Virginia Department of Environmental Quality
Draft Hazardous Waste Management Permit for Corrective Action
AdvanSix Resins & Chemicals LLC – Hopewell Site
Hopewell, Virginia
EPA ID No: VAD065385296
September 10, 2021

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482 FAX (804) 698-4178
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural and Historic Resources

David K. Paylor
Director
(804) 698-4000

Hazardous Waste Management Permit for Corrective Action

Permittee: AdvanSix Resins & Chemicals LLC
905 East Randolph Road
Hopewell, Virginia 23860

EPA ID No.: VAD065385296

Pursuant to Chapter 14, Article 4. Title 10.1, Code of Virginia (1950), as amended, and regulations promulgated thereunder by the Virginia Department of Environmental Quality (DEQ), a Hazardous Waste Management Permit (Permit) is issued to AdvanSix Resins & Chemicals LLC (Permittee or Advansix), to complete site-wide corrective action, as necessary to protect human health and the environment, for all releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU) or Area of Concern (AOC). The facility being permitted is located in Hopewell, Virginia at 37° 17' 52.8"North latitude and -77° 16' 39.3" West longitude, with a street address of 905 East Randolph Road, Hopewell, Virginia 23860.

The Permittee shall comply with all terms and conditions set forth in this Permit including all Permit Attachments II.A through II.C. If the Permit and Permit Attachments conflict, the wording of the Permit shall prevail. The Permittee shall also comply with all applicable regulations contained in the Virginia Hazardous Waste Management Regulations (VHWMR) as codified in Title 9 of the Virginia Administrative Code (VAC), Agency 20, Chapter 60 (9 VAC 20-60) and regulations promulgated by the United States Environmental Protection Agency (EPA) implementing the Resource Conservation and Recovery Act (RCRA) set forth in 40 CFR Parts 124, 260, 261, 262, 264, 268, and 270, as adopted by reference in the VHWMR. For convenience, wherever the RCRA regulations are adopted by reference and cited in this Permit and the Permit Attachments, the regulatory citations will be only those from 40 CFR.

The Commonwealth of Virginia has received authorization for its hazardous waste management program under Section 3006(b) of RCRA, 42 U.S.C. §6926(b), to administer and enforce the RCRA under the VHWMR in lieu of the federal hazardous waste management

program. Applicable regulations are those under the VHWMR (9VAC 20-60) which are in effect on the date of final administrative action on this Permit and as well as any self-implementing statutory provisions and related regulations which are automatically applicable to the Permittee's hazardous waste management activities, notwithstanding the conditions of this Permit.

This Permit is based on the administrative record and the assumption that the information submitted in the Part A and Part B Permit Application by the Permittee and contained in the administrative record is complete and accurate. The Permittee's failure to fully disclose all relevant facts in the submittal of the permit application or during the Permit issuance process, or the Permittee's misrepresentation of any relevant facts at any time, shall be grounds for the modification or termination of this Permit pursuant to the VHWMR, and in accordance with 40 CFR §§124.5, 270.41, 270.42, and 270.43, and shall also be grounds for initiation of an enforcement action. The Permittee shall inform DEQ of any deviations from permit conditions or changes from information provided in the application. In particular, the Permittee shall inform DEQ of any proposed changes that might affect the ability of the Permittee to comply with applicable regulations and/or permit conditions, or which alter any of the conditions of the Permit in any way.

This Permit is effective as of **October 10, 2021**, and shall remain in effect until **October 10, 2031**, unless revoked and reissued in accordance with 40 CFR §§124.5 and 270.41, terminated in accordance with 40 CFR § 270.43, or continued in accordance with 9VAC 20-60-270.B.15.

September 10, 2021

Date Signed

Leslie A. Romanchik
Hazardous Waste Program Manager
Office of Financial Responsibility and
Waste Programs

Table of Contents

List of Attachments

The following Permit Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated attachments are enforceable conditions of this Permit. The Department has, as deemed necessary, modified specific language from the permit application. Additional modifications are prescribed in the Permit Conditions (Modules I and II), and thereby supersede the language of the Permit Attachments to the extent that there is a direct conflict between the Attachments and Modules I and II of this Permit.

Definitions

All definitions contained in 40 CFR §§124.2, 260.10, 270.2, 264.141, 264.1031, 264.1051, 264.1081, and Title 9 of the Virginia Administrative Code, Agency 20, Chapter 60 (9VAC 20-60) are hereby incorporated, in their entirety, by reference into this Permit. Any of the definitions presented in (a) through (m) below shall supersede any definition of the same term given in the previously cited sections of 40 CFR §§ 124.2, 260.10, 270.2, 264.141, 264.1031, 264.1051, 264.1081, and 9VAC 20-60. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. For the purposes of this Permit, the following definitions shall apply:

a. The term "**Area of Concern**" or "**AOC**" shall mean an area at the Facility or an off-site area, which is not at this time known to be a solid waste management unit, where hazardous waste and/or Hazardous Constituents are present or are suspected to be present as a result of a release from the Facility.

b. The term "**Days**" shall mean calendar days except as otherwise provided herein.

c. The term "**Department**" shall mean the Virginia Department of Environmental Quality (DEQ) with the address specified in Permit Condition I.I.

d. The term "**Director**" shall mean the Director of the Virginia Department of Environmental Quality or designated representative.

e. The term "**EPA**" shall mean United States Environmental Protection Agency.

f. The terms "**Facility**" or "**Site**" shall mean all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. For the purpose of implementing corrective action under 40 CFR § 264.101, "facility" shall mean all contiguous property under the control of the owner or operator under a permit under Subtitle C of RCRA.

g. The term "**Hazardous Constituent**" shall mean all constituents that are listed in 40 CFR Part 264 Appendix IX in addition to those in 40 CFR 261, Appendix VIII, as defined in 9VAC 20-60-264.B.6.

h. The term "**Hazardous Waste Management Unit**" is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

i. The term "**Release**" shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, of any Hazardous Constituents, unless otherwise excluded pursuant to 40 CFR § 302.3 and Section 101(22) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C.§ 9601(22).

j. The term "**Permit**" shall mean the Permit issued by the Virginia Department of Environmental Quality, pursuant to Chapter 14, Article 4, Title 10.1, Code of Virginia (1950, as amended), and the Virginia Hazardous Waste Management Regulations (VHWMR) as codified in 9 VAC 20 60.

k. The term "**Permittee**" shall mean the owner/operator of the facility to which the Permit is issued.

l. The term "**Solid Waste Management Unit**" or "**SWMU**" shall mean any discernable unit at a facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous wastes. Such a unit includes any area at a facility where solid wastes have been routinely and systematically released.

m. The term "**Unit**" refers to containers, container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, underground injection wells, and other physical, chemical, and biological units or treatment units.

MODULE I - STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

I.A.1. This Permit, issued by the Director pursuant to 40 CFR § 270.1(c)(4), authorizes only the management of hazardous waste under corrective action (CA) expressly described in this Permit and in accordance with the conditions of this Permit and with the applicable provisions of the VHWMR under 9 VAC 20-60. Any management of hazardous waste by the Permittee in the facility which is not authorized by this Permit or 9 VAC 20-60, and for which a permit is required under Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended, is prohibited. Compliance with this Permit generally constitutes compliance, for purposes of enforcement, with Chapter 14, Article 4, Title 10.1-1426, Code of Virginia (1950), as amended. This Permit does not convey any property rights of any sort or any exclusive privilege. Possession of a permit does not authorize any injury to persons or property, or invasion of other private rights, or authorize any infringement of Commonwealth or local laws or regulations. Compliance with the terms of this Permit may not constitute a defense to any action brought under Chapter 14, Article 8 of Title 10.1, Code of Virginia (1950) as amended or any other Commonwealth law governing protection of the public health or the environment. (40 CFR §§ 270.4(b) and (c) and 270.30(g))

I.A.2. The corrective action (CA) obligations contained in this Permit shall continue regardless of whether the Permittee continues to operate or ceases operation and closes the facility. The Permittee is obligated to complete facility-wide CA under the conditions of a RCRA Permit regardless of the operational status of the facility. The Permittee must submit an application for a new Permit at least 180-days before this Permit expires pursuant to 40 CFR § 270.10(h), unless the Permit has been modified to terminate the CA schedule of compliance and the Permittee has been released from the requirements for financial assurance for corrective action.

I.B. PERMIT ACTIONS

I.B.1. Permit Review, Modification, Revocation and Reissuance, and Termination

This Permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§124.5, 270.30(f), 270.41, and 270.43. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay the applicability or enforceability of any Permit Condition.

I.B.2. Permit Modifications

Permit modifications at the request of the Permittee shall be accomplished as

specified by 40 CFR §270.42.

I.B.3. Permit Renewal

This Permit may be renewed as specified in 9 VAC 20-60.B.6, and 40 CFR §270.130(h) and Permit Condition I.D.2. Review of any application for a Permit renewal shall consider improvements in the state of control and measurement technology, and changes in applicable regulations.

I.C. SEVERABILITY

I.C.1. The provisions of this Permit are severable; if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any Commonwealth or Federal statutory or regulatory provision, which forms the basis for any condition of this Permit, does not affect the validity of any other Commonwealth or Federal statutory or regulatory basis for said that condition.

I.C.2. In the event that a condition of this Permit is stayed for any reason, the Permittee shall continue to comply with the conditions of the existing permit which correspond to the to the stayed conditions unless the Director determines such compliance would be technologically incompatible with compliance with other conditions of this Permit which have not been stayed (40 CFR §124.16(c)(2)).

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply

The Permittee must comply with all conditions of this Permit, except that the Permittee need not comply with the conditions of this Permit to the extent and for the duration such noncompliance is authorized in an emergency permit under 40 CFR §270.61. Any other noncompliance with the Permit constitutes a violation of Title 10.1 Code of Virginia (1950), as amended and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a Permit renewal application.

I.D.2. Duty to Reapply

If the Permittee wishes to or is required to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee must apply for and obtain a new Permit as specified below.

a. The Permittee shall submit a complete application for a new Permit at least 180 days before the Permit expires, unless permission for submittal at a later

date has been granted by the Director. (40 CFR §270.30(b))

b. Pursuant to 40 CFR §270.10(h), the Director shall not grant permission to submit the complete application for a new Permit later than the expiration date of the existing Permit.

I.D.3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit. (40 CFR § 270.30(c)

I.D.4. Duty to Mitigate

In the event of noncompliance with the Permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (40 CFR § 270.30(d))

I.D.5. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that the Permittee installs or uses to achieve compliance with the conditions of this Permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit. (40 CFR § 270.30(e)

I.D.6. Duty to Provide Information

The Permittee shall furnish, to the Director within a reasonable time, any relevant information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this Permit. (40 CFR § 270.30(h)

I.D.7. Inspection and Entry

The Permittee shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may by required by law, to:

a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

b. Have access to and copy, at reasonable times, any records that must be kept under conditions of this Permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

d. Sample or monitor at reasonable times for the purposes of assuring permit compliance or as otherwise authorized by 9VAC 20-60, any substances or parameters at any location. (40 CFR 270.30(i)

I.D.8. Reporting Planned Changes

The Permittee shall give notice to the Director of any planned physical alterations or additions to the permitted facility. This notice shall include a description of all incidents of noncompliance reasonably expected to result from the proposed changes (40 CFR §270.30(l)(1)).

I.D.9. Anticipated Noncompliance

The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with Permit requirements (40 CFR§270.30(l)(2)).

I.D.10. Twenty-four Hour Reporting

The Permittee shall report any noncompliance, which may endanger public health or the environment, to the Director. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The report shall include the information specified in a, b, and c below:

a. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.

b. Any information of a release or discharge of hazardous waste, or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility.

c. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Names and quantities of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

d. A written submission shall also be provided to the Director within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain, at a minimum, the following:

i. A description of the noncompliance and its cause;

ii. The periods of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

iii. The steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

e. The Director may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days of the time the Permittee becomes aware of the circumstances (40 CFR §270.30(l)(6)(iii)).

I.D.11. Other Noncompliance

The Permittee shall report all other instances of noncompliance with the permit conditions not otherwise required to be reported above at the time the applicable monitoring reports are submitted. The reports shall contain, at a minimum, the information listed in Permit Condition I.D.10. (40 CFR § 270.30(l)(10))

I.D.12. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application or in any report to the Director, the Permittee shall promptly submit

such facts or information to the Director (40 CFR §270.30(l)(11)).

I.E. MONITORING AND RECORDS

I.E.1. Monitoring Reports

Monitoring shall be performed and results shall be reported at the intervals specified in the Permit.

I.E.2. Samples and Measurements

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (40 CFR §270.30(j)(1)). The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method specified in 40 CFR §261, Appendix I, or an equivalent method approved by the EPA. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846 (3rd ed., November 1986, as updated), Standard Methods of Wastewater Analysis (16th ed., 1985, as updated), or an equivalent method approved by the EPA. Additionally, the laboratory must be accredited for the analytical method, matrix and target analyte (where applicable) by the Virginia Environmental Laboratory Accreditation Program ("VELAP").

