



FINAL DECISION AND RESPONSE TO COMMENTS

**FORMER PHILIPS ELECTRONICS – THE GENIE COMPANY FACILITY
SHENANDOAH, VIRGINIA
EPA ID NO. VAD000019620**

I. FINAL DECISION

The Virginia Department of Environmental Quality (DEQ) is issuing this Final Decision and Response to Comments (Final Decision) under the authority of 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 and 6992k, regarding the remedy for the Former Philips Electronics (Facility) located at 611 Williams Avenue in Shenandoah, Virginia.

In August 2020, DEQ issued a Statement of Basis (SB) in which it described its proposed remedy for the Facility. The SB is hereby incorporated in this Final Decision by reference and made a part hereof as Attachment A. DEQ's proposed remedy for the Facility consists of the following four components: 1) install and operate a groundwater remediation system; 2) continued operation of the sub-slab depressurization system; 3) perform and maintain a groundwater monitoring program; 4) compliance with and maintenance of institutional controls that restrict certain land and groundwater uses at the Facility.

II. PUBLIC COMMENT PERIOD

On August 14, 2020, DEQ placed a public notice and the SB on its web page and the Facility published the public notice for the SB in the Daily-News Record newspaper. The public notice announced a thirty (30)-day public comment period and requested comments from the public on the remedy proposed in the SB. The public comment period ended on September 15, 2020.

III. RESPONSE TO COMMENTS

DEQ received no comments on its proposed remedy for the Facility. Consequently, DEQ's Final Remedy did not change from the remedy it proposed in the SB.

IV. FINAL REMEDY

The Final Remedy, the components of which are explained in detail in the SB, requires the installation and operation of a groundwater remediation system, continued operation of the sub-slab depressurization system, performance and maintenance of a groundwater monitoring program and compliance with and maintenance of institutional controls that restrict certain land and groundwater uses at the Facility.

V. DECLARATION

Based on the Administrative Record compiled for the Corrective Action at the Former Philips Electronics, DEQ has determined that the Final Remedy selected in this Final Decision and Response to Comments is protective of human health and the environment.



9/21/2020

Chris M. Evans, Director
Office of Remediation Programs
Virginia Department of Environmental Quality

Date

Attachment A: Statement of Basis, dated August 14, 2020



VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

STATEMENT OF BASIS

**FORMER PHILIPS ELECTRONICS – THE GENIE COMPANY FACILITY
Shenandoah, Virginia**

EPA ID NO. VAD000019620

August 14, 2020

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1.0 INTRODUCTION

The Virginia Department of Environmental Quality (DEQ) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the Former Philips Electronics – The Genie Company (Genie) facility located at 611 Williams Avenue in Shenandoah, Virginia (Facility). DEQ's proposed remedy consists of requiring the Facility to install a groundwater remediation system, maintain a groundwater monitoring program, continued operation of the sub-slab depressurization system, and to develop and maintain use restrictions known as Institutional Controls (ICs). This SB highlights key information relied upon by DEQ in making its proposed decision.

The Facility is subject to EPA's 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. §§ 6901 et seq. (Corrective Action Program). The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at their property.

DEQ is providing a thirty (30)-day public comment period on this SB as discussed in Section 9. DEQ may modify its proposed remedy based on comments received during this period. DEQ will announce its selection of a final remedy for the Facility in a Final Decision and Response to Comments (Final Decision) after the public comment period has ended.

Information on the Corrective Action program as well as a fact sheet for the Facility can be found by navigating <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-genie-manufacturing-facility-formerly-philips>.

2.0 FACILITY BACKGROUND

The Facility is located in Page County, Virginia, approximately 3,000 feet east of the South Fork Shenandoah River (or River) approximately 1/4 of a mile northeast of the Town of Shenandoah. The 12.5-acre property is bounded by woods to the north and east and residential dwellings to the south and west (Figure 1). The Facility and surrounding properties ceased using on-site groundwater wells for potable water in 2014, and has been using water supplied by the Town of Shenandoah since that time.

The Facility currently contains two commercial operations and comprises two properties. One is owned and operated by Tactical Walls and referred to as the Tactical Walls Property. The other is owned by KVK Precision Specialties (KVK) and is referred to as the KVK property.

The Tactical Walls property consists of two connected buildings (the former Genie Stamping and Stores Building and the former Genie Plant Production Building), gravel/paved parking areas, wooded land, and open grass land, consisting of approximately 12.5 acres. Historical operations primarily involved producing and developing automated garage door openers. The west building (former Genie Plant Production Building) contained most of the production operations, while the east building (former Genie Stamping and Stores Building) was used for shipping, packaging, and storage. Loading docks suitable for tractor trailers exist along the east, south, and west exterior walls.

The KVK property located at 210 Hockman Avenue, Shenandoah, Virginia located approximately 450 feet (ft.) south of the main Facility. The KVK facility was historically used for metal fabrication and material storage for KVK Precision, Inc. and totals approximately 1.4 acres of land. The facility is a single mostly vacant building with miscellaneous equipment storage. Loading docks are located along the southwest exterior wall.

Philips North America LLC (PNA) (formerly known as Philips Electronics North America Corporation), entered into the United States Environmental Protection Agency (EPA) Facility Lead Program effective June 14, 2007, based on PNA's Letter of Commitment and agreed to perform a Resource Conservation and Recovery Act Facility Investigation (RFI), a Corrective Measurement Study (CMS), and any interim measures at the Facility necessary to protect human health and the environment.

3.0 SUMMARY OF ENVIRONMENTAL HISTORY

3.1 RCRA Facility Investigation

From 2004 to 2018, PNA performed a Phase I and Phase II RFI focusing on two areas of groundwater containing Volatile Organic Compounds (VOCs), primarily trichloroethylene (TCE), identified on- and off-site. Two main groundwater contaminant plumes were identified: shallow groundwater and site-wide deep groundwater. Numerous monitoring wells (Figure 2) were installed at the Facility to delineate the two groundwater plumes (51 in shallow groundwater and 22 for site-wide deep groundwater. One small shallow groundwater plume under the former diesel underground storage tank (UST) (AOC-1) was also identified and delineated with 4 groundwater monitoring wells. The AOC-1 groundwater plume is adjacent to the building and is separate from the area of TCE groundwater plume located around the former dry well. The dry well was identified as the source target area for TCE contamination.

An off-site shallow groundwater plume also exists on the KVK property (AOC-9, loading docks). This plume was identified and delineated with 13 monitoring wells and plume is separate from the on-site shallow plume as this property is located approximately 450 feet south of the former main manufacturing building. The origin of this plume does not appear to be associated with any former Facility operational activity.

