

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
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DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Univar USA, Inc.
Facility Address: 825 Fisher Street Martinsville, VA 24112
Facility EPA ID #: VAD003111416

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

- If yes - check here and continue with #2 below.
 If no - re-evaluate existing data, or
 If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are nearterm objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	<u>X</u>			<u>VOCs</u>
Air (indoors) ²		<u>X</u>		
Surface Soil (e.g., <2 ft)	<u>X</u>			<u>VOCs</u>
Surface Water	<u>X</u>			<u>VOCs</u>
Sediment		<u>X</u>		
Subsurf. Soil (e.g., >2 ft)	<u>X</u>			<u>VOCs</u>
Air (outdoors)		<u>X</u>		

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

The Prillaman Chemical Corporation provided hazardous waste management services to its customers under a Permit, which was first issued by the Commonwealth of Virginia in 1984. The Prillaman Chemical Corporation operated a chemical distribution and solvent recycling, blending, and processing operation at the facility site since it was originally established in 1947 until the sale of the facility in 2001. On November 1, 2001, Prillaman Chemical Corporation was sold to Vopak USA, Inc. On July 1, 2002, the Vopak USA, Inc. facility name was changed to Univar USA Inc. (Univar), the current operator and owner of the facility under the Permit. No known industrial usage occurred at this property prior to 1947.

Hazardous wastes managed at the facility primarily included spent solvent wastes and reclaimed wastes generated by the furniture industry and other manufacturers. The facility’s Permit was reissued by the DEQ on January 15, 1997, under the authority of the VHWMR and the RCRA Regulations. The facility’s Permit authorized hazardous waste management activities (storage and treatment). The facility’s Permit also included closure and corrective action (CA) requirements, where the Permittee was required to implement closure, interim measures (IMs), and CA, as necessary to remediate the site for releases of hazardous waste or hazardous constituents from the facility so to be protective of human health and the environment.

The total land area of the Univar facility site comprises approximately 2.5 acres with approximately 1.3 acres occupied by the facility’s former offices, warehousing, distribution, solvent recycling, solvent processing, and storage operations. The area surrounding the facility is zoned light industrial/residential. The facility is bordered to the north and east by a forested area. The nearest

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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residential area is north of the facility site and approximately 300 feet from the northern property line. The facility is located in a hilly area on a topographic high with an approximately 50-foot drop in elevation to the unnamed tributary to Mulberry Creek. The unnamed tributary to Mulberry Creek flows in a southeasterly direction through the forested area approximately 100 feet north and downgradient from the facility fence line. The unnamed tributary to Mulberry Creek is the northern property line of the Univar facility.

Univar initiated closure of the industrial operations and the permitted hazardous waste management units (HWMUs) in the fall of 2003. The Permittee discovered contamination of the soils, subsoils, groundwater, and surface water at the site during the closure activities required under the facility's Permit. The facility has not completed RCRA "closure" of the permitted container storage and tank storage HWMUs due to detected HCOCs in soils, subsoils, groundwater, and surface water. The primary contaminants found were volatile organic compounds (VOCs) and alcohols.

To date, the Permittee has decontaminated, dismantled, and removed from site the container storage and tank storage HWMUs and equipment associated with the raw material and product storage, manufacturing and processing operations, recycling operations, and hazardous waste management, and other waste management in accordance with the facility's Permit Closure Plan. All concrete surfaces in manufacturing and processing, recycling areas, and hazardous waste management areas was also decontaminated using high pressure washing with surfactants and rinsing. All hazardous waste generated from closure of the HWMUs was properly managed, manifested, and shipped off-site to a permitted treatment, storage, and disposal (TSD) facility in accordance with the VHWMR and the RCRA Regulations. The remaining structures at the site include: empty buildings, the concrete foundations and secondary containment structures of the container storage and tank storage areas, and weathered asphalt, which surrounds the former manufacturing and processing complex.