I.E.3. Records of All Monitoring Information

The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, all certifications required by 40 CFR §264.73(b)(9), and records of all data used to complete the application for this Permit, for a period of at least three (3) years (or longer if specified elsewhere in this Permit) from the date of the sample collection, measurement, report, certification, or application. These retention periods may be extended by the request of the Director at any time and are automatically extended during the course of any unresolved enforcement actions regarding this facility. (40 CFR § 270.30(j)

a. Records of monitoring information shall include at a minimum:

   i. The date, exact location, and time of sampling or measurements;

   ii. The individual(s) who performed the sampling or measurements;

   iii. The date(s) analyses were performed;

   iv. The individual(s) who performed the analyses;

v. The analytical techniques or methods used; and

vi. The results of the analyses.

I.F. COMPLIANCE NOT CONSTITUTING DEFENSE

Compliance with the terms of this Permit does not constitute a defense to any action brought under Chapter 14, Article 8 of Title 10.1, Code of Virginia (1950, as amended), or any other Commonwealth law governing protection of the public or the environment.

I.G. TRANSFER OF PERMITS

This Permit is not transferrable to any person, except after notice to the Director (40 CFR §270.30(l)(3)). The Director may require modification or revocation and reissuance pursuant to 40 CFR §§124.5, 270.40, 270.41, 270.42, and 270.43 to change the name of the Permittee and incorporate such other requirements as may be necessary. Before transferring ownership or operation of the Facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 9VAC 20-60-264 and 40 CFR Parts 264 and 270 and at the same time shall send a copy of such notice to the Director (40 CFR §264.12(c)).

I.H. PERMIT EXPIRATION AND CONTINUATION

Pursuant to 9 VAC 20-60-270.B.15, this Permit will remain in force until the effective date of a new Permit, if the Permittee has submitted a timely, complete application pursuant to Permit Condition I.D.2, and through no fault of the Permittee, the Director has not issued a new Permit with an effective date on or before the expiration date of this Permit. All conditions of the continued Permit shall remain fully effective and enforceable.

I.I. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

I.I.1. Annual Report

The Permittee shall submit an annual Operations, Maintenance, and Monitoring (OM&M) Report with Site-wide groundwater monitoring results and SWMU inspection measures no later than September 1st of each calendar year in accordance with Permit Condition II.C.

I.I.2. Biennial Report

The Permittee shall comply with the biennial reporting requirements pursuant to

40 CFR §264.75, as applicable.

I.I.3. Corrective Measures Five Year Assessment Report

The Permittee shall submit Corrective Measures five-year assessment reports that evaluate the effectiveness of the corrective measures in meeting human health and environmental protection objectives. The report shall include, at minimum, review of the permittee's compliance with any potential covenant requirements, groundwater and land uses on the property, zoning maps or planning documents that may affect future land use in the impacted area, and progress of the remedial measures and of meeting the cleanup targets or remedial goals. The required five (5)-year assessment reports that coincide with annual reports may be compiled with the annual report.

I.I.4. Duty to Submit Documents.

All work plans, reports, notifications or other submissions which are required by this Permit to be sent or given to the Department shall be sent postal mailing, electronically, or be hand-delivered to:

For Corrective Action and Groundwater:
Department of Environmental Quality
Groundwater/Corrective Action Team Lead
Office of Remediation Programs
P.O. Box 1105
Richmond, VA 23218

For Permit Modifications:
Department of Environmental Quality
Hazardous Waste Program Manager
Office of Financial Responsibility and Waste Programs
PO Box 1105
Richmond, VA 23218

Street address:
1111 East Main Street, Suite 1400
Richmond, VA 23219

And one (1) copy each of all such correspondence, reports, and submissions shall also be sent to:

Land Program Manager, Piedmont Regional Office:
Department of Environmental Quality
4949 A. Cox Road
Glen Allen, VA 23060

Virginia Program Manager:
Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029
Mail code: (3LD30)

I.I.5. Signatory Requirements

All applications, work plans, reports, and other information submitted shall be signed and certified as specified by 40 CFR §270.11.

I.J. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

I.J.1. Documents

Current copies of the following documents, as amended, revised, and modified, shall be maintained at the Facility. The documents shall be made available to the Department upon request. These documents shall be maintained until corrective action is completed and certified by the Permittee and by an independent, Virginia-registered professional engineer, unless a lesser time is specified in the Permit.

a. The Permit, including all attachments, revisions and modifications;

b. All Part A and Part B Permit Applications supporting the Permit;

c. The facility operating record by 40 CFR §264.73 to the extent applicable;

d. Inspection schedules and logs required by 40 CFR §§264.15(b)(2) and 264.15(d), as applicable;

e. Personnel training documents and records required by 40 CFR §264.16 and this Permit, as applicable;

f. Closure Plans, as required by 40 CFR §264.112(a), as applicable;

g. Post-Closure Plans, as required by 40 CFR §264.118(a), as applicable;

h. Groundwater sampling and analysis plans for remedial effectiveness and long-term groundwater monitoring required by this Permit;

i. Operations and maintenance plan required by this Permit;

j. Corrective Action Work Plans, Reports, and other information and submissions regarding corrective action, as applicable under this Permit; and

k. All other documents required by Permit Conditions I.D.8 through I.D.12 and I.E.

I.K. TRADE SECRET PROTECTION

In accordance with §10.1-1458 of the Code of Virginia (1950, as amended), the Permittee may claim any information this Permit requires, or is otherwise submitted to the Director as trade secret.

a. Information designated as trade secret submitted pursuant to this section shall be excluded from the provisions of the Virginia Freedom of Information Act as provided in subdivision 26 §2.2-3705.6 of the Code of Virginia. In doing so, the Permittee shall:

   i. Assert the trade secret claim at the time of submittal;

   ii. Identify the data or materials for which protection is being sought; and

   iii. State the reasons why protection is necessary.

b. Further information regarding trade secret protection, the basis for submittal of such a request, the Department's decision process and handling of trade secret protected information is available on the Virginia Regulatory Town Hall website, http://townhall.virginia.gov/L/ViewGDoc.cfm?gdid=5322.

c. If no claim is made by the Permittee at the time of submittal, the Director may make the information available to the public without further notice.

d. The Permittee has the burden of substantiating that the claimed information is trade secret, and the Department may request further information regarding such claim and may reasonably determine which such information to treat as trade secret. The Department may disclose trade secret information to the appropriate officials of the Environmental Protection Agency (EPA) pursuant to the requirements of the federal Solid Waste Disposal Act, 42 USC §3251, et seq., or as otherwise required by law.

I.L. APPROVAL/DISAPPROVAL OF SUBMISSIONS

I.L.1. Review

The Department will review the plans, reports, schedules and other documents (hereinafter collectively referred to as "submissions") submitted which require the

Director's of the Department's approval. The Department will notify the Permittee in writing of the Department's approval, conditional approval, or disapproval of each submission.

I.L.2. Approval

Each submission required by this Permit, upon approval by the Department, is incorporated into this Permit. Any noncompliance with such Department-approved submission shall be deemed noncompliance with this Permit. A conditionally approved submission, including any terms of such conditional approval set forth in Department's decision, shall constitute the Department-approved submission and shall be incorporated into this Permit.

I.L.3. Conditional Approval

In the event of the Department's conditional approval of submission, the Department shall specify in writing any deficiencies in the submission and the terms upon which approval of the submission is conditioned. If the Permittee disputes any term upon which approval of the submission was conditioned, the Permittee may initiate Dispute Resolution pursuant to Permit Condition I.M.

I.L.4. Disapproval

In the event of the Department's disapproval of a submission, the Director of the Department shall specify the deficiencies in writing. The Permittee shall modify the submission to correct/address the specified deficiencies within a reasonable time period established by the Department taking into account the tasks to be performed and submit the revised submission to the Department for approval.

I.L.5. Revision Disproval

If the revised submission is disapproved, the Director or the Department will notify the Permittee of the deficiencies in writing and specify a schedule for the Permittee to correct the deficiencies and resubmit the submission to the Department. The Permittee shall correct the deficiencies as directed by the Department and forward the revised submission within the time period specified by the Department. In the event the Permittee disagrees with the Department's disapproval of the revised submission, the Permittee shall notify the Department in writing and the disagreement shall be resolved in accordance with the Dispute Resolution provision in Permit Condition I.M.

I.M. DISPUTE RESOLUTION

I.M.1. Disagreement with Department's Determination

Except as otherwise provided in this Permit, in the event the Permittee disagrees, in whole or in part, with Department disapproval of any submission required by this Permit, the Permittee shall notify the Department in writing of its objections, and the basis thereof, within fourteen (14) days of receipt of the Department's disapproval. Such notice shall set forth the specific matters in dispute, the position(s) the Permittee asserts which should be adopted as consistent with the requirements of the Permit, the basis for the Permittee's position, and supporting documentation considered necessary for the Department's determination.

I.M.2. Resolution

The Department and the Permittee shall have an additional fourteen (14) days from the Department's receipt of the notification to meet or confer to resolve any disagreement /dispute. In the event agreement is reached, the Permittee shall submit the revised submission and implement the same in accordance with such agreement.

I.M.3. Agreement Not Met

In the event the Permittee and the Department are not able to reach an agreement on the dispute items within the additional fourteen (14) day period, the Department will notify the Permittee in writing of its decision on the dispute and the Permittee shall comply with the terms and conditions of the Department's decision in the dispute, subject to Permittee’s appeal rights as described in Permit Condition I.L.4 and as otherwise may exist. The Permittee does not waive its right to assert any and all available defenses in a proceeding to enforce this Permit.

I.M.4. Appeal

In the event the Permittee disagrees with the Department's disapproval of a submission or revised submission and the Department’s written decision regarding dispute items, the Permittee may file an appeal with the Department within 30 days of the disapproval (as provided for in Rule 2A:2 of the Supreme Court of Virginia).

MODULE II - SITE-WIDE CORRECTIVE ACTION

II.A. CORRECTIVE ACTION FOR CONTINUING RELEASES; PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

II.A.1. Required Corrective Action

Section 3004(u) of RCRA, 42 U.S.C. § 6924(u), and regulations codified at 40 CFR §264.101, provide that all permits issued after November 8, 1984 must require corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU), regardless of when waste was placed in the unit.

II.A.2. Corrective Action Boundary

Under Section 3004(v) of RCRA, 42 U.S.C. § 6924(v), and 40 CFR §264.101(c), the Department may require that corrective action at a permitted facility be taken beyond the facility boundary where necessary to protect human health and the environment, unless the owner or operator of the facility concerned demonstrates to the satisfaction of the Department that, despite the owner or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action.

II.A.3. Terms and Conditions

Section 3005(c)(3) of RCRA, 42 U.S.C. § 6925(c)(3), and 40 CFR § 270.32(b) provide that each permit shall contain such terms and conditions as the Department determines necessary to protect human health and the environment.

II.A.4. RCRA Site Summary

A summary of the facility and corrective action is provided in Attachment II.A.

II.B. CORRECTIVE MEASURES IMPLEMENTATION

II.B.1. Background

In June 1985, Allied-Signal, Inc. submitted information to the EPA on 37 Solid Waste Management Units (SWMU) within the Facility boundary. In 1988, as part of the RCRA Facility Assessment (RFA), the EPA identified 14 of the 37 SWMUs (SWMU 1, 2, 3, 8, 14, 16, 18, 19, 22, 23, 24, 27, and 29) from which releases were possible. The 14 SWMUs were grouped into discrete study areas based on their geographic locations and potential for groundwater impact.

Multiple phases of environmental investigations have been completed at the Facility for the 14 SWMUs. For all environmental investigations conducted at the Facility, groundwater concentrations were screened against federal Maximum Contaminant Levels (MCLs) promulgated pursuant to Section 42 U.S.C. § 300f et seq. of the Safe Drinking Water Act and codified at 40 CFR Part 141, or if there was no MCL, EPA Region III Regional Screening Levels (RSL) for tap water for chemicals. Soil concentrations were screened against EPA Region III Screening Levels (RSLs) for residential soil and industrial soil as well as RSLs for the protection of groundwater.

The Phase I RFI objective, completed May 1993, was to determine the nature and extent of releases of hazardous waste or constituents from the four study areas identified in the Consent Order. The Phase II RFI objective, completed April 1996, was to further characterize the extent of impacted soil and groundwater in the four study areas that the Phase I RFI was not able to characterize. Comprehensive groundwater sampling was conducted in 2004 and 2016.

Based on the results of numerous investigations that occurred from 1989 to the present, a streamlined Corrective Measures Study (CMS) was prepared evaluating potential corrective measures to address the 14 SWMUs, Building B-1 Area, and site-wide groundwater. This streamlined CMS is based on the tenets of the EPA Corrective Action Lean Project, which is intended to eliminate redundancy, focus resources, and lead to commitment to actions as early as they can be defined. Consistent with these objectives the CMS consolidates the relevant RCRA Facility Investigation (RFI) data and information with identification of the most appropriate corrective measures for these units. Attachment II.A provides further facility description and corrective action background. Attachment II.B details the SWMUs.