TCE does not dissolve readily in water and will enter the subsurface in the form of an oily liquid, known as a Non-Aqueous Phase Liquid (NAPL). There are two classes of NAPLs: light NAPLs (LNAPLs), such as gasoline, are less dense than water; dense NAPLs (DNAPLs), such as trichloroethylene, are more dense than water. Samples of groundwater, soil, and surface water were analyzed for VOCs and RCRA metals including arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver. Impacts to groundwater from releases of chlorinated solvents were identified and delineated at the following areas:

- Onsite shallow groundwater
- Site-wide deep groundwater (onsite and offsite)
- Former diesel UST area (AOC-1)
- KVK property (AOC-9)

The AOC-9 groundwater plume is only located under the KVK Property. Other areas of shallow and deep groundwater impacts are located under the former Genie manufacturing facility and off-site. The RFI concluded that the constituents of concern (COCs) for the Facility are chlorinated VOCs in groundwater and surface water, primarily trichloroethene (TCE) and its degradation products, cis-1,2-dichloroethene (DCE) and vinyl chloride (VC).

An additional bedrock groundwater investigation was performed following approval of the RFI and is described in the following section. This subsequent investigation was conducted within the boundaries of the Former Genie Manufacturing Facility. Several interim measures were performed by PNA in the Former Genie Manufacturing Facility area during the RFI phase.

Deep Aquifer Hydraulic Control Feasibility Study

This study was conducted to obtain data to evaluate whether pump and treat technology could effectively provide hydraulic control of the deep groundwater aquifer at the Site. The study activities were performed

from November 9, 2015 through June 9, 2016. A new groundwater recovery well (RW-5) was installed on the property as the extraction well for the study. The location of RW-5 was selected after reviewing all previous investigation data and pinpointing a location that presented the best option for intersecting an impacted water-bearing fracture in the bedrock formation. Such a fracture system was found extending from 285 to 297 feet below ground surface (bgs).

Groundwater analytical samples were collected during the study implementation to use when evaluating the pump and treat remedial system option. All pumping and analytical data from the study was analyzed to determine the hydraulic characteristics of the deep aquifer. This data was used to generally evaluate the feasibility of applying pump and treat technology as a remedy at this Facility. Based on the results of this study, a groundwater remediation system has been identified as a viable technology to maintain some degree of control over the deeper on-site groundwater TCE plume.

Surface Water Sampling

Permanent surface water bodies are not present on the Facility. However, samples were collected from the surface and bottom waters of an unnamed ephemeral pond located approximately 500 ft. northeast of the Tactical Walls property. Samples were analyzed for VOCs by USEPA Method 8260B.

Additionally, the South Fork of the Shenandoah River is located approximately 3,000 ft. west of the Facility and flows toward the north. Surface water samples were collected from the Shenandoah River on July 23, 2008, along River Road. Five samples were collected approximately 8 ft. from the bank closest to River Road. Samples were analyzed for VOCs by USEPA Method 8260B.

Surface water samples were collected from three locations along an intermittent stream and swale on the adjoining property to the north of the facility (designated Swale, Power Line, and Culvert locations) in 2016.

No VOCs above Virginia Water Quality standards have been identified in any surface water body near the Facility.

Soil Investigations

Soil investigations have been conducted at the Facility to further delineate VOC impacts in the vicinity of the former Genie drywell (AOC No. 2) and the off-site KVK loading dock and two AOCs were identified during the Phase I Investigations. In addition, supplemental soil sampling was conducted at select AOCs to confirm conclusions presented in previous reports.

Genie Drywell Source Area (AOC-2)

From December 2004 to June 2005, two soil investigations to delineate the suspected source area of the former Genie drywell: an initial investigation to 45 ft bgs, and an investigation of the intermediate zone (45 to 70 ft. bgs).

Additional investigative activities were conducted in October 2008, when six soil borings were advanced to 72 ft. bgs or refusal in the vicinity of the Genie drywell. A total of 27 soil samples were collected from five soil borings. Samples were analyzed for VOCs by USEPA Method 8260B.

Sub-Slab Soil Sampling: Genie Buildings

On May 23 and 24, 2007, three angled, sub-slab soil borings (GS-1 through GS-3) under the Genie Plant Production Building to evaluate the soil quality under the building's foundation in the vicinity of the drywell.

Additional sub-slab soil sampling was conducted at the Genie buildings and at the KVK buildings as part of indoor air quality evaluations and during installation of the sub-slab depressurization system.

KVK Property Loading Docks

While installing shallow groundwater monitoring well MW 37-S in May 2003, elevated PID readings were observed in site soils, and groundwater samples collected from the well exhibited TCE concentrations up to 480 milligrams per liter (mg/L). Subsequently, to investigate this area of concern, in December 2004, 21 soil samples were collected from six boring locations around the KVK loading docks. Based on the results of this survey, no unacceptable risk to an indoor commercial worker were identified.

Site-Wide Soil Delineation

Extensive soil sampling and comprehensive laboratory testing of representative soil samples were completed during the initial RFI tasks. During this Phase 2 investigation, supplemental soil borings in addition to those installed in the vicinity of AOC No. 2 and AOC No. 9 were deemed prudent where installed. For example, elevated TCE concentrations in monitoring wells along the northern property boundary (MW-9S) led to an investigation of the area known as "northern area" during 2004.

Subsequent to submittal of the draft Phase 2 RFI report in March of 2014, further characterization of five AOCs was required to achieve a No Further Action determination for each AOC. A brief description of each AOC, data gap and scope of work performed is provided as follows.

- **AOC No. 1: Former USTs**

Seven USTs were formerly present at the Site (near the southeast corner of the building) and were removed in the early 1990s. UST closure was documented in a June 1990 report, which indicated that six of the seven tanks did not show signs of release. However, one 10,000-gallon No. 2 heating oil tank exhibited significant signs of leakage/overfill in the vicinity of the fill pipe and is the focus of this work.

To further investigate this AOC, a Geo-Probe direct push drill rig was used to advance two borings to a maximum depth of 35 ft. bgs. Soil samples were collected and analyzed for VOCs via USEPA Method 8260C and for semi-volatile organic compounds (SVOCs) via USEPA Method 8270D. No COCs were identified above SSLs.

- **AOC No. 3: Former Metal Shavings and Chipping Dumpster**

This AOC is at the location of former dumpsters where metal shavings and chips were collected for recycling. The metal shavings and chips could contain a light coating of oil and possibly trace amounts of TCE. This AOC is located immediately north of the Stamping and Stores Building. A stainless steel hand auger was used to collect one surface (<2 ft. bgs) soil sample from two different locations. The two surface soil samples were analyzed for SVOCs via USEPA Method 8270D, RCRA Metals via USEPA Method 6020A, and mercury via USEPA Method 7471B. No metals were detected above SSLs.

- **AOC No. 4: Former Drum Storage Area**

This AOC is an unpaved open staging area formerly covered by a wood roof on the northwest side of the Production Building. It was used to store drums associated with degreasing operations, paint, thinners, varnishes, and production metals. A stainless steel hand auger was used to collect one surface (<2 ft. bgs) soil sample from two different locations. The two surface soil samples were analyzed for VOCs via USEPA Method 8260C, SVOCs via USEPA Method 8270D, RCRA Metals via USEPA Method 6020A, and mercury via USEPA Method 7471B. No COCs were identified above SSLs.

