UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

BEAZER/INDSPEC FACILITY

133 MAIN STREET
PETROLIA, PENNSYLVANIA

EPA ID NO. PAD004336731

Prepared by
Office of Pennsylvania Remediation
Land and Chemicals Division
August 2017

Table of Contents

List of Abbreviations and Acronyms

AOI	Area of Interest
AR	Administrative Record
ATSDR	Agency for Toxic Substances and Disease Control Registry
AWQC	Pennsylvania Ambient Water Quality Criteria
BCACS	Bear Creek Area Chemical Site
EC	Engineering Control
EI	Environmental Indicator
EPA	Environmental Protection Agency
IC	Institutional Control
µg/m^3	Micrograms per cubic meter
µg/L	Micrograms per liter
NPDES	National Pollutant Discharge Elimination System
PADEP	Pennsylvania Department of Environmental Protection
RCRA	Resource Conservation and Recovery Act
RSL	EPA Regional Screening Level
SB	Statement of Basis
SHS	Statewide Health Standard(s)
SVOC	Semi-volatile Organic Compound
VOC	Volatile Organic Compound

Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the Beazer/INDPSEC facility located at 133 Main Street, Petrolia, Pennsylvania (Facility).

The Facility is subject to the Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 to 6992k. The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have been investigated and that all releases of hazardous waste and hazardous constituents have been remediated. The Commonwealth of Pennsylvania (the Commonwealth) is authorized to implement and enforce RCRA, but is not authorized for the Corrective Action program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the Commonwealth for the Corrective Action Program.

Information on the corrective action program as well as a fact sheet (listed under INDSPEC Chemical Corp.) for the Facility can be found at https://www.epa.gov/hwcorrectiveactionsites.

EPA has compiled an administrative record (AR) containing all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section 8, Public Participation, for information on how you may review the AR.

Section 2: Background

The Facility comprises approximately 325 acres surrounded by wooded land to the north and east, residential properties to the west, and commercial properties to the south. The Facility is situated along the South Branch of Bear Creek (the Creek) which flows through a fairly steep-walled, narrow valley. The valley floor ranges from 300 to 500 feet wide.

The Facility has been used for industrial purposes by various owners since 1915. Koppers Company (Koppers) purchased it in 1947 and operated a chemical manufacturing plant there for more than four decades. In 1988, Koppers became the company currently known as Beazer East, Inc. (Beazer), which then sold approximately 263 acres of the Facility property, including the manufacturing facilities, to ISC Acquisition Company.

ISC Acquisition Company changed its name to INDSPEC Chemical Corporation (INDSPEC) in 1989 and continued to operate the chemical manufacturing plant at the Facility. The plant ceased production in July 2017. Although the plant made several chemical products, it was one of the world's largest producers of resorcinol, a chemical used in adhesives, dyes, pharmaceuticals, skin creams and lotions, and many other products. The main process and materials storage areas are located along the valley floor on the west side of the Creek. These areas and a reservoir to the north are designated as Area of Interest (AOI) 1. Other process and storage areas located on the eastern slope of the valley and a reservoir directly east of the Creek are designated as AOI 2. The western portion of the Facility, including a third reservoir, is designated as AOI 4. The portion of the Facility containing AOIs 1, 2, and 4 is currently owned by INDSPEC (INDSPEC Property).

The northern portion of the Facility is currently owned by Beazer (Beazer Property). The Beazer Property is designated as AOI 3. It is primarily undeveloped land except for a former waste disposal lagoon, which was closed in 1982 under PADEP oversight.

A location map and a Facility diagram are attached as Figures 1 and 2.

Section 3: Environmental Investigations and Completed Actions

Multiple environmental investigations have occurred over the Facility's history. The most pertinent ones are summarized below. Data from these investigations are the basis for EPA's proposed remedy. Complete reports including results can be found in the AR. See **Section 8: Public Participation**, below, for information on reviewing the AR.

1. Early Investigations

The first environmental investigations at the Facility began in 1979 under the oversight of PADEP (then known as the Pennsylvania Department of Environmental Resources (PADER)). Those investigations detected groundwater contamination in the alluvial and upper bedrock aquifers. The areal extent of contamination was delineated by the Facility's southern boundary, the South Branch of Bear Creek to the east, and the railroad tracks to the west. Contaminants identified included resorcinol, sulfonic acids, benzene, and phenols.

The 1979 investigations concluded that an unlined lagoon used by Beazer to dispose of resorcinol wastes was the primary source of groundwater contamination. The lagoon was located in the southwestern corner of AOI 3. The lagoon was closed in 1982 by removing the remaining liquid wastes, installing a clay slurry wall keyed into the bedrock below, and covering the lagoon with compacted soil.

In 1987, PADEP and Koppers entered into a Consent Order (1987 Order) under the Clean Streams Law. The 1987 Order was primarily concerned with eliminating unpermitted discharges to the Creek, but also included a requirement to design and construct a groundwater collection and treatment system. The Facility installed a French drain groundwater collection and treatment system to collect contaminated groundwater beneath the Facility and to prevent discharge of contaminated groundwater into the Creek. The French drain system operated from 1990 to 2005, when it was permanently shut down after reportedly receiving approval from PADEP to do so; however, no record of this approval appears to exist.