II.B.2. Final Remedy Selection

a. Based on the findings set forth in the RFA and RFI/CMS reports, the Department has determined that past operations at the Facility have resulted in soil and groundwater contamination. COCs in groundwater above cleanup targets are listed in Attachment II.C. Documentation for the completion of site-wide investigation reports and studies has been compiled by the Department, entitled Administrative Record. Based on the CMS results and the Administrative Record, the final remedy for the Site was developed and is described in the Statement of Basis, dated March 2021. The requirements of this permit provide for the operation and maintenance of the remedy described in the Statement of Basis. No changes were made to the final remedy in response to the comments received during the public comment period for this permit. The Response to Comments document, dated September 10, 2021, includes all comments received during the public comment period.

b. The Corrective Action Objective for Facility soils is to control human and environmental exposure to the hazardous wastes and hazardous constituents remaining in soils by requiring the compliance with and maintenance of land use restrictions at the Facility. The Corrective Action Objective for contaminated groundwater at the Facility is to restore groundwater to drinking water standards. The final remedy for the Facility consists of long term groundwater monitoring, and implementing Institutional Controls (ICs) and Engineering Controls (ECs). ICs are generally non-engineered mechanisms such as administrative and/or legal controls that minimize the potential for human exposure to contamination and/or protect the integrity of a remedy. ECs are generally engineered mechanisms such as a landfill cap.

c. The details of the final remedy are summarized below and are described in more detail in the approved site specific Corrective Measures Implementation Study and SWMU 3 Interim Measures (IM) Construction Completion Report. Minor modifications in the activities, studies, techniques, procedures, and designs or schedules utilized in carrying out the requirements of this Permit and necessary for the O&M and/or completion of the remedy may be made by written agreement of the Project Coordinators. Long-term clean-up targets for groundwater are contained in Attachment II.C of this Permit.

    i. Monitored natural attenuation pursuant to a DEQ approved Long-Term Groundwater Monitoring Plan until drinking water standards are met, and compliance with and maintenance of groundwater restrictions, to be implemented through institutional controls, to prevent exposure to contaminants while levels remain above drinking water standards. The point of compliance shall be within the Facility boundaries.

    ii. Continued maintenance of the engineered caps at SWMUs 1, 3 and 27 and soil, gravel, and asphalt covers at SWMUs 2 Area 3, 14, 19, 22, 24, 8, 16, 26 and 29. Improvements or integration of the caps should be made when existing buildings or structures are removed.

    iii. Implementation and maintenance of ICs and ECs including property use restrictions for groundwater and soil in accordance with Permit Section II.B.3 below.

II.B.3. Final Remedy Implementation

a. The Permittee has implemented the Department-approved Corrective Measures Study and SWMU 3 Interim Measures (IM) Work Plan, and will submit for Department approval an Operations Maintenance & Monitoring (OM&M) Plan, which will contain a Cap Management Plan, a Groundwater

Monitoring Plan, and a Materials Management Plan. These plans will provide for construction, operation, and maintenance of the long term groundwater monitoring, cap inspection and maintenance, reporting, and implementation of ICs, ECs, and additional property use restrictions. ICs, ECs, and additional restrictions to be used at the site include the following:

i. Notify prospective buyers of the property of the environmental conditions at the Facility and of the Department's selected corrective measures as part of the remedy for the Facility under RCRA Corrective Action;

ii. The Property shall be restricted to commercial and/or industrial purposes and shall not be used for residential purposes unless it is demonstrated to the DEQ that such use will not pose a threat to human health or the environment and the DEQ provides prior written approval for such use.

iii. Groundwater at the Property shall not be used for any purpose other than implementation of the final remedy selected by the DEQ unless the DEQ gives its prior written approval for such use based on a demonstration that such use will not pose a threat to human health or the environment or adversely affect or interfere with the final remedy. No new wells shall be installed on the Property unless the DEQ gives its prior written approval based on a demonstration that either (A) such wells are necessary to implement the final remedy selected by the DEQ, or (B) the use of groundwater from such wells for other purposes will not pose a threat to human health or the environment or adversely affect or interfere with the final remedy.

iv. Require implementation of the OM&M Plan for engineered caps at SWMUs 1, 3 and 27 and soil, gravel, and asphalt covers at SWMUs 2 Area 3, 14, 19, 22, 24, 8, 16, 26 and 29. The OM&M Plan shall provide the framework including required maintenance activities and inspections to ensure the installed caps are providing the necessary source control to achieve the CAOs. The OM&M Plan, at minimum, shall include the following:

- The procedures to maintain the cap over the contaminated soil;
- A schedule for inspections to be performed as part of the cap maintenance, no less frequent than once a year;
- Physical maintenance requirements of the capped areas to prevent degradation of the cap and unacceptable exposure to the underlying soil;

- The procedures to maintain existing security fencing along the perimeter of the property and SWMU 3, and elsewhere;

- The Groundwater Monitoring Plan to provide for the long-term monitoring of progress toward achieving the corrective action objectives; and

- The Materials Management Plan, to ensure that any earth moving activities, including excavation, drilling and construction activities, in the areas at the Property where any contaminants remain in soils above the Agency's screening levels for non-residential use, or in groundwater above the federal maximum contaminant levels ("MCLs") for drinking water promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 C.F.R. Part 141 (or Agency regional screening levels if no MCL has been adopted for a specific constituent), shall be conducted in a manner protective of human health , safety and the environment.

v. OM&M Reports (including groundwater monitoring results) in accordance with the OM&M Plan shall be provided on an annual basis to the Department and the EPA Region III.

b. The above land and water use restrictions may be implemented through an environmental covenant entered pursuant to the Virginia Uniform Environmental Covenants Act (UECA), Va. Code, § 10.1-1238, et seq. and recorded with the deed for the AdvanSix Resins and Chemicals, LLC facility in the City of Hopewell, Virginia. A declaration of restrictive covenant consistent with applicable requirements under the laws of the Commonwealth of Virginia shall be recorded with the real property records for the Site such that prospective purchasers of the Site will have constructive notice of land use restrictions. The declaration of restrictive covenants contains the land use controls described above. The current owner and future owners of the Site will be obligated to comply with the recorded restrictive covenant since the covenant will run with the land.

c. The Permittee shall provide coordinate surveys for applicable property use restrictions that meet the following requirements:

- Define the boundary of each use restriction as a polygon

- Establish the longitude and latitude of each polygon vertex as follows:

- Decimal degrees format

- At least seven decimal places
- Negative sign for west longitude
- World Geodetic System (WGS) 1984 datum

d. A notification to prohibit well drilling under Virginia's Private Well Regulations, 12VAC 5-630-380 has been provided to the local health district (City of Hopewell) in writing describing the nature and extent, including a map, of the contaminated groundwater located on the Facility property. The notice will be updated every three (3) years to reflect the latest contaminated groundwater plume boundary. A copy of the notification will be provided to the Department.

II.C. EVALUATION OF THE SELECTED REMEDY

The Permittee shall submit an OM&M (including groundwater monitoring) Report by September 1st of each year in accordance with Permit Condition I.I.1. If the Department determines that the selected remedy will not comply with the media clean-up requirements, the Department may require the Permittee to perform additional studies and/or perform modifications to the existing Corrective Action remedy. If necessary, the Department or the Permittee may seek modification of this Permit pursuant to 40 CFR § 270.41 or § 270.42 and § 124.5 to implement modifications to the existing Corrective Measures Remedy.

II.D. EMERGENCY RESPONSE; RELEASE REPORTING

II.D.1. Emergencies

If, at any time during the term of this Permit, the Permittee discovers that a release of hazardous waste or hazardous constituents at or from the Facility is presenting or may present an imminent and substantial endangerment to human health or the environment, the Permittee shall:

a. Notify the Department as soon as practicable of the source, nature, extent, location and amount of such release, the endangerment posed by such release and the actions taken and/or to be taken, to the extent known, to address such release. Such notification shall be provided to the Department verbally within 24 hours of discovery of such release and shall be confirmed in writing within five (5) days of discovery of such release (see Permit Condition I.D.10).

b. Unless otherwise directed by the Department, immediately take such actions as are necessary and appropriate to address such release.

II.D.2. Releases

The Permittee shall notify the Department in writing of the nature, source, extent, and location of a release of hazardous waste or hazardous constituents at or from the Facility within five (5) days of discovery if all of the following are satisfied:

a. The release is not being addressed by corrective measures at the time of such discovery.

b. The release is not being addressed pursuant to Permit Condition II.D, Emergency Response; and

c. The release exceeds a reportable quantity as set forth in 40 CFR § 302.4.

II.D.3. Requirements of SWMU

If, based on the information submitted in Permit Condition II.D., a release has not been adequately remediated to be protective of human health and the environment, the Department may require the SWMU to be included in a RCRA Facility Investigation or may require Interim Measures.

II.E. DEPARTMENT'S AUTHORITY

Nothing in this Permit shall limit the Department's authority to undertake or require any person to undertake response action or corrective action under any law, including but not limited to, Sections 104 or 106 of CERCLA, 42 USC § 9604 or 9606, and Section 7003 of RCRA, 42 USC § 6973. Nothing in this Permit shall relieve the Permittee of any obligation it may have under any law, including, but not limited to, Section 103 of CERCLA, to report releases of hazardous waste, hazardous constituents or hazardous substances to, at or from the Facility.

II.F. GUIDANCE DOCUMENTS

Any corrective action performed at the facility shall be in accordance with applicable EPA Corrective Action Guidance available at https://www.epa.gov/hw/learn-about-corrective-action#resources.

II.G. SOLID WASTE MANAGEMENT UNIT ("SWMU") ASSESSMENT

The RFI at the Hopewell Site is complete for on-site areas, and it is believed that all SWMUs have been identified. However, in the event a new SWMU is identified, the procedures in this section will be implemented.

II.G.1 Newly Identified SWMU

The Permittee shall notify the Department and the EPA Region III, in writing, of any newly identified SWMU at the Facility, no later than thirty (30) days after the date of discovery. The notification shall include, but not be limited to, the following known information:

a. A description of the SWMUs type, function, dates of operation, location (including a map), design criteria, dimensions, materials of construction, capacity, ancillary systems (e.g., piping), release controls, alterations made to the unit, engineering drawings, and all closure and post-closure information available, particularly whether wastes were left in place;

b. A description of the composition and quantities of solid wastes processed by the units with emphasis on hazardous wastes and hazardous constituents;

c. A description of any release (or suspected release) of hazardous waste or hazardous constituents originating from the unit. Include information on the date of release, type of hazardous waste or hazardous constituents, quantity released, nature of the release, extent of release migration, and cause of release (e.g., overflow, broken pipe, tank leak, etc.). Also, provide any available data that quantifies the nature and extent of environmental contamination, including the results of soil and/or groundwater sampling and analysis efforts. Likewise, submit any existing monitoring information that indicates releases of hazardous waste or hazardous constituents has not occurred or is not occurring. The Permittee may refer to information regarding releases previously submitted to the Department under II.D. Emergency Response; Release Reporting; and

d. A discussion of the need for and feasibility of implementing interim measures immediately.

II.G.2 New SWMU Determination

Upon receipt of the notification of any newly identified SWMU, the Department will determine the need for corrective action at such SWMU. If corrective action is necessary to protect human health or the environment, the Department will determine whether a RCRA Facility Investigation will be performed and the need for and scope of any Interim Measures for a newly identified SWMU.

II.G.3 Actions for New SWMU

Within sixty (60) days after receipt of the Director's determination that a supplemental RCRA Facility Investigation or Interim Measures is necessary, the Permittee shall submit a Supplemental RCRA Facility Investigation Work Plan or Interim Measures Work Plan that meets the applicable guidance.

The Department's determination shall either specify the media and/or parameters to be investigated or shall require the Permittee to propose and justify the selection of media and/or parameters.

II.G.4 Reports

Within the time specified in the approved Supplemental RCRA Facility Investigation Work Plan or Interim Measures Work Plan, the Permittee shall submit the Supplemental RCRA Facility Investigation Report or Interim Measures Report. The reports will provide all data necessary for the Department to determine whether a supplemental Corrective Measures Study or additional Interim Measures Work Plan is required.

II.G.5 RCRA Facility Investigation and Corrective Measures

In lieu of a separate supplemental RCRA Facility Investigation, the Permittee may propose to incorporate any newly identified SWMU into the ongoing corrective measures. Any such proposal shall be submitted to the Department along with notification of the discovery of the SWMU(s).

II.H. FINANCIAL ASSURANCE

DEQ has evaluated whether financial assurance for corrective action is necessary to implement DEQ's proposed decision at the Facility. Given that DEQ's proposed decision does not require any further engineering actions to remediate soil, groundwater or indoor air contamination at this time and given that the costs of implementing institutional controls at the Facility will be de minimis, no financial assurance be required.

II.I. RECORDKEEPING

Upon completion of closure of any current or future SWMU, the Permittee shall maintain in the Facility operating record, documentation of the closure measures taken.