The facility has installed numerous groundwater monitoring wells and SVE wells at the facility as part of the closure and CA investigations and the IMs. The facility is closed and not operating and the buildings are empty. Workers (environmental consultants) are only present during operation and maintenance of the IM systems and during sampling events. No Trespassing Signs and warning signs have been posted along the property boundary and along the tributary to Mulberry creek cautioning people to avoid contact with the creek water.

Construction activities for implementation of the *IM Plan (Stream Area)* were initiated in July 2006. This IM is designed to mitigate the release of contaminated groundwater at the site to surface waters so to protect human health and the environment. On September 11, 2006, Univar initiated the operation of the *IM Plan (Stream Area)*, and the system has operated continuously since September 12, 2006. Quarterly Reports of the *IM Plan (Stream Area)* are being submitted to the DEQ to provide an update the operation and maintenance of the IM and the progress of the IM in mitigating the release of contaminated groundwater at the site to surface waters.

The facility has also been developing the installation of a soil vapor extraction (SVE) system to address source areas impacted by VOCs. Identified source areas include the virgin tank farm, recycle area, and drum storage areas. (See Exhibit JJ-3). After addressing the risk assessment issues, the Permittee has submitted a revised SVE System Design and Work Plan and awaiting the Department's approval.

References:

- Interim Measures Plan (Stream Area) Progress Monitoring Report -1st Semester 2008, Innovative Engineering Solutions Inc. (IESI)
- Soil Vapor Extraction System Design and Work Plan – April 2008, BASCOR Environmental Inc. (BEI)
- Description of Current Conditions Report – May 31, 2006, BEI

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3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

<u>Contaminated Media</u>	<u>Potential Human Receptors (Under Current Conditions)</u>						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
Air (indoors)							
Soil (surface, e.g., <2 ft)	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>No</u>
Surface Water	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>
Sediment							
Soil (subsurface e.g., >2 ft)	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated”) as identified in #2 above.
2. Enter “yes” or “no” for potential “completeness” under each “Contaminated” Media – Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

___ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

X If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) – continue after providing supporting explanation.

___ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

Groundwater:

The City of Martinsville supplies water and sewer services to the industrial and residential area near the Univar facility. Martinsville's water is supplied by a city reservoir located approximately 3.5 miles northwest of the facility. No drinking water supply wells are known to exist in the vicinity of the facility. (See CA Fact Sheet, updated 7/7/08)

Univar initiated the operation of the *IM Plan (Stream Area)*, and the system has operated continuously since September 12, 2006. This IM is designed to mitigate the release of contaminated groundwater at the site to surface waters to protect human health and the environment. The *IM Plan (Stream Area)* includes an aeration/bioremediation trench to deliver sufficient air flow to strip the chlorinated VOCs within the groundwater, and to provide sufficient oxygen (and other amendments) to enhance the biodegradation of the ketones. Groundwater, surface water, and aeration trench sampling are conducted semi-annually to analyze for VOCs and alcohols. Sampling events to analyze for SVOCs and metals are conducted annually. (See DEQ's conditional approval letter to facility dated March 6, 2008.)

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

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Based on Univar's IM Plan (Stream Area) Progress Monitoring Report – 1st Semester 2008 (PMR), the system is performing well and is improving groundwater quality within and downgradient of the trench system. Table 1 below shows average percent removal of constituents of concern since trench operation start-up (September 2006).

Table 1. Average Percent Removal of Constituents of Concern since Trench Operation Start –Up (September 2006)

Constituent of Concern	Groundwater Monitoring Points Upgradient of Trench: MP-1, MP-2, MP-3 % Removal	Groundwater Monitoring Points In-Trench: MP-4, MP-5, MP-6, MP-7, MP-8 % Removal	Groundwater Monitoring Points Downgradient of Trench: MP-9, MP-10, MP-10D, MP-11, MP-12 % Removal
Total VOCs	95.24	100.00	90.16
Chlorinated VOCs	NC	99.99	88.12
BTEX	NC	100.00	95.51
Total Ketones	NC	100.00	89.11
Total Alcohols	NC	100.00	80.8

NC – Not Calculated in the PMR.