- **AOC No. 6: Former NW Drywell and Septic**

In addition to the former drywell noted for AOC No. 2, two other septic tanks/drywells were located approximately 100 ft. northwest of the building. This area was identified as an AOC because of the potential for discharges of varnish dipping, paint, thinners, etc. from the former manufacturing operations. A Geo-Probe direct push drill rig was used to advance four borings to a maximum depth of 20 ft. bgs or refusal. Soil samples were collected for VOCs via USEPA Method 8260C, RCRA Metals via USEPA Method 6020A, and mercury via USEPA Method 7471B from the following depth intervals: <2 ft., 10 ft., and 20 ft. No COCs were identified above SSLs.

- **AOC No. 9: Loading Docks**

Three receiving/loading docks were used for the transfer of raw material and products generated; these docks are located at the southwest corner of the Production Building. A concrete core drill to gain access to the subsurface soils directly beneath each of the three loading docks. A stainless steel hand auger was then used to collect two soil samples from each loading dock location. One sample was collected from the surface soil directly underneath the concrete pad and the other sample was collected from 3 ft. bgs. All samples were analyzed for VOCs via USEPA Method 8260C and PCBs via USEPA Method 8082A. No COCs were identified above SSLs.

Soil Gas Surveys

Soil gas surveys were conducted near each of the 13 identified areas of concern using a mobile laboratory. Samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX); TCE; and TCE daughter products. In February 2005, a soil gas survey at the residence, located at 814 Bank Street, to determine the potential for vapor intrusion because elevated VOC concentrations had been recorded in a nearby shallow groundwater monitoring well (MW-40S). Ten soil gas samples were collected from around the perimeter of the house and analyzed for VOCs by USEPA Method TO-15 by AECOM's Air Toxics Specialty Laboratory in Harvard, Massachusetts. No COCs were identified above SSLs.

A sub-slab vapor investigation was conducted in May 2007 at the Genie facility (nine samples) and KVK property (five samples) to evaluate the potential for vapor intrusion from impacted soil and groundwater. The sampling locations were selected to evaluate soil vapor concentrations beneath the buildings in the vicinity of former release areas where subsurface concentrations of VOCs were known or suspected (i.e., the former drywell at the Genie facility and the loading dock area at the KVK facility).

The sub-slab vapor sampling was conducted in general conformance with USEPA protocols found in Standard Operating Procedure (SOP) for Installation of Sub-Slab Vapor Probes and Sampling Using USEPA Method TO-15 to Support Vapor Intrusion Investigations - Draft. (USEPA, undated, released in 2004) and Office of Solid Waste and Emergency Response (OSWER) Draft Guidance for Evaluation the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance) (USEPA, 2002). TCE, cis-1,2-DCE and 1,2-DCE were identified as constituents of concern and were carried over to be addressed in the final remedy for the Facility.

- **2015 Genie Plant Production Building**

To further evaluate the air quality conditions within the former Genie Plant Production Building, additional sub-slab soil gas (SSSG) samples were collected in December 2015 following source area Interim Measures. This sampling effort was also conducted to compare IAQ to recently published updated screening levels. Prior to the air quality sampling, a thorough inspection of the facility was conducted to identify potential interferences that may influence the sampling results.

The goal of the SSSG was to assess the threat of vapor intrusion into the ambient air space of the on-site buildings through the foundation slab and to compare the results to previous sampling events. 11 SSSG samples (SSSG-1 through SSSG-9, and SSSG-12 through SSSG-13) were collected from within the former Production Building, Stamping and Stores Building, office, and lab area. Sample locations 10 and 11 were not included in the sub-slab sampling because they were outside ambient air locations. 1,1-DCE and TCE were identified as COPCs.

- **Genie Buildings, 2007**

Seven IAQ samples were collected on August 6, 2007, and 13 IAQ samples were collected on September 20, 2007. The sampling locations were chosen to provide coverage of the occupied spaces within the Genie buildings with focus on office and production work spaces. Sample locations are shown on Figure 2-26. Summa canisters were deployed in the breathing zone (3 to 6 ft. off the ground) in the Production Building, the Stamping and Stores Building, and outside the buildings for approximately 8 hours. The samples were analyzed for VOCs by USEPA Method TO-15. TCE, cis-1,2-DCE and 1,1-DCE were identified as constituents of concern and were carried over to be addressed in the final remedy for the Facility.

- **Genie Buildings, 2015-2017**

Indoor air quality conditions were evaluated again in December 2015 based on USEPA guidance on vapor intrusion screening levels (VISLs). 11 IAQ samples were collected from within the building in accordance with industry standards using 6-liter stainless steel Summa sampling canisters with 24-hour air flow regulators.

Two outside ambient air samples (samples 10 and 11) were also collected using the same method as the indoor air samples. One sample was located to the north (rear) of the facility, while the second was located to the south (front) of the facility. IAQ and outside ambient air samples were then submitted for analysis by USEPA Method TO LLTO-15.

Routine indoor air quality samples are collected seasonally twice a year to evaluate the effectiveness of the SSDS and to document air quality. No constituents of concern were identified above the VISLs during this event.

- **Private Residence (814 Bank Street)**

An indoor ambient air survey was conducted at the residence located at this off-site property, due to elevated VOC concentrations in a nearby monitoring well. In February 2005, three indoor samples and one outdoor sample were collected from the residence via Summa canisters and analyzed for VOCs using USEPA Method TO-15. No COCs related to the Facility investigation were identified in the laboratory analysis.

- **Private Residence (600 Shenandoah River Road)**

Due to elevated groundwater TCE concentrations and relatively shallow groundwater, an indoor air quality survey was conducted at this off-site property in January 2008. Five 1-liter Summa canisters were deployed and calibrated to collect an air sample for a 24-hour period. Two samples were collected from the unfinished basement, two samples were collected from the main living floor (living room and bedroom), and one sample was collected from outside the house. The Summa canisters were positioned to collect air samples from typical breathing zone heights and away from air handling ducts or other interfering sources. Each collected sample was submitted to a laboratory to be analyzed via USEPA Method TO-15 analysis, select ion monitoring, reporting just the TCE results. TCE was not detected in any of the laboratory samples.

3.2 Interim Measures

The Facility, in response to data collected during the course of these investigations, completed a series of interim Site measures as conditions and risk dictated. The following sections present a review of these measures.

Municipal Well Replacement

In 1990, one of the Town of Shenandoah production wells (known as the Eppard well) located north of the site was reported to contain TCE and 1, 2-DCE concentrations greater than the maximum contaminant level (MCL). In response to requests from the Town and DEQ, the potable well was removed from service and replaced by PNA in August 1994. The replacement Eppard Well was installed to a depth of 500 ft. and is now located at 12th Street with an operating rate of approximately 350 gpm. The Eppard well is no longer in service.