II.J. ACCESS FOR CORRECTIVE ACTION OVERSIGHT

The Department and its authorized representatives shall have access to the Facility and site at all reasonable times for the purpose of monitoring compliance with the provisions of this Permit. The Permittee shall use its best efforts to obtain access to property beyond the boundaries of the Facility at which corrective action is required by this Permit (see Section 3004(v) of RCRA, 42 USC § 6924(v) and 40 CFR § 264.101(c)); (1) for itself and any contractor of the Permittee for the purpose of taking corrective action required by this Permit, and (2) for the Department/EPA and its authorized representatives for the purposes described in

this paragraph.

II.K. COMPLETION OF REMEDY

Within ten (10) days of receipt of notification by the Department that the remedy is complete, the Permittee shall submit a written certification to the Department, by registered mail, stating that the remedy has been completed in accordance with the requirements of this Permit Modification. The certification must be signed by the Permittee and by an independent registered professional engineer registered in the Commonwealth of Virginia.

I.K.1. No Permit Conditions Remain

In cases where no other permit conditions remain, except for the implementation of the UECA entered pursuant to the Virginia Uniform Environmental Covenants Act (UECA), Va. Code, § 10.1-1238, et seq. and recorded with the deed for the AdvanSix Resins & Chemicals LLC facility in accordance with Permit Section II.B.3.b above, the Permit may be modified not only to reflect the determination that remedy controls are no longer necessary, but also to change the expiration date of the Permit to allow for earlier Permit expiration in accordance with 40 CFR §§124, 270.41, and 270.42, as applicable.

II.L. WELL ABANDONMENT

Upon completion of the final corrective measures or as needed in the interim, the Permittee shall request approval for abandonment of monitoring wells, observation wells, injection wells, and recovery wells from the Department prior to implementing well abandonment activities. All wells that are to be abandoned shall be plugged and abandoned in general accordance with 12 VAC 5-630-420 and 12 VAC 5-630-450. Chlorination of each well is not required. An effort to remove the well casing and associated materials shall be made at each well prior to abandonment. A report including methods and certification shall be submitted to the Department within thirty (30) days following the completion of well abandonment activities. The Permittee may propose alternate methods for well abandonment and must obtain approval from the Department prior to implementation of such methods.

ATTACHMENT II.A - FACILITY DESCRIPTION AND ON-SITE CORRECTIVE ACTION

II.A.1. Facility Description

The Hopewell Facility (Facility) is an active plant manufacturing caprolactam and other products located at 905 East Randolph Road, Hopewell, Virginia. Caprolactam is a principle ingredient in the manufacturing of Nylon 6. The Facility encompasses approximately 482 acres and is located 1.25 miles south of the confluence of the James and Appomattox Rivers on the south side of a peninsula known as City Point.

Historical operations at the Facility included the manufacture of high-nitrogen fertilizer, ammonia, ammonium nitrate, nitric acid, nitrogen tetroxide and smaller pilot operations utilizing kepone, and other compounds. During the early 20th century, portions of the Facility were operated by Dupont for munitions and gunpowder manufacturing.

The physical address and facility contact information is provided below:

Facility Address
AdvanSix Resins & Chemicals LLC
905 East Randolph Rd
Hopewell, VA

Facility Contact
Mr. Mason McElroy
AdvanSix Resins & Chemicals LLC
905 East Randolph Rd
Hopewell, VA
Phone: (804)541-9337

The Global AdvanSix Headquarters are located in Parsippany, NJ, at the following mailing address:

Owner Address
AdvanSix Resin & Chemicals LLC
300 Kimball Drive
Parsippany, NJ

II.A.2. Summary of On-Site Corrective Action

Investigations have been conducted to characterize solid waste management units (SWMUs) where hazardous substances may have impacted the environment. The RCRA Facility Investigation (RFI) was completed in two phases:

- Phase I – Dated 1993.

- Phase II – Dated 1996. Revised 1997.

In addition, previous activities completed under the RCRA program include:

- 1985, Allied-Signal, Inc. submitted information to the USEPA on 37 SWMUs within the Facility boundary.

- 1988, USEPA's RFA stated that 14 of the 37 identified SWMUs have known or potential environmental releases.

- An Administrative Order on Consent (Docket No. RCRA- III-019-CA) was signed and approved by Allied Fibers and USEPA on July 6, 1989 and August 1, 1989, respectively.

- 1999, USEPA letter for Allied Signal's participation in the USEPA Region III Facility Lead Program.

- 2004, USEPA finalized the Human Health Environmental Indicators (HHEI) Determination for the Facility. The Facility was designated as "YE - Current Human Exposures Under Control" indicating that no additional information was necessary to complete the EI.

- In 2016, AdvanSix (then Honeywell Resins & Chemicals LLC) was divested to AdvanSix Inc., a publicly traded company, and changed its name to AdvanSix Resins & Chemicals LLC.

- In 2017, USEPA signed the Migration of Contaminated Groundwater Under Control Documentation of Environmental Indicator (GWEI) Determination with a finding that migration of impacted groundwater is under control.

- On August 20, 2019, AdvanSix submitted a letter to the VADEQ requesting to rescind the previously submitted CMS dated November 29, 2018. The letter also requested concurrence that institutional and access controls for SWMU 26 would be acceptable for protection of human health and the environment in lieu of corrective measures.

- In a letter dated August 22, 2019, the VADEQ agreed to the rescission of the previously submitted CMS and concurred that institutional and access controls were acceptable for SWMU 26. SWMU 26 will still be included as part of the Site-wide long-term groundwater monitoring plan.

A summary list of all Work Plans and Reports submitted under RCRA Corrective Action is provided in Table II.A-1.

II.A.3. Constituents of Potential Concern

The data available for the Facility site indicates that the following COPCs apply to the respective media at the Facility:

- Groundwater: benzene, chloroform, 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, ethylbenzene, methylene chloride, tetrachloroethene, trichloroethene, vinyl chloride, 1,1-biphenyl, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, caprolactam, indeno [1,2,3-cd] pyrene, naphthalene, antimony, arsenic, beryllium, cadmium, chromium, cobalt, iron, lead, manganese, nickel, and thallium

- Soil: arsenic, barium, chromium, cobalt, manganese, nickel, selenium, thallium, vanadium

II.A.4. RFI Investigations

Prior to the RFIs performed at the Site, a No Further Action (NFA) determination for soil and groundwater was documented in the USEPA Administrative Order on Consent (Docket No. RCRA- III-019-CA) (Appendix A) (Consent Order) dated August 1, 1989, for 23 SWMUs and Areas 1 and 2 of SWMU 2. The Consent Order reserved the following fourteen SWMUs for further investigation. USEPA grouped these SWMUs into separate Study Areas (Area 1, Area 2 North, Area 2 South, Area 3, Area 4 East including SWMU 3), based on their location and nature of suspected or known impact.

Study Area 1
Study Area 1 contains SWMU 1, the Dredging Material Impoundment.

SWMU 1
SWMU 1 consists of a Dredging Material Impoundment in the northeastern corner of the Facility near the confluence of the James River and Poythress Run. It consists of an unlined, diked impoundment, utilized for the dewatering and disposal of dredged material from the James River, which were potentially impacted by kepone. The impoundment was operated from 1973 to 1976. The impoundment consists of three cells, which are separated by five- to eight-foot tall dikes, constructed of clay and soil. After cells were filled with dredged material, they were covered with clay and soil, and then seeded. Rip-rap stone was placed along the embankment adjacent to the James River for stabilization. In 2001, a NFA Designation letter was sent from Honeywell (now AdvanSix) to the USEPA which requested that SWMUs 1, 3, and 29 receive NFA status. In June 2003, a SWMU 1 NFA designation letter was submitted to USEPA and in

October 2003 a supplemental package for SWMU 1 NFA designation was submitted to the USEPA. In January 2006, the USEPA responded by indicating that it was ready to prepare what it referenced as a "no further action comfort letter" (NFA Comfort Letter). In the January 2006 letter, the USEPA requested an approved Operations, Maintenance and Monitoring (OM&M) Plan for the entire Facility, intended to confirm the effectiveness of the engineering controls including long-term groundwater monitoring and appropriate institutional controls. The OM&M plan will be submitted after the completion of a Construction Completion Report for the SWMU 3 implemented IM.

Study Area 2 (North and South)

Study Area 2 (North and South) include SWMU 2 - Area 3, SWMUs-14, 18, 19, 22, 23, 24, and 26. All these SWMUs are located within the active operations area of the Facility.

SWMU 2 – Area 3/SWMU 19

Historically, SWMU 2 – Area 3 and SWMU 19 have been presented as a single unit that includes two areas, one being the Raney Nickel Area and the second being the depolymerization residue impoundment. Historical information shows these two areas are adjacent; however, it is unclear if the SWMUs were physically joined. For the purpose of this discussion, SWMU 2 – Area 3 and SWMU 19 are considered to occupy the same areas. The descriptions of both SWMUs are presented below.

SWMU 2 is separated into three areas. Area 3 is the Raney Nickel Catalyst Filter Disposal Area located in the central portion of the Facility and adjacent to the wastewater impoundments. SWMU 2 – Area 3 was operated from 1967 to 1979. This disposal area was closed by excavating approximately ten feet below grade. Excavated material was transported to an off-Site landfill for disposal. Following excavation, the area was backfilled and covered with gravel.

Low concentration soil impact exceeding Protection of Groundwater RSLs was identified in soil borings during the Phase I RFI. Chlorinated compounds in groundwater were identified exceeding MCLs in monitoring wells and hydro-punch locations adjacent to and hydraulically down gradient of this SWMU. At the time this area was remediated, it was backfilled and covered with gravel. The gravel cover precludes direct soil contact pathway at SWMU 2 – Area 3 and is considered an engineering control. There are no surface water seeps or sediment deposits at this SWMU.

SMWU 19 (Depolymerization Residue Impoundments) consisted of two impoundments used to solidify non-hazardous depolymerization residue prior to transportation to an off-site landfill. The impoundments were operated between 1972 and 1986. These impoundments were closed by excavating approximately ten feet below grade. Removed material was transported to an off-site landfill for

disposal. Following excavation, the area was backfilled and covered with gravel; therefore, there is no complete exposure pathway as there is an engineering control in place. There are no surface water seeps or sediment known to be present in this area.

SWMU 14

SWMU 14 (Waste Nitric Acid Impoundment) was an unlined impoundment used to treat and ultimately dispose of waste nitric acid solution between 1954 and 1976. The impoundment was closed by filling with construction rubble, stone, clay and soil, and a clay cap was placed over the impoundment then covered with gravel.

The backfill, clay cap and gravel cover layer placement over the impoundment mitigates potential for direct soil pathways and is considered an engineering control. There are no known seeps or surface sediments related to SWMU 14, as noted in the GWEI.

SWMU 18

SWMU 18 (Wastewater Impoundments) is comprised of two operating lined wastewater impoundments used to temporarily retain and treat neutralized process wastewater prior to discharge to the Hopewell Regional Wastewater Treatment Facility (HRWTF) (the previous referenced, and currently denoted as Hopewell Water Renewal). Both the impoundments were constructed in 1976. The impoundments were subsequently retrofitted with a triple liner and a leachate collection system in approximately 1984 and 1985. These liners remain in place and continue to be maintained, thought present day. The liners act as a de facto engineering control to prevent contact with potentially impacted material including surface soil.

No seeps have been identified in the vicinity of SWMU 18 and no associated sediments are exposed.

SMWU 22

SWMU 22 (Wastewater Pit) was a diked, wastewater pit located north of the two depolymerization residue impoundments (SWMU 19). SWMU 22 was operated from 1962 to 1976 and was used to dispose of process wastewater via evaporation and percolation. The pit was closed by excavating approximately six feet below grade and backfilling with clean fill and covered with gravel.

The backfill and gravel cover layer placement over SWMU 22 precludes direct soil contact. The fill cover is being considered an engineering control measure. Historical reports document no evidence that sediment or associated seeps/surface water are present in the area of SWMU 22, as noted in the approved GWEI. Conditions in this area unchanged since the GWEI was completed.

SWMU 23

The Fly Ash Settling and Fill Area (SWMU 23) was operated from 1912 to 1972. There are currently lined wastewater impoundments constructed above this location (e.g., SWMU 18). The current placement of SWMU 18 overtop of SWMU 23 prevents exposure to the older material. SWMU 23 also does not have related historical sediment and seeps/surface water.

SWMU 24

SWMU 24 (Depolymerization Residue and Construction Rubble Disposal Areas) consisted of two fill areas located on the southeast portion of the Facility. Both the northern and southern areas have primarily been paved with asphalt and are currently used as parking lots. The perimeter areas around each lot consist of mowed lawn.

Due to the existing asphalt and soil cover at SWMU 24 direct contact with soil or sediment have been eliminated. There are no seeps or surface known to be present in this area.

SWMU 26

SWMU 26 consisted of a drum disposal area that was operated for approximately one year (1973). The drums were reportedly placed on a bed of fly ash and backfilled by covering with topsoil.

On August 20, 2019, AdvanSix requested that VADEQ consider accepting institutional and access controls, which includes the fact that the SWMU is fully within the bounds of the plant, and the specific SWMU area is protected by a chain-link fence, as sufficient provisions to be considered protective of health and the environment, The existing access-restriction provisions were proposed rather than excavation of drum carcasses. Additionally, AdvanSix noted that removal of embedded material from the slope (i.e., drum carcasses) could lead to slope destabilization, erosion, and damage to established vegetation.

