



STATEMENT OF BASIS

SOLUTION WAY MANAGEMENT FACILITY

(FORMER GENICOM FACILITY)

WAYNESBORO, VIRGINIA

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TABLE OF CONTENTS

I. INTRODUCTION	4
II. FACILITY BACKGROUND.....	4
III SUMMARY OF PREVIOUS INVESTIGATION / INTERIM MEASURES	5
IV. SITE CHARACTERIZATION.....	7
A. Surface Water Hydrology	7
B. Groundwater Hydrology	7
C. Contaminants of Concern.....	8
D. Extent of Groundwater Contamination	9
E. Extent of Soil Contamination	10
V. SUMMARY OF HUMAN HEALTH RISK ASSESSMENT	10
A. Soil Exposure Pathways.....	10
B. Groundwater Exposure Pathways	11
C. Surface Water Exposure Pathways	12
D. Air Exposure Pathways.....	12
VI. SUMMARY OF ECOLOGICAL RISK ASSESSMENT	12
VII. SUMMARY OF PROPOSED REMEDY	13
A. Scope of Remediation	13
B. Remediation Standards.....	13
C. Proposed Remedy	14
(a) Expansion of interim pump-and-treat system with continued treatment and monitoring.....	15
(b) Institutional Controls.....	15
VIII. EVALUATION OF PROPOSED REMEDY.....	17
A. Threshold Criteria	17
(1) Overall Protection of Human Health and the Environment	17
(2) Attainment of Media Cleanup Standards	18
(3) Source Control	18
B. Balancing Criteria	18
(1) Long-term Reliability and Effectiveness.....	18
(2) Reduction of Waste Toxicity, Mobility or Volume	18
(3) Short-Term Effectiveness.....	19
(4) Implementability	19
(5) Cost.....	19
(6) Community Acceptance	20
(7) State Acceptance	20
IX. PUBLIC COMMENT	20

LIST OF FIGURES

- Figure 1 Site Location Map
- Figure 2 Location of SWMUs and APSCs
- Figure 3 Zone 1 Plume
- Figure 4 Zone 2 Plume

GLOSSARY

1,1 DCA – 1,1 Dichloroethane
1,1 DCE -1,1 Dichloroethylene
1,1,2-TCA – 1,1,2 Trichloroethane
1,1,1 TCA – 1,1,1 Trichloroethane
AOI - Areas of Interest
APSCs - Additional Potential Sources of Contamination
Cis 1,2 DCE - Cis 1,2 Dichloroethylene
CMS – Corrective Measures Study
COC – Contaminants of Concern
EPA- U.S. Environmental Protection Agency
GE - General Electric Company
gpm – Gallons per minute
IM – Interim Measures
MCL - Maximum Contaminant Levels
OSHA - Occupational Safety and Health Administration
PAHs – Polycyclic Aromatic Hydrocarbons
PCE – Perchloroethylene also known as Tetrachloroethylene
ppb – Parts per billion
RBC – Risk Based Concentrations
RCRA – Resource Conservation and Recovery Act
RFA - RCRA Facility Assessment
RFI - RCRA Facility Investigation
ug/l – Micro grams per liter
SB – Statement of Basis
SWM - Solution Way Management Property
SWMUs - Solid Waste Management Units
TCE - Trichloroethylene
Trans 1, 2 DCE - Trans 1, 2 Dichloroethylene
UAO - Unilateral Administrative Order
VADEQ - Virginia Department of Environmental Quality
VPDES – Virginia Pollutants Discharge Elimination System permit
VADH – Virginia Department of Health

I. INTRODUCTION

This Statement of Basis (SB) describes the United States Environmental Protection Agency's (EPA's) proposed remedy for contaminated soil and groundwater originating from the facility located at Genicom Drive, Augusta County, Waynesboro, Virginia (Facility). For soils, EPA proposes to make a corrective action complete with controlsⁱ determination because no further corrective action is necessary at this time. As the remedy for groundwater, EPA is proposing the expansion of an interim pump-and-treat system with continued treatment and monitoring and the implementation institutional controls.

EPA is issuing this SB under the Resource Conservation and Recovery Act, as amended (RCRA), 42 U.S.C. Sections 6901 to 6939(e). The purpose of this document is to solicit public comment on EPA's proposed remedy prior to EPA making its final remedy selection for the Facility. The public may participate in the remedy selection process by reviewing this SB and documents contained in the Administrative Record and submitting written comments to EPA during the public comment period. The information presented in this SB can be found in greater detail in the work plans and reports submitted by the Facility to EPA and the Virginia Department of Environmental Quality (VADEQ). To gain a more comprehensive understanding of the RCRA activities that have been conducted at the Facility, EPA encourages the public to review these documents which are found in the Administrative Record.

The locations of the Administrative Record and details of the public participation process are provided in Section IX of this SB. EPA will address all significant comments submitted in response to the proposed remedy described in this SB. EPA will make a final remedy decision and issue a Final Decision and Response to Comments after considering information submitted during the public comment period. If EPA determines that new information or public comments warrant a modification to the proposed remedy, EPA may modify the proposed remedy or select other alternatives based on such new information and/or public comments.

II. FACILITY BACKGROUND

The Facility is located on 114 acres near the northern boundary of the City of Waynesboro in Augusta County, Virginia (Figure 1). North of the Facility is open pasture. South of the Facility is a small residential area bound by Hopeman Parkway. Further south is a mixed commercial and residential area. The Facility is bounded to the east by a railroad, a cement manufacturing plant, a county road and a contiguous residential area. To the west of the Facility is the South River and across the river is a low-density rural area.

Prior to 1954, the Facility property was used as a grass-strip airfield. In 1954, General Electric Company (GE) purchased the Facility and constructed an electro-mechanical

ⁱ Complete with Controls = Final cleanup objectives are met but on-going operation, maintenance and/or monitoring of controls are necessary to ensure protection of human health and the environment.

equipment manufacturing plant (Plant) on the southern portion of the Facility. Plant operations included painting, etching and electroplating that generated hazardous waste streams. The Plant occupied approximately one-third of the Facility property and consisted of the main plant building, several small subsidiary buildings, and an industrial treatment plant, which, in turn, included two chemical etching solution tanks, one cyanide storage tank and two recirculation impoundments. The remaining two-thirds of the Facility remain undeveloped and lie to the north and west of the plant. A large portion of the undeveloped area lies within the South River 100-year flood plain and contains two former dump sites. These two dump sites have a combined area of about 2 acres, and were used in the 1950s and 1960s for the disposal and burning of trash, paint sludge and manufacturing wastes.