With Martinsville's water supplied by the city and the *IM Plan (Stream Area)* system in place at the Univar facility, human health exposure of contaminated groundwater is not a complete exposure pathway, under current conditions.

Soil (surface and subsurface):

The active area of the facility was constructed over concrete slabs and/or concrete secondary containment systems. The perimeter of the facility is covered by weathered asphalt and enclosed by a 7.5 –foot tall chain link fence topped with three strands of barbed wire, and locked gates.

Human health exposure of contaminated surface soil may exist as an exposure pathway to workers, construction workers, and trespassers. Although soils and subsoils are covered by concrete and asphalt and the site is enclosed with chain link fence, the lower perimeter of the facility may expose workers and trespassers by direct contact with the contaminated surface soils in the vicinity of the unnamed tributary of Mulberry Creek. The facility has posted signs in this area warning trespassers and advising of site contamination. No workers are at the facility site except the environmental consultants performing the remediation and construction workers who construct the IM systems and install the groundwater monitoring wells and SVE wells. The environmental consultants and construction workers perform work in accordance with the Health and Safety Plan (HASp), the approved Interim Measures Plan (Stream Area), the Sampling and Analysis Plan (SAP), the Quality Assurance Project Plan (QAPP), the Operations and Maintenance Manual (OMM) for the IM Stream Area system, and other VDEQ regulations and guidelines.

To address soils and subsoils impacted by VOCs, the facility has been developing the installation of a soil vapor extraction (SVE) IM system. BASCOR Environmental Inc. (BEI), on behalf of Univar, conducted a pilot test to evaluate the effectiveness of the SVE technology. The long term SVE pilot test was completed between October 2005 and January 2006. Based on the data collected during the pilot test, the system removed nearly 7,000 lbs. of VOCs, showing that the technology was successful at remediating the impacted soils. A full-scale SVE IM system design is currently being finalized based on air modeling and risk assessment report, and the DEQ West Central Regional Office's (WCRO's) air permit program requirements. (See Air (Outdoors).)

Surface water:

Human health exposure of contaminated surface water may exist as an exposure pathway to residents, workers and trespassers. The unnamed tributary to Mulberry Creek flows in a southeasterly direction through the forested area approximately 100 feet north and downgradient from the facility fence

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line. The nearest residential area is north of the facility site and approximately 300 feet from the northern property line. As discussed in the PMR, surface water sampling was conducted and analyzed for VOCs, SVOCs, alcohols, and metals. The results showed that the tributary is impacted mainly by VOCs. No Trespassing signs and warning signs have been posted along the property boundary and along the tributary to Mulberry creek cautioning people (especially residents and trespassers) to avoid contact with the creek water.

Air (Outdoors):

To support the implementation of the SVE IM and as requested by the DEQ, BEI prepared an Air Dispersion Modeling and Risk Assessment Report. The overall objective of the assessment was to evaluate whether emissions from the modeled SVE emissions could pose a threat to human health or the environment. Based on the final analysis, the acute and chronic risk and hazard are within the current acceptable risk-based performance standards at the facility site, at the property boundaries, and offsite the facility property. Additionally, BEI submitted an air permit application to the WCRO to control VOC emissions from the operation of the SVE IM system.

