



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

**Former GE Railcar
Elkton, Maryland**

EPA ID: MDD 078 288 354

Prepared by
RCRA Corrective Action Branch 1
Land, Chemicals and Redevelopment Division

January 2020

Table of Contents

Section 1: Introduction.....	1
Section 2: Facility Background	1
Section 3: Environmental History and Investigations	2
Section 4: Human Health Risk Assessment	9
Section 5: Corrective Action Objectives	11
Section 6: EPA’s Proposed Remedy.....	11
Section 7: Evaluation of EPA’s Proposed Remedy.....	13
Section 8: Financial Assurance	14
Section 9: Public Participation.....	14
Section 10: Signature	15
Figure 1: Site Location Map	16
Figure 2: Site Layout Map.....	17
Figure 3: Extent of GW Impacts Map	18
Figure 4: VI Investigation Map	19
Attachment A: Administrative Record Index.....	20

Section 1: Introduction

The United States Environmental Protection Agency (EPA) prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the former General Electric Railcar Repair Services Corporation (GE Railcar) property located in Triumph Industrial Park, near Elkton, Maryland (the Facility) (Figure 1). The Facility is owned by the Transport Pool Corporation (formerly GE Railcar Services Corporation) and is currently unused.

This SB highlights key information relied upon by EPA in proposing its remedy for the Facility. In addition to the remedial actions already completed at the Facility, EPA is proposing monitored natural attenuation of volatile organic compounds in on- and off-site groundwater. Land and groundwater use restrictions are also proposed.

The Facility is subject to EPA's Corrective Action program under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901, *et seq.* The Corrective Action program requires that facilities subject to certain provisions of RCRA investigate and address releases of hazardous waste and hazardous constituents, usually in the form of soil or groundwater contamination, that have occurred at or from their properties. EPA is the lead Agency in overseeing the investigation and selecting a final remedy for the Facility, in cooperation with Maryland Department of the Environment.

EPA is providing thirty (30) days for public comment on the proposed remedy as summarized in this SB. EPA may modify its proposed remedy based on comments received during this period. EPA will announce the final remedy selected for the Facility in a Final Decision and Response to Comments document after the public comment period ends.

EPA's fact sheet on the Facility is posted at: <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-p-r-railcar-service-ge-railcar-elkton-md>.

Attachment A contains the Administrative Record (AR) Index for the Facility. The AR contains all documents, including data and quality assurance information that EPA used in selecting the proposed final remedy. Public Participation information is provided in Section 9 for those interested in reviewing the AR.

Section 2: Facility Background

The Facility is located in the Triumph Industrial Park (TIP) at 505 Blue Ball Road (State Road 545), approximately one mile north-northwest of the City of Elkton, Cecil County, Maryland (Figure 1). The Facility is at the intersection of Hope and Zeitler Lanes in the TIP. The Facility is comprised of two adjoining parcels and a railroad right of way (ROW). The ROW is located on the western portion of the Facility property and extends north and south beyond the Facility boundary. The proposed remedy applies to the two Facility parcels (28.5 acres total) and off-site properties impacted by Facility

contamination (Figure 2).

The Facility is surrounded by industrial and commercial properties within TIP. An agricultural property is located on the Facility's northern boundary. The area that eventually became TIP was primarily agricultural land. Industrialization began in the 1930's with some small manufacturing facilities. During World War II, the area experienced explosive development when it became the site of munitions, explosives and other ordnance production for the war. Munitions and ordnance production ceased after World War II. Thereafter, other manufacturers began operations in TIP. The Facility is located on land in TIP where munitions and ordnance were previously handled. The Facility was last used for freight car cleaning, repair and maintenance, primarily for tank cars and also included box, hopper, flat and specialty cars. The Facility had nine buildings and approximately 10,000 feet of railroad rails. The buildings, tanks and equipment and most of the rails were removed. The Facility is currently heavily vegetated with some concrete slabs and former building foundations remaining on the Facility property.

The railcar cleaning process first required removing residual products left in the railcars and storing the residual products (hazardous and non-hazardous) on-site for eventual removal. Car interiors were either steam cleaned (to remove volatiles) or cleaned using other methods, depending on the residual. Steam and volatiles were routed to a gas assisted flare for burning. Washwater, rinsate and flare tower condensate were collected and stored in tanks for off-site disposal. Maintenance and repair activities included steel fabrication, welding, cutting and brazing. Car interiors and exteriors were sandblasted and painted as needed. Water was used to hydrostatically test railcars for leaks. The water was reused until spent, then shipped off-site for disposal.

Railcar operations began at the Facility in 1976 when P&R Railcar Service Corporation (P&R) purchased the Facility property. In 1979, North American Car Corporation acquired the Facility property and added railcar cleaning to the repair and maintenance service. In July 1986, Quality Service Repair Corporation acquired the Facility and subsequently changed its name to GE Railcar Repair Services in April 1987, and continued railcar cleaning and maintenance until operations ceased in September 1987. Thereafter, GE Railcar began closing waste management units and removing on-site structures. The Facility has remained unused since the late 1980's. The current Facility property owner is Transport Pool Corporation, a successor of GE Railcar.

Section 3: Environmental History and Investigations

3.1 Maryland Permits and Remediation Activities

In 1982, Maryland Department of Health and Mental Hygiene (MD DHMH) issued a Controlled Hazardous Substance Facility Permit (A-229) to the North American Car Corporation to operate two drum hazardous waste storage areas and a hazardous waste tank farm for spent railcar wash and product residuals. The tank farm consisted of four above ground steel 10,000-gallon tanks. After railcar cleaning activities ceased, remediation of two drum storage areas was completed in 1992, and aboveground storage tanks (ASTs) and contaminated soil in the tank farm area were removed, backfilled with clean fill and then capped between December 1989 and January 1990. These remedial activities were conducted under a Maryland Department of the Environment (MDE) approved Closure Work Plan.

MDE issued closure letters in 1990 and 1992, releasing the Facility from its obligations under the A-229 permit.

GE Railcar removed the following structures and waste storage units after residual waste removal. There was no evidence of releases from these units: (1) twelve 5,000-gallon ASTs used for railcar residual chemical storage and wash water, and AST concrete containment boxes; (2) three 8,000-gallon steel ASTs used for washwater recycling enclosed in a containment area consisting of an earthen berm with a PVC liner; (3) a 9,740-gallon AST for caustic liquid storage in a containment area; (4) a 500 gallon steel AST for solvent/detergent mixing for railcar cleaning; (5) a 20,000 gallon underground storage tank (UST) for No. 2 fuel heating oil; (6) gas flare tower system, including a 18,253 gallon steel AST for storing liquid propane. Some structures were closed under MDE clean closure acceptance. In 1992, MDE released the Facility from its obligations under the A-229 Permit in a letter to the Facility.

During the tank farm remediation and closure, a mass of buried waste material was discovered in the Facility's northeast corner which was traced to Galaxy Chemicals, Inc. (Galaxy), a nearby solvent recycling facility. Trinco, a previous Facility owner, allowed Galaxy to dispose of their waste chemicals into trenches in the Facility's northeast corner. Galaxy distilled waste solvents from various sources. Distillation created a chemical waste by-product that settled in the bottom of the stills. These still bottoms wastes were removed to an outdoor unlined impoundment on Galaxy's property. From 1968 to 1971, the Facility received an unknown amount of still bottoms waste dredged from the Galaxy impoundment. Pursuant to a 1991 MDE Consent Order, GE Railcar delineated the waste disposal area. From January through March 1991, GE Railcar excavated 932 cubic yards of the still bottom solids (hazardous waste) and underlying soil and disposed of it at a permitted off-site incinerator. Waste analysis of the still bottoms material identified elevated levels of benzene, chlorobenzene (CB), chloroform, chlorinated solvents (i.e., tetrachloroethylene (PCE) and trichloroethylene (TCE)) and other halogenated and non-halogenated solvents. A 0.7-acre area was excavated and backfilled with about 6 inches of clean fill, then covered with a compacted clay cap and 6 inches of topsoil (Figure 2).