Former Drywell Over-Excavation

A drywell is essentially an engineered pit, typically filled with porous media, historically used for the disposal of unwanted liquid wastes. With the advent of the RCRA regulations in the late 1970s, these practices were discontinued. In 1996, the former drywell was removed through excavation (approximately 75 tons of material), and the material was transported to an appropriate off-site disposal facility. The former drywell was located north of the Genie Plant Production Building (Figure 1-2) and was constructed of riprap with steel pipe extending from the building to the drywell, which was reportedly used for disposal of spent degreasing liquids. Subsequent to the limited excavation program, a soil sample was collected from the base of the excavation (approximately 14 ft. bgs) with a reported concentration of total VOCs of 98,000 milligrams per kilogram (mg/kg). This area has since been treated during ERH activities (see below) to concentrations less than the USEPA Region III Industrial Regional Screening Level (RSL) and the site-wide groundwater protection standard.

Off-site KVK Property Stabilization Measures

A residential property is located immediately southwest down-gradient of the KVK facility on Hockman Avenue. During investigative activities, a water sample from a slope seep on the property was collected, and laboratory analysis indicated the presence of VOCs, specifically TCE. This finding resulted in the placement of an interceptor drain and sump system at the offsite property boundary located directly downgradient of the KVK property (300 feet south of the Genie Site). The potential impacts of groundwater on the offsite property were first identified during the public comment period associated with the Consent Order. Public comment identified a drainage ditch running adjacent to the KVK property and noted concerns about shallow groundwater discharge to the offsite property. The interceptor drain collects shallow groundwater flowing from the direction of the KVK property, directing it into a sump basin that discharges to the Town of Shenandoah's Publicly Owned Treatment Works system. The interceptor system has been in place since 2003, and water volume and quality is routinely monitored and sampled and reported on a quarterly basis.

Shenandoah River Road Residential Water Line Installation

The potable well for 600 Shenandoah River Road was sampled on November 13, 2007 and analyzed for VOCs by USEPA Method 524.2. Results received on December 3, 2007, reported a TCE concentration of 229 micrograms per liter (ug/L). A confirmation sample was collected on December 3, 2007, and results received December 4, 2007, showed TCE at 220 ug/L. Upon the confirmatory sampling and receipt of results, applicable parties were informed of the findings.

Concurrently with the treatment system design and installation, additional nearby residential potable wells were sampled and investigated. Included in the sampling were wells that provide water to 716 and 718 River Road, 800 and 806 River Road, the Alger Farm, and 654 Shipyard Road located west of Shenandoah River. TCE was detected in each well except 654 Shipyard Road (located west of Shenandoah River) ranging from 1.4 to 20 ug/L. For each positive sample, the wells were re-sampled for confirmation, followed by notification and an offering of bottled water. Additional treatment systems were installed at 716/718 River Road and 800/806 River Road. The Alger Farm well is used for non-potable uses only and the TCE level detected was below MCLs.

Two rounds of residential potable well samples were collected from 500 Shenandoah River Road in November 2010, and laboratory analysis identified positive TCE concentrations. As a result, a two carbon filter tank treatment system in series including a UV light, a sediment filter, and flow meter were installed in November 2010. 500 Shenandoah River Road is currently abandoned, and there is no operational potable water well or treatment system on the property.

In response to the sample results of these wells, PNA contracted the design and installation of an extension to the Town of Shenandoah municipal water supply system to these affected residences. The water line extension was completed in October 2014, and the residences were connected to city water in June/July 2015. After these residences were connected, with the permission of the property owners, the wells at 600 and 716 Shenandoah River Road were abandoned in place to prohibit further use of groundwater at these properties.

Former Drywell Soil Remediation (Electrical Resistive Heating)

Drywell soil remediation was completed in accordance with the associated Corrective Measures Design Report and Implementation Work Plan (CMDR/CMIWP) approved by the DEQ on November 5, 2009 and the CMDR/CMIWP Addendum dated February 11, 2011 and approved by DEQ on February 22, 2011. Specific Corrective Measure Objectives established for the drywell source soil remediation included the following:

- Operate Electrical Resistive Heating (ERH) system to achieve the following end point:
- 2.1 mg/kg average TCE concentration in soil (99.7% mass removal), or
- Demonstration of asymptotic conditions (asymptotic conditions are defined as obtaining the same recovery rates observed for three consecutive months with a 95% upper confidence limit), or
- Operation of the ERH system for a maximum duration of 12 months.

The ERH system incorporated 53 individual heating electrodes with co-located vapor recovery (VR) wells. A 2,000 kilowatt (kW) power control unit was installed on site for energy delivery to the electrodes for subsurface heating. Electrical current was applied to the impacted soils to generate heat in the subsurface resulting from the natural resistance of the soil. Heating of the soil converted groundwater and soil moisture to steam, which removed the total VOCs via steam stripping. The application of a vacuum extraction blower to the VR wells captured steam and vapor phase contaminants in the treatment zone. A thermal oxidizer and/or vapor phase granular activated carbon was used to treat the vapor phase contaminants.

Based on a statistical review of the analytical data, confirmatory samples collected with the treatment area reached the remedial goals with a site-wide average of 1.95 mg/kg. Based on this data, the extent of adsorbed phase TCE in the vicinity of the former drywell has been reduced to meet the established remedial goals and EPA Region III industrial regional soil screening level (RSL). Further, soils also meet the RSL for protection of groundwater.

3.3 Summary of Baseline Risk Assessment

The screening level human health risk assessment was performed during the RFI and it evaluated two areas:

- Former Genie Property
- KVK Property

The RFI risk assessment included a screening level human health risk assessment. An ecological risk assessment to evaluate potential risks to terrestrial and aquatic receptors was not performed because no completed pathway to ecological receptors was identified.

Exposure Pathways

The human health risk assessment evaluated an industrial exposure scenario, assuming that land use controls would be implemented and maintained to control exposures and restrict future development. Therefore, the human health risk assessment did not evaluate exposure pathways relating to residential land use or exposure to groundwater.

The human health risk assessment examined the following potential receptors:

- On-site Commercial/Industrial Worker
- Off-site Commercial/Industrial Worker
- Off-site Resident
- Hypothetical Future On-Site Resident

Exposures to the following environmental media were evaluated:

- Surface soil
- Subsurface soil
- Leaching to Groundwater
- Vapor Intrusion

It should be noted that although trespassers and future construction workers are potential receptors, they were not evaluated separately because the residential and commercial/industrial scenarios are protective of these receptors.

RFI Risk Evaluation Results

The RFI human health risk assessment concluded that VOCs posed no significant risks to human health under an industrial land use scenario. The human health risk assessment in the RFI Report evaluated environmental media by each identified area. No immediate risks were identified at any of the Areas that would necessitate interim remedial measures beyond those already implemented.