In March 2002, pursuant to its authority under Pennsylvania's Hazardous Sites Cleanup Act (HSCA), 35 P. S. §§ 6020.101—6020.1305, PADEP established a sixty-square-mile area known as the Bear Creek Area Chemical Site (BCACS) that included the Facility. As part of its HSCA activities, PADEP investigated disposal sites located in the vicinity of the Facility that were formerly used by waste haulers serving Beazer, INDSPEC, and other area chemical plants. PADEP concluded that those disposal sites, too, were contributors to contamination of the area's aquifer. As a result of its investigation, PADEP determined that the nature and extent of groundwater contamination throughout the BCACS rendered it impractical to restore the groundwater to levels acceptable for residential use. As a result, PADEP entered into a Consent Order with Beazer in May 2003 (2003 Order) that provided funding both for cleanup of the Facility and for construction of a public water supply to service impacted residents within the BCACS. PADEP also created a model ordinance, which was passed in municipalities within the BCACS, that prohibits potable groundwater use and requires mandatory hookups to the public water supply in order to prevent residential use of impacted portions of the aquifer. A

map of the BCACS is attached as Figure 3. The 2003 Order also required Beazer to submit a workplan to address contamination at the Facility and to enter into a Facility Lead Agreement with EPA (described below). Construction of the public water supply was completed in 2007.

2. RCRA Investigations

The environmental investigations upon which EPA is relying in this SB were prepared using the standards and procedures developed under the Pennsylvania Land Recycling and Environmental Remediation Standards Act, commonly referred to as Act 2. PADEP compared the sampling results obtained during those investigations to Act 2 Statewide Health Standards (SHSs), otherwise known as Medium Specific Concentrations (MSCs). EPA has compared these sampling results to EPA's Maximum Contaminant Levels (MCLs) for groundwater and the Regional Screening Levels (RSLs) for residential and industrial soil, for each of the identified constituents of concern (COCs).

On May 6, 2004, Beazer and INDSPEC entered into a Facility Lead Agreement with EPA to satisfy RCRA corrective action obligations for the Facility using Act 2 standards and procedures. A work plan for site characterization that had been previously submitted to EPA for the Facility in December 2003 was revised in January 2004 and served as the basis for remedial activities from 2004 to 2006. Remedial activities are summarized under Section 3, Current Site Conditions, below. EPA and PADEP have been jointly overseeing the work at the Facility since that time.

In August 2005, the Agency for Toxic Substances and Disease Registry (ATSDR) released a Public Health Assessment in connection with the BCACS. ATSDR's Pubic Health Assessment concluded that exposures to contaminated drinking water in the BCACS prior to 2000, when domestic water supplies were first sampled, posed an indeterminate public health hazard. However, non-drinking exposures to contaminated water (e.g., showering) and exposures to contaminated soil and sediment in the BCACS posed no apparent public health hazard.

Little toxicological data existed in 2003 on the effects of exposure to resorcinol and the sulfonic acids. Therefore, Beazer commissioned a study (by AMEC Earth & Environmental) to develop water quality criteria for resorcinol and sulfonic acids. The AMEC study was submitted in April 2008 and was conducted in accordance with a specific protocol for developing Ambient Water Quality Criteria (AWQC) pursuant to the Clean Water Act, 33 U.S.C. § 1251 et. seq., established by EPA and adopted by the Commonwealth of Pennsylvania. AMEC's proposed criteria were subsequently reviewed and adopted by the Commonwealth of Pennsylvania as AWQC in a regulation promulgated on July 20, 2013. The AWQC have also been incorporated into the National Pollutant Discharge Elimination System (NPDES) permits for the Facility and other facilities located along the South Branch of Bear Creek.

3. Current Site Conditions

Current Facility conditions summarized below are detailed in the June 2013 Remedial Investigation Report and the February 2017 Addendum to the Remedial Investigation Report

(which includes a 2015 Surface Water/Sediment Sampling Report). The remedial investigation, comprising the June 2013 Remedial Investigation Report and the February 2017 Addendum, was approved by EPA in August 2017.

A. Soils

Between 2004 and 2010, 42 surface soil samples from throughout the Facility were collected and analyzed for organic and metal compounds. The results were screened against EPA's RSLs, except for resorcinol, which was screened against Pennsylvania's non-residential Statewide Health Standard (SHS), and sulfonic acids. Sulfonic acids do not have RSLs; therefore, soil concentrations of sulfonic acids were compared to levels determined by the ATSDR Public Health Assessment to not produce adverse health effects. Using ATSDR's most conservative provisional health guideline of 0.03 mg/kg/day yields an approximate industrial RSL of 6600 mg/kg at a target hazard quotient of 1. Although arsenic exceeded its industrial RSL in many surface soil samples, these arsenic concentrations are considered representative of background concentrations throughout this area. However, one area in the southeastern corner of AOI 1 exceeded the arsenic industrial RSL by several orders of magnitude and also exceeded the industrial RSL for lead. All other constituents in surface soil samples taken at the Facility were below the applicable industrial RSLs or non-residential SHSs.

In 2010, additional soil borings were collected and sampled to define the horizontal extent of the arsenic and lead contamination exceeding RSLs in AOI 1. As a result, an approximately 1000-square-foot area of arsenic- and lead-impacted soil was delineated. Consequently, in 2011, an asphalt cap was constructed over this area to prevent exposure to soils that exceeded the industrial RSLs for arsenic and lead.

B. Groundwater

In 2004, two site-wide groundwater sampling events were conducted at the Facility. A total of 151 samples were collected from 72 wells. Between June 2005 and May 2006, 143 additional samples were taken in AOIs 1, 2, and 3.

As the following table indicates, numerous groundwater contaminants exceed their applicable MCL (or SHS for resorcinol, semi-volatiles, and manganese). Resorcinol and volatile organic compounds (VOCs) are particularly concentrated near the former lagoon and the southeastern part of AOI 1. Phenols are also concentrated around the former lagoon. Semi-volatile contaminants and metals are more evenly dispersed throughout the entire Facility.