3.2 Facility Investigation Summary

In October 1999, the Army Corps of Engineers conducted a Facility inspection for EPA. Based on the May 31, 2000 inspection report, EPA entered into a RCRA Corrective Action Facility Lead Corrective Action Agreement (Agreement) with GE Railcar to undertake further assessment of the Facility. On October 9, 2001, GE Railcar agreed to the Agreement in a letter to EPA. Prior to the Agreement, on August 9, 2001, GE Railcar submitted a Site Investigation Work Plan to EPA. EPA approved the Work Plan and the resulting Site Investigation (SI) Report for the Facility was submitted to EPA in August 2002 (2002 SI Report). In a letter to the Facility dated May 14, 2003, EPA approved the SI Report. As a result of the SI Report's findings, from 2001 to 2006 the Facility performed the following investigations and submitted the following reports to EPA: (1) 2002 SI Report; (2) MW-42 AOC Soil Investigation (2004); (3) MW-09 and MW-25 Soil Gas Investigation (2005); (4) In-Situ Pilot Test Evaluation Report (GW treatment); (5) Off-Site GW Investigations (2006).

In September 2007, GE Railcar and EPA entered into an Administrative Settlement Agreement and Order on Consent (Consent Order) for a Remedial Investigation/Feasibility Study (RI/FS), pursuant to Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622 and Section 3008(h) under RCRA, 42 U.S.C. § 6908(h). The Consent Order identified two Areas of Concern (AOCs), the Still Bottom Disposal Area and MW-42 Area, and four Areas of Interest (AOIs), MW-40 Area, Central Drainage Ditch, Spent Blast Sand Area and SF-15 Area, for further investigation (Figure 2). On- and off-site groundwater impacted with VOCs and Soil Vapor investigations were added after the Consent Order.

EPA approved the following Work Plans and Reports under the Consent Order: (1) Remedial Investigation of two AOCs and four AOIs and a Baseline Human Health Risk Assessment (BHHRA) (2009); (2) Spent Blast Sand Area Soil Investigation (2012); (3) Long-Term GW Monitoring (2012 – 2019); (4) BHHRA Addendum (2015); (5) Off-Site GW DPT Investigation (2015-2016); (6) On-Site Saproliite MW Investigation (2016); (7) Off-Site Soil Gas Investigation (2016); (8) Off-Site Monitoring Well Installations (2017); (9) MW-40 AOI Soil Investigation (2017); (10) Indoor Air Investigation for Buildings 508A and 573A (2017-2018); 2018 Feasibility Study Report (2018).

3.3 Investigations Findings:

1. Site Geology and Hydrogeology: The Facility is situated within the Atlantic Coastal Plain Province, which consists of Potomac Group (PG) unconsolidated sediments in the Facility area. On-site, the soil column consists of interbedded silts, clays, argillaceous sands and gravels to a depth of 12 to 45 feet below ground surface (fbgs). PG sediments are underlain by a clay-rich, weathered/decomposed bedrock layer termed saprolite. Saproliite is chemically weathered bedrock, which consists of serpentized gabbros, gneisses, schists and amphibolites of the Piedmont Province. Two water-bearing zones were identified at the Facility; a shallow unconfined or water table aquifer in the unconsolidated sediments, and an underlying saturated confined unit in the saprolite layer. Hydraulic conductivity or water flow velocity in the saprolite layer is very low due to its high clay content. Groundwater (GW) in the shallow water table aquifer flows south, discharging to the Little Elk Creek, located 1,500 to 2,200 feet south of the Facility, while GW flow in saprolite appears to flow very little, laterally or vertically.

The topography of the Facility is generally flat with a steep slope (30 – 35 feet) at the northern quarter of the Facility property.

2. Soil: The 2002 SI Report was a comprehensive on-site assessment of Facility soil, sediment and groundwater (GW). Soil samples were collected from 23 monitoring well (MW) borings at two depths (0.5 – 1 and 4 - 6 feet below ground surface (fbgs)) and 16 additional surficial soil samples (0-2 fbgs) targeted to areas of suspected releases. Also, five surficial sediment samples were collected from the Central Drainage Ditch (CDD). Samples were analyzed for volatile (VOCs) and semivolatile organic compounds (SVOCs), metals and two surficial soils were analyzed for polychlorinated biphenyls (PCBs). Sampling results were compared to MDE's non-residential clean-up standards (NRCS) for soil.

All analytes were below NRCS except for an exceedance of mercury at MW-40 and at a nearby surficial sample, and an Arochlor 1254 (PCB) exceedance in the CDD and a few low-level exceedances of benzo(a)pyrene in surficial soils. Arsenic exceeded the standard in a few samples at levels considered within normal background. The mercury exceedance from the MW-40 sample exceeded the NRCS by two orders of magnitude (38.8 parts per million (ppm)) (Figure 2). MW-40 area soil was investigated for mercury under the 2007 Order and confirmed that mercury was limited to the initial sample, probably from a broken mercury vapor lamp.

The Facility conducted a soil gas survey around MW-9 and MW-25 to determine if a contaminant source was causing elevated VOC readings on field instruments (PID) inserted in the air space above the water table in the two wells. Holes were drilled to 3 fbg around each well for vapor sampling tubes. Soil gas pumped from the sealed holes were field screened using a PID and where VOC levels were elevated, a soil gas sample was collected for lab analysis. Three samples were collected for analysis. The results showed low level VOCs below background levels. A contaminant source area contributing to elevated VOCs in GW and air space in the two MWs was not indicated.

The 2007 Order identified two Areas of Concern (AOCs) and four Areas of Interest (AOIs) for further soil investigation. The following AOCs were investigated during the RI: the Still Bottom Disposal Area (SBDA) and MW-42. The AOIs investigated during the RI were: MW-40, the Central Drainage Ditch (CDD), Spent Blast Sand Area (SBSA) and SF-15, shown in Figure 2 and discussed in A – E below.

A. The SBDA AOC investigation in 2008 delineated the remaining contaminated soil beneath and around a SBDA clay cap which was installed in 1991. Eighteen borings were completed to 20 feet below ground surface (fbgs) to collect soil samples at 5 feet depth intervals beneath the cap and outside of the cap. The samples were analyzed for VOCs. The sample results showed that 3 feet of contaminated material was removed in 1991, prior to capping. Low level PCE, TCE, TeCA, ethylbenzene and xylenes were found in soil beneath the eastern and southern portion of the cap, with only one or two samples with COC exceeding EPA's industrial soil screening levels. The Baseline Human Health Risk Assessment (BHHRA) Addendum stated that exposure risks to current or future outdoor receptors are within acceptable levels, however, PCE and TCE levels in soils may potentially pose an indoor air vapor risk in any structures constructed in or near the SBDA AOC.

B. MW-42 AOC is approximately 1.69-acres in the Facility's southeastern corner and encompasses MWs -42 and -44. Multiple soil borings were completed to delineate cVOC contamination in this area. The 2002 SI Report identified this AOC as an area where contaminants were released but did not appear to be associated with former railcar operations. In soil, TeCA and TCE were found above MDE and EPA's screening levels. GW at MW-42 exhibited elevated levels of TeCA, DCE and TCE. The exposure risks to current or future outdoor receptors from soil are within acceptable levels, however, TeCA and TCE levels in soil may pose potential indoor air vapor risk for any future structures constructed in or near the MW-42 AOC.

