsite warehouse building or a demonstration approved by EPA that vapor intrusion does not pose unacceptable risk to human health; 6) development and implementation of a Cap Management Plan (CMP) specific to SWMUs 3 and 4 and the WCWD, and a Materials Management Plan (MMP); 7)

compliance with and maintenance of the CMP, the MMP, and other land and groundwater use restrictions to be implemented through ICs.

Institutional controls are implemented via Environmental Covenants between EPA, Virginia Department of Environmental Quality (VDEQ), and AdvanSix, dated May 9, 2018.

Long-term Stewardship Site Visit: On September 20, 2022, EPA conducted a long-term stewardship site visit with AdvanSix Resins & Chemicals, LLC to discuss and assess the status of the implemented remedies at the Facility.

The attendees were:

Name	Organization	Email Address
Christine Kimak	EPA Region 3	kimak.christine@epa.gov
Calvin Jordan	Virginia Department of Environmental Quality	william.jordan@deq.virginia.gov
Alyssa Morgan	AdvanSix	Alyssa.Morgan@advansix.com
Daniel Winburne	AdvanSix	Daniel.Winburne@advansix.com

Institutional Controls (ICs) Status: The Environmental Covenants for Parcels 1 and 2 are the basis for implementing ICs required as a condition of the Statement of Basis and FDRTC. The following ICs apply to the AdvanSix Facility:

Groundwater Use Restriction: Groundwater at the Property shall not be used for any purpose other than implementation of the final remedy selected by EPA unless EPA gives its prior written approval for such use. Groundwater on site is not used for potable purposes.

Residential Land Use Restriction: The Property shall be restricted to commercial and/or industrial purposes and shall not be used for residential purposes unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment and EPA provides prior written approval for such use. The site is currently being used as a nylon resins manufacturing plant.

Soil Management Plan: Any earth moving activities, including exaction, drilling, and construction activities in the areas at the Property where any contaminants remain in soils above EPA's screening levels for non-residential use, or in groundwater above MCLs, shall be conducted in accordance with the EPA-approved MMP. No construction or excavation activities have occurred on site.

Well Restriction: No new wells shall be installed on the Property unless EPA gives prior written approval. There have been no additional wells installed at the Facility.

Vapor Intrusion: A vapor intrusion control system shall be installed in any new structures constructed above a groundwater plume that exceeds EPA's regional screening levels for vapor intrusion, or within 100 feet of the perimeter of such a plume, unless it is demonstrated to EPA that vapor intrusion does not pose unacceptable risk to human health and EPA provides written approval

that no vapor intrusion control system is needed. There has been no new construction that would have required installation of a vapor intrusion control system.

Engineering Controls (ECs) Status:

Contingent Groundwater Extraction System (CGWES): The CGWES piping, power, and control systems were installed within the cap area of SWMU 4 to create an average inward/negative gradient to establish hydraulic control in the capped area. The CGWES consists of three extraction wells that pump into dual-walled discharge piping equipped with visual leak detection to convey groundwater outside the containment area to a frac tank located on a concrete pad adjacent to the east side of the capped area. A control panel is located adjacent to the frac tank concrete containment pad. There are ten shallow observation wells (OW) and three deeper OWs that monitor the groundwater level within and adjacent to the capped area of SWMU 4. OW pairs consisting of two shallow OWs inside and outside of the slurry wall are used to monitor the groundwater level gradient within and adjacent to the slurry wall. As per the latest Annual Report, dated February 28, 2022, an outward gradient was observed and the turn-on criteria for the CGWES was met. The CGWES will continue to be operated until an inward gradient is achieved. A total of 60,372 gallons have been extracted by the CGWES to date.

Site-Wide Groundwater Monitoring: The proposed remedy for Facility groundwater consists of monitored natural attenuation until drinking water standards are met. The point of compliance is throughout the plume or the downgradient unit boundary for the areas where waste was left in place.

SWMU 3: The SWMU 3 landfill was capped in 1974 with a clay mixture, covered with topsoil, and seeded. Cap inspections and groundwater monitoring are required with this Unit.