Groundwater Contaminants That Exceed Applicable Standards

Contaminant	MCL or SHS	Maximum Concentration
	µg/L	µg/L
Specialty Compounds		
Resorcinol	200,000	4,130,000

Volatile Organics		
Benzene	5	290
Chlorobenzene	100	260
1,2-dichlorobenzene	600	12,000
1,4-dichlorobenzene	75	2800
Methylene chloride	5	290 J
Tetrachloroethene	5	6.8 J
Trichloroethene	5	17
Vinyl chloride	2	38
Semi-volatile Organics		
bis(2-ethylhexyl)phthalate	6	380
2-chlorophenol	40	6000
4-methylphenol	510	1600
Phenol	2000	9400
Metals		
Arsenic	10	290
Lead	15	557
Manganese	300	39,500 J

J – estimated concentration

Due to the restriction on residential use of the aquifer beneath the BCACS, the only pathway for public exposure to this contamination is through groundwater migration and discharge into the South Branch of Bear Creek. This groundwater-to-surface water pathway was modeled in 2012 as part of the comprehensive remedial investigation. Maximum concentrations of resorcinol, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in groundwater beneath the southeastern portion of AOI 1 exceeded the wasteload allocations previously calculated by the model. However, with the addition of the bentonite cap in the South Branch of Bear Creek, the 2012 model predicted that these contaminants would not exceed the AWQC. The model's predictions were subsequently supported by the surface water sample results discussed in Section C, below.

C. Surface Water

Five sampling events conducted in the South Branch of Bear Creek from 2004 to 2005 and additional samples taken in 2010 and 2014 did not detect AWQC exceedances for volatile organic compounds (VOCs), resorcinol, or the sulfonic acids. A rapid bioassessment of Creek sediment performed in 2005 as part of the remedial investigation concluded that there is no statistical difference in the benthic community (organisms living in or on the creek bed) collected from on-site locations when compared to upstream reference locations. An instream comprehensive evaluation performed by PADEP in 2010 concluded that aquatic life impacts as a result of the Facility are not discernable due to existing upstream impairment of aquatic life.

Until 2011, seepage of contaminated groundwater into the South Branch of Bear Creek would intermittently cause a diffuse free-phase material with reddish-brown color to accumulate

at the Creek bottom. When identified during periodic inspections of the Creek, this free-phase material would be removed from the Creek by vacuum truck. In 2011, INDSPEC and Beazer installed a bentonite cap atop a 430-foot stretch of the Creek bed to block such groundwater seepage into the South Branch of Bear Creek. From September 2011 to September 2012, INDSPEC conducted bi-weekly visual inspections and surface water and hydraulic monitoring to evaluate the integrity of the bentonite cap. The results of the monitoring did not show any evidence of groundwater penetrating the bentonite cap or any free-phase material on the Creek bottom. From April 2012 to June 2013, INDSPEC performed additional efforts to seal cracks and weep holes in the concrete walls along the Creek which also minimized shallow groundwater seepage into the South Branch of Bear Creek.

The bentonite cap was damaged during a significant storm/flood event in August 2013 and free-phase material was again intermittently observed in the Creek. Following the storm/flood event, INDSPEC inspected the Creek regularly and recovered any observed free-phase material. An improved multi-component engineered cap with a High Density Polyethylene (HDPE) liner and concrete armoring (hereinafter referred to as the "engineered system") was installed in 2016 and is designed to withstand a 100-year design flow flood event.

D. Subsurface Vapor

Chemical vapors released from contaminated soil or groundwater can migrate through foundations and accumulate in occupied buildings. In 2009, a vapor intrusion evaluation of AOI 1 was performed. In 2012 and 2013, soil gas testing was conducted near occupied buildings including the Recovery Building, Boiler House Control Room, and No. 1 Building which showed exceedances of EPA's industrial RSLs for VOCs, as shown in the table below.

Soil Gas Contaminants That Exceed Industrial RSLs

Contaminant	Industrial RSL*	Maximum Concentration
	µg/m^3	µg/m^3
VOCs		
Benzene	16	29
1,3-Butadiene	4.1	5.3
Ethylbenzene	49	300
Naphthalene	3.6	39
Trichloroethene	30	2700
Trimethylbenzene	310	1800

* Industrial RSLs for soil gas were derived by dividing EPA's Industrial Air RSLs by 0.1

Section 4: Corrective Action Objectives

1. Soils

Given that the current and anticipated future use of the Facility is expected to remain industrial, soils at the Facility were primarily screened against industrial RSLs. Surface soils exceed industrial RSLs for direct contact for both arsenic and lead in a 1,000-foot area in the southeast corner of AOI 1. Subsurface soils at the Facility exceed industrial RSLs for direct contact beneath the cap in the former lagoon area of AOI 3. Therefore, the corrective action objectives for soils are to:

- Prevent residential direct contact exposures to soil containing COC concentrations that exceed applicable PADEP/EPA residential screening levels,
- Prevent non-residential direct contact exposures to soil containing COC concentrations that exceed applicable PADEP/EPA non-residential screening levels, including for utility and construction workers engaged in excavation, and
- Inspect and maintain all engineering controls to assure effective operation.

2. Groundwater

EPA expects final remedies to return usable groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. For projects where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use the National Primary Drinking Water Standard 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 as the corrective action objectives.

EPA agrees with PADEP's decision to restrict potable use of groundwater in the BCACS. Given the nature and extent of groundwater contamination in the BCACS, it would be impractical to remediate the entire aquifer to levels acceptable for residential use. While the contaminants in Facility groundwater originated from Facility operations, similar contamination throughout the aquifer beneath the BCACS comes from several offsite sources. Therefore, the corrective action objectives for groundwater are to:

- Prevent drinking water exposure to all constituents that exceed EPA MCLs and PADEP MSCs for a used aquifer, and
- Control the groundwater discharge to the South Branch of Bear Creek such that AWQCs are not exceeded and no free-phase material is observed within the stretch of the Creek within the Facility property boundary.

2. Subsurface Vapor

Subsurface vapor in portions of AOI 1 exceeds EPA's industrial RSLs. Therefore, the corrective action objective for subsurface vapor is to:

- Ensure that TCE vapor levels in all occupied buildings, both current and planned, do not exceed the industrial air non-carcinogenic RSL.

