UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

EASTMAN SPECIALTIES CORPORATION
10380 WORTON ROAD

CHESTERTOWN, MARYLAND

EPA ID NO. MDD001890060

Prepared by
Office of Remediation
Land and Chemicals Division
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List of Acronyms

AOC	Areas of Concern
AR	Administrative Record
BEHP	Bis(2-ethylhexyl) phthalate
BGS	Below Ground Surface
CAO	Corrective Action Objective
COC	Contaminants of Concern
COMAR	Code of Maryland Regulations
EPA	Environmental Protection Agency
FDRTC	Final Decision Response to Comments
GPRA	Government Performance and Results Act
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
RCRA	Resource Conservation and Recovery Act
RSL	Regional Screening Level
SB	Statement of Basis
SVOC	Semi-Volatile Organic Compound
VOC	Volatile Organic Compound

Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for Eastman Specialties Corporation (Eastman) facility located at 10380 Worton Road in Chestertown, Maryland (hereinafter referred to as Facility or Site). EPA's proposed remedy for the Facility consists of the following components:

1) Natural attenuation with continued monitoring under an EPA-approved Groundwater Monitoring Plan until drinking water standards are met;

2) Institutional controls to implement land and groundwater use restrictions at the Site;

3) Implementation of an EPA-approved Materials Management Plan for earth moving activities in areas of the Facility where contaminants remain in soil and groundwater above levels acceptable for residential use.

This SB highlights key information relied upon by EPA in proposing its remedy for the Facility.

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. §§ 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 property. Maryland is not authorized for the Corrective Action Program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the State of Maryland for the Corrective Action Program.

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

Information on the Corrective Action Program as well as a fact sheet for the Facility can be found by navigating https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-eastmen-specialities-corp-chestertown-md. The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section IX, Public Participation, below, for on how you may review the AR.

Section 2: Facility Background

2.1 Introduction

Eastman currently manufactures specialty esters, which are used as plasticizers used in building and construction, medical and consumer goods, at the Facility. Eastman's manufacturing processes consist of reacting benzoic acid, maleic anhydride or 2-ethylhexanoic acid with alcohols or glycols in the presence of a catalyst. Lehigh Chemical Company began operating at the Site in 1959. Monomeric and polymeric plasticizers used in colorants and coatings, synthetic lubricating oils and greases, and synthetic lubricants were manufactured at the Facility until 1998. Wastewater treatment was conducted in a series of five earthen impoundments until 1997. Currently, process wastewater is discharged to an onsite wastewater treatment system (WWTS), which includes physical separation, equalization, and biological treatment prior to surface water discharge.

The Facility consists of approximately 30 acres at the geographic coordinates 39°15'46.0" North 76°05'18.0" West, which is a relatively rural area. See Figure 1 for a USGS topographic quadrangle map for Betterton, Maryland which includes Chestertown. The Facility property is bounded by railroad tracks along the Facility's west property line. A wholesale petroleum supply store borders the Facility to the south and residential homes lie immediately to the north. Farmland lies directly to the east and west of the Facility property.

Pursuant to an agreement with the State of Maryland Department of the Environment (MDE) dating back to the late 1980s, Hüls-America, Inc. (Hüls) installed a pump and treat system to remediate contaminated groundwater. Hüls' successor, Velsicol Chemical Corporation (Velsicol), agreed to operate the pump and treat system for Hüls after purchasing the Facility. In 2003, MDE approved Hüls' request to temporarily discontinue groundwater remediation to accommodate the removal of contaminated soil in the area of one former impoundment. In 2008, MDE, Velsicol and Genovique Specialties Corporation (Genovique) entered into a Consent Decree, Case No. 14-C-07-7287, July 10, 2008 (2008 Consent Decree) which required Velsicol and Genovique to investigate and remediate groundwater contamination of the Facility.

2.2 Site Physiography

The Facility is located in the Talbot plain district of the Atlantic Coastal Plain physiographic province. This province is characterized by low relief and is underlain by unconsolidated clastic sediments of Lower Cretaceous to recent age, which thicken to the southeast so that they appear wedge-shaped. The Facility has an approximate elevation of 70 feet above mean sea level, with a slight relief sloping to the northeast. The land surface at the Site is primarily stone/asphalt pavement and grassy areas.

2.3 Local Hydrology

The Site wells pump water from the Monmouth Formation, which is a confined Coastal

Plain aquifer with the top of the aquifer approximately 30 feet below sea level and bottom approximately 105 feet below sea level. The Monmouth Formation is fine to medium grained glauconitic quartz sand with clayey layers and calcareous beds. The sandy intervals are light olive-gray, and the clayey layers are medium to dark greenish gray.

The Facility is located above an area of quaternary age upland deposits (eastern shore) that originate from the bedrock. These unconsolidated water-borne deposits primarily consist of cross-bedded, poorly sorted, medium to course-grained white to red sand and gravel with minor pink and yellow silts and clays. Surface drainage generally flows to the north or east to the 5-acre stormwater pond directly east of the Facility. The pond drains towards an unnamed tributary which eventually empties into the Chester River. Based on contouring of water level data from site monitoring wells, shallow groundwater gently flows to the east, while deeper groundwater slopes to the northeast.

Groundwater is encountered within the first water bearing sand-gravel unit approximately 15-20 feet below ground surface (BGS). Underlying this sand-gravel unit, various boring logs and available literature indicate stratigraphy at the Facility is composed of a brown silty clay with fine sand extending from approximately 20-30 feet BGS. A fine sandy silt with various amounts clay extends from approximately 30-50 feet BGS. Deeper monitoring wells installed were completed in a dark grayish-green fine silty sand underlying the sand silt.