C. CDD AOI is an unlined channel for surface water runoff from the central and southern portions of the Facility, emptying to a 20 feet diameter settling basin and discharged to an outfall at the eastern property line. The CDD is approximately 1,141 feet long, situated where most Facility activities took place. Sediment from the CDD was sampled twice, once for VOCs, SVOCs and metals during the SI and again during the RI for PCBs. The results showed that VOCs, SVOCs, metals and PCBs did not exceed MDE's and EPA's industrial soil screening levels.

D. SF-15 AOI was one of 16 surficial soil samples (0.25 – 1 fbgs) collected in areas of previous railcar activities. SF-15 was near a former pole-mounted transformer. Samples were analyzed for VOCs, SVOCs and metals, and SF-15 and SF-16 were also analyzed for PCBs. None of the samples exceeded industrial soil screening levels, except at SF-15 for Aroclor 1254 (PCB). To investigate whether PCBs were more prevalent, 5 soil borings were drilled around SF-15 to 5 feet bgs during the RI. Soil samples were collected from the top 12 inches and bottom 6 inches of the borings. Results showed that samples from two borings had low level Aroclor 1254 detections above the screening level for industrial settings but did not pose an unacceptable risk to current or future receptors according to the BHHRA.

E. Spent Blast Sand Area AOI (SBSA) is a rectangular half acre area of discarded sand used in sandblasting paint from railcars. The SBSA ranges in thickness from 0.25 feet to 4 feet above ground surface. During trenching in the SBSA for sampling, three distinct zones were found: blast sand, and at the base of the sand, a limited area of gravel and a small layer of greenish-white clay. The three areas were sampled as follows: two composite samples of sandblast material were collected and analyzed for SVOCs, metals and PCBs, toxicity characteristic leaching procedure (TCLP) for SVOCs and metals. TCLP is used to determine leachability of contaminants and to determine whether the material is hazardous. Two single samples collected from the basal gravel and were analyzed for VOCs, SVOCs, metals and PCBs. One sample collected from the clay was analyzed for metals. Results show that one blast sand composite exceeded the screening level for Aroclor-1254 (PCB) and basal gravel exceeded the arsenic screening level. TCLP showed non-hazardous results. In May 2012, the SBSA was sampled again for RI supplemental data gathering. Twelve composite samples were collected and analyzed for SVOCs, metals and PCBs. A single sample was collected and analyzed for VOCs. The results showed a number of samples with lead and PCB detections, but only 3 samples exceeded the industrial soil screening level for PCBs. The 2015 BHHRA Addendum indicated that there was no unacceptable risk to workers.

3. Groundwater: In 2001, the Facility installed 48 MWs on-site, including 42 MWs in the water table aquifer and 6 MWs into the underlying saprolite. GW samples were analyzed for VOCs, SVOCs and metals. Results showed that five VOCs comprise the primary contaminants of concern (COC): benzene, chlorobenzene (CB), tetrachloroethylene (PCE), trichloroethylene (TCE) and 1,1,2,2-tetrachloroethane (TeCA). Benzene, CB and TCE plumes are associated with the Still Bottoms Disposal Area (SBDA) located in the northeast corner of the Facility. PCE, TCE and TeCA chlorinated VOCs (cVOCs) COC are distributed in the west and southern areas of the Facility. From 2004 to 2017, GE installed off-site MWs to map off-site plumes that appeared to have originated on the Facility (Figure 3).

Shallow GW flows in the Potomac Group (PG) sediments underlying the region. GW flow in the saprolite clay layer underling the PG sediments was calculated to flow laterally very slowly at 3.7 feet/year (average) in contrast to PG GW flow, calculated at 15 to 178 feet/year. Low level contamination in the saprolite/clay layer is most likely bound up in the saprolite/clay matrix with little movement. PG GW flows south from the site to discharge in Little Elk Creek, which acts as a hydraulic boundary to further off-site contaminant migration.

In-Situ Remediation Pilot Studies: From 2003 to 2004, the Facility conducted pilot studies to test potential in-situ remedial technologies to treat dissolved VOCs in GW. MW-02 and MW-42 (Figure 3) areas were selected for injection of compounds known to facilitate breakdown of VOCs under certain geochemical conditions. At MW-02, GW conditions were oxygen poor (i.e., anaerobic) and had elevated levels of benzene and chlorobenzene. Naturally occurring anaerobic bacteria can degrade cVOCs through anaerobic reductive dechlorination (ARD) reactions, while non-chlorinated VOCs such as benzene can degrade through anaerobic oxidation reactions. To enhance biodegradation at MW-02, a bacteria food source, sodium lactate, was injected to increase bacterial biomass and sustain reducing conditions. As biomass increases and sodium lactate decreases, the bacteria will degrade VOCs through different oxidation-reduction reactions. Sodium lactate was injected into wells three times over six months. Monitoring showed that the sodium lactate radius of influence was three feet around MW-2. While the study concluded that target constituents were not successfully treated, it is likely that the volume of sodium lactate reagent added to wells was too small.

In the MW-42 Area, in-situ chemical oxidation was used to oxidize VOCs in GW. The oxidized VOC by-products are subsequently degraded by resident bacteria. An injection into twelve boreholes was performed using 1,140 gallons of oxidant solution. Results showed that dissolved phase VOCs decreased locally, however, to increase the effectiveness of the oxidation, higher dosing or a treatment barrier was recommended. Subsequent long-term monitoring documented VOC declines in the MW-42 Area, likely from the oxidant liberating native organic material in soil, which promoted biodegradation of cVOCs.

Natural Attenuation Assessment: The Facility evaluated over 12 years of VOC monitoring results and six years of biogeochemical and molecular biological results in the 2018 Feasibility Study Report. Data were evaluated for natural attenuation processes using a multiple lines of evidence approach.

The data indicated that anaerobic conditions exist in the SBDA area and in the downgradient plume. Among other factors, elevated GW alkalinity indicated biodegradation of aromatic hydrocarbons (e.g., benzene) by anaerobic bacteria, with benzene serving as a carbon source for bacteria. As a result, elevated chlorobenzene levels downgradient of the SBDA is significantly lower in nearby off-site MWs because of biochemical breakdown or attenuation. Within the SBDA area, there is also evidence that other VOCs are biochemically attenuating.

Conversely, GW beneath the southern portion of the Facility at the MW-42 area and at off-site downgradient areas exhibits aerobic or oxidizing conditions. Aerobic conditions are a limiting factor for

biodegradation of cVOCs, such as TeCA and TCE. The absence of VOC degradation products in these areas indicates that physical processes, such as pore-flushing of the aquifer matrix is the likely dominant attenuation process. However, abiotic reactions with iron minerals can also contribute to VOC attenuation. Long-term monitoring after the MW-42 area pilot test resulted in a biological reduction of VOCs in a limited area.

To estimate remedial timeframes for natural attenuation, a linear regression trend analysis was performed using sample results from 16 representative MWs. Chlorobenzene, TCE and TeCA exhibited a higher frequency of elevated detections than benzene and PCE. The regression trend analysis was performed twice, first using data from 2001 to 2018, then using data from 2014 to 2018. Remedial timeframes for the benzene/chlorobenzene plume range from 2 years (saprolite zone) to greater than 30 years (PG aquifer) based on data from 8 MWs. For the VOC southern plume, remedial timeframes range from 3 years to greater than 30 years.

4. Little Elk Creek (LEC) Surface Water Monitoring: LEC is a meandering stream located off-site and downgradient from the Facility (Figure 3). LEC and Big Elk Creek join south of Elkton at Elkton Landing to form the Elk River. Elk River flows southeast and discharges into the Chesapeake Bay. VOC GW plumes in the Potomac Group aquifer underlying the Facility flow towards LEC.