Section 5: Proposed Remedy

The proposed remedy includes a combination of institutional controls (ICs) and engineering controls (ECs). ECs include a variety of physical devices, barriers, and management practices that contain, reduce the source of, or prevent exposure to contamination. 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. Under this proposed remedy, some concentrations of metals, VOCs, and resorcinol remain in the soils and groundwater at the Facility above levels appropriate for residential and domestic uses. As a result, the proposed remedy will require Beazer and INDSPEC to implement land use restrictions to prohibit human exposure to such contaminants. ICs may be established through an enforceable mechanism such as an order, permit, or an environmental covenant pursuant to the Pennsylvania Uniform Environmental Covenants Act, 27 Pa.C.S. §§ 6501-6517. If the enforceable mechanism selected were to be environmental covenants, they would be recorded with Beazer and INDSPEC property records.

1. Beazer Property

a. Engineering Controls

1) Beazer shall develop and implement a Post-Remediation Care Plan for the Beazer Property to be approved by EPA which will include schedules and methodologies for implementing the following activities:

a. Soils
   i. Monitoring and maintaining the integrity of the vegetative cover on the former lagoon.
   ii. Implementing a soil management plan and outlining personal protective equipment (PPE) and work procedures for any intrusive operations.

b. Surface Water
   i. Inspecting Bear Creek near and downstream of the former lagoon to determine whether free-phase material is present or absent and, if present, developing a procedure and timeline for surface water sampling and corrective actions to be undertaken to prevent exceedance of AWQC and free-phase material recurrence within AOI 3.

b. Institutional Controls

EPA is proposing that the following requirements and land and groundwater use restrictions be implemented through ICs at the Beazer Property:

1) Soils

c. The Beazer Property shall not be used for residential purposes unless it is

demonstrated to EPA that such use will not pose a threat to the environment or adversely affect or interfere with the selected remedy and EPA provides prior written approval of such use.

d. Any excavation or other construction activity within the footprint of the former lagoon in AOI 3 is prohibited without EPA's prior written approval.
e. Compliance with the EPA-approved Post Remediation Care Plan for the Beazer Property.

2) Groundwater

a. Groundwater at the Beazer Property shall not be used for any potable and/or domestic purpose.

2. INDSPEC Property

a. Engineering Controls

1) INDSPEC shall develop a Post Remediation Care Plan for the INDSPEC Property to be approved by EPA which will include schedules and methodologies for implementing the following activities:

a. Soils
   i. Monitoring and maintaining the integrity of the asphalt cap in the southeastern portion of AOI 1.
   ii. Implementing a soil management plan and outlining PPE and work procedures for any intrusive operations.

b. Surface Water
   i. Inspecting Bear Creek to determine whether free-phase material is present or absent and, if present, developing a procedure and timeline for surface water sampling and corrective actions to be undertaken to prevent exceedance of AWQC and free-phase material recurrence within AOI 1 or AOI 2.
   ii. Operating, repairing, monitoring, and maintaining the engineered system that limits, to the extent practicable, groundwater infiltration.
   iii. Inspection of the Creek retaining wall within the 430-linear-foot section of the Creek and patch cracks or holes within this area that could allow groundwater to seep into the Creek.

c. Subsurface Vapor
   i. Monitoring the effectiveness of vapor mitigation strategies in any occupied buildings in the main plant area of AOI 1, to include alarms that sound automatically if positive pressure or air exchange rate drops below acceptable levels.

b. Institutional Controls

EPA is proposing that the following land and groundwater use restrictions be implemented through ICs at the INDSPEC Property:

1) Soils

   a. The INDSPEC Property shall not be used for residential purposes unless it is demonstrated to EPA that such use will not pose a threat to the environment or adversely affect or interfere with the selected remedy and EPA provides prior written approval of such use.
   b. Compliance with the EPA-approved Post Remediation Care Plan for the INDSPEC Property.

2) Groundwater

   a. Groundwater at the INDSPEC Property shall not be used for any potable and/or domestic purpose.
   b. Compliance with the EPA-approved Post Remediation Care Plan for the INDSPEC Property.

3) Subsurface Vapor

   a. A vapor intrusion assessment shall be required prior to any new construction of an occupied building in AOI 1 unless the building plan includes, and the building is constructed with, a vapor mitigation system (VMS) that reduces indoor air contamination to acceptable levels as determined by EPA at that time.
   b. Compliance with the EPA-approved Post Remediation Care Plan for the INDSPEC Property.

Section 6: Evaluation of Proposed Remedy

Consistent with national guidelines, EPA evaluates proposed corrective action remedies in two phases. EPA first evaluates them against three threshold criteria. For those meeting the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1) Protect human health and the environment	The proposed remedy protects human health and the environment by eliminating or mitigating exposure pathways. Soil exposure is generally limited by land use restrictions that prohibit residential development on the Facility property. Exposure to soil in the southeastern corner of AOI 1 that exceeds the industrial RSLs for metals is prevented by permanently maintaining a paved surface over the contaminated area. Exposure to soil gas vapors inside existing and occupied structures on AOI 1 will be mitigated by engineering controls either to maintain positive pressure inside the buildings at all times or to ensure that increased air exchange rates provide sufficient ventilation. Exposure to groundwater beneath the Facility property will be restricted by ICs which will prohibit groundwater use for domestic purposes. The proposed remedy prevents discharge of free-phase material to a 430-foot stretch of Bear Creek by minimizing, to the extent practicable, groundwater mixing with surface water through the installation of the engineered system.
2) Achieve media cleanup objectives	The proposed remedy would achieve site-specific media cleanup objectives by eliminating or mitigating exposure pathways to remaining contamination. It would prohibit domestic use of groundwater and require that protective caps be maintained over contaminated soils. The engineered system installed in Bear Creek restricts, to the extent practicable, groundwater mixing with surface water to prevent discharge of free-phase material. Engineering controls will be required to mitigate potential exposures to indoor air contamination within occupied buildings in AOI 1.
3) Remediating the source of releases	The first of two main sources of site-related groundwater contamination was partly remediated in 1982 through the removal of waste from the lagoon and covering the lagoon with compacted soil. Given the level of groundwater