Section 3: Summary of Environmental Investigations

3.1 Environmental Investigations

For all environmental investigations conducted at the Facility, groundwater concentrations were screened against drinking water standards known as federal Maximum Contaminant Levels (MCLs) promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 CFR Part 141, or if there was no MCL for a contaminant, EPA Region III Screening Levels (RSL) for tap water for chemicals were used. Soil concentrations were screened against EPA RSLs for residential soil and industrial soil. EPA also has RSLs to protect groundwater and soil concentrations were also screened against these RSLs.

3.2 Initial Investigation

On November 17, 1994, the Dames & Moore submitted a Baseline Environmental Investigation Report on behalf of Hüls to identify the nature and extent of groundwater, sediment, surface water, and soil impacts related to activities at the Site. Remedial actions were subsequently initiated and included installing a groundwater recovery system, and excavation of soil beneath the railroad tracks. The investigation concluded that impacted material remained in Impoundment 314 and constituents of concern (COCs) had migrated vertically down from the soil into groundwater and the horizontally along the soil groundwater interface. The COCs identified in groundwater and soil are bis(2-ethylhexyl)phthalate (BEHP) and toluene. MCLs and soil RSLs for the COCs in groundwater and soil are listed in Table 1.

Table 1

	Groundwater MCL	Residential Soil RSL	Industrial Soil RSL
BEHP	6 µg/L	39 mg/kg	160 mg/kg
Toluene	1,000 µg/L	4,900 mg/kg	47,000 mg/kg

3.4 Phase I and II Site Characterization Reports

On November 24, 2009, Premier Environmental submitted a Phase I Site Characterization Report (SCR), on behalf of Genovique, to comply with the requirements of Paragraphs 11 and 12 of the 2008 Consent Decree. On August 13, 2010, Premier Environmental submitted a Phase II SCR as a supplement to Phase I, on behalf of Genovique.

1. Groundwater Investigation

The groundwater monitoring network consists of 30 "shallow" wells completed within the upper unconfined aquifer, and six "deep" wells completed within the upper confined aquifer beneath the Site. This monitoring well network has been utilized to document groundwater conditions for more than 20 years. Groundwater from the lower confined aquifer, which has met EPA drinking water standards in all sampling events, is the source of potable water for the Facility. Based on historical data, a groundwater plume exists in the unconfined aquifer at monitoring wells MW-12/19 which are located in the vicinity Former Impoundments 314. See historical BEHP and toluene concentrations at MW-12 and MW-19 in Table 2.

Groundwater samples were collected from the Site's six upper confined aquifer monitoring wells (MW-22, MW-27, MW-29, MW-36, MW-38, MW-40), since monitoring wells completed within the upper confined aquifer were not monitored as frequently as the monitoring wells completed within the upper unconfined aquifer. As part of the Phase II SCR, 11 property perimeter samples were collected in the unconfined aquifer to evaluate groundwater conditions up-gradient of Former Impoundments 308, 309, 310 and 314. COC concentrations in groundwater samples from these wells did not exceed MCLs. Also, samples from unconfined monitoring wells located near the northeastern perimeter of the Site (MW-33, MW-34 and MW-20) did not exceeded MCLs for toluene or BEHP in the three most recent sampling events.

2. Surface Water Investigation

Most onsite surface water drains offsite to a 5.5-acre pond across Worton Road. The pond then drains to an unnamed tributary to Morgan Creek to the Chester River. Surface water samples were collected at the point of discharge from the 5.5-acre pond for a period of three months. Results

for the surface water samples indicate that all Site–specific organic constituents were not detected above the laboratory's detection limits.

Outfall 002 at the Site is sampled frequently under a National Pollutant Discharge Elimination System (NPDES) permit. As part of the Phase II SCR, duplicate stormwater samples were collected during 26 monitoring events. BEHP concentrations in 15 of 28 unfiltered stormwater samples ranged from 5 mg/L to 51 mg/L. In contrast, one of the corresponding filtered samples had a detectable BEHP concentration of 6 mg/kg. The remaining samples were below the laboratories detection limit. Results suggest that BEHP concentrations at Outfall 002 are associated with suspended particulate matter in stormwater.

Several improvements were made to the Facility's stormwater control measures including the installation of baffles and sumps for entrained sediment collection. Along with on-going routine Facility best management practices, cleaning of storm sewers and sediment removal from improved sediment settling areas will continue in order to reduce sediment loading to Outfall 002.

3. Sediment Investigation

In 2009, 20 sediment samples were collected from a 0 to 6" depth interval throughout the 5.5-acre pond. Also, sediment samples from six sampling stations within the unnamed tributary to Morgan Creek were collected from three discrete depth intervals: 0 to 6", 6" to 12", and 12" to 18". Site–specific organic constituents were not detected above the laboratory's detection limits in any sediment samples from the unnamed tributary. Benzo(a)pyrene, BEHP, Diethyl phthalate, and Di-n-octyl phthalate were detected in sediment samples from the 5.5-acre pond. BEHP was reported above laboratory detection limits in 11 of the 20 sampling locations at concentrations ranging from 0.84 mg/kg (SED-19) to 12 mg/kg (SED-1). An ecological risk assessment was performed to evaluate potential ecological impacts.

4. Soil Investigation

a. Stormwater Flow Channels

Twelve (12) discrete surface soil samples in were collected in stormwater flow pathways to evaluate whether surface material in the channels is acting as a source of BEHP in stormwater. Detected BEHP concentrations ranged from 0.56 to 7.70 mg/kg. Soil concentrations did not exceed RSLs for residential soil.

b. Former Impoundments 308, 309, 310, 314 and Biosolds Drying Areas

BEHP was detected in the surface soil collected from Former Impoundments 308, 309, 310 and 314 at the highest concentrations of 0.57 mg/kg, 190 mg/kg, 0.49 mg/kg and 3.3 mg/kg, respectively. The BEHP concentration at Impoundment 309 exceeds the BEHP RSL for industrial soils. Since the concentration was elevated here relative to the other sample locations, surface soil samples were collected 30 feet away from Impoundment 309 in each cardinal direction from the

initial sampling location. The BEHP results are as follows: 0.96 mg/kg in Sample 35 (North sample), 0.88 mg/kg in Sample 36 (East sample), 180 mg/kg in Sample 37 (South sample), and 0.58 mg/kg in Sample 38 (West sample). The south sample at Impoundment 309 exceeds the BEHP RSL for industrial soils.