GE operated the Facility until approximately 1983 when Genicom Corporation, now known as Oldgen, Inc., purchased the Facility and used it to manufacture computer printers and relays. In March 2000, Genicom filed for bankruptcy under Chapter 11 of the U.S. Bankruptcy Code. In June 2001, Solutions Way Management, LLC (SWM) purchased the Facility. Prior to purchasing the Facility, in June 2001, EPA, the Department of Justice (DOJ) and SWM entered into an Agreement and Covenant Not To Sue (Covenant) that resolved SWM's potential liability under Sections 9606 and 107(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9606 and 9607(a), and Sections 7003 and 3008(h) of RCRA, 42 U.S.C. §§ 6928 and 6973 with respect to existing contamination provided SWM performed the work, as defined in and in the time and manner required by, the Covenant, at the Facility. SWM leases portions of the Facility to tenants for light manufacturing, warehousing, distribution and commercial office uses. The Facility currently employs about 220 workers.

Much of the Facility contamination was generated during GE's manufacturing operations. The primary waste streams from historic operations were acid and inorganic wastewater generated from etching and electroplating operations, and organic solvents used to clean metal parts. The wastewater was diverted to an industrial wastewater treatment plant for removal of inorganic wastes, primarily metals, and pH adjustment prior to discharge to the South River. The organic solvent waste stream, primarily trichloroethylene (TCE), was untreated and leaked into groundwater generating a one-mile long, 400 to 1000 feet in width, TCE-contaminated groundwater plume (TCE plume) of which a substantial portion has migrated beyond the Facility boundary.

III SUMMARY OF PREVIOUS INVESTIGATION / INTERIM MEASURES

In 1986, EPA conducted a RCRA Facility Assessment (RFA) at the Facility. Based on record review and interviews with Facility employees, the RFA identified 29 Solid Waste Management Units (SWMUs) and 14 Additional Potential Sources of Contamination (APSCs) that were recommended for further investigation.

In 1990, EPA issued an Administrative Order (Order), RCRA III-036-CA, to Genicom under Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h). The Order required

Genicom to perform, among other work, a RCRA Facility Investigation (RFI) to determine the nature and extent of any releases of hazardous waste at or from the Facility and to identify and evaluate alternatives for corrective action. Pursuant to a sale agreement between Genicom and GE, GE has been performing the work required under the Order on behalf of Genicom.

GE conducted the RFI in two phases, referred to as the Phase I RFI and the Phase II RFI, respectively. The Phase I RFI was completed in 1993 and identified the sources of contamination and the areas of soil contamination at the Facility. Based on the data collected during the Phase I RFI, EPA determined that a number of SWMUs required no further investigation and consolidated the remaining SWMUs into 5 general Areas of Interest (AOIs) where releases were confirmed (Figure 2). Three of the five AOIs are clustered on the west side of the main plant building. The remaining two AOIs are the two former dump sites located in the undeveloped area.

GE completed the Phase II RFI between 1994 and 2003. The Phase II focused on delineating groundwater contamination. During the Phase II RFI, GE installed 64 monitoring wells, sampled over 50 temporary wells, and collected over 125 soil samples and 1000 groundwater samples. In addition to delineating the groundwater contamination, the Phase II RFI investigated the presence of product phase TCE near the plume source to determine whether any additional sources of TCE existed and the potential impact of the TCE plume on residential wells near the plume boundary.

In 1997, as a result of the Phase II RFI, GE installed and began operating an interim pump-and-treat system to stabilize the plume. The interim pump-and-treat system consists of an air-stripper to remove volatile organic compounds (VOCs) from groundwater that is pumped from a single source recovery well, MW-51B, located near the plume's center of mass. The treated water is discharged to the South River under a National Pollutant Discharge Elimination System (NPDES) permit issued by VADEQ to GE. GE continues to operate the interim pump-and-treat system on a voluntary basis with EPA and VADEQ oversight.

The interim pump-and-treat system has demonstrated success in containing the plume as evidenced by the extent of the capture zone and gradual decline in influent and effluent concentrations in 10 years of operation. The TCE concentration in the influent has declined from 24,000 micrograms per liter (ug/l) in 1997 to 800 ug/l in 2006, and the system effluent has followed a parallel decline in TCE concentration from 170 ug/l in 1997 to below 5 ug/l in 2003.

Between 1995 and 1999, under the oversight of VADEQ, GE conducted a RCRA Part B permitted closure of five SWMUs: two chemical etching solution tanks and one cyanide storage tank were clean closed by removing the structures and contents, and two recirculation impoundments were closed by removing the structures and contents, backfilling the depressions with clean soil, and installing a RCRA cap to contain the contaminated soil left in place.

In February 1999, VADEQ issued a RCRA Post-Closure Permit to Genicom requiring Genicom to conduct long-term monitoring and maintenance of the two closed recirculation impoundments and obtain a financial assurance bond for long-term post-closure care of the recirculation impoundments. After Genicom filed for bankruptcy in 2000, SWM assumed limited responsibility to perform periodic maintenance of, among other things, the recirculation impoundments pursuant to the Covenant. In 2003, VADEQ, in order to provide for the long-term post-closure care of the recirculation impoundments, executed on the financial assurance bond previously provided by Genicom. By executing on the bond, VADEQ assumed the responsibility to oversee and maintain the long-term post-closure care of the closed impoundments. VADEQ did not assume responsibility to maintain Facility-wide corrective action requirements.

In July 2004, GE submitted a *Corrective Measures Study* (CMS) report to EPA that evaluated several remediation alternatives. Based on the CMS, EPA identified a proposed remedy for the Facility as described in Section VII, below. In February 2006, EPA approved a *Remedy Design Plan*, dated December 2005, which provides design details of the proposed remedy. After it selects a final remedy, EPA will consider various enforcement options for remedy implementation including the possibility of issuing an Administrative Order to GE requiring GE to implement the remedy.

IV. SITE CHARACTERIZATION

A. Surface Water Hydrology

The Facility lies within the South River drainage area and about half of the Facility property is within the South River's 100-year flood plain. The South River surrounds the Facility on all three sides except the east. Drainage of the developed area is enhanced by storm drains, overland flow, and a drainage canal that discharges to South River on the west side. North of the Facility is an open pasture currently used for cattle grazing. The open pasture lies within the South River floodplain and is fed by several spring ponds.