Ecological Risk Assessment

An ecological risk assessment to evaluate potential risks to terrestrial and aquatic receptors was not performed because no completed pathway to ecological receptors was identified.

Vapor Intrusion Assessment

There are buildings overlying portions of the shallow groundwater plume. In December 2015, during the RFI, the Facility submitted an Indoor Air Quality Assessment Report detailing the results of indoor air sampling conducted in those buildings. The chemicals of concern are primarily TCE, cis-1,2-dichloroethene and vinyl chloride.

Multiple sampling events have been performed since December 2015. Composite samples of indoor air have been collected using summa canisters. Only the former Genie manufacturing building, near the source Target Area had TCE concentrations exceeding EPA's current non-cancer VISL of 0.88 micrograms per cubic meter of air (ug/m³).

The Facility has started a sub-slab depressurization system that was previously installed as a precautionary measure and conducted a comprehensive indoor air monitoring in that building after the modification was completed. Analytical results from the indoor air sampling collected in December 2015, showed TCE indoor levels exceeding the EPA VISL. Additional rounds of indoor air sampling have confirmed the presence of TCE indoor levels exceeding VISL without the system operating. Following the most recent sampling and adjustments to the system, the results from the indoor and ambient air monitoring indicate no un acceptable risk to commercial workers.

4.0 CORRECTIVE ACTION OBJECTIVES

DEQ's Corrective Action Objectives for the Facility are the following

4.1 Soil

DEQ has determined that EPA RSL for Industrial Soils for direct contact with soils are protective of human health and the environment for individual contaminants at this Facility, provided that the Facility is not used for residential purposes. Therefore, DEQ's Corrective Action Objective for Facility soils is to attain (SLs) for Industrial Soils and to control exposure to the hazardous constituents remaining in soils by requiring the compliance with and maintenance of land use restrictions.

4.2 Subsurface Vapor Intrusion

DEQ's Corrective Action Objective for subsurface vapor intrusion is to attain EPA's Subsurface Vapor Intrusion Guidance screening levels. DEQ has determined that those levels are protective of human health and the environment at this Facility provided that the Facility buildings are not used for residential purposes.

4.3 Groundwater and Technical Impracticability

DEQ and EPA expects final remedies to return usable groundwater to its maximum beneficial use, where practicable and within a timeframe that is reasonable. Where returning contaminated groundwater to its maximum beneficial use is not technically practicable, DEQ and EPA generally expect facilities to prevent or minimize the further migration of a plume, prevent exposure to the impacted groundwater, and evaluate further risk reduction. Technical impracticability (TI) for contaminated groundwater refers to a situation where achieving groundwater cleanup standards associated with final cleanup standards is not practicable from an engineering perspective. The term "engineering perspective" refers to factors such as feasibility, reliability, scale or magnitude of a project, and safety.

DEQ has determined that restoration of groundwater to drinking water standards known as Maximum Contaminant Levels (MCLs), promulgated at 40 C.F.R. Part 141 pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. Section 300g-1, at the Facility is technically impracticable in all three groundwater plume areas for the following reasons:

1. COCs are present at concentrations indicative of unrecoverable DNAPL.
2. Steeply dipping rock bedding planes and a downward hydraulic gradient promote deep penetration of contamination.
3. In the bedrock, low permeability and unpredictability of water-producing fractures makes achieving MCLs via groundwater extraction or injection for in situ treatment infeasible.

4. TCE DNAPL is suspected to be present in the bedrock beneath and downgradient of the former drywell located at the Facility based on the high concentrations of TCE in bedrock groundwater wells.
5. TCE is trapped in the primary and secondary porosity of bedrock. The trapped VOCs will be a continuing source of groundwater contamination for many years as it slowly diffuses back out of the rock.
6. Matrix storage of TCE and daughter products in fractured rock is suspected over large areas and to depths greater than 250 feet, making the scope of groundwater cleanup technically impracticable.

Therefore, DEQ's Corrective Action Objectives (CAOs) for Facility groundwater are:

- control exposure to the hazardous constituents remaining in the groundwater;
- protect the current existing receptors, the unnamed ephemeral stream, the South Fork Shenandoah River and existing municipal wells from unacceptable concentrations from COC impacts;
- monitor that the dissolved groundwater plume does not migrate beyond the extent of the current footprint;
demonstrate mass loss from the contaminated groundwater plume over time or distance from known source areas;
- monitor that no groundwater discharge concentrations would result in surface water concentrations that are above the DEQ surface water criteria;
- And perform a focused groundwater remedy for the deep groundwater fracture in the vicinity of the former source area with the objectives to reduce CVOC concentrations in the identified bedrock fracture to minimize off-site migration of CVOC-impacted groundwater. The active measures will be evaluated and may be re-assessed if the data show that CVOC concentrations are not being affected by the corrective measures. Trend analysis of the data will be evaluated to make this determination.

The following table shows COCS in groundwater that remain onsite above MCLs at the time of remedy selection.

Table 1: Site-wide Groundwater Contaminants of Concern

Contaminant of Concern	MCL (ug/L)	Max Concentration Detected in Groundwater in 2017 (ug/L)
Trichloroethylene	5	3,700,000
Cis-1,2 Dichloroethylene	70	40,000
1,1-Dichloroethylene	7	20,000
1,1-Dichloroethane	5	1,800
Tetrachloroethylene	5	65
Benzene	5	80

ug/L = micrograms per liter

5.0 PROPOSED REMEDY

The proposed remedy for the Facility consists of land and groundwater use restrictions, known as institutional controls (ICs), monitoring and the implementation of a groundwater remediation system. The goal of the proposed remedy is to ensure the overall protection of human health and the environment.

5.1 Soil

Based on the available information, there are currently no unacceptable risks to human health and the environment via the soil pathway for the present and anticipated use of the property (Industrial use). Because contaminants will remain in Facility soils above levels appropriate for residential uses, the proposed remedy for soils is land use restrictions (See Section D below) to restrict the Facility to non-residential uses.

5.2 Subsurface Vapor Intrusion

Buildings located above a contaminated groundwater plume are vulnerable to subsurface vapor intrusion coming from the plume and entering through cracks, joints and utilities openings. PNA has been evaluating vapor intrusion at the Facility since 2007. In 2015, PNA conducted a second vapor intrusion assessment of the former Genie buildings located over the shallow groundwater plume and following Interim Measures. Based on those results, PNA started the sub-slab depressurization system that was previously installed as a precautionary measure and conducted a comprehensive indoor air monitoring in that building after the modification was completed. Analytical results from the indoor air sampling collected in December 2015, showed TCE indoor levels exceeding the EPA vapor intrusion screening levels (VISL). Additional rounds of indoor air sampling have confirmed the presence of TCE indoor levels exceeding VISL without the system operating. In addition, due to the known presence of VOCs contamination in the groundwater beneath the Facility, DEQ will require that all new buildings have vapor control systems installed and that the current system continues to operate as designed until such time that it is demonstrated that there are no unacceptable risks from TCE vapor intrusion.