Nineteen discrete surface soil samples from the depth interval of 0-6" were collected in the former biosolids drying areas. BEHP concentrations ranged from 0.44 to 6.60 mg/kg. These surface soil sample concentrations do not exceed the BEHP RSL for residential soils.

3.5 EPA Assessment

The following 12 Solid Waste Management Units (SWMUs) were identified during the file reviews at the EPA Region III and Maryland Department of the Environment offices in coordination with a June 3, 2010 Site visit. The Site visit was documented in a RCRA Corrective Action Site Visit Report dated August 17, 2010 (RCRA CA Report).

SWMU 1	Former Sludge Drying Area in Southeast Corner
SWMU 2	Former Impoundments 317 and 317A
SWMU 3	Sludge Roll-off
SWMU 4	Filter Cake Roll-offs
SWMU 5	Hazardous Waste Storage Area
SWMU 6	Satellite Accumulation Areas
SWMU 7	Safety-Kleen Parts Cleaners
SWMU 8	Trash Compactor
SWMU 9	Universal Waste Areas
SWMU 10	Former Wastewater Treatment Lagoons and Impoundments (308, 309, 310 & 314)
SWMU 11	Wastewater Treatment System
SWMU 12	Former Separation Pond, Fire Pond 307

Of the 12 SWMUs identified during the file review, only five SWMUs had documented past releases (SWMUs 2, 3, 5, 10, and 12). EPA determined that the records reviewed also document that the releases at SWMUs 3 and 5 were addressed and did not pose a potential for unacceptable risk to human health and the environment. Therefore, the proposed remedy for SWMUs 1, 3 through 9 and 11 is No Further Action.

EPA has determined that the three remaining units, SWMUs 2, 10 and 12, have releases to soil and/or groundwater that impacted the groundwater at the Facility. SWMUs 2, 10 and 12 have been remediated and details are provided in Section 3.8. See Figure 2 for locations of SWMUs and AOCs.

3.6 Ecological Risk Assessment

EPA conducted an Ecological Risk Assessment at the 5.5-acre pond located off-site to determine whether chemical constituents detected in sediments pose a potential current or future risk to ecological receptors. The Ecological Risk Assessment determined that no unacceptable ecological risk and recommended no further ecological evaluation for the Facility.

3.7 Human Health Risk Assessment

BEHP and toluene are the COCs for onsite groundwater and soil. There is not a completed direct contact exposure pathway to BEHP or toluene in groundwater for onsite receptors because groundwater from the contaminated aquifer is not used. Therefore, dermal contact with BEHP and toluene are determined to be the only potentially complete exposure pathway, specifically for construction workers. The Risk Assessment for the Facility concluded that there would be no risk associated with the soil as long as the Facility property use remains industrial.

3.8 Summary of Remedial Activities Completed

SWMU 2 - Former Impoundments 317 and 317A

Former Impoundments 317 and 317A are located in the southwest corner of the Site and were once part of the wastewater treatment system. Between October and December 2001, approximately 1,100 cubic yards (approximately 1,547 tons) of soil and sediment were removed for disposal from Impoundment 317A. An Oxygen-Release Compound (ORC) was added to Impoundment 317A prior to backfill to promote bioremediation. Between August and November 2002, approximately 1,907 tons of impacted sediment/soil was removed from Impoundment 317. After approval from MDE, Impoundments 317 was used for sludge drying operations between 2004 and 2008. Bio solids from Impoundments 317 were removed for disposal in August 2009. Soil samples collected in 2009 show that COC concentrations do not exceed the RSLs for industrial soils.

SWMU 10 – Former Wastewater Treatment Lagoons and Impoundments

Wastewater treatment at the Facility was once conducted in a series of earthen impoundments. Process water was initially treated in an API oil/water separator. The effluent from the oil water separator discharged to Impoundment 314 and then into Impoundment 317 for wastewater equalization. From these impoundments the wastewater was discharged to Impoundments 308, 309, and 310 in series. Impoundments 308, 309, and 310 were part of the aerated biological wastewater treatment system (WWTS) and occupied approximately 3,000 to 5,000 square feet each.

Impoundment 314 was removed from service in 1987 and Impoundments 308, 309 and 310 were removed from service in 1993. In 2003, each of the former impoundments were clean closed in conformance with the non-residential soil clean-up standards and protection of groundwater soil clean-up standards for BEHP and Toluene stated in the MDE Cleanup Standards for Soil and

Groundwater Interim Final Guidance dated August 2001. The remediation activities, which included excavation of approximately 2,739 tons of impacted material, were documented in the Closure Report, Impoundments 308, 309, 310 & 314, by GZA, dated January 15, 2007. In October 2012, Impoundment 309 was excavated again to prevent entrained sediment from being transported from the Site in surface water runoff.

SWMU 12 - Former Separation Pond, Fire Pond 307

The Fire Pond is an unlined earthen impoundment, which was formerly used as a separation pond for the WWTS. It was converted to a storage reservoir for the plant's fire protection system in 1968. It is currently replenished, as needed, with well water. There are four shallow groundwater monitoring wells located near the Fire Pond: MW-18 (side/down gradient), MW-20 (down gradient), MW-33 (up gradient) and MW-34 (down gradient). These wells have been monitored routinely since 1994.