References:

- Interim Measures Plan (Stream Area) Progress Monitoring Report -1st Semester 2008, IESI
- Soil Vapor Extraction System Design and Work Plan – April 2008, BEI
- Description of Current Conditions Report – May 31, 2006, BEI
- Quality Assurance Project Plan, January 2007, BEI
- Operations and Maintenance Manual, May 2006, IESI
- Surface Water Sampling and Stream Flow Gauging Plan, August 2005, BEI
- Sampling and Analysis Plan, August 2005, IESI
- Interim Measures Plan (Stream Area), June, 2005, IESI
- Health and Safety Plan, June 2005, BEI

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

 X If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

No Trespassing Signs and warning signs have been posted along the property boundary and along the tributary to Mulberry creek cautioning people to avoid contact with the creek water. No workers are at the facility site except the environmental consultants performing the remediation and construction workers who construct the IM systems and install the groundwater monitoring wells and SVE wells. The environmental consultants and construction workers perform work in accordance with the Health and Safety Plan (HASP), the approved Interim Measures Plan (Stream Area), the Sampling and Analysis Plan (SAP), the Quality Assurance Project Plan (QAPP), the Operations and Maintenance Manual (OMM) for the IM Stream Area system, and other VDEQ regulations and guidelines.

The IM Stream Area, currently operating at the facility, is designed to mitigate the release of contaminated groundwater at the site to surface waters so to protect human health and the environment. Table 2 shows the constituents of concern detected in groundwater monitoring point samples that exceeded the EPA Maximum Contaminant Levels (MCLs) for drinking water or the EPA Region III Risk Based Concentrations (RBCs) for tap water, if an MCL has not been promulgated. Although concentrations of groundwater contaminants exceed the MCLs or RBCs, these concentrations have been decreasing with time with the removal of total VOCs by the IM Stream Area trench system (See Table 1). As shown on Figure 2 (attached), MP- 1, MP-2, and MP-3 are monitoring points upgradient of the trench, MP-4 and MP-8 are monitoring points in the trench, and MP-10, MP-10D, MP-11 and MP-12 are downgradient of the trench.

Additionally, results from the PMR show that surface water contaminant concentrations are decreasing in the downstream direction, with some contaminants no longer detected at the farthest downstream sampling location. These contaminant concentrations do not exceed the Virginia Quality Standards (Effective September 2007) for human health. Table 3 shows constituents of concern detected in surface water samples compared with the Virginia Water Quality Standards. As shown on Figure 2 (attached), SS-2 is the farthest upstream sampling point and SS-5 is the farthest downstream sampling point.

⁴ If there is any question on whether the 1.41.4 identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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Table 2. Constituents of Concern in Groundwater Monitoring Point Samples (May 2008)

Constituents of Concern	Groundwater Monitoring Points										EPA MCL	Tap Water RBC
	MP-1	MP-2	MP-3	MP-4	MP-8	MP-9	MP-10	MP-10D	MP-11	MP-12		
VOCs ((µg/L)												
Benzene	7.6	ND	ND	ND	ND	220	8.2	140	ND	34	5	--
cis-1,2-Dichloroethene	ND	ND	ND	100	ND	230	ND	220	ND	22	70	--
1,1-Dichloroethane	2.3	2200	2.0	470	ND	460	ND	270	ND	ND	--	2.4
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	5	--
Dichloromethane	7.1	420	ND	6800	ND	1400	ND	1700	ND	ND	5	--
Ethylbenzene	84	700	ND	ND	ND	ND	26	720	ND	130	700	--
4-Methyl-2-pentanone	13	7500	ND	34000	ND	65000	ND	61000	ND	3300	--	2000
Toluene	33	600	ND	5700	1.1	1200	ND	1100	22	1200	1000	--
Vinyl Chloride	ND	130	ND	ND	ND	470	ND	350	10	17	2	--
Alcohols (mg/L)												
Methanol	ND	41	ND	1300	ND	640	ND	520	ND	41		18

ND- Not Detected

Bold – concentration exceeds MCL or Tap Water RBC

--" – MCL/Tap Water RBC value not available

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Table 3. Constituents of Concern in Surface Water Samples (June 2008)