Threshold Criteria	Evaluation
	contamination originating offsite and the prohibition on domestic uses of groundwater, further remediation of the lagoon and other contaminated soil is not warranted. The second main source was remediated from 1990 to 2005 by the French drain groundwater collection system and later by vacuum collection of visible free-phase material that occasionally discharged to the Creek prior to installation of the engineered system. The proposed remedy limits groundwater mixing with surface water to prevent discharge of free-phase material into the South Branch of Bear Creek via the engineered system.

Balancing Criteria	Evaluation
4) Long-term effectiveness	The proposed institutional and engineering controls will maintain protection of human health and the environment over time by controlling exposure to remaining waste material in the former lagoon, lead and arsenic contamination in soil and potential volatile contaminants in AOI 1, and contaminated groundwater. EPA's proposed remedy requires the compliance with and maintenance of land use and groundwater use restrictions. EPA anticipates that these restrictions will be implemented through an enforceable permit, order, or an environmental covenant to be recorded with the Beazer and INDSPEC property records.
5) Reduction of toxicity, mobility, or volume of the hazardous constituents	The proposed remedy limits contaminant mobility by restricting excavation of contaminated soils, requiring maintenance of caps over the lagoon and the most contaminated area of AOI 1, and by requiring the operation and maintenance of the engineered system along the 430-foot stretch of the Creek.
6) Short-term effectiveness	EPA anticipates that the proposed land and groundwater use restrictions will be implemented shortly after EPA selects a final remedy. The effectiveness of the engineered system will be demonstrated through a schedule of Creek inspections and surface water sampling to ensure that free-phase material is

Balancing Criteria	Evaluation
	not entering the Creek along the span of the engineered system or within the downstream portion of the Creek within the Facility boundary, and that AWQC are being met.
7) Implementability	EPA's proposed remedy is readily implementable. EPA does not anticipate any regulatory constraints in requiring Beazer and INDSPEC to implement the engineering and institutional controls described above.
8) Cost	The proposed remedy is cost effective. The remaining post-remediation care costs are minimal (estimated at $50,000 per year). This cost is lower than remedial alternatives that could include excavation and disposal of contaminated soil, demolition and reconstruction of buildings, and operational interruptions.
9) Community acceptance	EPA will evaluate community acceptance during the public comment period and provide an analysis in the Final Decision and Response to Comments.
10) State/support agency acceptance	EPA will evaluate state acceptance during the public comment period and provide an analysis in the Final Decision and Response to Comments.

Section 7: Financial Assurance

EPA has evaluated whether financial assurance is necessary to implement EPA's proposed remedy at the Facility. The costs of implementing the remaining remedial components, such as the institutional controls, at the Facility are expected to be minimal. The previous bentonite cap failed due to flooding of the Creek, which resulted in free-phase material once again discharging into the Creek. The damaged cap was replaced with a strengthened and armored engineered system much more resistant to flood damage.

EPA is proposing that financial assurance be required to cover the cost of repairing the current engineered system in the event of flood damage. EPA proposes to require that INDSPEC and Beazer submit a cost estimate and provide financial assurance for such post remedial care to EPA. EPA will then decide on the best enforcement framework for long-term implementation.

Section 8: Public Participation

You are invited to comment on EPA's proposed remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, email, or phone to Griff Miller at the address listed below.

EPA may hold a public meeting upon request. Requests for a public meeting should be made to Mr. Miller at the address listed below. A meeting will not be scheduled unless one is requested.

The Administrative Record contains all information considered by EPA for the proposed remedy. It is available at the following location:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Griff Miller (3LC20)
Phone: (215) 814-3407
Fax: (215) 814-3113
Email: miller.griff@epa.gov

Date: 8/16/2017 /Harry J. Daw/ for CAL

Catherine A. Libertz, Acting Director
Land and Chemicals Division
U.S. EPA Region III

Attachments:
Figure 1: Location Map
Figure 2: Facility Diagram
Figure 3: BCACS Boundaries

Section 9: Index to Administrative Record

Consent Order and Agreement between the Commonwealth of Pennsylvania Department of Environmental Resources and Koppers Company, Inc., August 12, 1987.

Consent Order and Agreement between the Commonwealth of Pennsylvania Department of Environmental Protection and Beazer East, Inc., May 5, 2003.

RCRA Site Inspection Report for INDSPEC Chemical Corporation, prepared by USACE, May 2003.

Workplan for Site Characterization for Beazer/INDSPEC Properties, including Facility Lead Agreement, prepared by Langan Engineering, January 2004. Please list the FLA separately here.

Letter to Mr. George Luxbacher, Glenn Springs Holdings Inc., from Paul Gotthold, USEPA Region 3, regarding entry into voluntary Facility Lead Agreement, May 6, 2004.

Environmental Indicator Forms and Supporting Documentation Report for Beazer/INDSPEC Properties, prepared by Langan Engineering, September 2004.

Documentation of Environmental Indicator Determination – Current Human Exposures Under Control for INDSPEC, PAD004336731, prepared by USEPA Region 3, September 2004.

Public Health Assessment of Bear Creek Chemical Area, prepared by ATSDR, August 2005.