B. Groundwater Hydrology

Groundwater occurs in three hydrologic zones. Zone 1 is the uppermost zone consisting of alluvium and highly weathered carbonate rock that varies in thickness from a few feet to 20 feet throughout the plume area. Zone 2 is about 100 feet thick and consists of highly fractured carbonate rock. Zone 3 is the deepest zone consisting of less fractured carbonate rock of undetermined thickness. All three zones are highly permeable and hydraulically connected. Regional production wells located in Zones 2 and 3 yield between one hundred to thousand gallons per minute. Zone 2 differs from Zone 1 in that it is highly anisotropic; that is, groundwater moves preferentially in the northeasterly direction parallel to the bedding strike. Zone 3 differs from Zone 2 by having more competent rock, lower hydraulic conductivity, and less fractures. There is a slight downward vertical gradient across all three zones at the site except for the northern open pasture in between the river meander where upwelling of Zone 2 groundwater to Zone 1 is apparent.

C. Contaminants of Concern

1. Groundwater

The Contaminants of Concern (COCs) in groundwater at the Facility consist of 12 VOCs, principally TCE and its degradation products. Over 1,000 groundwater samples have been collected at the Facility to characterize the nature and extent of contamination. Initially, all samples were analyzed for a wide range of contaminants with up to 120 volatile, semi-volatile and inorganic constituents analyzed per sample. EPA reduced the groundwater sampling parameter list to 12 site-related VOCs for the purpose of routine monitoring because these compounds are the only ones that are still detected above drinking water standards.

The 12 groundwater sampling parameters are: 1,1,1 trichloroethane (1,1,1 TCA), 1,1 dichloroethane (1,1 DCA), 1,1 dichloroethylene (1,1 DCE), carbon disulfide, chloroethane, chloroform, cis 1,2 dichloroethylene (Cis, 1,2 DCE), dichloromethane, perchlorethylene, trichloroethylene (TCE), trans 1,2 dichloroethylene (Trans, 1,2 DCE), and vinyl chloride. Of the 12 constituents, TCE was detected most frequently in 72% of the samples; TCE breakdown products, 1,1-DCE, Trans-1,2-DCE and Cis-1,2-DCE were detected in 31 % of the samples cumulatively; 1,1,1-TCA was detected in 23% of the samples; and 1,1-DCA was detected in 17% of the samples. The remaining constituents were detected infrequently, including vinyl chloride, the final breakdown product of TCE, which was detected in only 1.2 % of the samples. The frequency of detection indicates that TCE is the most prevalent contaminant in groundwater, and the environmental condition is not conducive to the complete breakdown of TCE to vinyl chloride. Therefore, it is appropriate to use TCE as an indicator compound to define the extent of site-wide groundwater contamination.

As part of the post-closure requirements for the closed recirculation impoundments, VADEQ requires GE to monitor for 17 VOCs and 5 inorganic constituents. Twelve of those 17 VOCs overlap with EPA's parameter list. The VADEQ parameters that do not overlap with EPA's parameter list are: chloromethane, dibromochlormethane, tetrachloromethane, toluene, and five (5) inorganic constituents, Nickel, Zinc, Chromium, Lead and Cyanide.

2. Soils

The COCs in Facility soil consist of nine (9) inorganic compounds, chromium, copper, cadmium, antimony, arsenic, iron, nickel, zinc and manganese. These compounds relate to electroplating and etching operations at the Facility and were detected above background levels in soil samples collected in the five AOIs shown in Figure 2, but below current industrial use exposure screening levels.

D. Extent of Groundwater Contamination

A total of 87 monitoring wells and about 60 temporary piezometers have been installed on and off the SWM property to delineate the TCE plume. All piezometers were completed in Zone 1 by Geoprobe and all but three were removed after completion of data collection. Since groundwater in the bedrock moves preferentially along fracture orientation in the northeasterly direction, temporary piezometers were used extensively to optimize placement of monitoring wells to intercept the plume. All monitoring wells were installed by conventional drilling. Fifty-three were completed in Zone 1, 30 were completed in Zone 2, and 4 were completed in Zone 3.

Although a range of other VOCs have been detected, TCE and its breakdown products are the most prevalent compounds found in groundwater. The TCE releases occurred many years ago and the primary TCE release source appears to have been detected on the west side of the main plant building in the vicinity of AOI 3, 4 and 5 as shown in Figure 2. No product phase TCE has been found at the Facility as the release sources have dispersed into the bedrock with no trace found near the surface.

Several metal contaminants relating to electroplating and etching operation (cadmium, copper, chromium, antimony, nickel, zinc, iron and manganese) were detected above background levels but below Virginia Groundwater Protection Standards in a small number of Zone 1 wells on the west side of the main plant building. Semi-volatile organic compounds were rarely detected in groundwater and there is no history of site use of such compounds.

Plume delineation has been challenging because the plume configuration has shown several anomalies. First, the bedrock plume (Zones 2 and 3) was found to extend 2000 feet upgradient of the Facility boundary to the Industrial Park south of Hopeman Parkway. Second, the overburden plume (Zone 1) was found to split up into two separate plume areas. The first plume area lies within the Facility property, disappears beyond the property boundary, and, then, reappears under the open pasture. Third, the bedrock plume is long and narrow, rendering placement of wells difficult to intercept the plume.

The first anomaly cannot be definitively explained. One hypothesis is that an old industrial park well, which operated periodically between 1974 and 1981, could have pulled the plume upgradient. Another hypothesis is that an additional TCE release from an unknown source could have occurred upgradient of the Facility. The second anomaly can be explained by the groundwater flow pattern. There is groundwater upwelling on the open pasture during all or part of the year transferring contaminated groundwater from Zone 2 to Zone 1. A geologic contact that exists on the opposite side of the second river meander prevents the plume from further migration. The third anomaly can be explained by the fracture orientation of the bedrock which results in preferential groundwater flow along narrow fracture zone in the northeasterly direction. The difficulty in correct placement of monitoring wells to intercept the plume was overcome by employing temporary piezometers to define the groundwater preferential flow paths.

The extent of the TCE plumes in Zones 1 and 2 are shown in Figures 3 and 4, respectively. The total length of the plume is about one mile long extending both upgradient and downgradient of the SWM property, and the width varies between 400 feet to 1000 feet. Although the TCE release sources (product phase TCE) cannot be precisely located, based on the configuration of the plume, the primary source of TCE is located on the west side of the main plant building in the vicinity of AOI 3, 4 and 5 as shown in Figure 2, and a secondary minor source is located in the vicinity of a former dump site (AOI-2) located in the northern undeveloped area. The dump site was used approximately between 1954 to 1957 for disposal and burning of trash, paper, paint sludge and other wastes in low volume.