Between November 14 and November 16, 2005, a total of 31 injection points were installed along two barriers. Barrier A, approximately 250 feet long, was along the southern and eastern sides of the Fire Pond reservoir. Barrier B, approximately 100 feet long, was along the southern side of the Fire Pond area. Quarterly groundwater sampling and closure of groundwater impacts were documented in the Fire Pond Area Closure Report, prepared by URS, dated October 2, 2007.

3.9 Natural Attenuation

Natural attenuation entails a variety of physical, chemical and/or biological processes that reduce the mass, toxicity, mobility, volume or concentration of constituents of concern. These processes are classified as degradation (biological or chemical), sorption (chemical) and dispersion, diffusion, dilution, and volatilization (physical). Facility conditions were evaluated in a manner consistent with the Technical Protocol for Monitored Natural Attenuation of Chlorinated Solvents in Groundwater by Todd Weidemeier (September 1998) for the purpose of understanding the fate and transport of BEHP source contaminants.

A groundwater pump and treatment system operated at this Facility from 1990 to 2003. Over that time, contaminant concentrations in groundwater declined significantly and the contaminant plume no longer extends off-site. However, contaminant levels in some on-site wells are still slightly above drinking water standards. Monitoring at the Facility has shown that the contaminants are effectively being addressed by natural attenuation. Specifically, COC concentrations have declined by 2 to 3 orders of magnitude, and are currently stable, showing no sign of a trend of increasing concentration.

Table 2

MW-12	BEHP (ug/L)	Toluene (ug/L)
1/1/1994	273,474	8,100
1/1/1995	591,834	29,425
1/1/1996	51,528	9,825
1/1/1997	65,301	10,450
1/1/1998	78,951	12,250
1/1/1999	116,393	14,550
1/1/2000	294,629	6,100
1/1/2001	405,605	7,300
1/1/2002	109,294	4,900
1/1/2003	16,414	3,400
1/1/2004	7,333	3,900
1/1/2005	15,209	6,525
1/1/2006	23,662	5,780
1/1/2007	2,484	7,175
1/1/2008	17,981	6,100
1/1/2009	6,977	4,867
1/1/2010	3,837	4,700
2/1/2011	630	7,800
4/1/2011	3,100	5,000
7/1/2011	1,300	6,800
10/1/2011	2,600	5,100
1/1/2012	2,300	6,400
4/1/2012	1,900	4,600
7/1/2012	230	8,000
10/1/2012	3,400	5,200
1/1/2013	3,800	4,200

MW-19	BEHP (ug/L)	Toluene (ug/L)
1/1/1994	629	10,975
1/1/1995	93,708	6,775
1/1/1996	33,716	8,900
1/1/1997	86,770	13,900
1/1/1998	31,391	7,725
1/1/1999	160,964	5,450
1/1/2000	55,311	2,150
1/1/2001	148,119	1,425
1/1/2002	78,109	665
1/1/2003	6,386	632.5
1/1/2004	18,906	670
1/1/2005	16,950	235
1/1/2006	7,613	169
1/1/2007	1,805	19
1/1/2008	1,839	0
1/1/2009	671	105
1/1/2010	647	40
2/1/2011	170	0
4/1/2011	420	0
7/1/2011	0	0
10/1/2011	360	0
1/1/2012	210	130
4/1/2012	670	150
7/1/2012	6,500	
10/1/2012	420	0
1/1/2013	6,700	49

3.10 Environmental Indicators

Under the Government Performance and Results Act (GPRA), EPA has 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 of these indicators on September 13, 2016.

Section 4: Corrective Action Objectives

EPA's Corrective Action Objectives for the specific environmental media at the Facility are the following:

1. Soils

EPA's Corrective Action Objective for Facility surface and subsurface soils is to prevent direct human contact with hazardous constituents remaining in the soil above EPA RSLs for Industrial Soils.

2. Groundwater

EPA expects final remedies to return groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. For projects where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use the National Primary Drinking Water Standard Maximum Contaminant Levels (MCLs) promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 C.F.R. Part 141.

Therefore, EPA's Corrective Action Objectives for Facility groundwater is to attain 1000 µg/L or less of toluene and 6 µg/L or less of BEHP throughout the existing plume and to prevent direct exposure to the contaminated groundwater.

Section 5: Proposed Remedy

1. Soils

EPA's proposed remedy for soils is Corrective Action Complete with Controls. While contaminants remain in Facility soil, EPA has determined that based on the Risk Assessment for the Facility, there are no risks associated with the soil as long as the Facility property use remains industrial. However, because contaminants remain in the soil above levels appropriate for residential uses, EPA's proposed remedy requires the compliance with and maintenance of the following land use restrictions to be implemented through Institutional Controls:

a) Use of Facility property shall be restricted to commercial and/or industrial purposes and shall not be used for residential purposes unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment or adversely affect or interfere with the final remedy and EPA provides prior written approval for such use.

All earth moving activities, including excavation, drilling and construction activities in known contaminated areas at the Facility where any contaminants remain in soils above EPA Region III's Screening levels for Industrial Soils or groundwater above MCLs or Region III's Tap Water RSLs, shall be conducted in accordance with an EPA approved Materials Management Plan.

The Materials Management Plan will outline procedures and methods to address two exposure scenarios. All soil excavation activities in the area of the former impoundments shall be conducted in a manner that minimizes the exposure of potentially contaminated soil to precipitation and the flow of potentially contaminated storm water runoff to surrounding areas. If excavations are backfilled, clean soil from non-contaminated areas on the property may be used as backfill. Soil will be disposed of at a properly permitted disposal facility licensed to accept the waste.

Also, all soil excavation activities in the area of the former impoundments shall be conducted in a manner that minimizes the exposure of potentially contaminated soil to construction workers. A Health and Safety Plan will be incorporated into the Materials Management Plan.