Study Area 3

Study Area 3, located west of Study Area 2, contains two SWMUs, which are identified as SWMU 8 and 16. Per Table 2-5 of the 1993 Phase I RFI prepared by Brown and Root, the specific media of sediment and seeps/surface water were deemed not applicable to SWMU 8.

SWMU 8

SWMU 8 (Emulsion Drainage Field) was a leach field used between 1965 and 1975 in Area 16 of the Plant. The drainage field consisted of a series of perforated six-inch clay pipes, which were placed horizontally at a depth of five feet below ground surface. When the system was abandoned, the drainage pipes were sealed, surface soil above the pipes was removed, the area was covered with two layers of polyethylene liner, then backfilled with clay. The clay was then

topped with soil and gravel.

SWMU 8 is located within the active manufacturing portion of the facility. The area remains covered by gravel and/or crushed stone, which preclude direct exposure potential to surface sediment or soil. Further, there are no surface water or seeps within the vicinity of this SWMU.

- Surface soil – surface soil is covered by crushed stone and/or gravel
- Surface water/seeps – no surface water or seeps exist in this area
- Sediment – No sediment exists in this area.

SWMU 16

SWMU 16 (Phenolic Wastewater Holding Basin) was located in the phenol purification area and was operated as a percolation basin for the disposal of phenolic wastewater from 1954 to 1959. The area was closed in 1959 and filled with soil. SWMU 16 is currently covered by a concrete slab and sump in the current Phenol Purification Area.

Due to the existing concrete layer serving as an engineering control, SWMU 16 does not contain a direct contact pathway to impacted soil. SWMU 16 also has no known historical sediment and associated seeps/surface water as noted in the approved GWEI.

Study Area 4

Study Area 4 includes three SWMUs, which are identified as SWMUs 3, 27 and 29; each of these SWMUs is located outside of the main operating Facility area.

SWMU 3

SWMU 3 consists of the Land Application Area and is located outside of the main plant process area, south of Route 10. The Land Application Area was a surface application area were treated de-keponized wastewater associated with the LIFE Sciences demolition operations was disposed. The wastewater from decontamination activities was treated through a kepone bowl centrifuge, filtered, passed through carbon adsorption prior to being held, tested, and then applied to a spray field with a manifold and spray hose. The Land Application Area was in operation from 1976 to 1978.

In 2001, a Request for SWMU No Further Action (NFA) Designation letter was sent to the USEPA which requested that SWMUs 1, 3, and 29 receive NFA status. Honeywell (now AdvanSix) again requested an NFA be issued at SWMU 3 as part of a Supplemental Package for SWMU 3 NFA Designation letter to the USEPA in October 2003. On January 18, 2006, the USEPA responded by indicating an NFA Comfort Letter can be prepared.

In the January 18, 2006 letter, the USEPA requested additional risk evaluations.

Additional investigations, evaluations, and interim measures for SWMU 3 are described below:

- On November 14, 2012, the USEPA issued a letter with attached comments based on its review of the Supplemental Soil & Groundwater Investigation Report at the Hopewell Facility dated April 2008.

- By letter dated December 10, 2012, Honeywell (now AdvanSix) submitted responses to USEPA's review comments and a work plan for additional investigative activities associated with SWMU 3.

- Honeywell submitted a combined report on September 26, 2016, to USEPA documenting the Comprehensive Groundwater Sampling event conducted in June 2016, and the SWMU 3 Fly Ash Delineation Study conducted in June 2016.

- AMEC Foster Wheeler submitted a SWMU 3 Wetland Delineation Report to the Virginia Department of Environmental Quality (VADEQ) in August of 2017.

- On December 8, 2017, AMEC Foster Wheeler submitted a Screening Level Ecological Risk Assessment (SLERA) for SWMU 3 to the USEPA. Shortly thereafter, the USEPA transferred Site responsibility to the VADEQ.

- On March 5, 2018, VADEQ notified AdvanSix of its approval of the SWMU 3 Wetland Delineation Report and the SWMU 3 SLERA with the understanding that the exposed ash at SWMU 3 would be addressed in the Corrective Measure Study.

- AdvanSix submitted the SWMU 3 Interim Measure Implementation Work Plan to VADEQ for review and approval. AdvanSix was notified on April 2, 2020, that VADEQ had reviewed and approved the SWMU 3 Interim Measures Implementation Work Plan.

- AdvanSix submitted the SWMU 3 90% Interim Measure Design to VADEQ for review and approval. AdvanSix was notified on April 15, 2020, that VADEQ had reviewed and approved the SWMU 3 90% Interim Measure Design. AdvanSix subsequently submitted the SWMU 3 100% Interim Measure Design to VADEQ for their project documentation.

SWMU 27

SWMU 27 was operated during 1978 as a landfill for disposal of washed construction rubble, generated during the demolition of the Life Sciences Kepone Production Area. This landfill is lined with clay and a synthetic liner with a leak detection system and capped with a synthetic membrane. The leak detection system of this closure is monitored every other month by AdvanSix. The area fully enclosed with a security fence, includes a locked gate, and fencing is topped with barbed wire. The area is a flat grass field that is periodically mowed.

Honeywell (now AdvanSix) requested that a "Completion with Controls" NFA be issued at SWMU 27 as part of the Supplemental Package for SWMU 27 NFA Designation letter to the USEPA in October 2003. In 2006, the USEPA responded by indicating an NFA Comfort Letter can be prepared. In addition, in the 2006 letter, the USEPA requested an approved OM&M Plan to ensure the effectiveness of the engineering controls, (including provisions for effectiveness of long-term groundwater monitoring) and appropriate institutional controls.

SWMU 27 does not contain a direct contact pathway due to the engineered multi-layer cap and has no known historical sediment and seeps or surface water.

SWMU 29

SWMU 29 consisted of four earthen diked basins that operated from 1960 to 1979 and were used to hold phenolic process wastewater. The SWMU was closed in 1979 by removal of the sludge and liquids, backfilled with rock, gravel, and construction debris, and covered with soil and seeded. The area is now heavily vegetated with grasses and trees and was a part of the Facility's Wildlife Habitat Enhancement area.

In 2001, a NFA Designation letter was sent to the USEPA which requested that SWMUs 1, 3, and 29 receive NFA status. Honeywell (now AdvanSix) requested that a "Completion with Controls" NFA be issued at SWMU 29 as part of the Supplemental Package for SWMU 29 NFA Designation letter to the USEPA in October 2003. In 2006, the USEPA responded by indicating an NFA Comfort Letter can be prepared. In the 2006 letter, the USEPA indicated the need for an OM&M Plan to ensure the effectiveness of the institutional and engineering controls consistent with USEPA policy.

Due to the existing soil layer acting as an engineering control, there is no direct contact pathway to impacted sediment, seeps, or surface water in SWMU 29.

II.A.5. Groundwater

The GWEI and HHEI Determinations show that groundwater migration and human health risks are under control. In addition, groundwater constituents suggest that natural attenuation is occurring. A Site-wide long-term groundwater

monitoring program to monitor groundwater quality, plume stability, and the progress of onsite groundwater contaminant degradation is proposed.

A summary list of documents submitted pertaining to the groundwater monitoring program is presented in Table II.A-1.

II.A.6. Interim Measures

SWMU 3 Interim Measures have been completed in order to address the area of exposed fly ash at the Facility. On March 5, 2018, VADEQ notified AdvanSix of its approval of the SWMU 3 Wetland Delineation Report and the SWMU 3 SLERA with the understanding that the exposed ash at SWMU 3 would be addressed in the Corrective Measure Study. AdvanSix submitted the SWMU 3 Interim Measure Implementation Work Plan to VADEQ for review and approval. AdvanSix was notified on April 2, 2020, that VADEQ had reviewed and approved the SWMU 3 Interim Measures Implementation Work Plan. AdvanSix submitted the SWMU 3 90% Interim Measure Design to VADEQ for review and approval. AdvanSix was notified on April 15, 2020, that VADEQ had reviewed and approved the SWMU 3 90% Interim Measure Design. AdvanSix subsequently submitted the SWMU 3 100% Interim Measure Design to VADEQ for their project documentation.

II.A.7. Corrective Measures Study

AdvanSix submitted a Corrective Measures Study (CMS) report in August 2020. The purpose of the CMS was to evaluate and propose corrective action alternatives that are protective of human health and the environment for the CMS SWMUs and groundwater in the Facility on-site area.

II.A.8. Interim Measures Implementation

Following remedy selection, AdvanSix submitted an Interim Measures Implementation Work Plan (IMI WP) in April 2020 that included a general description of the proposed multi-layer cover system to be installed in SWMU 3. The IMI WP was accepted by the Department on April 2, 2020.

Following IMI WP approval, AdvanSix submitted Interim Measure design documents to the Department in April 2020. Upon final approval of the design on April 15, 2020, AdvanSix began construction of the interim remedy. Construction of the interim remedy was completed on September 2, 2020. The Construction Completion Report for the interim remedy was submitted to the Department on November 20, 2020.

FIGURE II.A-1.A - SITE LOCATION MAP

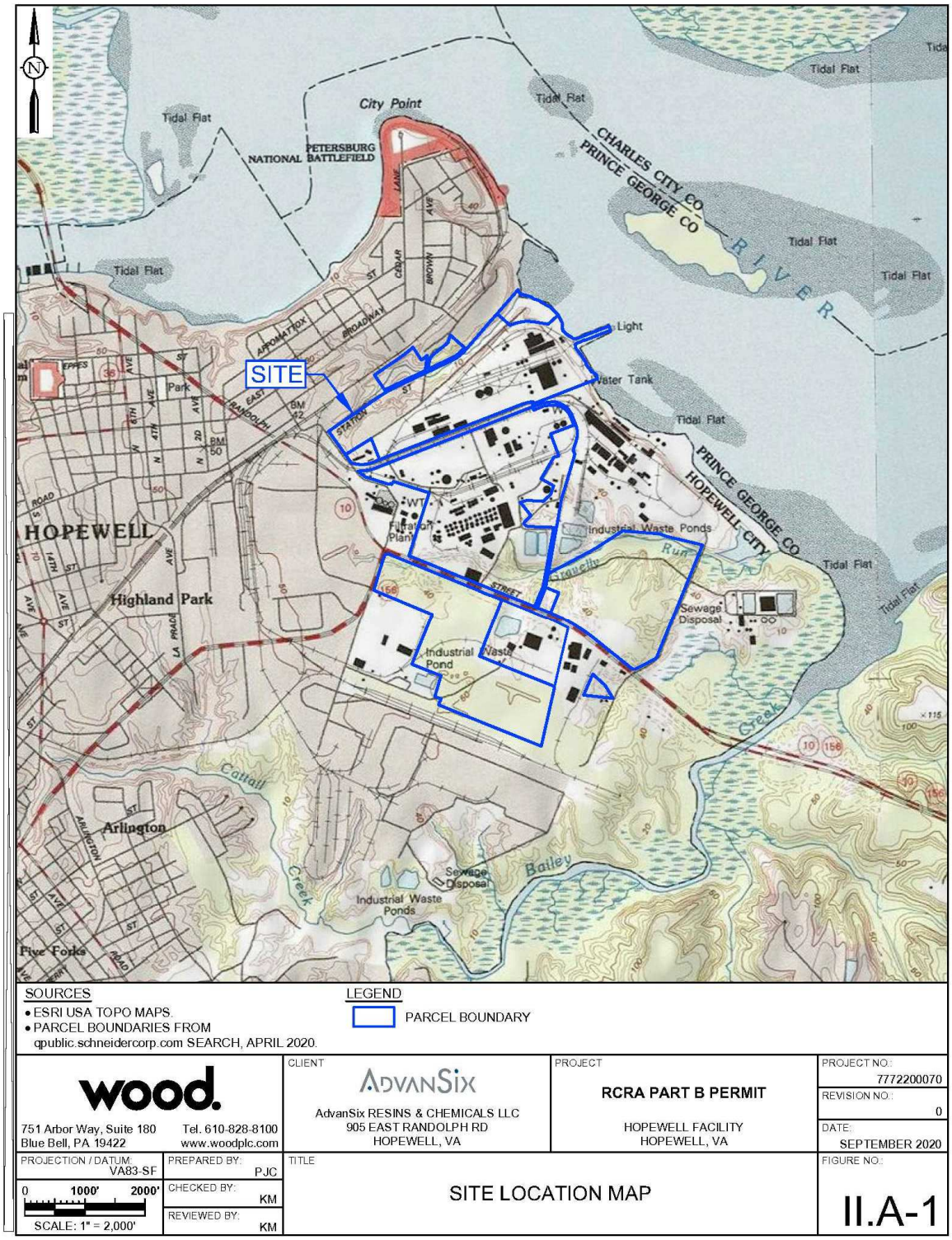
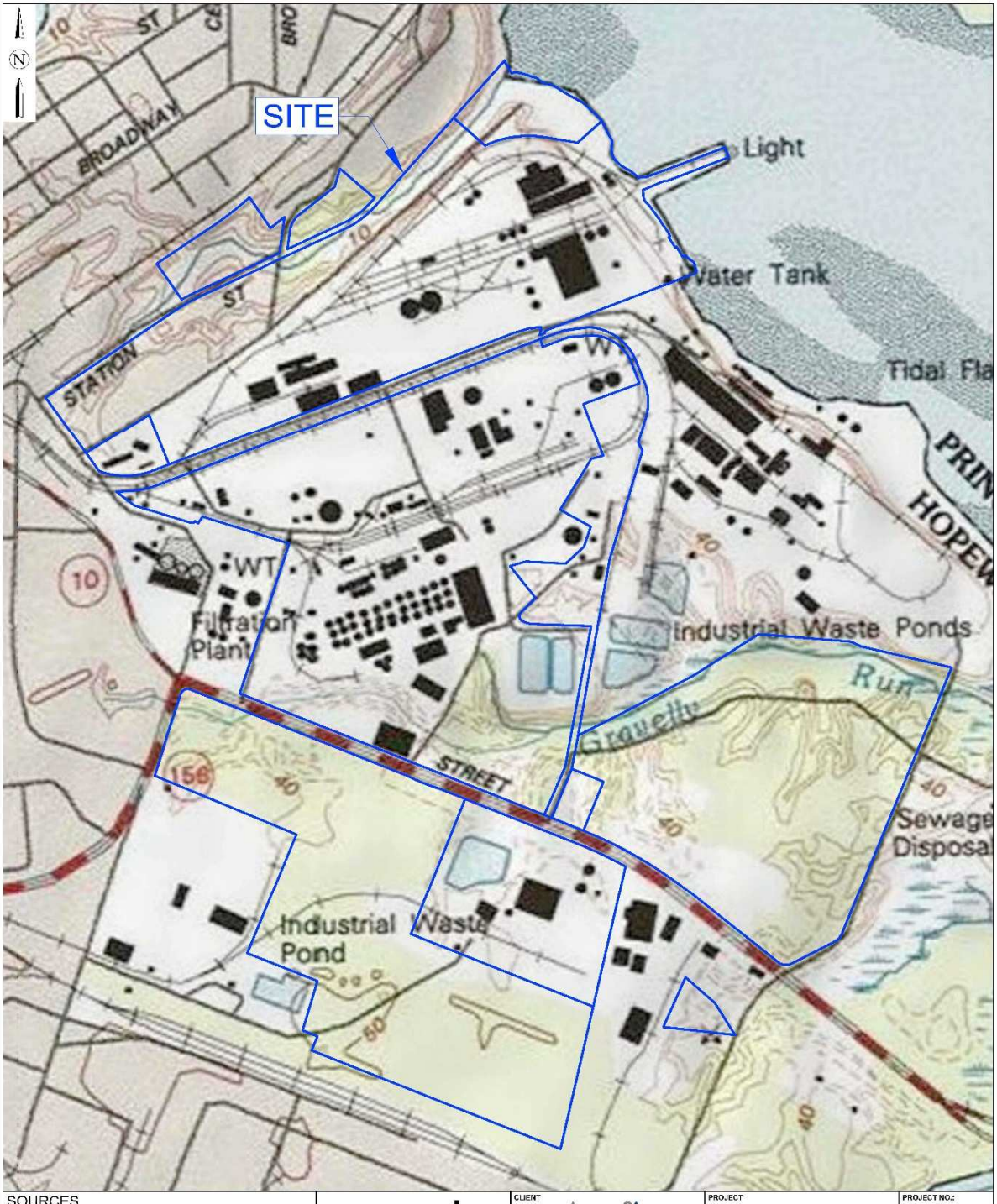