E. Extent of Soil Contamination

Over 125 soil samples were collected to characterize the extent of soil contamination at the Facility. Extensive soil sampling in the unsaturated zone was conducted throughout the site during the Phase I RFI. The soil samples were analyzed for VOCs, semi-volatile organic compounds, and inorganic compounds. Additional soil sampling was conducted during the Phase II RFI at locations near the plume's center of mass in an attempt to locate the presence of product phase TCE. TCE and its breakdown products were infrequently detected in soil samples and no product phase TCE was ever detected, above or below the water table. Semi-volatile organic compounds were rarely detected in soil samples and there is no record of site use. The inorganic compounds, chromium, copper, cadmium, antimony, arsenic, iron, nickel, zinc and manganese, were detected below current industrial use screening levels throughout the Facility, but above levels under hypothetical future residential or construction worker exposure scenarios in five AOIs as identified in Figure 2. The combined area of these five AOIs represents less than 5 percent of the total Facility. Due to the alkaline nature of the carbonate rock, inorganic contaminants tend to be soil bound and localized, as evidenced by the lack of migration in groundwater.

V. SUMMARY OF HUMAN HEALTH RISK ASSESSMENT

This section summarizes the human health and ecological risk assessment qualitatively. Detailed quantitative human health and ecological assessments are presented in Appendix A of the RFI report.

A. Soil Exposure Pathways

Opportunities for direct contact with contaminated soils by Facility workers are very limited because (a) contaminated soils in the developed area are largely capped by asphalt, (b) the two closed impoundments are secured by a fence and covered by a RCRA approved cap, and (c) the two former dump sites in the undeveloped area are off-limit to and rarely accessed by Facility workers.

Construction workers are vulnerable to direct contact with and inhalation exposure to fugitive dust releases during construction activities which involve the disturbance of

contaminated subsurface soils. The Covenant signed between EPA and SWM requires the owner to inform its tenants, contractors, and future buyers of the Facility that subsurface contamination exists at the Facility and that soils beneath the recirculation impoundments may not be disturbed without prior approval from EPA.

Currently, the Facility is used for light manufacturing, warehousing and commercial uses. Potential future residential use would introduce the greatest opportunities for human exposure to contaminated soil due to children and adult activities in the yards and surrounding areas. Although the Covenant does not prohibit residential development of the Facility, the Covenant does provide that SWM may not undertake any activity at the Facility which includes the significant disturbance of soil without first receiving EPA's approval. As part of the remedy being proposed in this SB, EPA will require engineering and institutional controls, as necessary, to prevent future exposure to contaminated soils.

B. Groundwater Exposure Pathways

Potential human exposure to contaminated groundwater exists from direct groundwater consumption, bathing and vapor intrusion of VOCs from contaminated groundwater into living spaces. The area of concern extends beyond the Facility boundary because the groundwater plume has migrated offsite into neighboring properties. Based on review of the water use in the vicinity of the Facility, there are no water supply wells currently in use within the plume boundary. The Facility and the surrounding commercial and residential areas are serviced by a public water supply system, although a few scattered residential wells remain. EPA has located 4 residential wells in close proximity to the plume boundary and as part of a long-term monitoring plan, EPA requires GE to sample these wells periodically. The sampling results thus far have not detected any site-related contaminants in the private wells.

If site-related contaminants are detected above drinking water standards in the private wells sampled in the future, EPA proposes requiring GE to sample the wells to verify whether the contaminants are linked to the TCE plume. If the linkage is confirmed and the levels of such contaminants are above drinking water standards, EPA proposes requiring GE to submit a plan to provide safe drinking water to any such affected residents. Any such Plan will include, among other things, the installation of domestic treatment units or providing connections to a public water supply system.

In July 2000, out of concern that the TCE plume might be causing VOC vapor to migrate into homes in the small residential area to the south of the Facility, EPA required GE to conduct soil vapor sampling in existing wells that lie between the residential area and the edge of the TCE Zone 1 plume. The vapor levels of TCE and its breakdown products were either non-detectable or detected at levels below EPA action levels. EPA action levels were established (at the time of sampling) based on a one in a million cancer risk for TCE and degradation products, and an (soil vapor to indoor air) attenuation factor of 1 in 1000. Based on the sampling results, EPA concluded in a letter to Genicom, dated September 21, 2000, that no further investigation of subsurface vapor intrusion was warranted.

C. Surface Water Exposure Pathways

Several surface water bodies receive discharges from the groundwater plume. The South River receives treated water from the interim pump-and-treat system and non-point source discharges from overland flow and groundwater. The TCE concentration in the effluent from the interim pump-and-treat system has declined from 200 ppb in 1997 to below 5 ppb in 2003, suggesting this point source discharge has minimal impact on South River. A dilution calculation using measured concentrations at a monitoring well MW-61B immediately upgradient of South River indicates that non-point source discharge from groundwater seepage could not have any impact on South River due to immense dilution effect.

There are several spring-fed ponds located in the open pasture to the north of the Facility that may receive contaminated groundwater due to groundwater upwelling effect in between the river meander. In 2005 and 2006, EPA sampled three of the spring-fed ponds. TCE was not detected above 1 ppb in any of those ponds.

D. Air Exposure Pathways

Air emissions from the operation of the Facility are addressed under a site-wide air discharge permit managed by VADEQ and are not within the scope of the RCRA Corrective Action investigation of the Facility. Indoor air impact from the contaminated groundwater plume is discussed in Section V.B (Groundwater Exposure Pathways), above. The stack emissions from the interim pump-and-treat system fall below the applicable Virginia air permit threshold levels and an operating permit is not required under Virginia regulations.

VI. SUMMARY OF ECOLOGICAL RISK ASSESSMENT

An ecological risk assessment was conducted to estimate the potential impact on habitats resulting from past releases. The investigation has focused on two viable habitats, South River and AOIs 1 and 2, both located in the undeveloped area of the Facility.

As discussed in Section V.C, the TCE release has no impact on South River or any surface water bodies within the plume boundary due to low to non-detectable levels of TCE reaching South River or any spring fed ponds located in the northern open pasture.

Two Facility-wide surveys were conducted in 1997 and 2000, respectively, to evaluate the ecological impact from Facility-related contamination. The surveys identified minor ecological impacts on AOIs 1 and 2 from past disposal practices. These two dump sites have a combined area of approximately 2 acres, and were used in the 1950s and 1960s for the disposal and burning of low-volume trash and manufacturing wastes. Low levels of various constituents, primarily inorganic, were detected in the surface soils at the two former dump sites. Stressed vegetation was reported in one dump site, but the stress

cannot be definitely linked to Facility contamination because frequent inundation in the area could also produce the same effects.