5.3 Groundwater - TI Zones, Long Term Monitoring and Groundwater Remediation

Given the elevated levels and the NAPL characteristics of the VOC contamination and the constraints of the hydrogeological conditions (i.e., fractures and bedding planes in the bedrock) at the Facility, DEQ has concluded that it is technically impracticable to attain MCLs throughout the three groundwater plume areas within and outside of the Facility property boundaries. It is often necessary to remove virtually all NAPL before concentration levels in groundwater near the source of the contamination can approach concentration levels commensurate with the MCLs. Presently, there are no technologies which have been proven to be economical and capable of removing all NAPL in groundwater from large facilities where NAPL is widely distributed laterally and vertically, and where the stratigraphy is highly heterogeneous and complex as presented at the Site. DEQ evaluated over ten years of Site groundwater data and regional hydrogeology investigation to conclude that total removal of VOC contamination in bedrock fractures is effectively impossible and that attainment of MCLs within the three groundwater plumes is technically impracticable. Additional details of the Facility analyses and evaluation of the VOC groundwater data in heterogeneous bedrock fractures are presented in the Final RFI Report.

Because of the constraints of VOC contamination in groundwater and the hydrogeological conditions at the Site that prevent MCL attainment throughout the groundwater plume, DEQ is proposing the operation of a groundwater remediation system for the site-wide deep groundwater within the Facility boundaries and groundwater monitoring in all three areas, along with the establishment of two Technical Impracticability Zones (TI Zones) will be the most practical and economical remedy that will continue to be protective of human health and the environment. These TI zones will define the area where MCLs are not considered achievable but hydraulic control that will ensure that the deep bedrock groundwater contamination is stable. Long-term monitoring is proposed through performance sampling and gauging of the proposed TI Boundary and on-site monitoring well network.

The proposed TI Zones will include only groundwater plumes as no associated impacted surface water such as, springs and small streams have been identified. Specifically, the proposed TI Zone areas are:

- Shallow groundwater plume, alluvium and saprolite (Figure 3)
- Site-wide deep bedrock groundwater (Figure 3)

Based on the data collected during the CMS, the area of groundwater plume appears to be stable (not migrating), and concentrations of constituents of concern are stable and declining over time.

Groundwater is not used on the Facility for drinking water, and there are no down gradient users of off-site groundwater located between the Facility boundary and the Shenandoah River. Therefore, the proposed remedy for the groundwater is the combination of groundwater use restrictions (See Section D, below), establishment of TI Zones, surface water monitoring, operation of a groundwater extraction system, and a groundwater monitoring program for COC's within the TI Zones to ensure groundwater outside these TI Zones remain below MCLs.

In line with EPA Guidance concerning Adaptive Management, following installation and operation of the groundwater remediation system, an adaptive approach will be followed where performance and bedrock groundwater monitoring data will be evaluated to assess whether to continue with or discontinue pump and treat.

5.4 Institutional Controls

Because some contaminants remain in the soil and groundwater at the Facility at levels which exceed residential use, DEQ's proposed remedy requires the compliance with and maintenance of land and groundwater use restrictions.

DEQ is proposing the following use restrictions be implemented at the Facility:

1. Groundwater at the Facility shall not be used for any purpose other than to conduct the operation, maintenance, and monitoring activities required by DEQ and/or EPA, unless it is demonstrated to DEQ, that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and DEQ provides prior written approval for such use;
2. No new wells will be installed on Facility property unless it is demonstrated to DEQ that such wells are necessary to implement the final remedy and DEQ provides prior written approval to install such wells.
3. The Facility property shall not be used for residential purposes unless it is demonstrated to DEQ that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy, and DEQ provides prior written approval for such use;
4. Significant earth moving activities, including excavation, drilling and construction activities, in the areas at the Facility where any contaminants remain in soils above EPA Region III's Screening Levels for Industrial Soils or in saturated soils to be excavated above their MCLs or EPA Region III's Tap Water RSLs, shall be prohibited unless it is demonstrated to DEQ that such activity will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy, and DEQ provides prior written approval for such use. In the event of such approval, a Materials Management Plan specifying protocols for soil, groundwater, and surface water within the plume areas will be created for all earth moving activities and submitted in writing to DEQ for review and approval;
5. Continued operation of sub-sub depressurization system beneath the former Genie production building unless a written approval from DEQ has been received indicating that the operation of the system is no longer necessary.

6. Installation and operation and maintenance of an on-site deep groundwater remediation system that will provide a degree of hydraulic control of the identified on-site TCE plume in accordance with the groundwater CAOs and a DEQ approved Corrective Measures Implementation plan.
7. A vapor intrusion control system, the design of which shall be approved in advance by DEQ, shall be installed in each new structure constructed above the contaminated groundwater plume or within 100-foot around the perimeter of the contaminated groundwater plume, unless it is demonstrated to DEQ that vapor intrusion does not pose a threat to human health and DEQ provides prior written approval that no vapor intrusion control system is needed. Further, the currently operating vapor intrusion control system shall continue to be operated through an approved operations and maintenance manual until such time that it is demonstrated that there are no unacceptable risk from vapor intrusion from the identified release;
8. The Property will not be used in a way that will adversely affect or interfere with the integrity and protectiveness of the final remedy selected by DEQ in the Final Decision and Response to Comments (FDRTC).;
9. DEQ, EPA, and/or their authorized agents and representatives, shall have access to the Property to inspect and evaluate the continued effectiveness of the final remedy and if necessary, to conduct additional remediation to ensure the protection of the public health and safety and the environment based upon the final remedy selected in the FDRTC.
10. Groundwater monitoring and corrective measures implementation reports shall include an evaluation of the effectiveness of the proposed remedies and compliance with the engineering and institutional controls at the Facility . The Facility shall report to DEQ whether the engineering and institutional controls are being observed.
11. Additionally PNA will provide the DEQ and EPA with a metes and bounds survey mapping the extent of land use restrictions for both the institutional and engineering controls (i.e. TI zone, VI, GWRS).

5.5 Development and Implementation of a Materials Management Plan

DEQ's proposed remedy requires the development and implementation of a Materials Management Plan to be submitted for review and approval by DEQ before any significant earth moving activities, including construction and drilling, can be conducted on areas known to contain COCs. The Materials Management Plan will detail how soil and groundwater will be managed during any future subsurface activities conducted at the Facility. The Materials Management Plan will detail how all excavated soils will be handled and disposed. All soils that are to be disposed of shall be sampled and disposed of in accordance with applicable State and Federal regulations.

Soil remediation cleanup standards will be EPA's RSL for industrial soil. In addition, the Materials Management Plan will include soil stabilization requirements to minimize contact between storm water runoff and the parcel soils. Soil stabilization measures may include the construction of berms to prevent storm water from flowing onto certain areas as well as the construction of sumps with pumps to remove ponded water from low lying areas.