Constituents of Concern (VOCS)	Surface Water Monitoring Points (µg/L)			9 VAC 25-260 Virginia Water Quality Standards (Effective September 2007) Human Health (µg/L)	
	SS-2	SS-4	SS-5	Public Water Supply	All Other Surface Waters
Benzene	3.2	2.1	1.3	12	710
Chloroethane	23	41	41	--	--
cis-1,2-Dichloroethene	2.1	1.5	ND	--	--
1,1-Dichloroethane	5.4	3.1	2.3	--	--
1,1-Dichloroethene	1.2	ND	ND	310	17000
Dichloromethane	7.6	7.7	4.6	47	16000
Ethylbenzene	11	7.6	4.1	3100	29000
4-Methyl-2-pentanone	130	120	100	--	--
Tetrachloroethene	1.4	ND	ND	8.0	89
Toluene	220	160	91	6800	200000
1,1,1-Trichloroethane	2.5	1.1	ND	--	--
Vinyl Chloride	1.4	2.1	ND	0.23	61
Xylene, Total	29	22	13	--	--

ND – Not Detected

--" – surface water quality criteria value not available

Figure 4 (attached), also shows that total VOCs in the surface water samples have decreased since introduction of the interim measure trench system. This decreasing trend demonstrates that the IM Stream Area is effectively reducing the VOC mass discharged into the surface water.

Furthermore, results from the Air Dispersion Modeling and Risk Assessment are shown on Table 4. Chemicals listed here are detected in air samples from the SVE pilot test that are classified as known or suspected carcinogen in humans or animals. Using EPA Region III guidance and site-specific data, risk-based concentrations (RBCs) were developed by ARCADIS (BEI's subcontractor) for the risk based concentrations at the nearest residence and compared to the modeled concentrations at the property boundary at the site based upon the proposed operation of the SVE system.

Table 4. Carcinogenic Risk Assessment for SVE system.

Chemical	Site Specific RBC (µg/m ³) (10 ⁻⁵ target risk)	Modeled Concentration (µg/m ³)
Methylene Chloride	74	1.31
Trichloroethene (lower bound)	0.31	1.90 *
Trichloroethene (upper bound)	6.1	1.90
Tetrachloroethene	6.1	1.18
Vinyl Chloride	4.1	0.029
Carbon Tetrachloride	2.3	0.095
Benzene (lower bound)	4.5	0.036
Benzene (upper bound)	16	0.036
Chloroform	1.5	0.007

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1,2-Dichloroethane	1.3	0.0
1,1,2-Trichloroethane	2.2	0.0009

* – exceeds RBC

Note: TCE and benzene lower bound and upper bound values are based upon a range of inhalation factors (NCEA for TCE, EPA for benzene).

Two values were calculated for benzene since EPA recommended a range of values for the inhalation risk factor. Published data from the National Center for Environmental Assessment (NCEA) was used to develop the trichloroethene RBC. NCEA also recommended a range of inhalation factors for TCE, so two RBCs were calculated. For initial RBCs, a target risk of 10^{-5} (midpoint of accepted range of 10^{-4} to 10^{-6}) was selected. As shown on Table 4, the modeled concentrations for the chemicals were below the RBCs except for the TCE (lower bound). However, using an acceptable risk factor of 10^{-4} , the calculated TCE RBC is 3.1, and the modeled concentration would be below the 10^{-4} RBC (the lower bound limit).

References:

- Interim Measures Plan (Stream Area) Progress Monitoring Report -1st Semester 2008, IESI
- Soil Vapor Extraction System Design and Work Plan – April 2008, BEI
- Description of Current Conditions Report – May 31, 2006, BEI

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code 125 (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Univar USA, Inc. facility, EPA ID # VAD003111416, located at Martinsville, VA under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

NO - "Current Human Exposures" are NOT "Under Control."

IN - More information is needed to make a determination.