SWMU 4: The containment system consists of a soil-bentonite slurry wall extending from the installed geomembrane liner grade downward through the alluvium and keyed into the Potomac Confining Unit. A low permeability multi-layer membrane cover system, consisting of a 60-mil Linear Low-Density Polyethylene (LLDPE) membrane and geosynthetic drainage layer extends over the entire area of the slurry wall containment and is keyed into native soils. Topsoil brings the surface of the cover system to current grade. Stabilizing grass has been established on the cover to prevent erosion. Final surface grading promotes positive drainage away from the containment/cover system and storm water is conveyed as sheet flow or through swales, with level spreaders, discharging to perimeter drainage pathways.

SWMU 12: Waste sludge (grey waste) was excavated from SWMU 12 and the area was backfilled and restored to original conditions. The excavation was backfilled with VDOT #21B stone to within six inches of the final grade. The top six inches were backfilled with topsoil. Site restoration requirements included seeding and planting of the final grade surface.

WCWD: The WCWD CM cover system design includes approximately 2,751 square feet of impacted sediment at five discrete areas located in three separate reaches of the WCWD. The cover system

consists of a stone base layer, geotextile layer, 60mm LLDPE geomembrane, a second geotextile layer, and a rip-rap stone layer for protection and anchoring.

Financial Assurance: Financial assurance is not required for this site.

Reporting Requirements/Compliance: AdvanSix submits an annual Inspection Report summarizing analytical and inspection data from each 12-month period, as well as all requisite long-term groundwater monitoring obligations. The latest Annual Inspection Report was submitted in February 2022. The Facility is in compliance with activity and use limitations set forth in the Covenants. No transfer of Facility property, change in use of the property, or work that will affect contamination at the property has been reported.

Mapping: The EPA website map displays the approximate 552-acre Facility boundary, as well as the Parcel 1 and Parcel 2 boundaries. A downloadable geospatial PDF map is available on EPA's corrective action facility webpage under the "Reports, Documents and Photographs" section, found [here](#).

Conclusions and Recommendations: No institutional or engineering control deficiencies were identified. EPA has determined that the remedy institutional and engineering controls have been fully implemented. The remedy remains effective in being protective of human health and the environment.

Attachments:

Figure 1: Aerial Map of AdvanSix Resins & Chemicals, LLC Facility

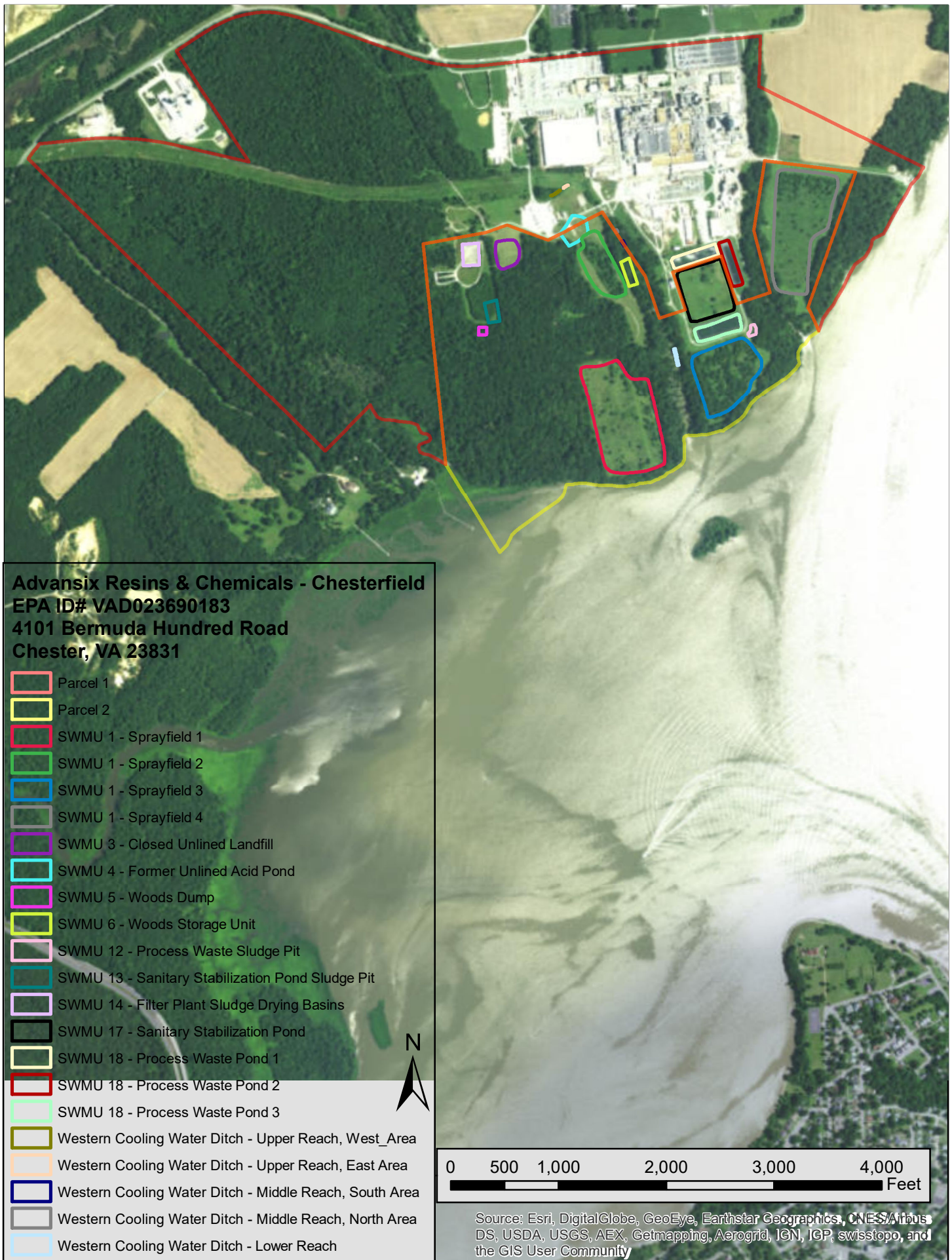
Picture 1: SWMU 4 Cover

Picture 2: SWMU 4 Looking South

Picture 3: SWMU 4 Well Vault

Attachment 1: Remedy Review and Assessment Questionnaire

Figure 1: Aerial Map of AdvanSix Resins & Chemicals, LLC Facility



Picture 1: SWMU 4 Cover



Picture 2: SWMU 4 Looking South



Picture 3: SWMU 4 Well Vault



Attachment 1

<u>Remedy Review and Assessment Questions:</u>	<u>Yes</u>	<u>No</u>	<u>Notes</u>
• Have the ICs specified in the remedy been fully implemented?	X		
• Are there plans to develop or sell the property?		X	
• Have all reporting requirements been met?	X		
• Is groundwater onsite used for potable purposes?		X	
• Is the Facility connected to a public water supply?	X		
• Have any new wells been installed at the facility?		X	
• Are the current groundwater flow rate and direction similar as mentioned in the previous studies?			Groundwater gauging and sampling started in 2021
• Groundwater contaminants stable or decreasing in concentration?			Groundwater sampling started in 2021
• Any evidence or reason to re-evaluate the number and location of monitoring points and/or monitoring frequency?		X	
• Is there evidence of monitored natural attenuation occurring in groundwater?			Groundwater sampling started in 2021
• Has (active remediation system) been maintained as necessary?	X		
• Have there been recent construction or earth-moving activities or plans for such?		X	
• Have geosynthetic/vegetative landfill caps (name) been properly maintained?	X		
• Have any repairs been necessary? (i.e., regrading, filling, root removal)		X	
• Have there been construction of new structures within the vapor intrusion restriction zone(s)?		X	
• Is the security fence intact?	X		