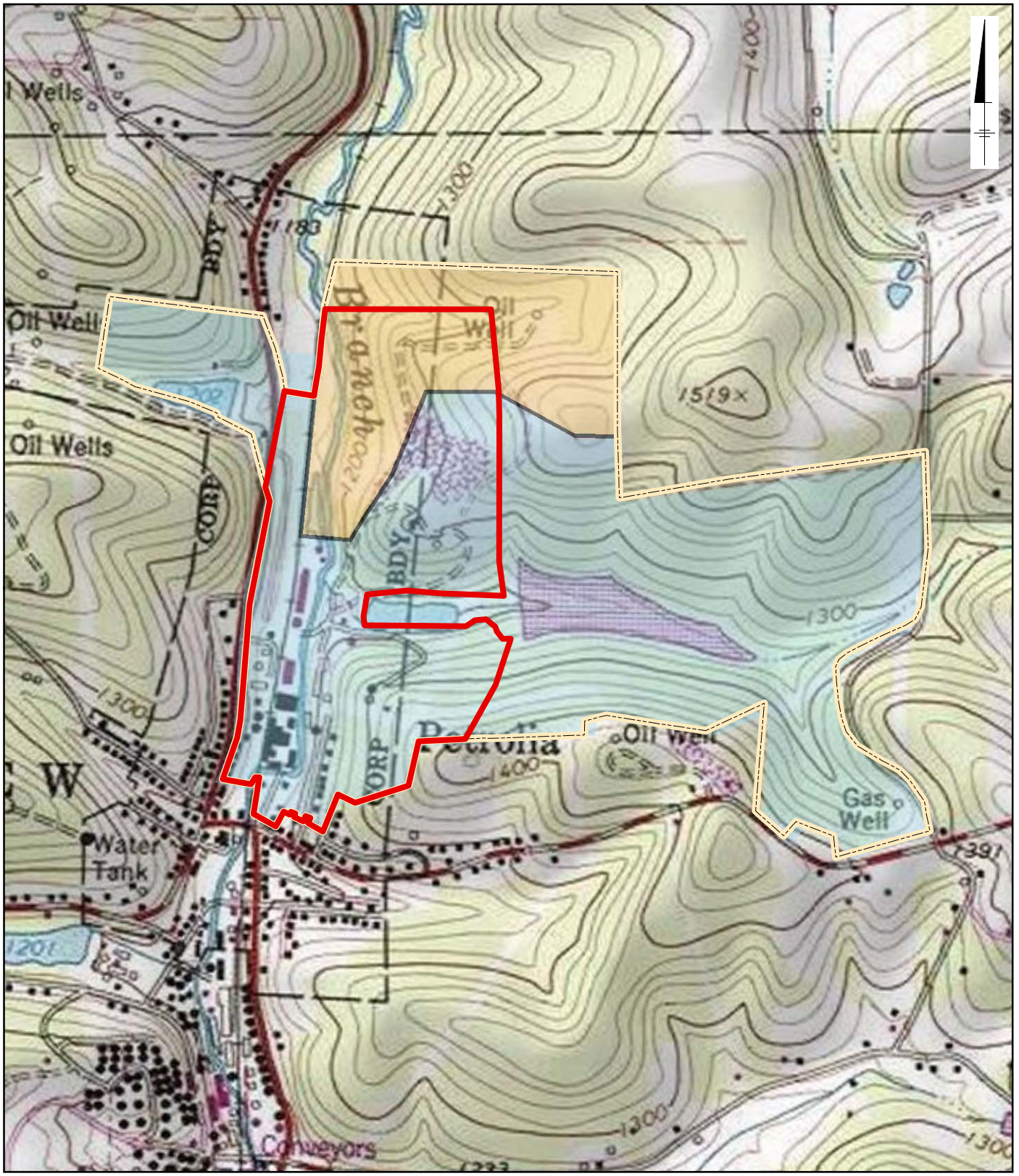
Documentation of Environmental Indicator Determination – Migration of Contaminated Groundwater Under Control for Beazer/INDSPEC Properties, PAD004336731, prepared by USEPA Region 3, September 2005.

Development of Ambient Water Quality Criteria for Benzene Metadisulfonic Acid, Benzene Monosulfonic Acid, p-Phenol Sulfonic Acid, and Resorcinol, prepared by AMEC, April 2008.

Remedial Investigation Report for Beazer/INDSPEC Properties, prepared by Langan Engineering, June 2013.

Surface Water/Sediment Sampling Report, South Branch of Bear Creek, prepared by Arcadis, August 2015.

Addendum to Remedial Investigation Report, Beazer/INDSPEC Properties, prepared by Arcadis, February 2017.



LEGEND:

- ACT 2 SITE BOUNDARY
- BEAZER/INDSPEC PROPERTIES BOUNDARY
- TRACT 1 AREA
- TRACT 2 AREA

0 1,000 2,000 Feet

GRAPHIC SCALE

NOTE:
1. TOPOGRAPHIC QUADRANGLE FOR PARKER, PENNSYLVANIA OBTAINED FROM ESRI IMAGE SERVICES.
2. FIGURE OBTAINED FROM LANGAN ENGINEERING & ENVIRONMENTAL SERVICES, INC. JUNE 2013 REMEDIAL INVESTIGATION REPORT.