2. Groundwater

EPA's proposed remedy for groundwater consists of monitored natural attenuation until drinking water standards are met, and compliance with and maintenance of groundwater use restrictions at the Facility to prevent exposure to contaminants while levels remain above drinking water standards. If performance monitoring indicates that the current extent of contamination in groundwater begins to expand or concentrations in groundwater begin to increase, the active pump and treat remedy will be reinstated or an alternative remedy will be evaluated.

Because BEHP and toluene remain in the groundwater at the Facility above applicable drinking water standards, EPA's proposed remedy requires the following groundwater use restrictions and requirements:

a) Compliance with the EPA-approved groundwater monitoring program while contaminants remain above drinking water standards.

b) No new wells shall be installed on Facility property in the shallow overburden aquifer unless it is demonstrated to EPA in consultation with MDE, that such wells are necessary to implement the final remedy and EPA provides written approval to install such wells

Implementation

EPA proposes that the final remedy for the Facility be instituted through an enforceable mechanism such as an order and/or an Environmental Covenant. If an Environmental Covenant is to be the enforceable mechanism, it will be recorded in the chain of title for the Facility property pursuant to the Maryland Environmental Covenant Act (Maryland Environment Code Annotated § 1-801 et seq.). In addition, the then current owner will be required to periodically submit to MDE and EPA a written certification stating whether or not the groundwater and land use restrictions are in place and being complied with.

In addition, under the proposed remedy, EPA is proposing to require a coordinate survey, as well as a metes and bounds survey, of the Facility boundary be included in the enforceable mechanism which implements EPA's final remedy for the Facility as follows:

1. The boundary of each use restriction shall be defined as a polygon; and

2. The longitude and latitude of each polygon vertex shall be established as follows:

    a. Decimal degrees' format;
    b. At least seven decimal places;
    c. Negative sign for west longitude; and
    d. World Geodetic System (WGS) 1984 datum

EPA acknowledges that an Environmental Covenant was filed with the Kent County Clerk of Circuit Court on December 13, 2013, between the State of Maryland Department of the Environment and Eastman Specialties Corporation, restricting use of groundwater from the upper unconfined and upper confined aquifers. A new Environmental Covenant , enforceable by EPA, will incorporate the groundwater use restriction included in the existing covenant and EPA's proposed remedy detailed in this SB.

If EPA determines that additional maintenance and monitoring activities, land use controls, or other corrective actions are necessary to protect human health or the environment, EPA has the authority to require and enforce such additional corrective actions through an enforceable mechanism which may include an order or Environmental Covenant, provided any necessary public participation requirements are met. A clerk-stamped copy of the Environmental.

Section 6: Evaluation of Proposed Remedy

This section provides a description of the criteria EPA used to evaluate the proposed remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three decision threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1) Protect human health and the environment	EPA's proposed remedy for the Facility protects human health and the environment by eliminating, reducing, or controlling potential unacceptable risk through the implementation and maintenance of use restrictions. The Human Health Risk Assessment for the Facility concluded that there would be no risk associated with contaminated soil as long as the Facility property uses remains industrial. EPA is therefore proposing to restrict land use to commercial or industrial purposes at the Facility. The latest groundwater data from 2013 indicates that low levels of contaminants remain in the groundwater beneath the Facility and contaminants contained in the upper aquifers have shown considerable reductions from previous levels through natural attenuation. Recent sampling finds no evidence of a trend of increasing contaminant concentration. In addition, groundwater monitoring will continue until drinking water standards are met. The existing State of Maryland well construction regulations will aid in minimizing exposure to contaminated groundwater by prohibiting the installation of individual water systems where adequate community systems are already available. With respect to future uses, an Environmental Covenant restricting groundwater use from the upper unconfined and upper confined aquifers is in place to prevent potential human exposure to contamination.
2) Achieve media cleanup objectives	EPA's proposed remedy meets the media cleanup objectives based on assumptions regarding current and reasonably anticipated land and water resource use(s). The remedy proposed in this SB is based on the current and future anticipated land use at the Facility as commercial or industrial. The Risk Assessment for the Facility concluded that there would be no risk associated with the soil as long as the Facility uses remains industrial. The groundwater plume appears to be stable (not migrating); although contaminants are above drinking water standards, they

	have declined over time. In addition, groundwater monitoring will continue until drinking water standards are met. The Facility meets EPA risk guidelines for human health and the environment. The current Environmental Covenant requires the implementation and maintenance of use restrictions to ensure that groundwater beneath Facility property is not used for any purpose except to conduct the operation, maintenance, and monitoring activities required by EPA.
3) Remediating the Source of Releases	In all proposed remedies, EPA seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment and the Facility met this objective. The source of contaminants has been removed from the soil at the Facility, thereby, eliminating, to the extent practicable, further releases of hazardous constituents from on-site soils as well as the source of the groundwater contamination. The Risk Assessment for the Facility concluded that there would be no risk associated with the soil as long as the Facility remains industrial. Contaminants in groundwater are declining through attenuation. There are no remaining large, discrete sources of waste from which constituents would be released to the environment. Groundwater is not used for potable purposes at the Facility or at neighboring facilities. In addition, groundwater monitoring will continue until drinking water standards are met. The existing State of Maryland well construction regulations will aid in minimizing exposure to contaminated groundwater by prohibiting the installation of individual water systems where adequate community systems are already available. Therefore, EPA has determined that this criterion has been met.