5.6 Implementation

DEQ proposes to install a deep groundwater remediation system in accordance with the groundwater CAOs and as described in Section 5.3 and to establish hydraulic control of the on-site TCE plume. The groundwater remedy will entail operations and maintenance of the system and groundwater monitoring in accordance with a DEQ approved CMI plan. Further, DEQ proposes continued monitoring and operations and maintenance of the sub-slab depressurization system beneath the former Genie

production facility building until such a time that it is demonstrated that there are no unacceptable vapor intrusion risk from identified COCs.

The Facility has been completing the required investigations and Corrective Measures Study through a Facility Lead Agreement with the EPA and a Consent Order with DEQ. The implementation of the remedy will continue to be enforced through the DEQ consent order. DEQ proposes to implement the land and groundwater use restrictions necessary to prevent human exposure to contaminants at the Facility through an Environmental Covenant pursuant to the Virginia Uniform Environmental Covenants Act (UECA), Title 10.1, Chapter 12.2, §§10.1-1238 - 10.1-1250 of the Code of Virginia. The Environmental Covenant will be recorded in the chain of title for the Facility property.

In addition, the Commonwealth of Virginia State Board of Health Private Well Regulations, 12 VAC 5-630-10 et seq. (Regulations) and its implementing statute set forth at the Code of Virginia, Title 32.1 (Health), Chapter 6 (Environmental Health Services), Va. Code §32.1 is an institutional control mechanism that will reduce potential human exposure to contaminated groundwater attributable to the Facility. Pursuant to Section 12 VAC 5-630-30, the purpose of these Regulations is to "ensure that all private wells are located, constructed and maintained in a manner which does not adversely affect ground water resources, or the public welfare, safety and health."

Accordingly, Section 12 VAC 5-630-230 through 12 VAC 5-630-270 of the Regulations prescribes the process by which construction permits for the installation of private wells are received and issued. Pursuant to the Regulations, if a private well is installed or modified without a permit, Section 12 VAC 5-630-150 sets forth an enforcement mechanism which provides for the notification of violations of the Regulations, the issuance of orders requiring cessation and correction of violations, appropriate remedial action to ensure that the violation does not recur, and any appropriate corrective action to ensure compliance with the Regulations.

6.0 EVALUATION OF DEQ'S PROPOSED DECISION

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

6.1 Threshold Criteria

Protect Human Health and the Environment

With respect to groundwater, while contaminants remain in the groundwater beneath and outside the Facility in areas designated as TI Zones, the contaminants are contained in the aquifer. In addition, the Facility and surrounding properties are connected to the Town's municipal water supply. For these reasons, the area of contaminated groundwater is contained. Groundwater monitoring of contaminants with the TI Zones will ensure groundwater outside these TI Zones remain below MCLs. The Facility is connected to the Town of Shenandoah public water system, therefore groundwater is not used at the Facility for potable use. With respect to future uses, the proposed remedy requires groundwater use restrictions in the TI Zone to minimize the potential for human exposure to constituents of concern and protect the integrity of the remedy.

With respect to Facility soils, all contaminated soil is below the surface and contained within Facility property. There is no direct exposure of industrial workers to subsurface soil under current land use. With

respect to future uses, DEQ proposes to limit the Facility to industrial use in order to minimize the potential for human exposure to contamination.

Achieve Media Cleanup Objectives

The Facility has achieved the EPA's RSL for industrial soils. For groundwater, site geologic conditions (i.e. fractured bedrock) and presence of DNAPL within those fractures makes achieving MCLs not practicable from an engineering perspective. Under the proposed remedy, groundwater with COC levels that exceed MCLs will remain within the TI Zones. Long-term monitoring is proposed through performance sampling and gauging of the proposed TI Boundary monitoring well network. A deep groundwater remedy is proposed that will be focused towards the deep bedrock fracture system in the vicinity of the former source area where the greatest reduction in contaminant mass can potentially be achieved and where the greatest ability to provide hydraulic control over the on-site plume exists. Long term groundwater monitoring will ensure contaminated groundwater remains in the TI Zones. The groundwater plume appears to be stable (not migrating), and COCs though above MCLs are either stable or declining over time. Groundwater outside the TI zones meets drinking water standards. DEQ's proposed remedy requires the implementation and maintenance of institutional controls to ensure that Facility property is not used for residential purposes and groundwater beneath Facility property or within the established TI zone is not used for any purpose except to conduct the operation, maintenance, and monitoring activities required by DEQ and/or EPA.

Remediating the Source of Releases

In all proposed remedies, DEQ seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment. There are no remaining large, discrete sources of waste from which constituents would be released to the environment. With respect to existing releases at the Facility, remediating groundwater COCs to applicable their MCLs has been demonstrated to be technically impracticable. The continuing monitoring program and proposed deep groundwater remedy will assist in protecting the ephemeral stream located on the Facility boundary and the South Fork Shenandoah River from concentrations that would cause unacceptable risk from COCs. Therefore, DEQ has determined that this criterion has been met.

6.2 Balancing/Evaluation Criteria

Long-Term Effectiveness

The proposed use restrictions and operation of the existing vapor control system and the proposed deep groundwater remedy will maintain protection of human health and the environment over time by controlling exposure to the site-related hazardous constituents remaining in soils and groundwater. DEQ anticipates that the land use and groundwater use restrictions will be implemented through an order, permit and/or an environmental covenant under UECA to be recorded in the chain of title for the Facility property. If the mechanism is to be an environmental covenant, the environmental covenant will run with the land and as such, will be enforceable by DEQ and/or EPA. In addition, a groundwater monitoring program already in place will continue in accordance with the groundwater CAOs and until clean-up standards are met. The monitoring program and deep groundwater remedy will assist in protecting the ephemeral stream located on the Facility boundary and the South Fork Shenandoah River from concentrations that would cause unacceptable risk from COCs.

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

All known solid wastes have been removed and disposed of off-site, and measures have been put in place to be protective of human health and the environment, leaving the majority of the site suitable for industrial use. The goal for soils have been met through Interim Actions. Active remediation is anticipated in the form of an on-site groundwater pump and treat system to attain the long-term goal of controlling the on-site deep groundwater plume. However, future removal actions must be considered to return the entire site to unrestricted use.

Short-Term Effectiveness

DEQ's proposed remedy will involve construction activity such as excavation of shallow trenches for the groundwater remediation system. However any short-term risk that excavating might pose will be mitigated by utilizing workers that are HAZWOPER trained, utilizing appropriate personal protective equipment and with the implementation of a soil management plan and construction worker safety plan. No short-term risks to residents or the environment are anticipated by DEQ's proposed remedy. A groundwater monitoring program already in place will continue in accordance with the groundwater CAOs and until groundwater clean-up standards are met. In addition, DEQ anticipates that the land use and groundwater use restrictions will be fully implemented shortly after the issuance of the FDRTC.