BEAZER/INDSPEC PROPERTIES
PETROLIA, PENNSYLVANIA

REMEDIAL INVESTIGATION REPORT ADDENDUM

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1R

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: Kives
Beazer Petrolia (39303.13.1)
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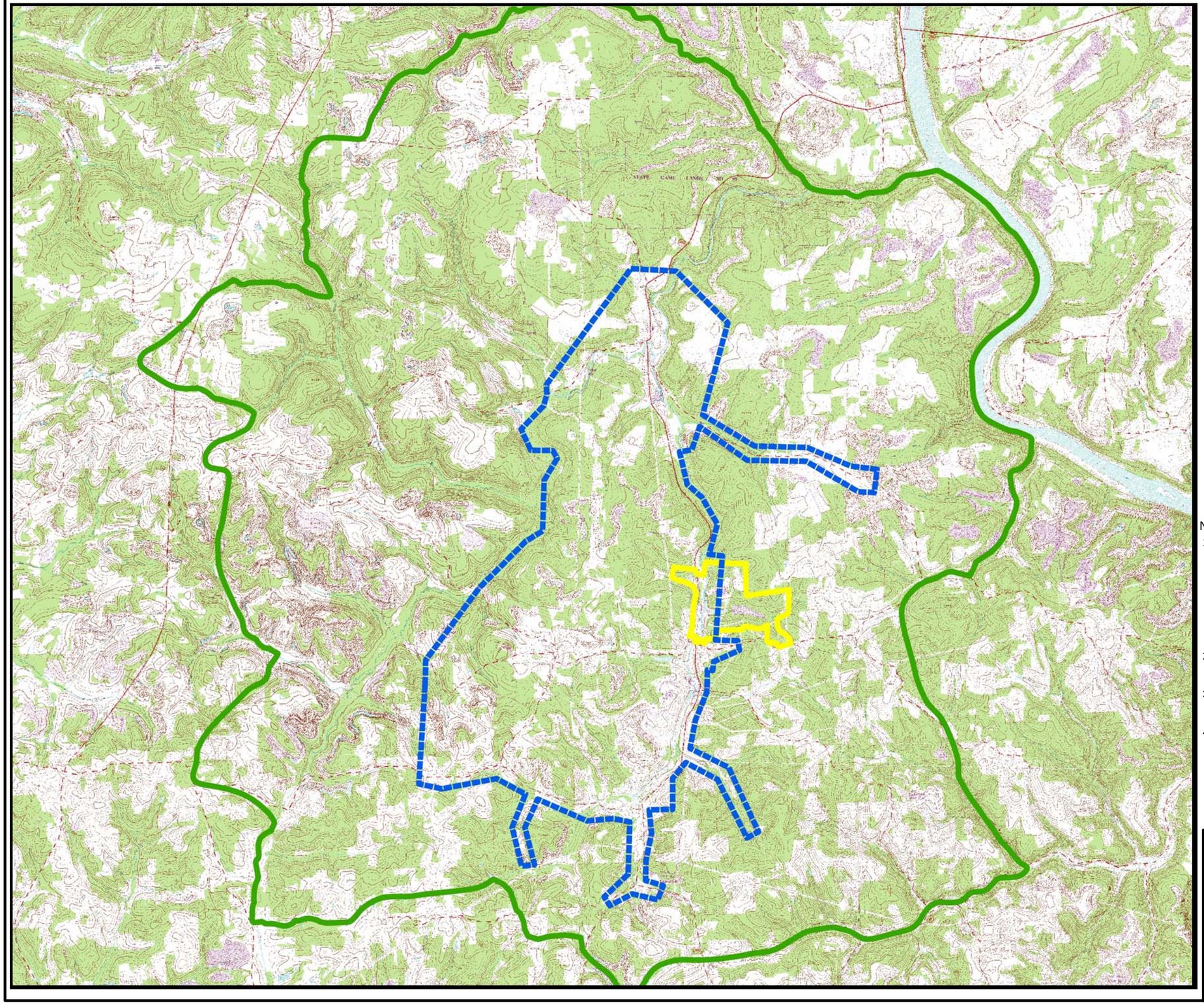

LEGEND

- OU2 PUBLIC WATER SUPPLY REMEDIAL REPONSE AREA
- BEAZER/INDSPEC PROPERTIES BOUNDARY
- BEAR CREEK AREA CHEMICAL SITE

NOTES:

1. USGS TOPOGRAPHIC MAP, PARKER, PA QUADRANGLE, U.S. GEOLOGICAL SURVEY,1963, REVISED 1979; USGS TOPOGRAPHIC MAP, EAST BUTLER, PA QUADRANGLE, U.S. GEOLOGICAL SURVEY, 1964, REVISED 1993; USGS TOPOGRAPHIC MAP, HILLIARDS, PA QUADRANGLE, U.S. GEOLOGICAL SURVEY, 1963, REVISED 1972; USGS TOPOGRAPHIC MAP, CHICORA, PA QUADRANGLE, U.S. GEOLOGICAL SURVEY, 1964, REVISED 1993.
2. FEATURE BOUNDARIES PROVIDED IN 2003 COA BETWEEN BEAZER AND PADEP.
3. FACILITY SITE BOUNDARY TRACED FROM "PROPERTY SURVEY OF KOPPERS COMPANY, INC., 1988".
4. FIGURE OBTAINED FROM LANGAN ENGINEERING & ENVIRONMENTAL SERVICES, INC. JUNE 2013 REMEDIAL INVESTIGATION REPORT.