Balancing Criteria	Evaluation
4) Long-term effectiveness	Groundwater is not used on the Facility for drinking water, and the groundwater plume does not extend off-site. Therefore, the long term effectiveness of the proposed remedy for the Facility will be maintained by the continuation of the groundwater monitoring program and implementation of use restrictions.
5) Reduction of toxicity, mobility, or volume of the Hazardous Constituents	The reduction of toxicity, mobility and volume of hazardous constituents will continue by attenuation at the Facility. Considerable reductions in contaminant concentrations have occurred, as demonstrated by the data from the groundwater monitoring shown in Table 1. In addition, the groundwater monitoring program already in place will continue.
6) Short-term effectiveness	EPA's proposed remedy does not involve any activities, such as construction or excavation that would pose short-term risks to workers, residents, and the environment. EPA anticipates that the land use restrictions will be fully implemented shortly after the issuance of the Final Decision and Response to Comments. The groundwater monitoring program is already in place and will continue.
7) Implementability	EPA's proposed remedy is readily implementable. The groundwater monitoring is already in place and operational. EPA proposes to implement the land use restrictions through an enforceable mechanism such as an Environmental Covenant, permit or order.
8) Cost	The costs associated with this proposed remedy including recording another environmental covenant for land use restrictions and continuing to sample monitoring wells are minimal (estimated cost of less than $5,000 per year). Therefore, EPA's proposed remedy is cost effective.
9) Community Acceptance	EPA will evaluate community acceptance of the proposed remedy during the public comment period, and it will be described in the Final Decision and Response to Comments.

10) State/Support Agency Acceptance	MDE was the lead agency for the remediation at the Facility under the 2008 Consent Decree. MDE reviewed and approved the Remedial Action Plan/Effectiveness Report (RAER). EPA's remedy is consistent with the MDE approved RAER. Also, EPA will consult with MDE prior to finalizing the proposed remedy. EPA therefore, expects State acceptance of the proposed remedy.

Section 7: Financial Assurance

EPA has evaluated whether financial assurance for corrective action is necessary to implement EPA's proposed remedy at the Facility. Given that EPA's proposed remedy does not require any further engineering actions to remediate soil, groundwater or indoor air contamination at this time and given that the costs of implementing institutional controls and groundwater monitoring costs (less than $5,000 per year) at the Facility will be minimal, EPA is proposing that no financial assurance be required.

Section 8: Public Participation

Interested persons are invited to comment on EPA's proposed remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, or electronic mail to Mr. John Hopkins at the contact information listed below.

A public meeting will be held upon request. Requests for a public meeting should be submitted to Mr. John Hopkins in writing at the contact information 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
Philadelphia, PA 19103
Contact: Mr. John Hopkins (3LC20)
Phone: (215) 814-3437
Fax: (215) 814 - 3113
Email: hopkins.john@epa.gov

Attachments:
Figure 1: Site Location Map
Figure 2: SWMU and AOC Map
Figure 3: Monitoring Well Network

Date: _____

_____

Catherine Libertz, Acting Director
Land and Chemicals Division
US EPA, Region III

Section 9: Index to Administrative Record

Summary Report Environmental Evaluation, Hüls America, dated January 25, 1995

Fire Pond Area Groundwater Remedial Action Report for Velsicol Chemical Corporation, GZA GeoEnvironmental Inc., dated January 16, 2007

Closure Report: Impoundments 308, 309, 310 & 310 for Velsicol Chemical Corporation, GZA GeoEnvironmental Inc., dated February 15, 2007

Consent Decree, State of Maryland Department of the Environment v. Velsicol Chemical Corporation, dated July 9, 2008

Site Characterization Report for Genovique Specialties Corporation, Premier Environmental Services Inc., dated November 24, 2009

Site Characterization Report – Phase II for Genovique Specialties Corporation, Premier Environmental Services Inc., dated August 13, 2010

Final RCRA Site Visit Report for Genovique Specialties Corporation, Tetra Tech EC Inc., dated August 17, 2010

Remedial Action Plan for Eastman Specialties Corporation, Earthcon, dated January 6, 2012

Remedial Action Effectiveness Report for Eastman Specialties Corporation, Earthcon, dated April 26, 2013

Environmental Covenant, Eastman Specialties Corporation with the Kent County Record of Deeds, dated December 13, 2013

Quarterly Progress Report #22, Eastman Specialties Corporation, dated January 24, 2014

Ecological Risk Assessment, United States Environmental Protection Agency, dated August 1, 2016