Completed by: (signature) AAConso
(print) Angela Alonso
(title) Environmental Specialist II

Date 9/9/08

Supervisor: (signature) Leslie Romanchik
(print) Leslie Romanchik
(title) Director, Office of Hazardous Waste
(EPA Region or State) Virginia Department of Environmental Quality

Date 9/15/08

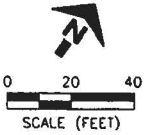
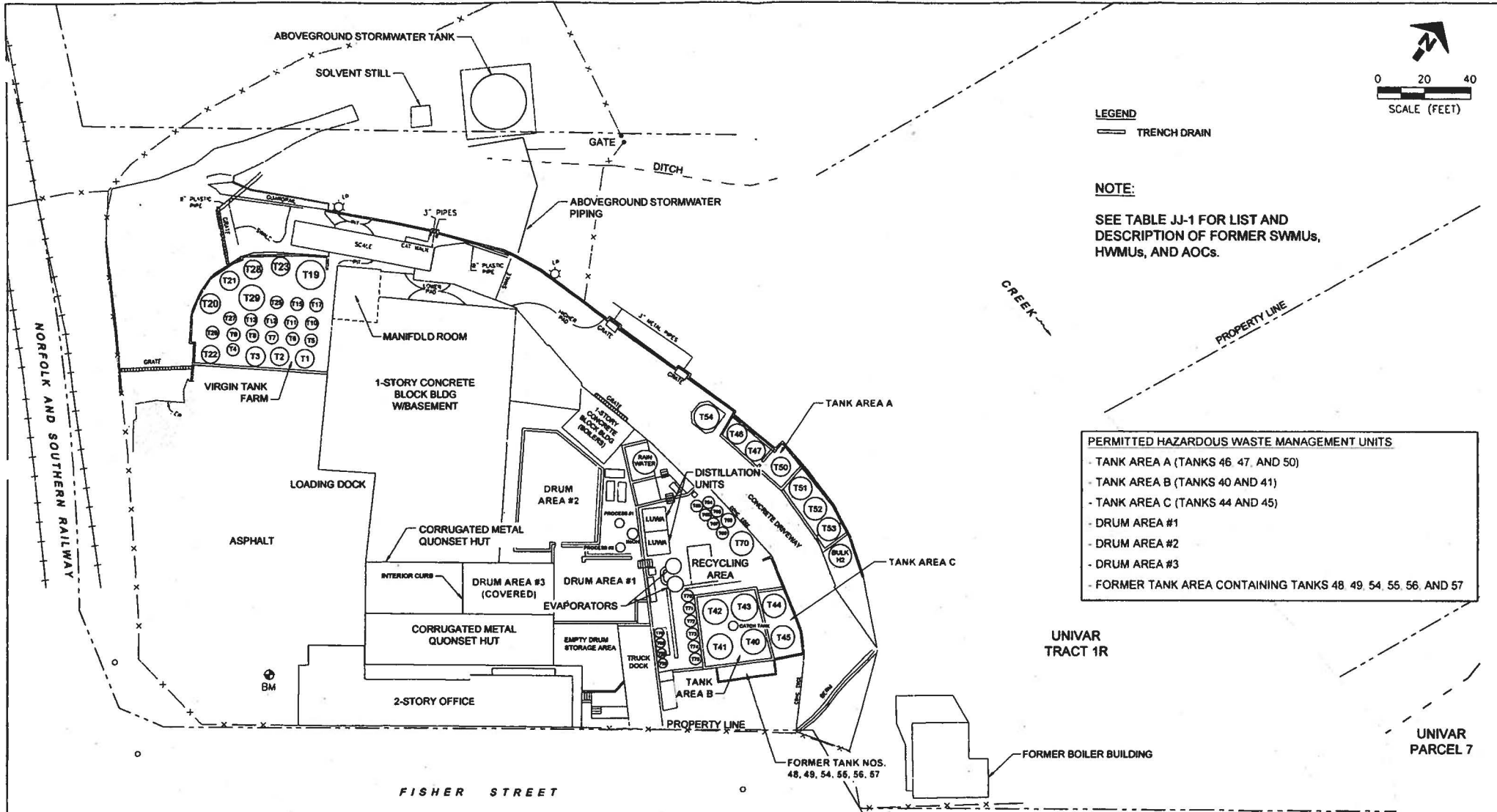
Locations where References may be found:

Virginia Department of Environmental Quality
Waste Division, Office of Hazardous Waste
629 East Main Street
Richmond, VA 23219

Contact telephone and e-mail numbers

(name) Angela Alonso
(phone #) (804) 698-4328
(e-mail) aialonso@deg.virginia.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.



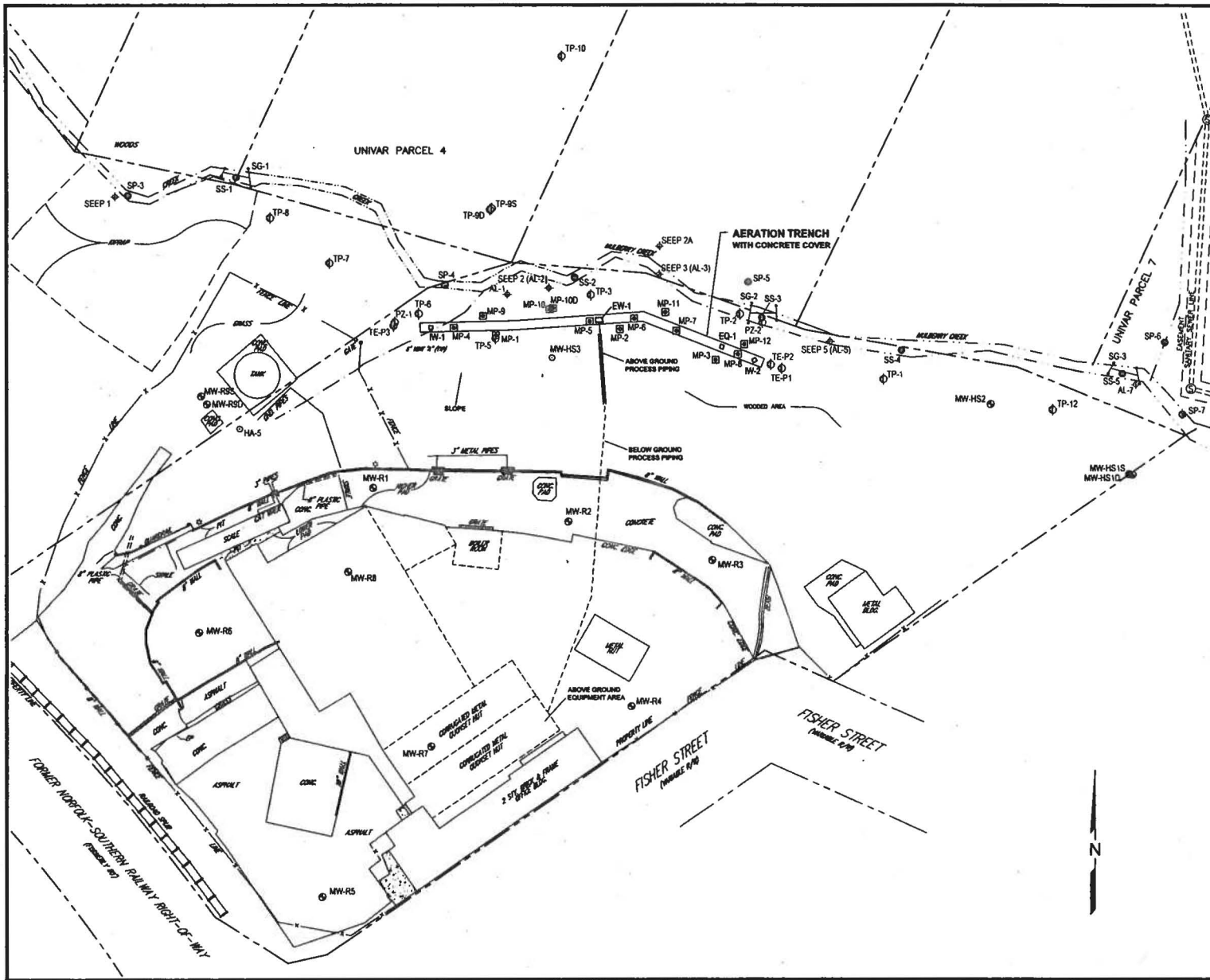
LEGEND
 — TRENCH DRAIN

NOTE:
 SEE TABLE JJ-1 FOR LIST AND DESCRIPTION OF FORMER SWMUs, HWMUs, AND AOCs.

- PERMITTED HAZARDOUS WASTE MANAGEMENT UNITS**
- TANK AREA A (TANKS 46, 47, AND 50)
 - TANK AREA B (TANKS 40 AND 41)
 - TANK AREA C (TANKS 44 AND 45)
 - DRUM AREA #1
 - DRUM AREA #2
 - DRUM AREA #3
 - FORMER TANK AREA CONTAINING TANKS 48, 49, 54, 55, 56, AND 57

- NOTES:**
1. LOCATION OF FORMER PROCESS UNIT BOUNDARIES BASED ON AVAILABLE FACILITY DRAWINGS.
 2. THE PROPERTY LINES FOR PROPERTIES THAT INTERSECT THE CREEK ARE ALONG THE THREAD OF THE CREEK.

		Univar USA Inc. Martinsville, Virginia	
		FORMER SWMUs, HWMUs, AND AOCs	