0 5,000 10,000 Feet

GRAPHIC SCALE

BEAZER/INDSPEC PROPERTIES
PETROLIA, PENNSYLVANIA

REMEDIAL INVESTIGATION REPORT ADDENDUM

BEAR CREEK AREA CHEMICAL SITE MAP BEAZER/INDSPEC PROPERTIES PETROLIA, PENNSYLVANIA

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2aR

City: SYR Div/Group: IMDV Created By: K.Ives Last Saved By: Kives
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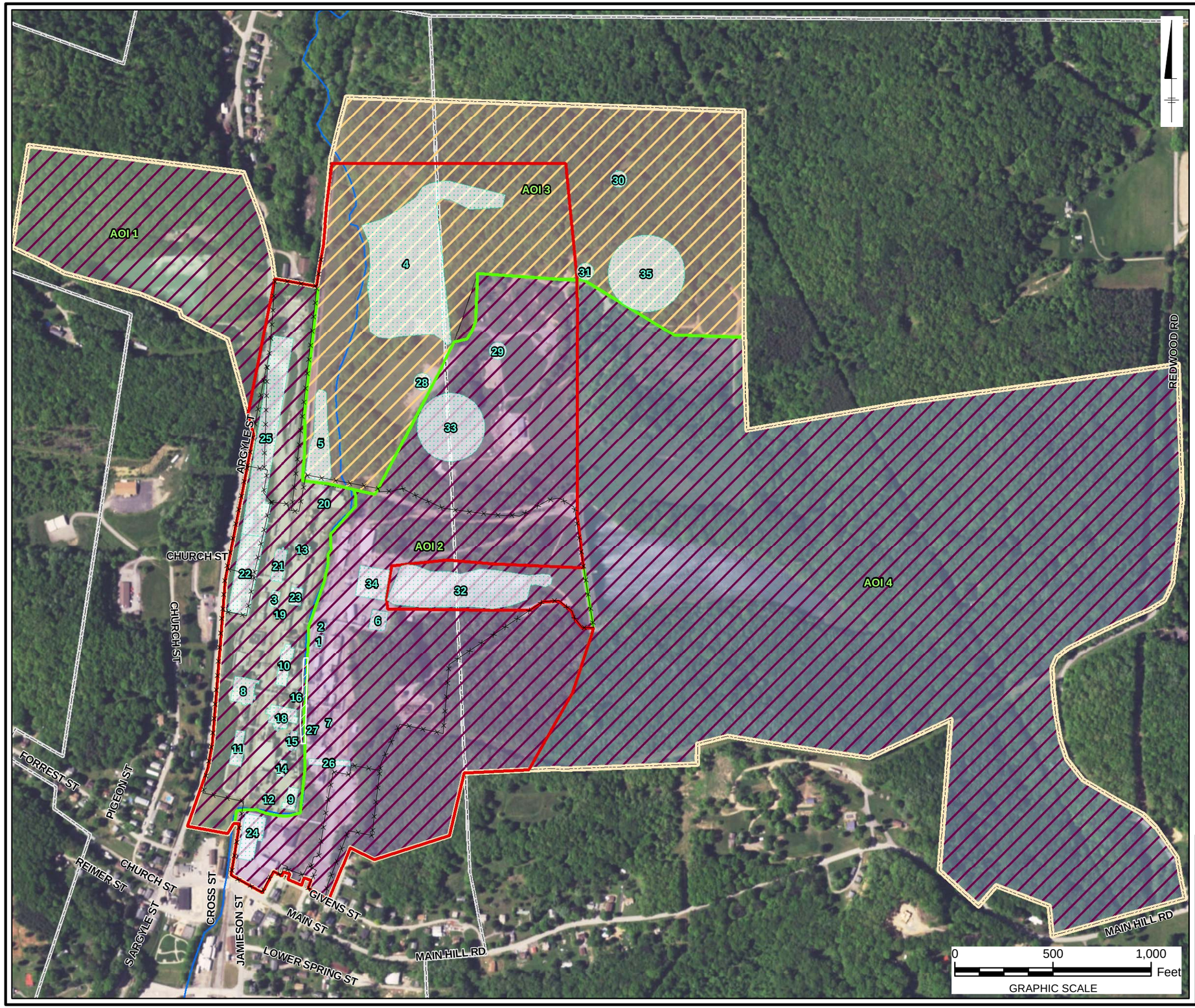

LEGEND:

- FENCE
- SOUTH BRANCH BEAR CREEK
- ACT 2 SITE BOUNDARY
- POTENTIAL SOURCE AREA
- AREAS OF INTEREST
- BEAZER/INDSPEC PROPERTIES BOUNDARY
- COMPLETED REMEDIAL AREA (AQUABLOK CAP)
- TRACT 1 AREA
- TRACT 2 AREA

AREAS OF INTEREST

- AREA OF INTEREST 1
- AREA OF INTEREST 2
- AREA OF INTEREST 3
- AREA OF INTEREST 4

ID	*Potential Source Area Description*
1	Holding Tanks East of Bear Creek
2	Holding Tanks East of Bear Creek
3	Former USTs in Maintenance Garage Area
4	Hillside Wastewater Sprayfield
5	Former Unlined Wastewater Lagoon
6	Benzene Spill at Water Chill Tower
7	Former 20,300-gallon Formaldehyde Storage Tank
8	Boiler House
9	Bate Resorcylic Acid Production and Warehouse
10	By-Product Recovery Building
11	Caustic Storage Area
12	Control Laboratory
13	Copeland Unit
14	Distillation Building
15	Extraction Building
16	Hot Well
17	Main Plant Sump
18	Number 1 Building
19	Oleum (Fuming Sulfuric Acid) Unloading Area
20	Raffinate/Lagoon Tank
21	Sulfite and Sulfate (Dry) Storage Area
22	Wastewater Treatment Plant
23	Acid House
24	Flaker, Bagging, and Storage Building
25	North Gate Sprayfield
26	Ether Release in Hill Plant Area
27	Filter House
28	Former Concrete Burn Pit
29	Potential Storage Area Based on 1962 Aerial
30	Existing Oil/Gas Well
31	Existing Oil/Gas Well
32	Dam #1 Reservoir
33	Tear Gas Filter Media Disposal Area
34	Potential Pit / Pond / Lagoon
35	Drilling Mud Disposal Area

NOTES:

1. 2015 IMAGERY OBTAINED FROM ESRI IMAGE SERVICE.
2. FIGURE OBTAINED FROM LANGAN ENGINEERING & ENVIRONMENTAL SERVICES, INC. JUNE 2013 REMEDIAL INVESTIGATION REPORT.

BEAZER/INDSPEC PROPERTIES
PETROLIA, PENNSYLVANIA

REMEDIAL INVESTIGATION REPORT ADDENDUM

AREAS OF INTEREST AND POTENTIAL SOURCES

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5R

City: SYR Div/Group: SWG Created By: K.IVES Last Saved By: Kives
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