FIGURE II.A-1.B - SITE LOCATION MAP



SOURCES
- ESRI USA TOPO MAPS.
- PARCEL BOUNDARIES FROM qpublic.schneidercorp.com SEARCH, APRIL 2020.

LEGEND
PARCEL BOUNDARY

wood.
751 Arbor Way, Suite 180, Blue Bell, PA 19422
Tel. 610-828-8100
www.woodplc.com

PROJECTION / DATUM: VA83-SF
0 200' 400' 600'
SCALE: 1" = 200'
PREPARED BY: PJC
CHECKED BY: KM
REVIEWED BY: KM

CLIENT: AdvanSix
AdvanSix RESINS & CHEMICALS LLC
905 EAST RANDOLPH RD
HOPEWELL, VA

PROJECT: RCRA PART B PERMIT
HOPEWELL FACILITY
HOPEWELL, VA

TITLE: SITE LOCATION MAP

PROJECT NO.: 7772200070
REVISION NO.: 0
DATE: SEPTEMBER 2020
FIGURE NO.: II.A-1

FIGURE II.A-2 – SWMU MONITORING WELL MAP

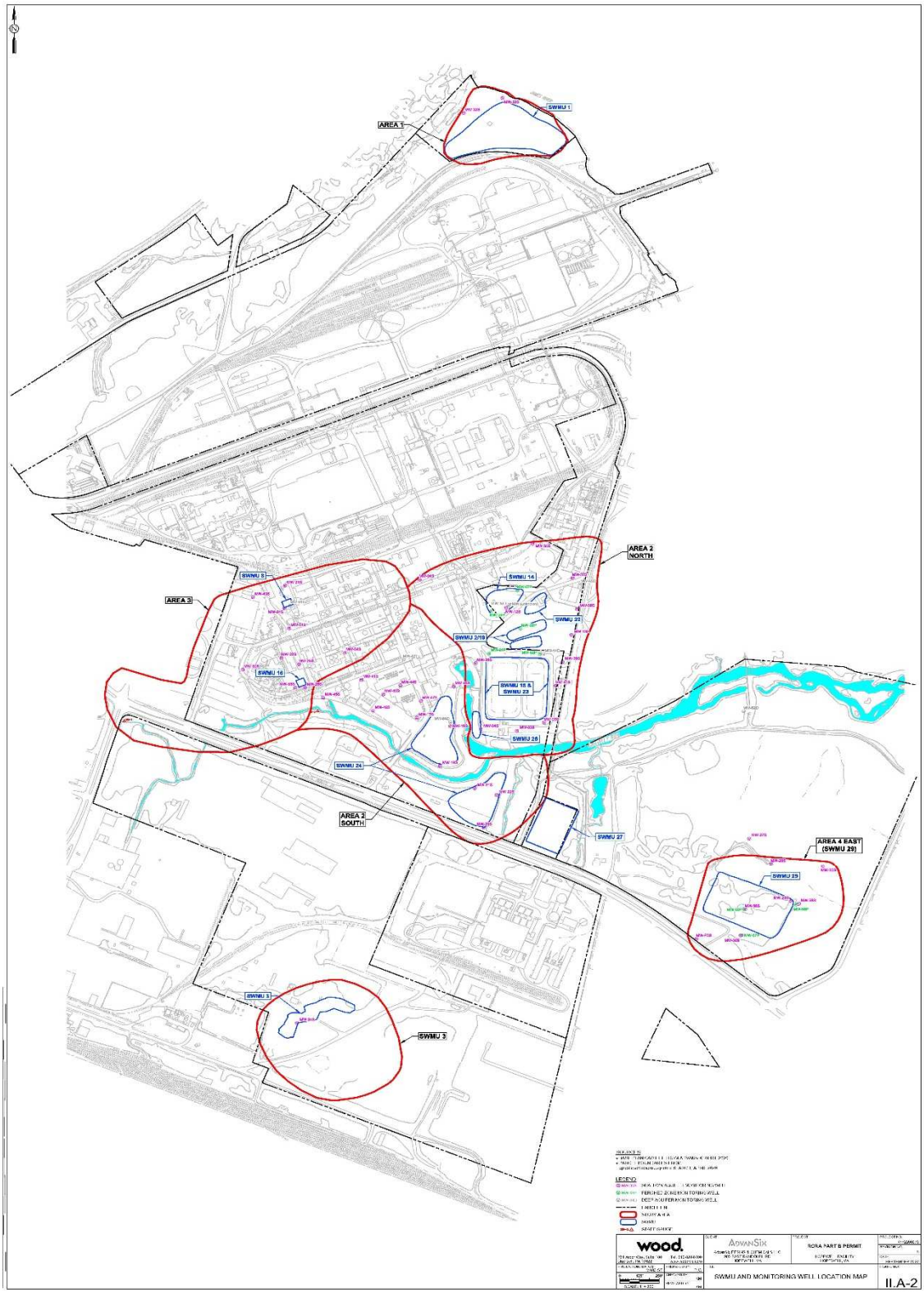


TABLE II.A-1 - SUMMARY OF DOCUMENT SUBMITTALS FOR ON-SITE CORRECTIVE ACTION

Document Title	Date
Phase I RCRA Facility Investigation Report	1993
Phase II RCRA Facility Investigation Report	1996. Revised 1997.
Request for SWMU No Further Action Determination	October 3, 2001
Supplemental Information Package for SWMU 3 No Further Action, Honeywell International, Inc. RCRA Corrective Action Program, Hopewell, VA Facility	April 25, 2003
Supplemental Information Package for SWMU 27 No Further Action, Honeywell International, Inc. RCRA Corrective Action Program, Hopewell, VA Facility	September 22, 2003
Supplemental Information Package for SWMU 1 No Further Action, Honeywell International, Inc. RCRA Corrective Action Program, Hopewell, VA Facility	September 24, 2003
Supplemental Information Package for SWMU 29 No Further Action, Honeywell International, Inc. RCRA Corrective Action Program, Hopewell, VA Facility	October 21, 2003.
USEPA Review Comments to 2003 Groundwater Sampling Work Plan	December 15, 2003
2004 Groundwater Sampling Event Report	October 21, 2004

Document Title	Date
Human Health Environmental Indicator (HHEI) Determination	September 28, 2004
Vapor Intrusion from Groundwater to Indoor Air Analysis in Support of the Human Health Environmental Indicator (HHEI) Determination	September 22, 2004
Documentation of Groundwater Environmental Indicator (GWEI) Determination	January 2005
2004 Groundwater Sampling Event Report	April 15, 2005
Response to EPA Comments Dated April 15, 2005	May 11, 2005
Memorandum on Perched Water Conditions and Potentially Elevated Arsenic Concentrations in Groundwater	October 20, 2005
Honeywell Hopewell Facility	January 18, 2006
Work Plan for Investigation of SWMUs 3 and 29 and Proposed Groundwater Sampling;	October 3, 2006
Quality Assurance Project Plan (QAPP)	January 31, 2007
Results of Supplemental Soil & Groundwater Investigation Conducted at the Honeywell Hopewell Facility Hopewell, Virginia	February 2007. Finalized April 2008.

Document Title	Date
2004 Groundwater Sampling Event Report	March 6, 2008
Draft Response to USEPA March 6, 2008 Comments	March 20, 2008
Work Plan for Site-Wide Water Level Study and Building B-1 Source Characterization	May 7, 2008
Responses to USEPA Comments Dated March 6, 2008	May 7, 2008
Letter from USEPA requesting Work Plan for evaluation of potential vapor intrusion conditions at Building B-1	September 11, 2008
Honeywell Hopewell Facility	October 31, 2008
Draft Work Plan to Assess Potential Vapor Intrusion Conditions at Building B-1;	March 18, 2009
Draft Work Plan to Assess Potential Vapor Intrusion Conditions at Building B-1;	August 8, 2012
Honeywell Hopewell SWMU 3 Supplemental Soil & Groundwater Investigation Report	November 14, 2012
Vapor Intrusion Investigation Report Building B-1	November 16, 2012

Document Title	Date
Revised QAPP	May 10, 2013. Final September 5, 2013.
Hopewell Comprehensive Groundwater Sampling Work Plan	May 13, 2013. Revised as Final July 7, 2015.
Comprehensive Groundwater Sampling Event and SWMU 3 Delineation Report	September 26, 2016.
Comprehensive Groundwater Sampling Event and SWMU 3 Delineation Report	December 23, 2016.
Screening Level Ecological Risk Assessment, AdvanSix Resins and Chemicals Facility - SWMU 3	December 2017.
Final CMS: Request to Rescind Document for Revision	August 20, 2019
SWMU 3 Interim Measures Implementation Work Plan	April 1, 2020
90% SWMU-3 Interim Measure Design Narrative	April 2020
Corrective Measures Study	July 2020
Construction Completion Report SWMU 3 Interim Measures	November 20, 2020

ATTACHMENT II.B - LIST AND DESCRIPTION OF KNOWN ON-SITE SOLID WASTE MANAGEMENT UNITS (SWMUS)

Table II.B-1 list s on-site Solid Waste Management Units (SWMUs) that have been investigated and provides a description of the operational history of each unit. Table II.B-2 provides a summary of the current status as it pertains to RCRA Corrective Action. A map showing the location of the Site parcels and SWMUs is included as Figure II.B-1. A figure showing the location of the SWMUs and respective Study Areas is included as Figure II.A-2.