800 W. Central Rd. Suite 104N Mt. Prospect, IL 60056 (847) 677-1900	CONSULTING ENGINEERS AND SCIENTISTS	DRAWN: J.TANAKA CHECKED: B.BURKARD APPROVED: R.SENN	DATE: 8-21-06 PROJECT: L:\VW03397(MARTINSVILLE)\PART B PERMITS\FORMER PROCESS AREAS AND HWMUs.DWG SHEET: JJ-3



LEGEND

- MONITORING WELL
- ⊕ PIEZOMETER
- INJECTION OR EXTRACTION WELL (EQ, IW, EW)
- ◆ SEEP SAMPLE
- STREAM SAMPLING POINT
- STREAM FLOW GAUGING SEGMENT
- SURFACE WATER SAMPLE
- SOIL BORING
- ⊠ AERATION MONITORING POINT

MAP SOURCES: 1) "MONITORING WELL SURVEY FOR BASCOR" PREPARED BY J.A. GUSTIN AND ASSOC., COLLINSVILLE, VA, 8/2/07, CAD FILE "407001-A-OUT-08-14-07.DWG"; 2) "STREAM SAMPLING AND GAUGING LOCATION MAP" PREPARED BY BASCOR ENVIRONMENTAL, INC. FOR UNIVAR USA, INC., MARTINSVILLE, VA, 9/21/07, CAD FILE: "STREAM SAMPLE GAUGE LOCATIONS 08-2007 SCALE 1-50.DWG"



iesi		Innovative Engineering Solutions, Inc. 25 SPRING STREET WALPOLE, MASSACHUSETTS 02081 (508) 668-0033	
TITLE SITE PLAN			
PROJECT REMEDIAL SYSTEM (STREAM AREA)			
SITE MARTINSVILLE, VIRGINIA			
CLIENT UNIVAR USA, INC.			
DRAWN DMR	CHECKED JB	FILENAME MARTSV SITE PLAN 2007	DATE 10/12/07
			FIGURE 2

Figure 4: SS Historical Total VOC Concentrations