VII. SUMMARY OF PROPOSED REMEDY

A. Scope of Remediation

Based on the findings set forth in the RFI, EPA has determined that past operations at the Facility have resulted in soil and groundwater contamination. Contaminated soils are confined on-site and the contamination levels do not exceed industrial screening levels. Therefore, EPA proposes that contaminated soils be left in place so long as institutional controls are implemented to prevent any potential current and future exposure. Groundwater contamination is extensive and has migrated off site to neighboring properties. EPA proposes that, in order to restore groundwater to drinking water standards, the interim pump-and-treat system be expanded and the treatment and monitoring of groundwater be continued. In addition, EPA is also proposing that institutional controls be implemented as necessary to prevent current and potential future exposure to contaminated groundwater while the groundwater is being remediated.

As EPA stated in its May 1, 1996 Advanced Notice of Proposed Rulemaking (ANPR) (61 Fed. Reg. 19446), the Agency endorses a streamlined approach to identify the preferred corrective measures and risk-based cleanup goals for remediation of facility contamination. The streamlined approach acknowledges that an evaluation of multiple alternatives is not always necessary, particularly if a desirable remedy can be developed directly from site characterization, available engineering technologies, and interim measure experience. This Facility has been investigated since 1992 and the interim pump-and-treat system has been in operation since 1997. Since the proposed remedy was identified on the basis of its ability to protect human health and the environment, and because of the likelihood that it can be implemented efficiently, EPA did not find it necessary to develop alternatives. The scope of the corrective measures discussion will, therefore, address only EPA's preferred alternative. A description of the other alternatives can be found in the Corrective Measures Study Report prepared by GE.

B. Remediation Standards

EPA has determined that groundwater at the Facility must be restored to drinking water standards to protect human health. EPA proposes to cleanup the groundwater to meet drinking water standards established by the Maximum Contaminant Levels (MCLs) promulgated at 40 C.F.R. Part 141, pursuant to Section 1412 of the Safe Drinking Water Act (SDWA), 42 U.S.C. Section 300g-1. The Contaminants of Concern (COCs) at the Facility consist of twelve (12) volatile organic compounds, principally TCE and its degradation products, as identified in the quarterly groundwater monitoring parameter list. If no MCL exists for a particular COC, EPA uses the Risk Based Concentration (RBC) established by EPA Region III in 2006. The following list shows the relevant MCL or RBC for COCs at the Facility:

	<u>MCL</u>
Trichloroethylene (TCE)	5 ppb
1,1 Dichloroethylene (1,1 DCE)	7 ppb
Cis 1,2 Dichloroethylene (Cis 1,2 DCE)	70 ppb
Trans 1, 2 Dichloroethylene (Trans 1, 2 DCE)	100 ppb
Vinyl Chloride	2 ppb
Chloroform (Trihalomethane)	80 ppb
Dichloromethane	5 ppb
Tetrachloroethylene (PCE)	5 ppb
1,1,1-Trichloroethane (1,1,1-TCA)	200 ppb

	<u>RBC</u>
1,1-Dichloroethane (1,1-DCA)	900 ppb
Carbon disulfide	1000 ppb
Chloroethane	3.6 ppb

C. Proposed Remedy

The proposed remedy consists of a soils component and a groundwater component.

1. Soils

For soils, EPA is proposing to make a corrective action complete with controlsⁱⁱ determination. Contaminated soils are found mainly in the five AOIs and the levels of contamination are below industrial use screening levels. Because the Facility is currently used for light manufacturing, warehousing, distribution and commercial office space, EPA has determined that Facility soils do not currently pose a threat to human health or the environment and require no further remediation at this time. However, because contaminants remain in the soil at levels which exceed residential use and construction worker scenarios, EPA is proposing that institutional controls be implemented to protect residential use and construction workers exposure to contaminated soils.

Institutional Controls are non-engineered instruments such as administrative and/or legal controls that minimize potential for human exposure to contamination and protect the integrity of the remedy. With respect to the five (5) SWMUs which GE closed under oversight of VADEQ, institutional controls are already in place. On January 15, 1997, Genicom filed a deed notice notifying subsequent purchasers that the Facility had been used for hazardous waste activity and that under Virginia law, use of the closed impoundments was restricted. In addition, pursuant to the Covenant, SWM agreed that it and its successors in interest would not interfere with the integrity and protectiveness of the hazardous waste management units. SWM is also required, by the Covenant to obtain EPA review and approval prior to initiating any construction activities at the facility.

ⁱⁱ Complete with Controls = Final cleanup objectives are met but on-going operation, maintenance and/or monitoring of controls are necessary to ensure protection of human health and the environment.

2. Groundwater

(a) Expansion of interim pump-and-treat system with continued treatment and monitoring

EPA's proposed remedy for groundwater is to expand the interim pump-and-treat system to improve its effectiveness in controlling the northern portion of the plume. Although a single recovery well (MW-51B) has been effective in capturing the primary source of the plume, that well is more than 800 feet south of a secondary minor source near the former disposal area (AOI 2) in the undeveloped area, and more than 2,500 feet south of the northern edge of the plume located under the open pasture. EPA has determined, based on computer modeling analyses presented by GE, that a secondary recovery well placed at the northern edge of the Facility will improve the effectiveness in capturing the secondary source and controlling further migration of the plume onto the open pasture. The secondary recovery well will be placed approximately at the mid-point between the existing recovery well and the northern edge of the plume, and will be able to intercept the northeasterly hydraulic preferential pathway. An underground pipeline, estimated to be about 2,500 feet, will be constructed to connect this secondary recovery well to the interim pump-and-treat system. The interim pump-and-treat system is estimated to have sufficient design capacity, but will be expanded, as necessary, to accommodate the additional flow.

In order to verify that the secondary recovery well will be effective in providing hydraulic control of the northern extreme of the plume, a new monitoring well will be placed at the northern edge of the open pasture. This new monitoring well will also help further define the northern extent of the TCE plume.

Based on monitoring data of the influent and effluent TCE concentrations, GE projects that the influent TCE concentration will reach 5 ppb by 2020. The influent TCE concentration has declined from 24,000 ppb in 1997 to 800 ppb in 2006, and the effluent TCE concentration has declined from 170 ppb in 1997 to below 5 ppb since 2003. Therefore, according to GE's estimate, the time frame to restore groundwater to drinking water standards is about 14 years. The effectiveness of the system and progress to attain the remediation levels will be evaluated every 5 years based on actual performance of the system.