In 1997, MDE collected surface water (SW) samples from LEC. In the LEC section downgradient from the Facility, the study found that the highest SW detection of VOCs was TCE at 3 parts per billion (ppb). In a 2000 LEC investigation conducted by an adjacent facility, Orbital ATK, TCE (the only VOC consistently detected) was found in LEC SW downgradient of the GE Facility at 0.22 to 0.28 ppb. However, upstream of this area, SW contained TCE in the 0.22 to 1.1 ppb range. Sediment samples in LEC downgradient of the Facility ranged from below detection to 2.9 ppb. Low level TCE in SW and sediment were orders of magnitude lower than EPA Region III screening levels for freshwater media. Therefore, no adverse ecological impacts are expected to biota in the LEC, downgradient of the Facility.

5. Off-site Soil Gas, Sub-slab and Indoor Air Investigations: Figure 4 depicts on- and off-site GW plumes with 100 feet buffers around off-site buildings. There are currently no on-site buildings. The buffers were drawn using EPA's Vapor Intrusion Screening Levels (VISL) calculator to estimate potential vapor intrusion (VI) levels for VOC vapor into off-site buildings. Thirteen off-site buildings were identified for VI investigations, based on VOC levels in the upper most or shallow aquifer. These thirteen buildings are used for commercial or industrial purposes. The off-site GW investigation found that VOC concentrations increases with depth, with shallow GW showing significantly lower concentrations than that found in the deeper (>5 feet) aquifer. Of the 13 buildings identified, access was granted to 7 buildings for the VI investigation (Figure 4). Three locations only allowed exterior soil gas sampling points and one building was eliminated because it is unoccupied and likely to remain so (Bldg. 391-A). Property access was denied for five small buildings along Hope Lane (Bldgs. 325A-E). However, GE Railcar installed vapor points on the Facility side of Hope Lane to measure exterior soil gas levels near the five buildings. The sixth property that denied access, Bldg. 0664-A, was not pursued for further action because only a small portion of the building was within the buffer area and soil gas

sampling results from nearby buildings didn't indicate impacts in this area. Based on property access and soil gas sampling results, six of the 13 buildings initially identified were investigated. Exterior soil gas points were installed around three buildings and sub-slab soil gas pins were installed inside three buildings. Exterior soil gas points were installed above the water table (approximately 2 feet). Sub-slab and exterior soil gas samples were collected in January and February 2017. Results were screened using EPA's VISL calculator. Two buildings exceeded VISL screening levels for sub-slab or exterior soil gas VOCs: Bldg. 508-A (B508-A) for TCE and PCE and Bldg. 573-A (B573-A) for TCE in exterior soil gas. The B573-A owner did not grant access for sub-slab soil gas sampling; therefore, exterior soil-gas results were used for the screening. Chloroform was detected in several buildings and is not considered a Facility-related contaminant and also does not pose unacceptable risk to building occupants, based on the modeling results.

B508-A and B573-A were then sampled for indoor air and concurrent sub-slab (B508A) or exterior soil gas (B573-A). Both properties were sampled twice, once in January 2018, and again in either October (2017) (B537-A) or late winter/early spring (B508-A) (2017 and 2018). Ambient air samples were collected outside the buildings during indoor air sampling. Low-level VOCs were detected below or just above laboratory detection limits in indoor and outdoor air samples for both buildings. Facility related VOCs were non-detected or one to two orders of magnitude below VISL screening levels for indoor air in both buildings both times they were sampled. Further investigation is not indicated.

Section 4: Human Health Risk Assessment

The current exposure to soil and groundwater contamination at the Facility is controlled. To control trespasser access, the Facility is fenced, gated and locked with frequent security checks. Approximately 90% of the Facility is vegetated. The potable use pathway for GW at the Facility and in TIP is considered an incomplete pathway for current and future use. Groundwater is not used at the Facility and GW is not used as a potable supply at TIP. TIP is supplied by a municipal water supplier that draws water from off-site sources. TIP has been an industrial and commercial center since the early 1940's and Facility land is likely to remain industrial/commercial in the future.

The 2009 BHHRA and the revised 2015 BHHRA Addendum evaluated risk scenarios for future on-site workers (industrial/commercial and construction/maintenance) from exposure to soil, GW and VOC vapor. EPA approved the BHHRA Addendum on May 4, 2016. For off-site workers, risk scenarios were evaluated for GW consumption and VOC inhalation exposures. Table 1 summarizes the results of the risk evaluations.

Table 1			
Baseline Human Health Risk Assessment Results			
Areas Identified in Investigations	Description/Contaminants	Size	Potential Risk to Future Workers
SBDA AOC Still Bottoms Disposal Area	VOC Waste/residue removed & clay cap over the area.	1.43 acres	Potential risk from VOCs in soil & VOC inhalation.
MW-42 AOC	Soil & GW VOCs.	1.69 acres	Same risk as SBDA AOC
CDD AOI	Central Drainage Ditch, no exceedances.	1,141 x 20 ft. (approx.)	No unacceptable risk.
SF-15 AOI	Pole mounted transformer PCBs.	<100 ft. ²	No unacceptable risk.
SBSA AOI Sand Blast Material	Arsenic, PCBs & benzo[a]pyrene.	0.62 acres	No unacceptable risk.
MW-40 AOI	Broken mercury vapor lamp bulb, small area.	<100 ft. ²	No unacceptable risk.
GW (On & Off-Site, Off-Site VI)	Elevated VOCs in GW, on & off-Site.	60 acres (approx.)	GW consumption & vapor inhalation risks. Exposure pathways incomplete.

4.1 Ecological Evaluation

A Screening Level Ecological Risk Assessment was not considered necessary due to limited and low-grade habitat on-site. Ecological impact potential to Little Elk Creek (LEC) from Facility-related GW contamination was evaluated. GW results from shallow MWs and temporary borings located adjacent to LEC were compared to EPA Region 3 Freshwater Screening Benchmarks. GW VOCs do not exceed the Benchmarks. SW samples from Little Elk Creek exhibited non-detect to very low-level VOCs and are well below the EPA Region 3 Freshwater Benchmark screening levels indicating no adverse ecological impacts are expected to LEC biota.

4.2 Environmental Indicators

Under the Government Performance and Results Act (GPRA), EPA set national goals to address RCRA corrective action facilities. Under GPRA, EPA evaluates two key environmental clean-up indicators for each facility: (1) Current Human Exposures Under Control; and (2) Migration of Contaminated Groundwater Under Control. The Facility met both indicator goals in April 2003 and May 2008, respectively. The environmental indicator forms are linked to EPA’s Fact Sheet for this Facility at <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-p-r-railcar-service-ge-railcar-elkton-md>).

Section 5: Corrective Action Objectives (CAOs)

EPA's Corrective Action Objectives (CAOs) for environmental media are:

1. Soil – EPA's CAO for on-site soil is to prevent human exposure to soil contaminants that exceed EPA and MDE's acceptable cancer risk range of 1×10^{-5} to 1×10^{-6} , or one excess cancer occurrence in 100,000 people to one occurrence in one million people and a non-cancer risk hazard quotient of 1 or less for an industrial scenario.

2. Groundwater - EPA expects final remedies to return usable groundwater to its maximum beneficial use within a reasonable timeframe given the particular circumstances of the Site. 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). Therefore, EPA's CAO for Facility and Facility impacted off-site GW is to attain MCLs or EPA's regional risk screening levels (RSLs) where MCLs are not established for a constituent.