TABLE II.B-1 - ON- SITE SWMU OPERATIONAL SUMMARY

SWMU	Unit Name	Description of Operation	Type of Operation[1]
1	Dredging Material Impoundment	SWMU 1 consists of a Dredging Material Impoundment in the northeastern corner of the Facility near the confluence of the James River and Poythress Run. It consists of an unlined, diked impoundment, utilized for the dewatering and disposal of dredged material from the James River, which were potentially impacted by kepone. The impoundment was operated from 1973 to 1976. The impoundment consists of three cells, which are separated by five- to eight-foot tall dikes, constructed of clay and soil. After cells were filled with dredged material, they were covered with clay and soil, and then seeded. Rip-rap stone was placed along the embankment adjacent to the James River for stabilization.	Closed Surface Impoundment
2 – Areas 1 and 2	Ammonia Converter Catalyst Disposal (Area 1), High Temperature Shift Catalyst Area (Area 2)	Area 1, the Ammonia Converter Catalyst Disposal area, was utilized for the disposal of non-hazardous oxidized catalyst. It was in operation from 1967 to 1979. Area 2, the High Temperature Shift Catalyst area was used for the disposal of non-hazardous iron oxide and chromium oxide catalyst pellets. It was in operation from 1967 to 1979. Following discontinuation of these disposal areas, they were filled with soil and construction debris then covered with gravel.	Closed Disposal Area
2 – Area 3	Raney Nickel Catalyst Filter Disposal Area	Area 3 is the Raney Nickel Catalyst Filter Disposal Area located in the central portion of the Facility and adjacent to the wastewater impoundments. SWMU 2 – Area 3 was operated from 1967 to	Closed Disposal Area

SWMU	Unit Name	Description of Operation	Type of Operation[1]
		1979. This disposal area was closed by excavating approximately ten feet below grade. Excavated material was transported to an off-Site landfill for disposal. Following excavation, the area was backfilled and covered with gravel.	
3	Land Application Area	SWMU 3 consists of the Land Application Area and is located outside of the main plant process area, south of Route 10. The Land Application Area was a surface application area were treated de-keponized wastewater associated with the LIFE Sciences demolition operations was disposed. The wastewater from decontamination activities was treated through a kepone bowl centrifuge, filtered, passed through carbon adsorption prior to being held, tested, and then applied to a spray field with a manifold and spray hose. The Land Application Area was in operation from 1976 to 1978.	Closed Land Application Area
4	Waste Oil Storage	SWMU 4 consisted of one 600-gallon carbon steel waste-oil storage tank, located at the east end of the Powerhouse. The tank was in operation from 1979 to 1986 and has since been removed.	Closed Oil Storage Tank
5	Waste Pile Treatment Pad	SWMU 5 consists of one Waste Pile Treatment Pad located southeast of Building 56 in the northwestern corner of the manufacturing area. The pad was used to cure, dry, and oxidize spent catalyst. After the material was cured, it was used as fill. The Waste Pile Treatment Pad was in operation from 1978 to 1980. The pad and surrounding soil have been removed and a new pad was constructed at the same location. The new pad is not used for treatment of catalyst.	Closed Treatment Area
6	Drum Storage Area B-83	The area consisted of a curbed concrete slab, with a 200-drum capacity, for temporarily storing waste catalyst filters. The Drum Storage Area was in operation from 1980 to 1983 and has since been removed.	Closed Drum Storage

SWMU	Unit Name	Description of Operation	Type of Operation[1]
7	Drum Storage Area Building 149	SWMU 7 consists of Drum Storage Area Building 149 which is centrally located in the current manufacturing area. It consists of curbed concrete bays with containment, used to store drummed waste material. Drummed listed wastes include D001, D002, D003, F003, and F005. One of the bays was originally enclosed for the storage of PCB wastes. The curbed containment is sloped with locked drain valves used as spill prevention engineering controls. The area has been in operation since 1982 and is currently used for waste storage.	Drum Storage
8	Emulsion Drainage Field	SWMU 8 was a leach field used between 1965 and 1975 in Area 16 of the Plant. The drainage field consisted of a series of perforated six-inch clay pipes, which were placed horizontally at a depth of five feet below ground surface. When the system was abandoned, the drainage pipes were sealed, surface soil above the pipes was removed, the area was covered with two layers of polyethylene liner, then backfilled with clay. The clay was then topped with soil and gravel.	Closed Drainage Field
9	Phenolic Residue Tank	SWMU 9 consists of a Phenolic Residue Tank located in Area 6 in the southwest manufacturing area. The 18,500-gallon tank was constructed of carbon steel and located in a concrete containment berm. It was used to store phenolic residue prior to disposal via incineration. The tank has since been cleaned and is no longer in use.	Closed Tank
10	Powerhouse Boilers	SWMU 10 consists of the three boilers which are in the Powerhouse. Used for steam generation, the boilers were fueled by coal prior to 1982, and then a mixture of #6 fuel oil, natural gas, used oil, and phenolic residue after 1982. The three boilers were in operation since 1954. All three boilers are no longer in use.	Closed Boilers

SWMU	Unit Name	Description of Operation	Type of Operation[1]
11	Waste Nitric Acid Tank	SWMU 11 consists of one Waste Nitric Acid Tank located in the acid production unit of the manufacturing area. The 32,250-gallon stainless steel tank has been cleaned and removed	Closed Tank
12	Hazardous Waste Treatment Tanks	SWMU 12 consists of Hazardous Waste Treatment Tanks which were in the specialty oximes plant area. The six waste tanks were carbon steel and carbon steel-lined with glass. The tanks were either decommissioned, re-purposed, or closed under the Facility's RCRA Part B closure plan.	Closed/Decommisioned/Re-Purposed Tanks
13	Hazardous Waste Incinerator – Specialty Oximes Plant Area	SWMU 13 consisted of a Hazardous Waste Incinerator located in the Specialty Oximes Plant area. The incinerator was used in the destruction of liquid and gaseous waste streams. Auxiliary fuel for the incinerator was natural gas or fuel oil. The incinerator was decommissioned and closed.	Closed Incinerator
14	Waste Nitric Acid Impoundment	SWMU 14 (Waste Nitric Acid Impoundment) was an unlined impoundment used to treat and ultimately dispose of waste nitric acid solution between 1954 and 1976. The impoundment was closed by filling with construction rubble, stone, clay and soil, and a clay cap was placed over the impoundment then covered with gravel.	Closed Surface Impoundment
15	Belt Cooler Unit – Area 7	SWMU 15 consists of a Belt Cooler Unit located in Area 7, the depolymerization manufacturing area. The Belt Cooler is used to cool depolymerization residue. The cooler unit is located on a diked concrete pad and used as a replacement for the two depolymerization residue impoundments (SWMU 19). The residue is conveyed into dumpsters for off-Site disposal.	Belt Cooler
16	Phenolic Wastewater Holding Basin	SWMU 16 was located in the phenol purification area and was operated as a percolation basin for the disposal of phenolic wastewater from 1954 to 1959. The area was closed in 1959 and filled with soil. SWMU 16 is currently covered by a concrete slab and sump in the current Phenol Purification Area.	Closed Holding Basin

SWMU	Unit Name	Description of Operation	Type of Operation[1]
17	Elementary Neutralization Unit	SWMU 17 is an Elementary Neutralization Unit located adjacent to the wastewater impoundments. The Neutralization Unit is composed of reinforced concrete and used to accumulate wastewater during neutralization. Neutralization is achieved by the addition of a caustic or acid.	Neutralization Unit
18	Wastewater Impoundment	SWMU 18 is comprised of two operating lined wastewater impoundments used to temporarily retain and treat neutralized process wastewater prior to discharge to the Hopewell Regional Wastewater Treatment Facility (HRWTF) (the previous referenced, and currently denoted as Hopewell Water Renewal. Both the impoundments were constructed in 1976. The impoundments were subsequently retrofitted with a triple liner and a leachate collection system in approximately 1984 and 1985. These liners remain in place and continue to be maintained, thought present day. The liners act as a de facto engineering control to prevent contact with potentially impacted material including surface soil.	Wastewater Impoundment
19	Depolymerization Residue Impoundments	SMWU 19 (Depolymerization Residue Impoundments) consisted of two impoundments used to solidify non-hazardous depolymerization residue prior to transportation to an off-Site landfill. The impoundments were operated between 1972 and 1986. These impoundments were closed by excavating approximately ten feet below grade. Removed material was transported to an off-Site landfill for disposal. Following excavation, the area was backfilled and covered with gravel.	Closed Surface Impoundments
20	Waste Accumulation Tanks	SWMU 20 consisted of three Waste Accumulation Tanks, located inside Area 19, adjacent to the refuse incinerator. The three aboveground storage tanks (AST's) were constructed of carbon and stainless steel and were used to accumulate wastes prior to incineration. Wastes managed in the AST's	Closed Tanks

SWMU	Unit Name	Description of Operation	Type of Operation[1]
		included phenolics, caprolactam tars, and laboratory oils. The tanks were in operation from 1957 to 1981 and have since been removed.	
21	Area 19 Refuse Incinerator	SWMU 21 was the Area 19 Refuse Incinerator and was used to incinerate refuse such as paper, cardboard, and phenolic wastes, caprolactam tars, lab wastes, and waste oil. The incinerator was in operation from 1957 to 1976 and has since been removed.	Closed Incinerator
22	Wastewater Pit	SWMU 22 was a diked, wastewater pit located north of the two depolymerization residue impoundments (SWMU 19). SWMU 22 was operated from 1962 to 1976 and was used to dispose of process wastewater via evaporation and percolation. The pit was closed by excavating approximately six feet below grade and backfilling with clean fill and covered with gravel.	Closed Wastewater Impoundment
23	Fly Ash Settling and Fill Area	The Fly Ash Settling and Fill Area (SWMU 23) was operated from 1912 to 1972. There are currently lined wastewater impoundments constructed above this location.	Closed Wastewater Impoundments
24	Depolymerization Residue and Construction Rubble Disposal Areas	SWMU 24 (Depolymerization Residue and Construction Rubble Disposal Areas) consisted of two fill areas located on the southeast portion of the Facility. Both the northern and southern areas have primarily been paved with asphalt and are currently used as parking lots. The perimeter areas around each lot consist of mowed lawn.	Closed Disposal Area
25	Heat Exchanger Burial Area	SWMU 25 is a Heat Exchanger Burial Area located under soil and stone at the base of a slope near Gravelly Run outfall. The heat exchanger contained de minimis amounts of ammonium nitrite/nitrate and was buried for disposal. The area was backfilled with soil and gravel in approximately 1972.	Closed Disposal Area
26	Drum Disposal Area	SWMU 26 consisted of a drum disposal area that was operated for approximately one year (1973). The drums were reportedly placed on a bed of fly ash and backfilled by covering with topsoil.	Closed Disposal Area

SWMU	Unit Name	Description of Operation	Type of Operation[1]
27	Landfill	SWMU 27 was operated during 1978 as a landfill for disposal of washed construction rubble, generated during the demolition of the Life Sciences Kepone Production Area. This landfill is lined with clay and a synthetic liner with a leak detection system and capped with a synthetic membrane. The leak detection system of this closure is monitored every other month by AdvanSix. The area fully enclosed with a security fence, includes a locked gate, and fencing is topped with barbed wire. The area is a flat grass field that is periodically mowed.	Closed Landfill
28	Solid Waste Fill Area	SWMU 28 was a Solid Waste Fill Area located adjacent to State Route 10, near Gravelly Run. The area was used for the disposal of non-contaminated construction rubble. The waste fill area is no longer in use.	Closed Disposal Area
29	Earthen Diked Basins	SWMU 29 consisted of four earthen diked basins that operated from 1960 to 1979 and were used to hold phenolic process wastewater. The SWMU was closed in 1979 by removal of the sludge and liquids, backfilled with rock, gravel, and construction debris, and covered with soil and seeded. The area is now heavily vegetated with grasses and trees and was a part of the Facility's Wildlife Habitat Enhancement area.	Closed Wastewater Basins
30	Waste Accumulation Areas	SWMU 30 consists of three areas referred to as the Waste Accumulation Areas. The first area is the Powerhouse area, the second is the Special Oximes Plant Area, and the third is Area 6. Together these areas were used to temporarily store wastes. The areas are no longer in use.	Closed Waste Areas

SWMU	Unit Name	Description of Operation	Type of Operation[1]
31	Palladium Filter Container Storage Area	SWMU 31 is the Palladium Filter Container Storage Area located on the southwestern part of the Facility. The area is gravel-covered and used for the storage and staging of containers of Palladium filters prior to shipment for off-Site recycling.	Container Storage Area
32	Asbestos Dumpsters	SWMU 32 consists of the Asbestos Dumpsters located in the southeastern portion of the Facility. Two dumpsters were used to store asbestos-containing material (ACM). ACM was double bagged before being placed in the dumpsters and when full, sent for off-Site disposal. This area no longer contains these dumpsters.	Closed Waste Storage Area
33	Solid Waste Container Storage Area	SWMU 33 consists of the Solid Waste Container Storage Area, located in the center portion of the Facility. The temporary storage area was used for staging drums of solid waste prior to off-Site disposal. This area is no longer in operation.	Closed Waste Storage Area
34	Rail Cars	SWMU 34 consists of rail cars containing solid waste, located in the eastern portion of the Facility. The rail cars were used to store solid wastes generated during the cleanout of condensers. The condenser waste was then transported for off-Site disposal.	Closed Rail Car Storage
35	Scrap Yard Area	SWMU 35 consists of the scrap yard area located in the eastern portion of the Facility. The scrap yard area was used to store salvaged materials such as metal pieces, empty drums, and miscellaneous equipment	Scrap Yard
36	Plant Trash/Refuse Staging Area	SWMU 36 consists of a Plant Trash/Refuse Staging Area located in the southeastern portion of the Facility. The Plant Trash/Refuse Staging Area is composed of a steel dumpster for storage of plant trash prior to off-Site disposal.	Waste Staging Area
37	Washer Units	SWMU 37 consists of four parts-washer units located at four locations at the Facility.	Washer Units