(b) Institutional Controls

While on-site groundwater is not currently used as a drinking water source and there are no plans for such future use, to provide additional protection, the proposed remedy includes institutional controls to prohibit the development of on-site wells for drinking water or other domestic uses at the Facility. The institutional controls will be effective as long as necessary to prevent potential exposure while the plume is being restored to drinking water standards.

Given the extent and nature of waste left in place, more than one institutional control is necessary to prevent activities which could interfere with the integrity or protectiveness

of the remedy. Accordingly EPA's proposed remedy includes the following institutional controls to ensure the short-and long-term reliability of the remedy:

1. Institutional Controls Already In Place

a) A deed notice has been recorded for the portion of the Facility property where the two closed RCRA recirculation impoundment units were located. The deed notice was filed with the City of Waynesboro on January 15, 1997 to notify subsequent purchasers of SWM's obligations under the Covenant to provide access and restrict use of the Facility property.

b) The Covenant signed between EPA and SWM requires SWM to, among other things:

- i) maintain and inspect the closed impoundments;
- ii) ensure that no activities at or near the Facility disturb the cap on the closed impoundments;
- iii) not use the property in a way which interferes with or adversely affects the ongoing RCRA corrective action or remedial activities;
- iv) seek approval from EPA on all future development activities at the property to prevent disturbances of the two RCRA closed impoundments and any ongoing remediation work and to ensure protectiveness of human health and the environment; and
- v) file and maintain a deed notice regarding the Covenant obligations notifying future owners of the restrictions and obligations under the Covenant.

c) Augusta County imposes restrictions on buildings, utilities, sewer and water facilities, streets and sidewalks, and drainage facilities for development within the 100-year floodplain. These restrictions include the requirement that any buildings built in the floodplain district must be elevated at least one foot above the 100 year flood elevation. The open pasture, which is zoned for general agriculture use, is within the South River 100-year flood plain. It is highly unlikely that this property would be approved for rezoning to residential use given its location in a 100-year floodplain. Moreover, the engineering and construction costs to meet Augusta County's restrictions on floodplain development would likely be prohibitively expensive.

d) Any new private or municipal well drilling must obtain drilling permits from the Virginia Department of Health. Virginia's Private Well Regulations, 12VAC 5-630-380, for well location stipulates that "[i]f the source of contamination could affect the well adversely, and preventive measures are not available to protect the groundwater, the well shall be prohibited." In addition, EPA will require GE to submit a "groundwater well exclusion area" notice to the Virginia Department of Health showing the area impacted by the plume in order to prohibit well drilling under 12VAC 5-630-380. The notice will be updated every two years to reflect the latest plume boundary.

2. Additional Proposed Controls

EPA proposes to require GE to submit biennial review reports on the effectiveness of the institutional controls in meeting the human health and environmental protection objectives. The review may include but not be limited to review of SWM's compliance with the Covenant requirements, groundwater and land uses within 0.5 mile of the facility, and zoning maps or planning documents that may affect future land use in the impacted area. Additionally, GE will be required to submit 5-year review reports on the progress of the remedial measures. The City of Waynesboro, Augusta County, Virginia Department of Environmental Quality, and Virginia Department of Health, which entities are essential to the institutional controls program, will be provided with GE's biennial review reports and 5-year review reports.

VIII. EVALUATION OF PROPOSED REMEDY

This section provides a description of the criteria EPA uses to evaluate proposed remedies under the Corrective Action Program. The criteria are applied in two phases. In the first phase, EPA evaluates three remedy threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA evaluates seven balancing criteria to determine which proposed remedy alternative provides the best relative combination of attributes.

A. Threshold Criteria

(1) Overall Protection of Human Health and the Environment

EPA's proposed remedies for soils and groundwater are protective of human health and the environment. As described in Section IV.E, the extent of soil contamination is limited and the concentrations are below current industrial use screening levels. Therefore, under current land use condition, contaminated soil can be left in place with no unacceptable health risks. EPA proposes implementing institutional controls to prevent potential future exposure due to unanticipated land use change or construction activities that may deviate from current exposure scenario.

For groundwater, the interim pump-and-treat system, which GE has been operating at the Facility for almost 10 years, has reduced the mass of contamination remaining on-site and has prevented further migration of contaminants in the groundwater. The proposed expansion of the interim pump-and-treat system along with continued treatment and monitoring and the implementation of institutional controls will ensure long-term protectiveness to human health and the environment. EPA is proposing institutional controls to prevent future exposure to contaminated groundwater while the groundwater is being remediated.

(2) Attainment of Media Cleanup Standards

The proposed corrective action complete with controls determination for soils meets the media cleanup objectives. There are no soils at the Facility which exceed industrial screening levels. The existence of institutional controls will protect against future land uses that may deviate from current land use. For groundwater, the proposed remedy meets the media cleanup standards set forth in the SDWA, as discussed in Section VII.B., above, because it will restore groundwater to drinking water standards based on MCLs or RBCs, as applicable. Based on historical performance data of the interim pump-and-treat system, GE projected that it will take 14 years to restore groundwater to drinking water standards.

(3) Source Control

The interim pump-and-treat system has reduced the mass of VOC contamination in the groundwater and has minimized the future migration of contaminants in the groundwater. The proposed expansion of the interim pump-and-treat system will provide further reduction of VOC contamination. EPA recognizes that no remedy will be fully effective unless there is cessation of further environmental degradation by controlling or eliminating future releases from the Facility. SWM uses the Facility for warehousing, distribution and commercial office space with only minimal, light manufacturing possible, therefore, no significant hazardous waste generation is anticipated.

B. Balancing Criteria

The EPA is satisfied that the proposed remedy is protective of human health and the environment, and evaluation of other alternatives is not necessary. Nonetheless, because EPA is proposing active remediation of groundwater, EPA presents the five criteria below to illustrate the suitability of the proposed groundwater remedy:

(1) Long-term Reliability and Effectiveness

The interim pump-and-treat system has provided an effective remedy to address groundwater contamination. As demonstrated by monitoring data, the existing interim pump-and-treat system has been successful in reducing the influent TCE concentration from 24,000 ppb to 800 ppb in a decade of operation. EPA is proposing to expand the interim pump-and-treat system to provide greater mass removal and containment of the TCE secondary source. EPA also considers land use restrictions, such as zoning restrictions, and deed notices, as discussed in Section VII.C, above, as long-term components of the remedy.