3. Vapor Intrusion - EPA's CAO for properties with a vapor intrusion potential in buildings/structures is to control human exposure and attain EPA and MDE's acceptable cancer risk range of 10^{-5} to 10^{-6} and a non-cancer risk hazard quotient of 1 or less. Currently there are no unacceptable indoor air exposures to VOC contaminants on-site or in buildings located off-site in or within 100 feet of a VOC contaminated GW plume and the indoor exposure pathway is expected to remain within acceptable levels for the future.

Section 6: EPA's Proposed Remedy

The Facility submitted a Feasibility Study (FS) Report to EPA which identified and evaluated potential remedies regarding applicability and effectiveness in meeting the CAOs for this Facility. EPA approved the FS Report on September 13, 2019. EPA evaluated the potential remedies presented and considers the following remedies as capable of efficiently and effectively meeting EPA's CAO goals for soil, GW and vapor inhalation potential exposure pathways:

1. Soil: EPA's proposed remedy for soil at the Facility consists of establishing institutional controls to maintain industrial/commercial land use at the Facility. Because contaminants remain in subsurface soil in the MW-42 AOC and SBDA AOC that may pose a risk to future construction and industrial workers, EPA's proposed remedy requires submission of a Soil Management Plan for any planned subsurface soil disturbance activities (including excavation, drilling and construction) in locations where contaminants remain at levels above EPA's screening levels for non-residential use. EPA also proposes that the SBDA AOC be managed under an EPA approved SBDA Cap Maintenance Plan.

2. Groundwater: EPA's proposed remedy for groundwater at the Facility consists of Monitored Natural Attenuation (MNA) of COC in compliance with an EPA-approved GW Monitoring Plan until contaminant levels reach Drinking Water maximum contaminant levels (MCLs) or RSLs for contaminants without an established MCL. EPA also proposes that on-site GW use restrictions be implemented until CAOs are met.

3. Vapor Intrusion: There are no current VI exposures on the Facility, however, a vapor intrusion assessment will be required for any future construction planned on or near on-Site GW plumes and in the SBDA and MW-42 AOC on-site. The off-Site GW plume does not currently pose unacceptable indoor air risk in the two buildings impacted by site-related GW plumes.

Institutional Controls (ICs)

ICs are non-engineered instruments, such as administrative and legal controls to minimize potential human exposure to contamination and/or protect the integrity of the final remedy by limiting land and/or GW use. Under the proposed remedy, some contaminants remain in GW and soil at the Facility above levels acceptable for residential use. Therefore, EPA's proposed remedy requires compliance with and maintenance of land and GW use restrictions. The use restrictions consist of the following:

- a. The Facility property shall not be used for residential purposes unless it is demonstrated to EPA and MDE that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and EPA, in consultation with MDE, provides prior written approval for such use;
- b. Facility GW will not be used for any purpose other than operation, maintenance and monitoring activities required by EPA and/or MDE, unless it is demonstrated to EPA, in consultation with MDE, that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and EPA, in consultation with MDE, provides written approval for such use;
- c. Compliance with an EPA-approved GW Monitoring Plan;
- d. Compliance with an EPA-approved Soil Management Plan;
- e. An EPA-approved VI Assessment Plan shall be implemented if structures are to be constructed on or within 100 feet of the VOC plume on the Facility.

EPA proposes that the land and GW use restrictions be implemented through an enforceable mechanism such as a permit, order, or an Environmental Covenant. If an Environmental Covenant is selected as the enforceable mechanism, it will be recorded in the chain of title for the property pursuant to the Maryland Uniform Environmental Covenants Act, §§ 1-801 through 1-815 of the Environment Article, Annotated Code of Maryland

In addition, the Facility shall provide EPA with a coordinate survey of Facility boundaries. Mapping the extent of the land and groundwater use restrictions will allow for presentation in a publicly accessible

mapping utility such as Google Earth or Google Maps.

Section 7: Evaluation of EPA’s Proposed Remedy

Table 2 lists EPA’s criteria for evaluating proposed remedies. The evaluation is two phased. In phase one, the proposed remedy is evaluated against three ‘threshold’ decision criteria as general goals. In the second phase, remedies that pass the threshold criteria are then evaluated according to seven balancing criteria.

Table 2	
Threshold Criteria	Evaluation
1) Protect human health and the environment	Potentially unacceptable human health risks are present in on- and off-Site media; however, exposure pathways are incomplete. By implementing institutional controls for land and GW use on-Site, human exposure to the risks will be effectively controlled. As GW VOC levels decrease over time, potential VOC vapor inhalation risk declines. Implementation of the Soil Management Plan (SMP) will control on-Site worker exposure to soil, GW and vapor-phase VOCs.
2) Achieve media cleanup objectives	Natural attenuation of VOCs in GW will be documented until GW CAOs are achieved. Soil contaminants in the SBDA and MW-42 AOC will be managed under a SMP to protect worker exposure. The SBDA cap reduces VOC transfer from soil to GW. Contaminated structures and soil were removed from 1989-1992.
3) Remediating the Source of Releases	The goal of EPA’s proposed remedy is to eliminate or reduce further releases of any remaining Facility-related VOC contaminants that may pose an unacceptable risk to human health and the environment. Waste, residue and contaminated soil were removed from the SBDA and a cap was installed, thereby limiting VOC transfer from subsurface soil to GW. Contaminated soil from dismantled units was removed. Reduction of GW VOCs will be achieved by natural attenuation, also reducing potential VOC vapor into structures.
Balancing Criteria	Evaluation
4) Long-term effectiveness	EPA’s proposed remedy will maintain protection of human health and the environment as GW contaminant levels diminish over time. The proposed remedy requires the Facility to maintain the SBDA cap and comply with land and GW use restrictions.
5) Reduction of toxicity, mobility or volume of hazardous constituents	Natural attenuation of VOCs in GW will reduce volume and toxicity of VOCs in GW, soil and vapor. The SBDA cap reduces mobility of VOC residue in subsurface soil.
6) Short-term effectiveness	Facility is unused and is fenced and monitored for trespassers. SBDA former waste area is capped and maintained. GW is not used, soil is covered by vegetation and is undisturbed, therefore, human exposures to Facility COCs are controlled.

Table 2 (Con't)	
7) Implementability	Most of the elements in the proposed remedy are already being implemented. EPA proposes to implement land and GW use restrictions through an enforceable mechanism such as a permit, order or Environmental Covenant.
8) Cost	GE's estimated cost of implementing EPA's proposed remedy is approximately \$1.28M over 30 years and is cost effective.
9) Community Acceptance	EPA will solicit public comment on the proposed remedy and will review comments received during the 30-day public comment period to evaluate community acceptance. If requested, a public meeting will be held. Responses to comments and any subsequent modifications to the proposed remedy will be included in EPA's Final Decision and Response to Comments.
10) State Acceptance	MDE reviewed this SB and concurred with the proposed remedy.

Section 8: Financial Assurance

The Facility will be required to demonstrate and maintain financial assurance of \$1.28 million which was provided in their 2018 Feasibility Study Report for completion of the remedy. Such financial assurance shall be established and maintained pursuant to the standards contained in the Code of Federal Regulations, 40 C.F.R. Part 264.

Section 9: Public Participation

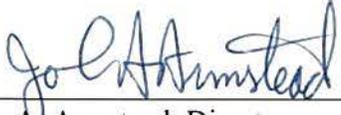
The public is invited to comment on EPA's proposed remedy. The public comment period will last thirty (30) calendar days from the date that the notice is published in a local newspaper. Comments may be submitted by mail, fax, or e-mail to Barbara Smith at the address listed below.