TABLE II.B-2 - ON-SITE SWMU CORRECTIVE ACTION SUMMARY

SWMU	Unit Name	Status	Justification	Reference
1	Dredging Material Impoundment	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	NFA Comfort Letter provided in 2006; AdvanSix requests an NFA designation for SWMU 1 with regard to Seeps/Surface Water based on the 2017 USEPA approved GWEI. These NFA requests are based on the assessment that there are no changes in risk-based toxicity criteria and that these findings represent current conditions.	NFA Comfort Letter; CMS
2 – Areas 1 and 2	Ammonia Converter Catalyst Disposal (Area 1), High Temperature Shift Catalyst Area (Area 2)	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
2 – Area 3	Raney Nickel Catalyst Filter Disposal Area	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	Low concentration soil impact exceeding Protection of Groundwater RSLs was identified in soil borings during the Phase I RFI. Chlorinated compounds in groundwater were identified exceeding MCLs in monitoring wells and hydro-punch locations adjacent to and hydraulically down gradient of this SWMU. At the time this area was remediated, it was backfilled and covered with gravel. The gravel cover precludes direct soil contact pathway at SWMU 2 – Area 3 and is considered an engineering control. There are no surface water seeps or sediment deposits at this SWMU; these	CMS

SWMU	Unit Name	Status	Justification	Reference
			conclusions are reiterated in the approved GWEI.	
3	Land Application Area	Interim Measures undertaken to eliminate direct contact exposure pathway from exposed fly ash (in progress); NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation upon completion of IM	In 2001, a Request for SWMU NFA Designation letter was sent to the USEPA which requested that SWMUs 1, 3, and 29 receive NFA status. Honeywell (now AdvanSix) again requested an NFA be issued at SWMU 3 as part of a Supplemental Package for SWMU 3 NFA Designation letter to the USEPA in October 2003. On January 18, 2006, the USEPA responded by indicating an NFA Comfort Letter can be prepared. On November 14, 2012, the USEPA issued a letter with attached comments based on its review of the Supplemental Soil & Groundwater Investigation Report at the Hopewell Facility dated April 2008. By letter dated December 10, 2012, Honeywell (now AdvanSix) submitted responses to USEPA's review comments and a work plan for additional investigative activities associated with SWMU 3. Honeywell submitted a combined report on September 26, 2016, to USEPA documenting the Comprehensive Groundwater Sampling event conducted in June 2016, and the SWMU 3 Fly Ash Delineation Study conducted in June 2016. AMEC Foster Wheeler	NFA Comfort Letter; CMS

SWMU	Unit Name	Status	Justification	Reference
			submitted a SWMU 3 Wetland Delineation Report to the Virginia Department of Environmental Quality (VADEQ) in August of 2017. On December 8, 2017, AMEC Foster Wheeler submitted a Screening Level Ecological Risk Assessment (SLERA) for SWMU 3 to the USEPA. Shortly thereafter, the USEPA transferred Site responsibility to the VADEQ. On March 5, 2018, VADEQ notified AdvanSix of its approval of the SWMU 3 Wetland Delineation Report and the SWMU 3 SLERA with the understanding that the exposed ash at SWMU 3 would be addressed in the Corrective Measure Study. AdvanSix submitted the SWMU 3 Interim Measure Implementation Work Plan to VADEQ for review and approval. For SWMU 3, the IM includes the installation of a cap and soil cover designed to prevent direct contact with existing soil and fly ash in the area. The soil cover will be vegetated with grass and maintained. This IM removes the direct contact exposure pathway with surface materials that existed at this SWMU. AdvanSix was notified on April 2, 2020, that VADEQ had reviewed and approved the SWMU 3 Interim Measures Implementation Work Plan. AdvanSix submitted the	

SWMU	Unit Name	Status	Justification	Reference
			SWMU 3 90% Interim Measure Design to VADEQ for review and approval. AdvanSix was notified on April 15, 2020, that VADEQ had reviewed and approved the SWMU 3 90% Interim Measure Design. AdvanSix subsequently submitted the SWMU 3 100% Interim Measure Design to VADEQ for their project documentation. Based upon the investigations/reports and the elimination of a direct contact pathway with the to be completed IM, AdvanSix requests a NFA determination for soil, sediment, and seeps/surface water for SWMU 3.	
4	Waste Oil Storage	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
5	Waste Pile Treatment Pad	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
6	Drum Storage Area B-83	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)

SWMU	Unit Name	Status	Justification	Reference
7	Drum Storage Area Building 149	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
8	Emulsion Drainage Field	NFA, with Engineering Controls, Institutional Controls,Long-Term Monitoring, and Monitored Natural Attenuation	SWMU 8 is located within the active manufacturing portion of the facility. The area remains covered by gravel and/or crushed stone, which preclude direct exposure potential to surface sediment or soil. Further, there is no surface water or seeps within the vicinity of this SWMU.	CMS
9	Phenolic Residue Tank	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
10	Powerhouse Boilers	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
11	Waste Nitric Acid Tank	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
12	Hazardous Waste Treatment Tanks	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No.

SWMU	Unit Name	Status	Justification	Reference
				RCRA-III-019-CA)
13	Hazardous Waste Incinerator – Specialty Oximes Plant Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
14	Waste Nitric Acid Impoundment	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	The backfill, clay cap and gravel cover layer placement over the impoundment mitigates potential for direct soil pathways and is considered an engineering control. There are no known seeps or surface sediments related to SWMU 14, as noted in the GWEI. Therefore, AdvanSix requests NFA designations for seeps or surface sediments for SWMU 14.	CMS
15	Belt Cooler Unit – Area 7	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
16	Phenolic Wastewater Holding Basin	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	Due to the existing concrete layer serving as an engineering control, SWMU 16 does not contain a direct contact pathway to impacted soil. SWMU 16 also has no known historical sediment and associated seeps/surface water as noted in the approved GWEI.	CMS

SWMU	Unit Name	Status	Justification	Reference
17	Elementary Neutralization Unit	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
18	Wastewater Impoundment	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	No seeps have been identified in the vicinity of SWMU 18 and no associated sediments are exposed. Therefore, AdvanSix requests NFA for SWMU 18 surface soils, sediments, and seeps.	CMS
19	Depolymerization Residue Impoundments	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
20	Waste Accumulation Tanks	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
21	Area 19 Refuse Incinerator	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
22	Wastewater Pit	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring,	The backfill and gravel cover layer placement over SWMU 22 precludes direct soil contact. The fill cover is being considered an engineering control measure.	CMS

SWMU	Unit Name	Status	Justification	Reference
		and Monitored Natural Attenuation	Historical reports document no evidence that sediment or associated seeps/surface water are present in the area of SWMU 22, as noted in the approved GWEI. Conditions in this area unchanged since the GWEI was completed. Therefore, AdvanSix requests NFA designations for surface soil, surface water, or sediment in the vicinity of SWMU 22	
23	Fly Ash Settling and Fill Area	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	The historic and current use of SWMU 23 as an active wastewater impoundment demonstrates that there is no related historical soil that can be accessed for an exposure pathway. SWMU 23 also does not have related historical sediment and seeps/surface water.	CMS
24	Depolymerization Residue and Construction Rubble Disposal Areas	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	Due to the existing asphalt and soil cover at SWMU 24 direct contact with soil or sediment have been eliminated. There are no seeps or surface known to be present in this area. AdvanSix is requesting NFA for SWMU 24 for surface soils, sediments, surface water and seeps.	CMS
25	Heat Exchanger Burial Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)

SWMU	Unit Name	Status	Justification	Reference
26	Drum Disposal Area	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation.	On August 20, 2019, AdvanSix requested that VADEQ consider accepting institutional and access controls, which includes the fact that the SWMU is fully within the bounds of the plant, and the specific SWMU area is protected by a chain-link fence, as sufficient provisions to be considered protective of health and the environment, The existing access-restriction provisions were proposed rather than excavation of drum carcasses. Additionally, AdvanSix noted that removal of embedded material from the slope (i.e., drum carcasses) could lead to slope destabilization, erosion, and damage to established vegetation. On August 22, 2019, VADEQ agreed with AdvanSix that existing institutional controls (fencing and limited access) will be protective of human health and environment for SWMU 26.	CMS
27	Landfill	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	SWMU 27 does not contain a direct contact pathway due to the engineered multi-layer cap and has no known historical sediment and seeps or surface water; therefore, AdvanSix requests NFA for SWMU 27 for these media.	NFA Comfort Letter; CMS

SWMU	Unit Name	Status	Justification	Reference
28	Solid Waste Fill Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
29	Earthen Diked Basins	NFA, with Engineering Controls, Institutional Controls, Long-Term Monitoring, and Monitored Natural Attenuation	Due to the existing soil layer acting as an engineering control, SWMU 29 there is no direct contact pathway to impacted sediment, seeps, or surface water; therefore, AdvanSix requests NFA for SWMU 29 for these media.	NFA Comfort Letter; CMS
30	Waste Accumulation Areas	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
31	Palladium Filter Container Storage Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
32	Asbestos Dumpsters	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
33	Solid Waste Container Storage Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)

SWMU	Unit Name	Status	Justification	Reference
34	Rail Cars	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
35	Scrap Yard Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
36	Plant Trash/Refuse Staging Area	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)
37	Washer Units	NFA	Closed with NFA before RFI	USEPA Administrative Order on Consent (Docket No. RCRA-III-019-CA)

FIGURE II.B-1 - ON-SITE SWMU LOCATION MAP

ATTACHMENT II.C - MEDIA CLEANUP OBJECTIVES

Media Specific Goals – Groundwater

Relevant groundwater-specific goals are provided by USEPA's MCLs and, if an MCL does not exist for a specific compound, USEPA's November 2020 Regional Screening Levels (RSLs) for Tapwater or Virginia Human Health Public Water Supply Values would apply. Based on the identified groundwater COPCs at the Site, the following groundwater MCLs and RSLs will be used as groundwater specific goals:

Parameter Group	COPC	November 2020 USEPA MCL or Tap Water RSL (µg/L)
VOCs	benzene	5
	chloroform	80
	1,1-dichloroethane	2.8 *
	1,2-dichlorethene	100
	cis-1,2-dichloroethene	70
	ethylbenzene	700
	methylene chloride	5
	tetrachloroethene	5
	trichloroethene	5
	vinyl chloride	2
SVOCs	1,1-biphenyl	0.83 *
	benzo(a)anthracene	0.03 *
	benzo(a)pyrene	0.2
	benzo(b)fluoranthene	0.25 *
	caprolactam	990*
	indeno [1,2,3-cd] pyrene	0.25 *
	naphthalene	0.12 *
Metals (Non-Key	antimony	6
	arsenic	10

Parameter Group	COPC	November 2020 USEPA MCL or Tap Water RSL (µg/L)
Parameters)	beryllium	4
	cadmium	5
	chromium	100
	cobalt	0.6 *
	iron	1,400 *
	lead	15
	manganese	43 *
	nickel	610 **
	thallium	2

* November 2020 USEPA Tap Water RSL
** Virginia Human Health Public Water Supply Value (9VAC25-260-140)

Media Specific Goals – Soils

The current and projected future use of the Site is industrial, therefore soil data collected at the Site are compared to the USEPA's November 2020 RSL Table (TR = 10-6 and THQ = 1.0). Protection of Groundwater RSLs apply to all soils that could leach contaminants to groundwater. The Direct Contact Industrial Soil RSL applies to surficial soils or other soils where direct contact could occur (i.e., excavation). A surficial soil exposure scenario is unlikely because surface soils, waste, and contaminated materials within the other SWMUs are covered with barrier material. Based on historical soil detections exceeding RSL that identify the COPCs at the Site, the following RSLs and Soil Screening Levels (SSLs) will be used as goals .

Parameter Group	COPC	Direct Contact Industrial Soil RSL (mg/kg)	Protection of GW SSL	
			Risk Based Soil Screening Level (SSL) (mg/kg)	MCL Based Soil Screening Level (SSL) (mg/kg)
Metals	arsenic	3	1.5E-3	0.292
	barium	22,000	15.5	82.4
	chromium	No standard	No standard	180,000
	cobalt	35	2.71E-2	No standard
	manganese	2,600	2.83	No standard
	nickel	2,200	2.6	No standard
	selenium	580	5.19E-2	0.26
	thallium	1.2	1.4E-3	0.142
	vanadium	580	8.64	No standard