Implementability

DEQ's proposed remedy is readily implementable. DEQ proposes to implement the use restrictions through an enforceable mechanism such as an order, permit or an Environmental Covenant pursuant to UECA.

Cost-Effectiveness

Because DEQ has determined that TI applies to shallow and site-wide deep groundwater, the costs associated with implementing this proposed remedy are the most cost effective even though an on-site deep groundwater remedy will be performed as part of the remedy. If the IC mechanism to be selected is an environmental covenant, the cost to record an environmental covenant in the chain of title of the Facility property is minimal.

Community Acceptance

DEQ will evaluate community acceptance of the proposed remedy during the public comment period, and it will be described in the FDRTC.

Support Agency Acceptance

DEQ has solicited EPA input and involvement throughout the investigation process at the Facility. EPA is reviewing DEQ's proposed remedy for the Facility and will comment or concur during the public comment period.

7.0 ENVIRONMENTAL INDICATORS

EPA sets national goals to measure progress toward meeting the nation's major environmental goals. For Corrective Action, EPA evaluates two key environmental indicators for each Facility: (1) current human exposures under control and (2) migration of contaminated groundwater under control. DEQ determined that the Facility met these indicators on September 1, 2009.

8.0 PUBLIC PARTICIPATION

Before DEQ makes a final decision on its proposed remedy for the Facility, the public may participate in the decision process by reviewing this SB and documents contained in the Administrative Record (AR) for the Facility. The AR contains all information considered by DEQ in reaching this proposed decision. Interested parties are encouraged to review the Administrative Record and comment on DEQ's proposed decision.

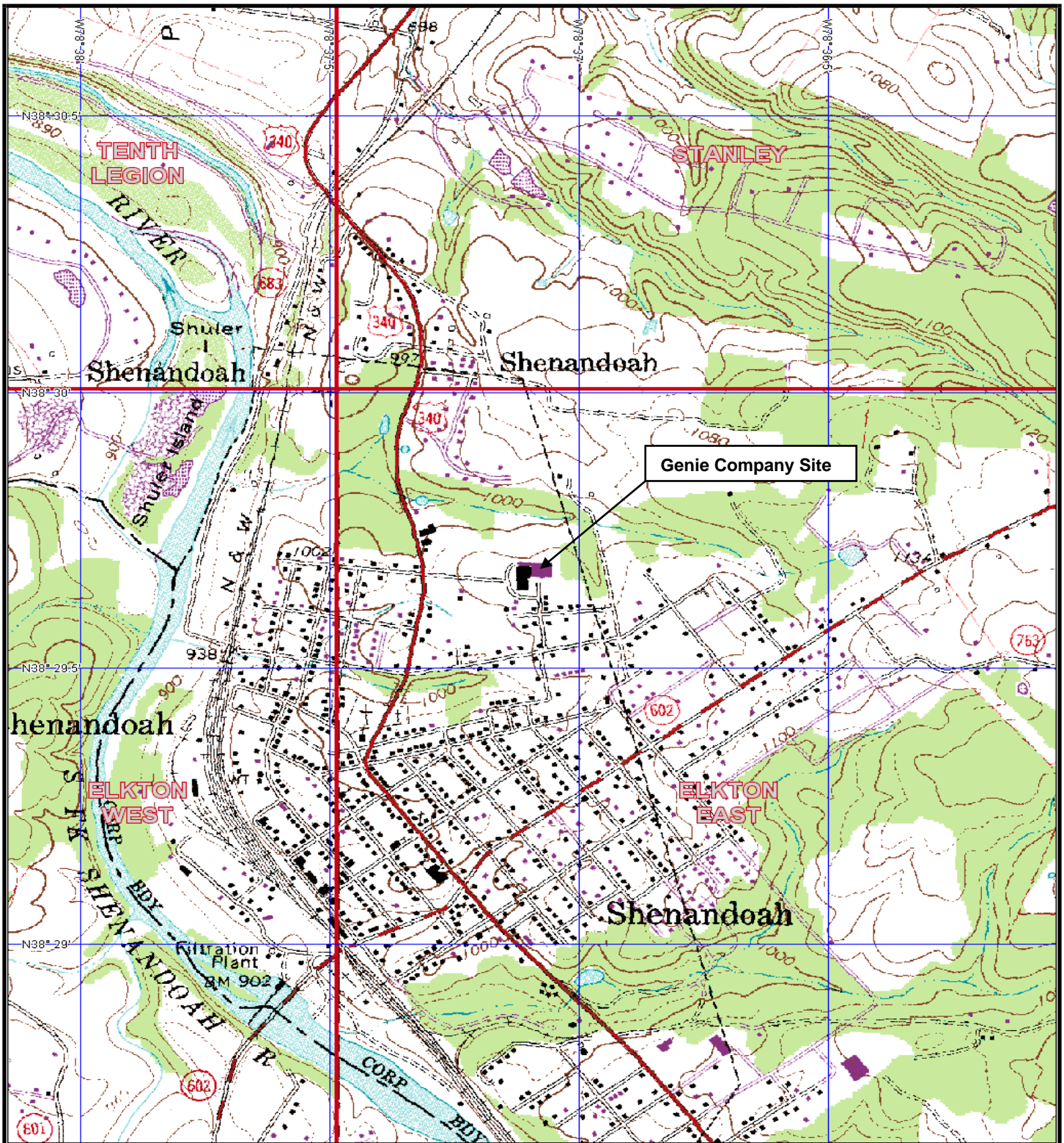
The public comment period will last thirty (30) calendar days from the date the notice is published in a local newspaper. DEQ will hold a public meeting to discuss this proposed remedy upon request. Requests for a public meeting should be made to Kurt Kochan. Comments may be submitted by mail, fax, e-mail, or phone to Mr. Kurt Kochan at the address listed below.

Virginia Department of Environmental Quality
1111 East Main St., Suite 1400
P.O. Box 1105
Richmond, VA 23219
Contact: Kurt Kochan
Phone: (703)-583-3825
Fax: (804) 698-4178
Email: kurt.kochan@deq.virginia.gov

DEQ will make a final decision after considering all comments, consistent with the applicable RCRA requirements and regulations. If the decision is substantially unchanged from the one in this Statement of Basis, DEQ will issue a final decision and inform all persons who submitted written comments or requested notice of DEQ's final determination. If the final decision is significantly different from the one proposed, DEQ will issue a public notice explaining the new decision and will reopen the comment period.

Attachments

Figure 1 – Detailed Site Location



SITE LOCATION MAP

Genie Company
611 Williams Street
Shenandoah, VA

Source: USGS Quadrangle
Elkton East, VA

Philips Electronics
North America
Corporation

January 2018

FIGURE 1

AECOM

Job No. 60492175

Figure 2 – Site-Wide Well Locations

Figure 3 – TI Map Area



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