A public meeting will be held upon request. Requests for a public meeting should be made to Barbara Smith at the address listed below. A meeting will not be scheduled unless one is requested. The Administrative Record contains all the information considered by EPA for the proposed remedy at this Facility. The Administrative Record is available at the following location:

U.S. EPA Region III
 1650 Arch Street (3LD10)
 Philadelphia, PA 19103

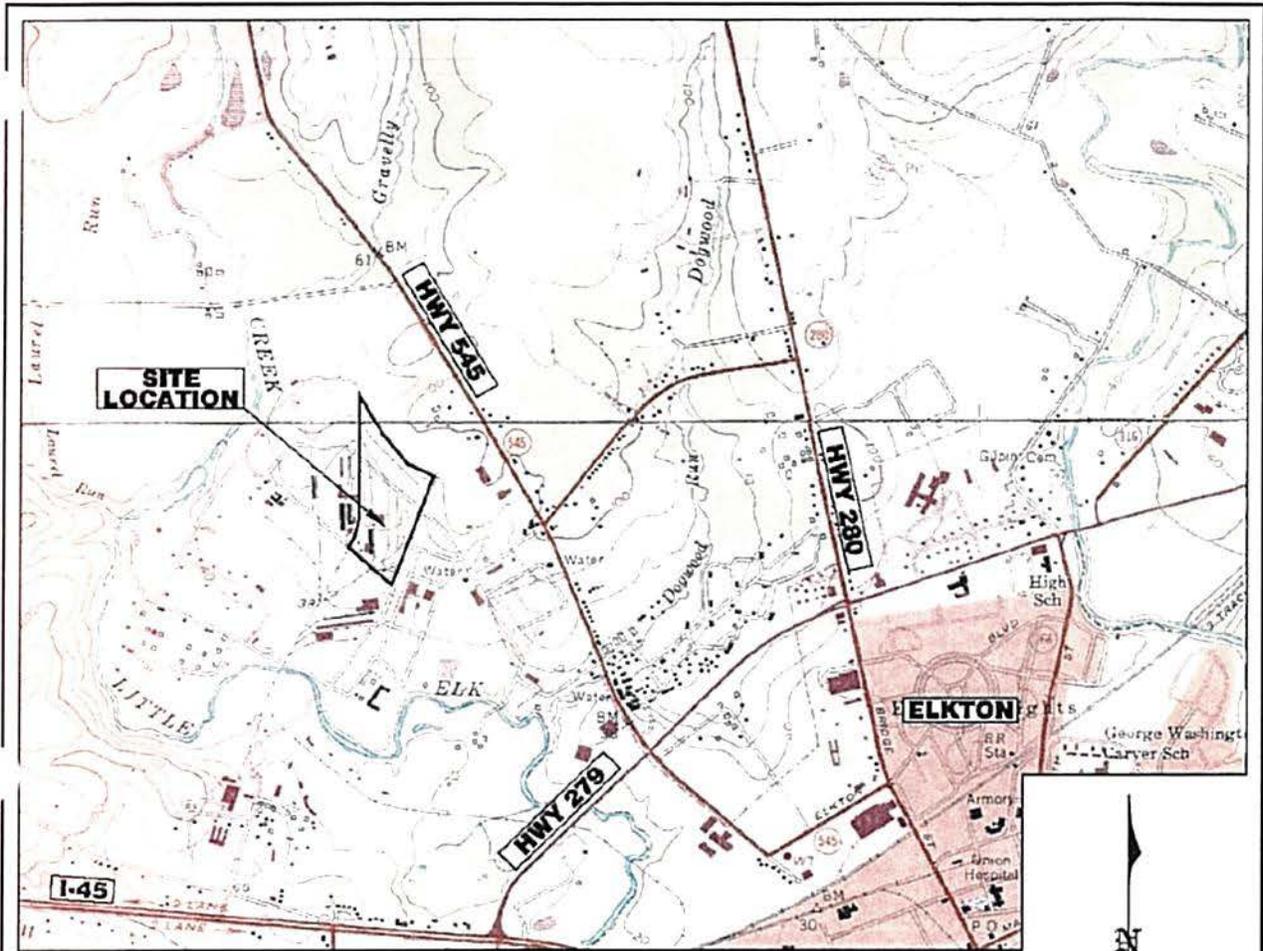
Contact: Barbara Smith
 Phone: (215) 814-5786
 Fax: (215) 814-3113
 Email: Smith.Barbara@epa.gov

Section 10: Signature



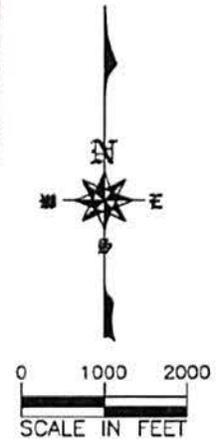
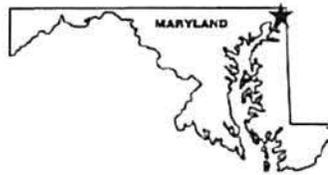
John A. Armstead, Director
Land, Chemicals and Redevelopment Division
US EPA, Region III