Attachments

Figure 1

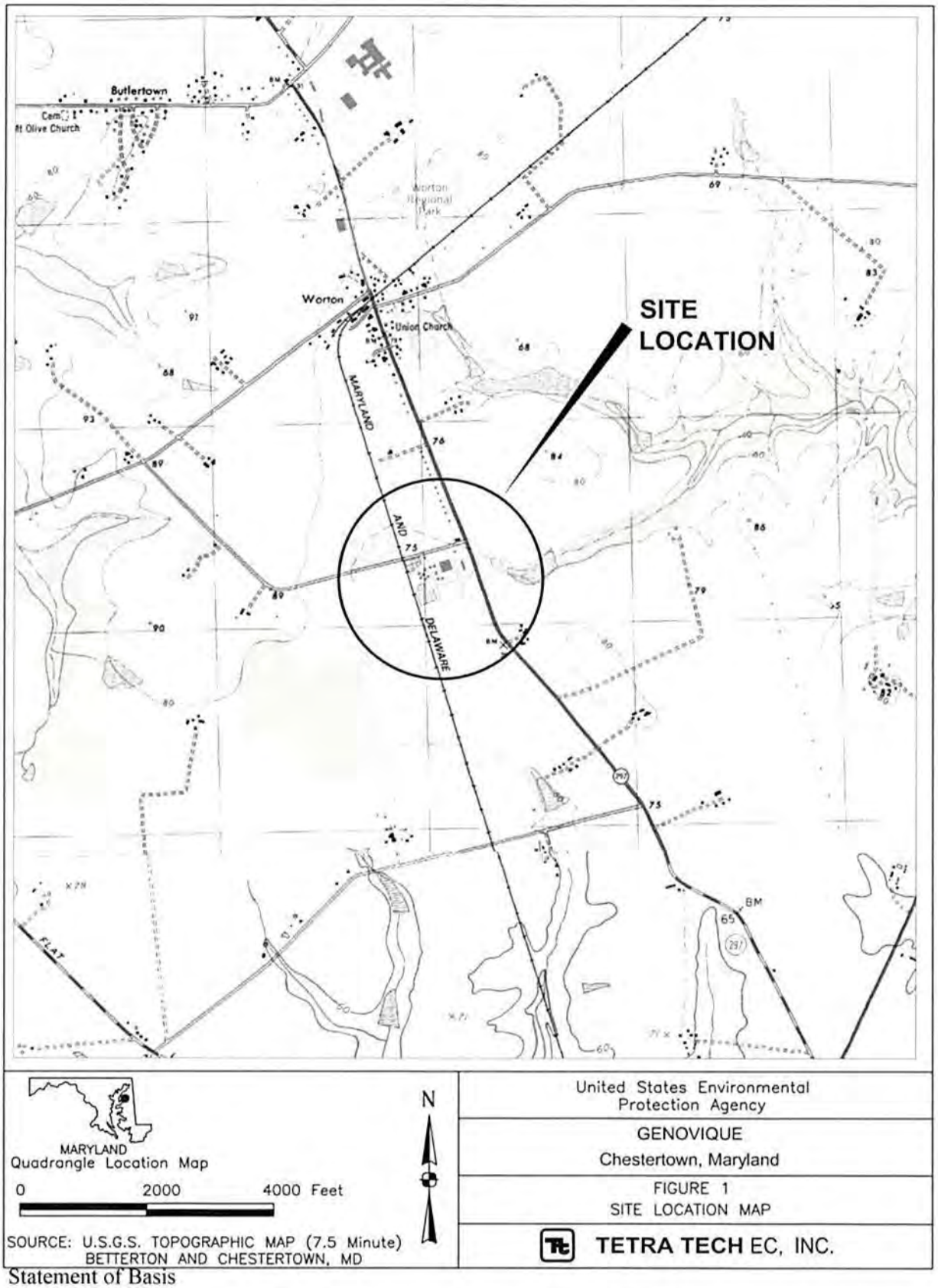
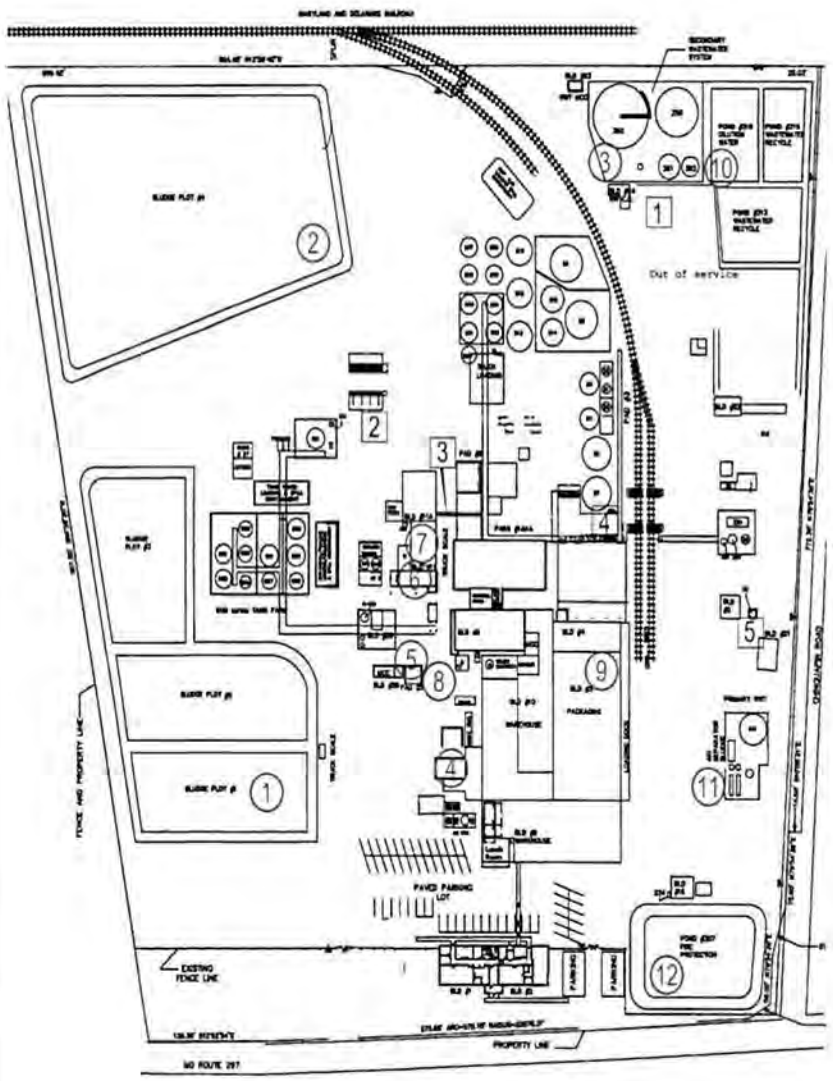

Butlertown
Worton
Union Church
SITE
LOCATION
MARYLAND
AND
DELAWARE
FLAT
BM
MARYLAND
Quadrangle Location Map
0
2000
4000 Feet
N
SOURCE: U.S.G.S. TOPOGRAPHIC MAP (7.5 Minute)
BETTERTON AND CHESTERTOWN, MD
United States Environmental Protection Agency
GENOVIQUE
Chestertown, Maryland
FIGURE 1
SITE LOCATION MAP
TETRA TECH EC, INC.