(2) Reduction of Waste Toxicity, Mobility or Volume

The proposed remedy for groundwater consists of expansion of the interim pump-and-treat system to clean up groundwater. The interim system has been in operation since February 1997 and it will be expanded to more effectively capture the secondary TCE

source. The primary recovery well has been placed strategically at the center of mass of the TCE source, and under EPA's proposed remedy, a secondary recovery well will be placed near the center of the secondary TCE source. The placement of the dual well recovery system will optimize mass removal, containment of the TCE sources, and reduction of the waste toxicity and volume.

(3) Short-Term Effectiveness

The proposed remedy is expected to meet the short-term effectiveness criterion. The short-term effectiveness criterion is intended to address hazards posed during the implementation of the remedy. Short-term effectiveness is designed to take into consideration the impact on site workers and nearby residents during construction before the final cleanup levels are achieved. Examples of hazards addressed by this criterion include the potential for volatilization of VOCs, the spread of contamination through dust generation and hazardous materials spills resulting from waste loading and transport operations.

Implementation of the remedy will involve drilling two new wells and digging a 2,500 foot trench to bury a pipeline linking the new recovery well to the groundwater treatment system. The new wells and a small portion of the trench will traverse the contamination zone, but the release of fugitive dust and VOCs during construction is expected to be minimal. The construction workers will be protected by OSHA health and safety rules with which the contractor must comply during construction. The extent of construction is very limited in aerial extent and no impact on Facility workers or nearby residents is anticipated. Exposure to contaminated groundwater will be prevented in the interim by the existence of multiple institutional control measures.

(4) Implementability

The proposed remedy is fully implementable. The implementability criterion addresses the regulatory constraints in employing the cleanup approach. The interim pump-and-treat system has been in operation for nearly a decade and no regulatory constraints were encountered. No new regulatory constraints are anticipated for the construction and operation of the expanded system which lies within Facility boundary. One new recovery well will be located offsite on the open pasture and the property owner has granted access for its construction and future sampling.

(5) Cost

The proposed remedy is cost effective in meeting the remediation objectives. GE has already expended capital costs in installing the interim pump-and-treat system at the Facility and will incur an additional cost of approximately \$250,000 to install the two additional wells and a 2000-foot pipeline and to conduct operation and maintenance of the proposed remedy. In addition, there are minimal costs associated with implementing institutional controls at the Facility.

(6) Community Acceptance

The Community Acceptance of EPA's proposed remedy will be evaluated based on comments received during the public comment period and will be described in the Final Decision and Response to Comments.

EPA has held two prior public meetings in Waynesboro to explain EPA's earlier actions. The first public meeting was held on January 30, 1997 to announce the start up of the interim pump-and-treat system. A second public meeting was held on November 6, 2001 to brief the public and local officials on the discovery of offsite TCE plume. In both meetings, the community was receptive to EPA actions.

(7) State Acceptance

EPA's proposed remedy for the Facility was evaluated and approved by VADEQ prior to EPA's proposing the remedy in this SB. Furthermore, EPA has solicited state input throughout the investigation process and VADEQ and EPA jointly held public meetings, in 1997 and in 2001 to brief the public on the status of the Facility investigation.

IX. PUBLIC COMMENT

On October 18, 2007, EPA placed an announcement in the News Virginian to notify the public of EPA's proposed remedy and the location of the Administrative Record. Copies of this SB will be mailed to anyone who requests a copy. The Administrative Record, including this SB, is available for review during business hours at two locations:

U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103
Telephone Number: (215) 814-3426
Attn: Mr. Andrew Fan (3WC23)

and

Solution Way Management
1 Solution Way Drive
Waynesboro, VA 22980
Telephone: 540-943-7736
Attn: Mr. Reo B. Hatfield

EPA is requesting comments from the public on the remedy proposed in this SB. The public comment period will last thirty (30) calendar days beginning October 18, 2007 and ending November 19, 2007. Comments on, or questions regarding, EPA's preliminary identification of a proposed remedy may be submitted to:

Mr. Andrew Fan (3WC23)
U.S. EPA, Region III
1650 Arch Street
Philadelphia, PA 19103
(215) 814-3426
FAX (215) 814-3113
Email: fan.andrew@epa.gov

Following the thirty (30)-day public comment period, EPA will hold a public meeting on EPA's proposed remedy if sufficient public interest indicates that a meeting would be valuable for distributing information and communicating ideas. After evaluation of the public's comments, EPA will prepare a Final Decision Document and Response to Comments (FDRTC) that identifies the final selected remedy. The FDRTC will also address all significant written comments and any significant oral comments generated at the public meeting. The FDRTC will be made available to the public. If, on the basis of such comments or other relevant information, significant changes are proposed to be made to the corrective measures identified by EPA in this SB, EPA may seek additional public comments.

The final remedy will be implemented using available legal authorities possibly including, but not necessarily limited to, RCRA Section 3008(h), 42 U.S.C. 6928(h).