Date: 1.8.20



LEGEND

— PROPERTY BOUNDARY

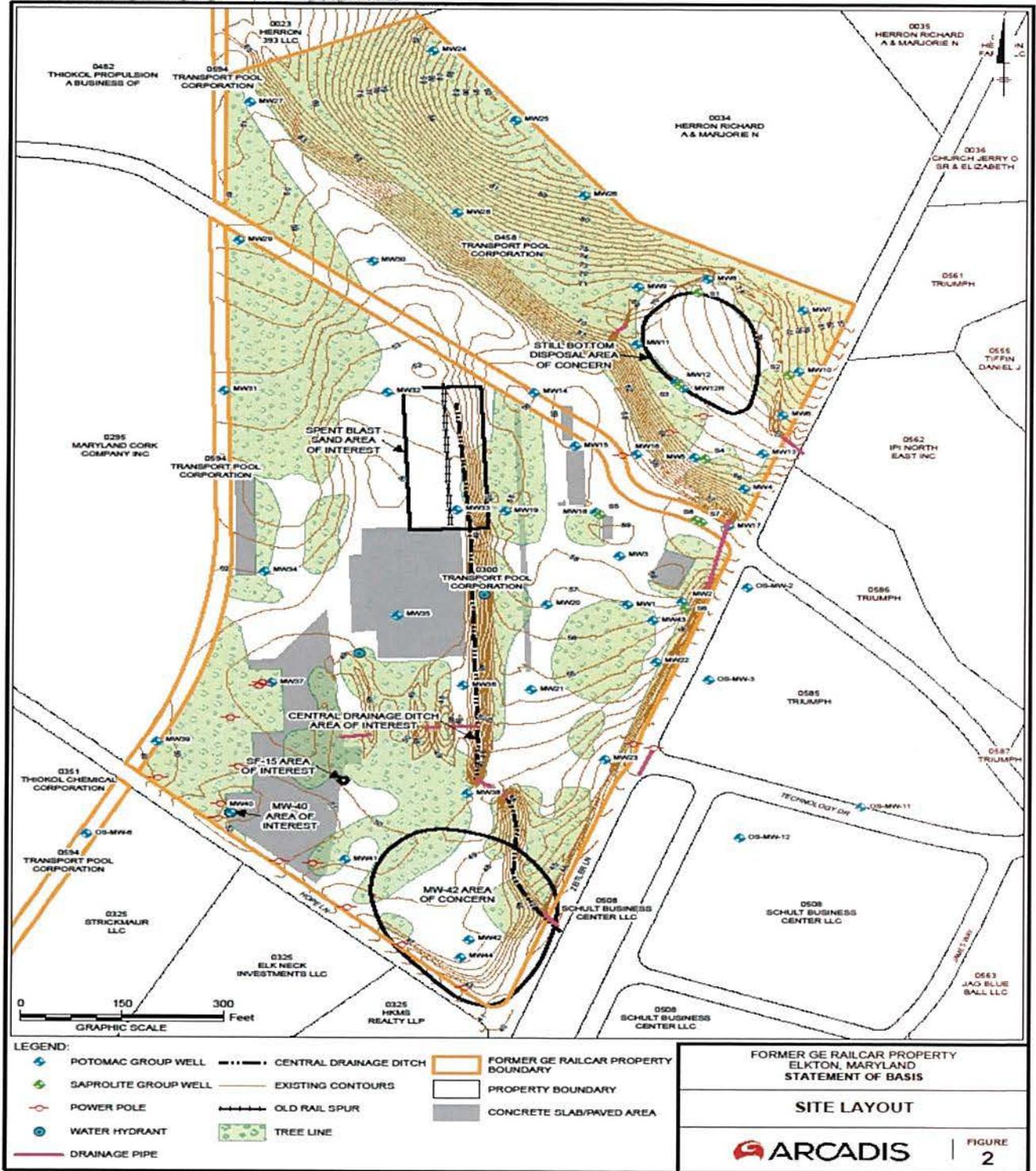


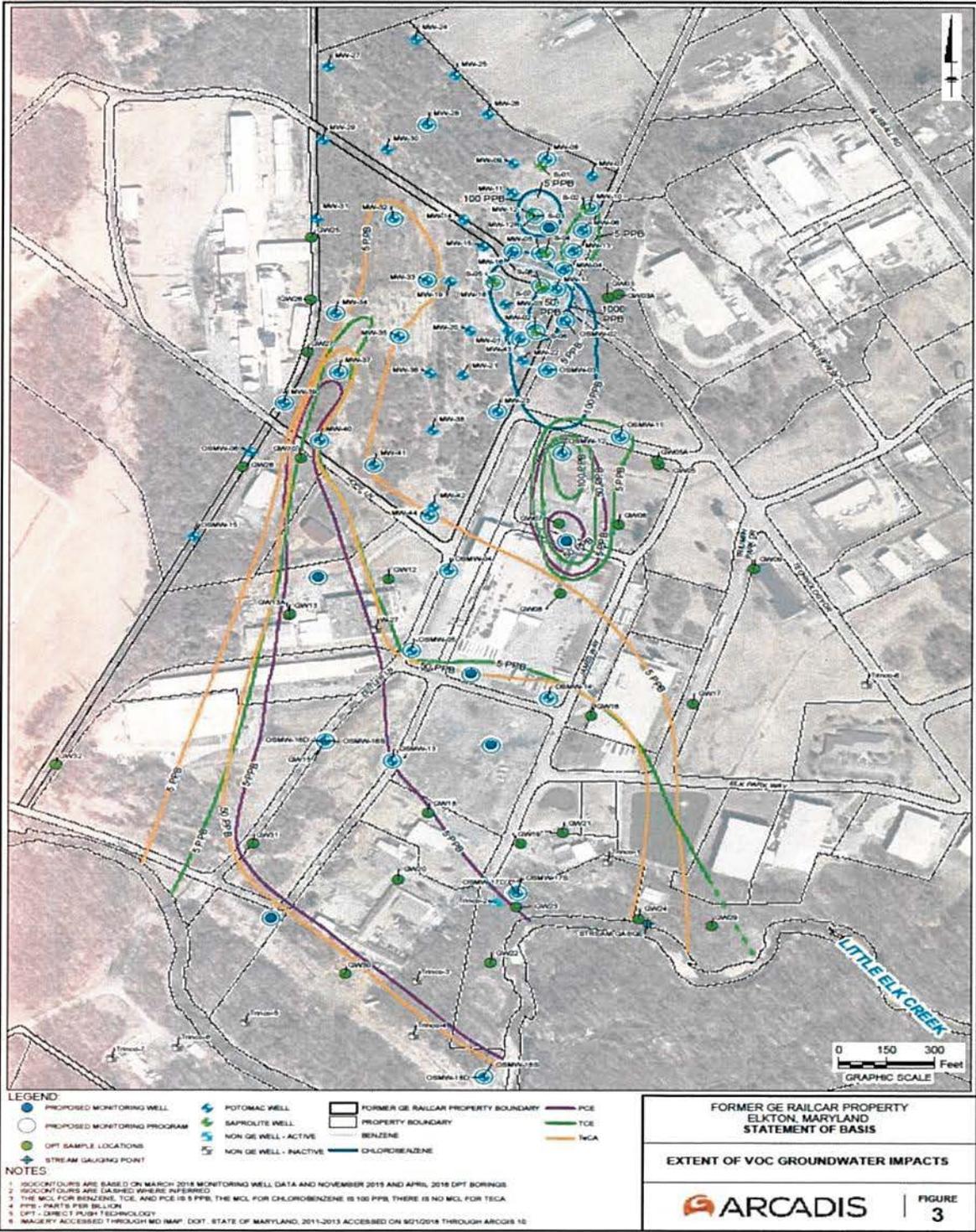
SOURCE:
USGS QUADRANGLE 7.5' SERIES
ELKTON, MD.-DEL. 1965 AND
NEWARK WEST, MD.-DEL.-PA. 1970

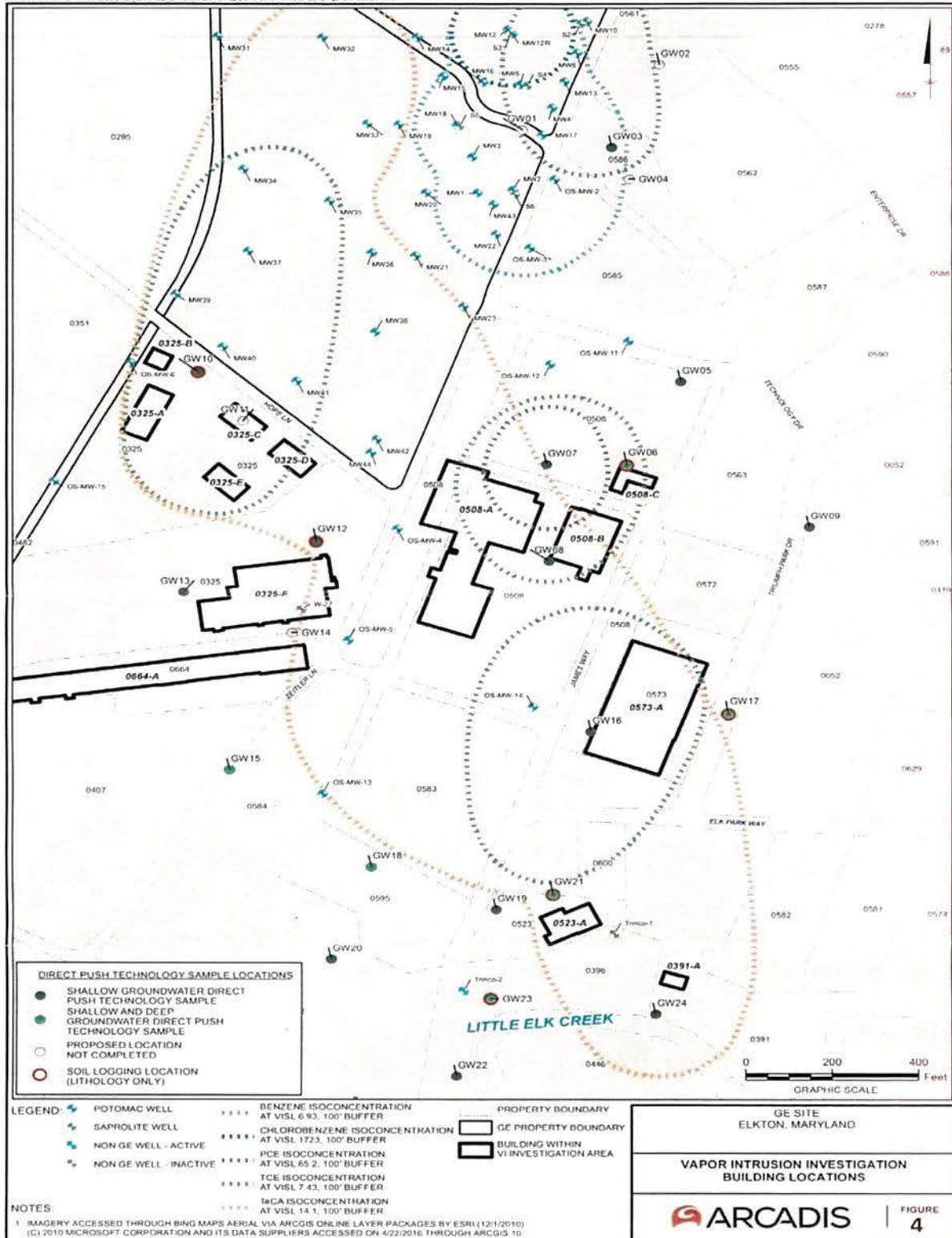
DRAWN BY: TTO		C:/DWG/GE-ELKTON/2017/		QA/QC	
DESIGNED BY: CAM		DATE: 01/13/09		NO.	DATE
NO.	DATE	REVISIONS		NO.	DATE
1				1	01/14/09
2				2	01/15/09
3				3	01/28/09
4				4	
5				5	
6				6	