Figure 2



LEGEND:

(1) SOLID WASTE MANAGEMENT UNIT LOCATION (SWMU)

[1] AREA OF CONCERN LOCATION (AOC)

N

SWMUs

SWMU NO. 1 – FORMER SLUDGE DRYING AREA IN SOUTHEAST CORNER
SWMU NO. 2 – FORMER SLUDGE DRYING AREA IN SOUTHWEST CORNER, FORMER IMPOUNDMENTS 317 AND 317A
SWMU NO. 3 – SLUDGE ROLL-OFF
SWMU NO. 4 – FILTER CAKE ROLL-OFFS
SWMU NO. 5 – HAZARDOUS WASTE STORAGE AREA
SWMU NO. 6 – SATELLITE ACCUMULATION AREAS (EXAMPLE)
SWMU NO. 7 – SAFETY-KLEEN PARTS CLEANERS (EXAMPLE)
SWMU NO. 8 – TRASH COMPACTOR
SWMU NO. 9 – UNIVERSAL WASTE AREAS (EXAMPLE)
SWMU NO. 10 – FORMER WASTEWATER TREATMENT LAGOONS AND IMPOUNDMENTS, SETTLING PONDS 313/315, AND DILUTION WATER POND 316
SWMU NO. 11 – WASTEWATER TREATMENT SYSTEM
SWMU NO. 12 – FORMER SEPARATION POND, FIRE POND 307

AOCs

AOC NO. 1 – GROUNDWATER CONTAMINATION
AOC NO. 2 – SLUDGE ROLL-OFF SPILL
AOC NO. 3 – HEAT TRANSFER FLUID SPILL
AOC NO. 4 – BENZOIC ACID RELEASE
AOC NO. 5 – HYDROGEN PEROXIDE TANK RELEASE

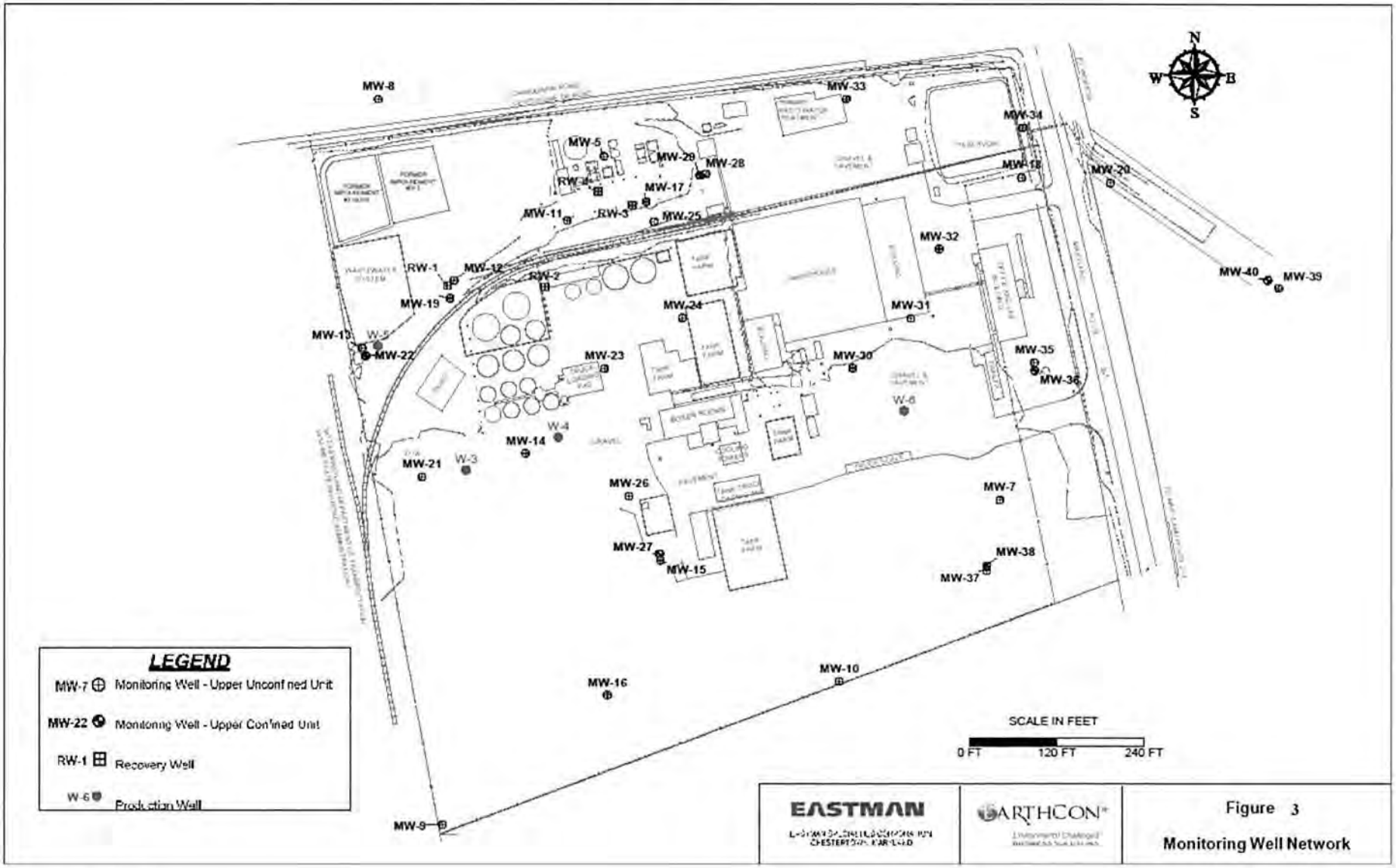
NO SCALE AVAILABLE

SOURCE:
LAWGIBB GROUP MEMBER, "SITE AND VICINITY PLAN", FIGURE: 3, PROJECT NO.: 30440-1-0673-02-917, DATE: DECEMBER 2001

United States Environmental Protection Agency
GENOVIQUE Chestertown, Maryland
FIGURE 2 SWMU AND AOC MAP
TETRA TECH EC, INC.

Statement of Basis

Figure 3



Statement of Basis