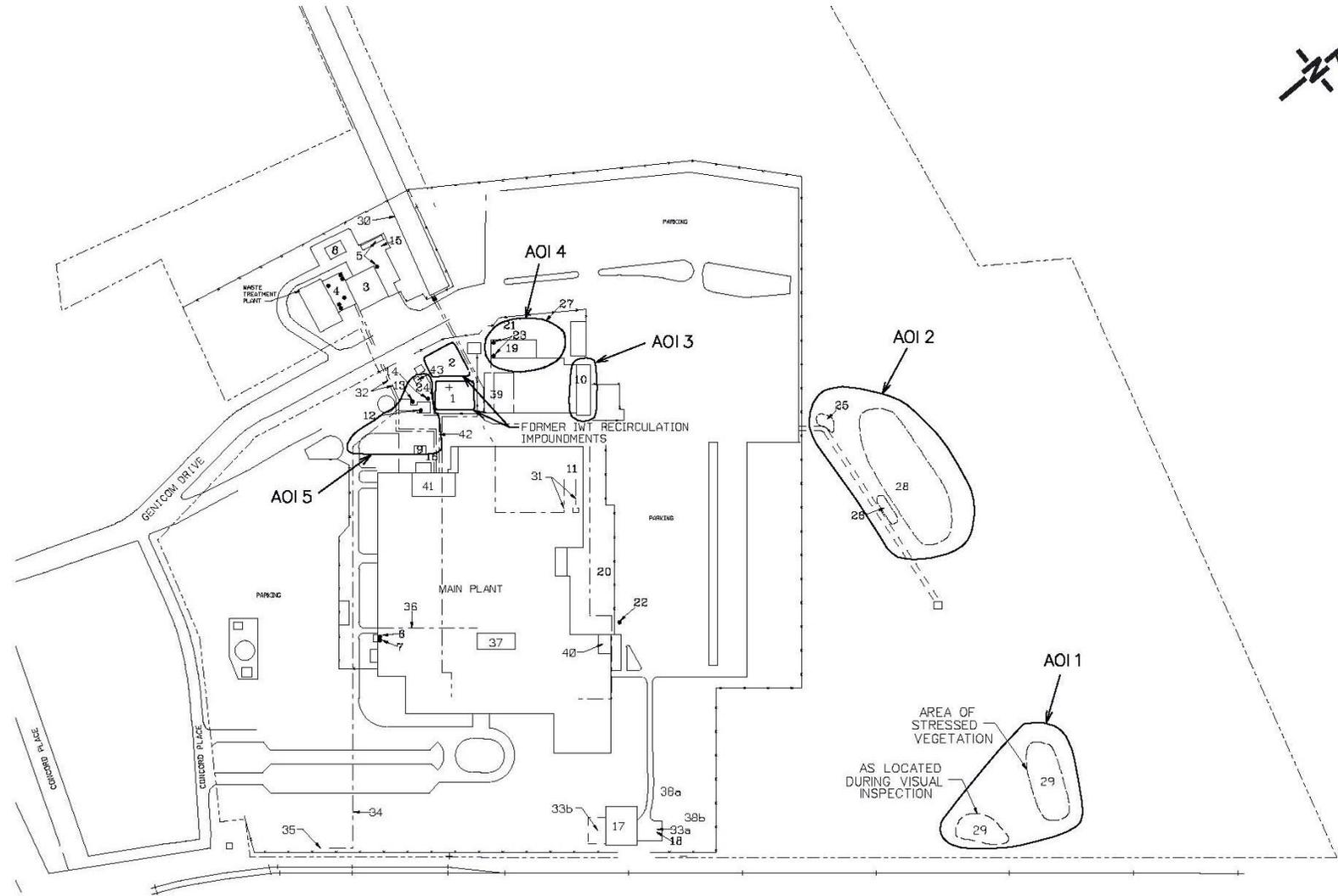


LEGEND

— Property boundary

2000 ft

FIGURE 1
 Site location map for the
 Former Genicom Facility, Waynesboro, Virginia.



LEGEND
AOI Area of Interest
30 SWMU or APSC

FIGURE 2
Location of SWMUs and APSCs
Former Genicom Facility, Waynesboro, Virginia.

300 ft

02-5816-07-06
2/20/14 ERS

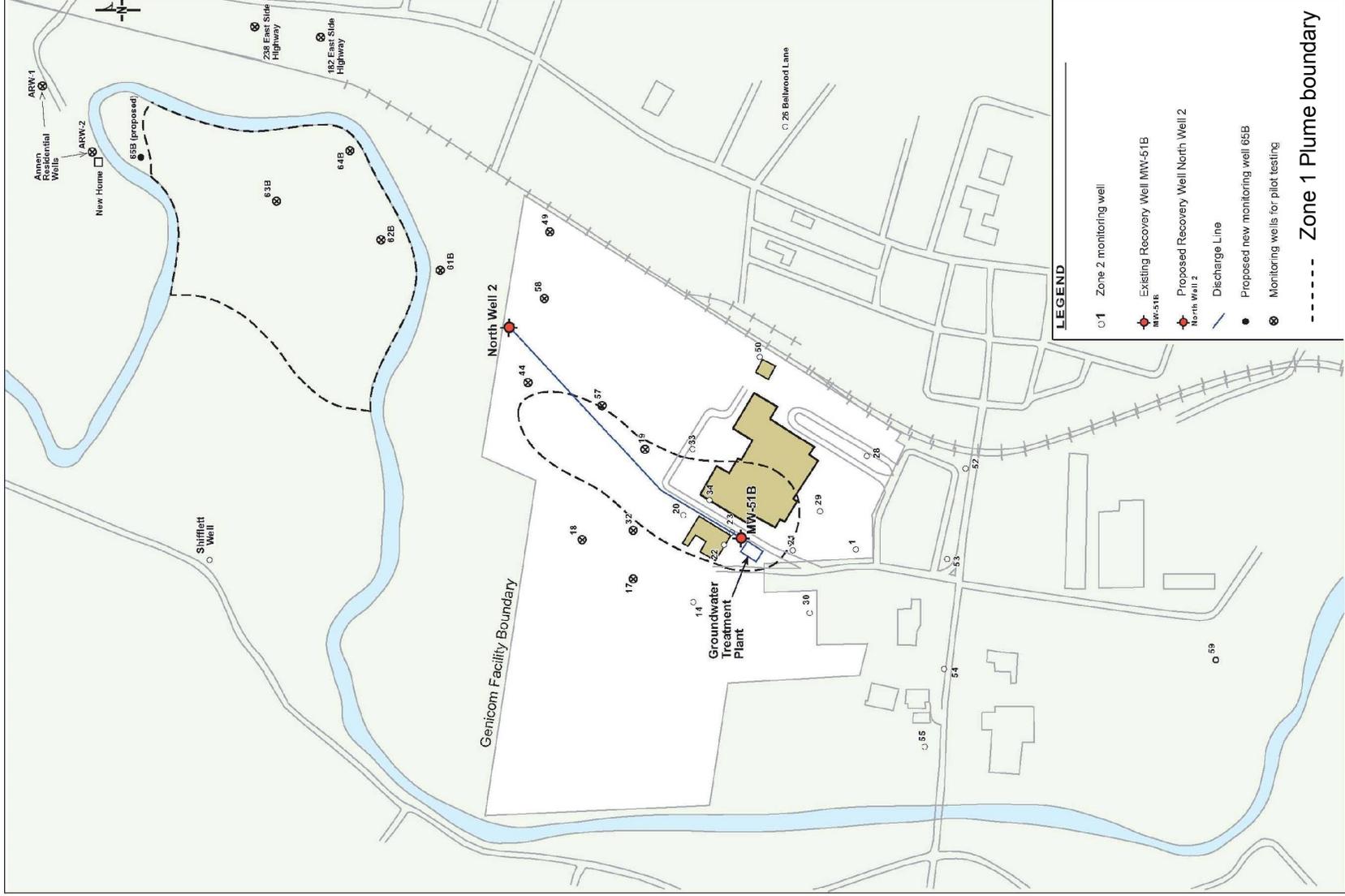


Figure 3 Zone 1 Plume

500 ft