RSA Rosengarten, Smith & Associates, Inc.

FIGURE 1
USGS SITE LOCATION MAP
(DRAFT) REMEDIAL INVESTIGATION REPORT
(VERSION-1) FEBRUARY 27, 2009
GE RAILCAR, ELKTON, MARYLAND
CERCLA DOCKET NO.: CERC-03-2007-0030CA







Attachment A

Administrative Record Index

- 1989, October; *A preliminary Assessment of the General Electric Railcar Repair Service Company, Cecil County, Maryland*, by Maryland Hazardous and Solid Waste Management Administration for U.S. EPA.
- 1990, December; *Removal Action Work Plan (Draft), Still Bottom Disposal Area, GE Railcar Repair Services Corporation, Elkton, Maryland Facility*, by Rosengarten, Smith & Associates, Inc. (RSA).
- 1991, April; *Report of Still Bottom Removal Action (Vol. 1), GE Railcar Services Corporation*, by RSA.
- 1992, April; *Certification of Final Closure of Hazardous Waste Units, GE Railcar Services Corporation, Elkton, Maryland Facility*, by RSA.
- 1992, September 1; *Final Report Site Operations/Ownership History, Cecil Industrial Park Site, Elkton, Maryland (Former Triumph Explosives, Inc., Site)*, by Tech Law, Inc. for U.S. Army Corps of Engineers, Omaha, Nebraska.
- 1998, August; *Surface Water and Ground Water at Triumph Industrial Park, Volume 1, Elkton, Cecil County, MD*, by Maryland Department of the Environment (MDE) for U.S. EPA, Region III.
- 2000, May 31; *Environmental Indicator Inspection Report for GE Railcar Repair Services Corp.*, prepared by U.S. Army Corps of Engineers for U.S. EPA, Region III.
- 2000, December 15; *Little Elk Creek Site Investigation Report, Thiokol Propulsion, Elkton, MD*, by ARCADIS Geraghty & Miller.
- 2001, August 9; *Corrective Action Site Investigation Work Plan, GE Railcar Repair Services Facility, Triumph Industrial Park, Elkton, Cecil County, MD*, by RSA.
- 2001, October 9; Facility Lead Corrective Action Agreement – Letter of Commitment from GE Capital Rail Services to EPA, Region III regarding GE Railcar Facility, Elkton, MD
- 2002, August 16; *Site Investigation Report of the GE Railcar Services Facility, Elkton, MD*, by RSA.
- 2003, March 31; *Quality Assurance Project Plan for the Site Investigation at the GE Railcar Repair Services Facility, Elkton, MD*, by RSA.

2003, March 31; *Work Plans to Conduct MW-42 Soil Investigation and Soil Gas Survey MW-9 & MW-25 Areas of Interest*, by RSA.

2003, March 31; *In-Situ Remediation Pilot Study Work Plan, GE Railcar Repair Services Facility, Triumph Industrial Park, Elkton, Cecil County, MD*, by RSA.

2003, April 2; *Work Plan to Conduct Off-Site Groundwater Investigation, GE Railcar Services Facility, Elkton, MD*, by RSA.

2003, October 24; *Interim Soil Investigation, MW-42 Area of Concern*, by RSA.

2004, March 10; *Submission of 2nd Interim Results, MW-42 AOC*, by RSA.

2004, December 20; *Off-Site Investigation, GE Railcar Repair Services Facility, Triumph Industrial Park, Elkton, Cecil County, MD*, by RSA.

2004, December 29; *In-Situ Remediation Pilot Study Evaluation Report*, by RSA.

2005, February 3; *Results of Soil Gas Survey MW-9 & MW-25 Areas of Interest, GE Railcar Repair Services Facility, Triumph Industrial Park, Elkton, Cecil County, MD*, by RSA.

2006, April 25; *2005 Off-Site Investigation, GE Railcar Repair Services Facility, Triumph Industrial Park, Elkton, Cecil County, MD*, by RSA.

2007, September 12; *Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study, CERCLA Docket No. CERC-03-2007-0030CA, GE Railcar Repair Services Corporation, Elkton, Cecil County, MD, EPA*.

2009, February 27; *Draft Remedial Investigation Report, CERCLA Docket No. CERC-03-2007-0030CA, GERRS Facility, Triumph Industrial Park, Elkton, Cecil County, MD*, by RSA.

2012, February 21; *Supplemental Investigation Work Plan*, by Arcadis.

2012, November 14; *Supplemental RI Data Transmittal (GW Monitoring Data and Spent Blast Sand AOI Investigation)*, by Arcadis.

2012 – 2017; *Supplemental RI Data Transmittals #1 – 11*, by Arcadis.

2012 – 2018; *Long-Term Groundwater Monitoring Reports*, by Arcadis.

2014, March; *Semi-Annual Data Transmittal (GW Monitoring Data)*, by Arcadis.

2014, August; *Baseline Human Health Risk Assessment Addendum*, by Arcadis.

2014, November; *Preliminary Soil Management Plan*, by Arcadis.

2015, December; *Baseline Human Health Risk Assessment, Revised*, by Arcadis.

2016, March 2; *Offsite Groundwater Investigation Results Report*, by Arcadis.

2016, March 21; *Supplemental GW Sampling Event and GW Delineation Investigation Simplified Work Plan*, by Arcadis.

2016, July 28; *Off-Site Groundwater Investigation Results, Supplemental Data*, by Arcadis.

2016, December 6; *Off-Site Vapor Intrusion Investigation Revised Simplified Work Plan Addendum*, by Arcadis.

2016, December 6; *MW-40 Soil Investigation Simplified Work Plan*, by Arcadis.

2017, August 18; *Monitoring Well Installations and April 2017 Groundwater Results Report*, by Arcadis.

2017, May 17; *Off-Site Vapor Intrusion Investigation Simplified Work Plan*; by Arcadis.

2017, May; *Supplemental Data Transmittal #10 (2016 Off-Site Soil Gas Investigation)*, by Arcadis.

2017, June; *MW-40 AOI Investigation Results, Data Transmittal #11*, by Arcadis.

2018, November 12; *2018 Feasibility Study Report, Former GE Railcar Site, Elkton, MD*, by Arcadis.