

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: Wolverine Gasket
Facility Address: 201 Industrial Park Rd Blacksburg, VA
Facility EPA ID #: VAD065408692

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

Eagle Picher Automotive-Wolverine Gasket Division, formerly known as Wolverine Gasket & Manufacturing Company, is located at 201 Industrial Road in Blacksburg, Virginia. The Wolverine facility property is approximately 15.1 acres in size and has an approximately 150,000 square feet manufacturing building, several small storage buildings, asphalt parking lots and roadways, and landscaped areas. The manufacturing building is divided into three segments designated Building A, B, and C. Building A was constructed in 1976, Building B in 1988, and Building C in 1980.

The Wolverine facility operates a coil coating plant and manufactures coated steel material in a coil coating process for sale or conversion by stamping processes into gaskets. Coiled steel and fiberglass basis material is coated with rubber coatings made at the facility from master batch rubber compounds and solvents. Raw solvents used in the manufacturing process primarily include toluene, di-isobutyl ketone, isobutanol, and methyl ethyl ketone. The raw solvents are stored in four large aboveground storage tanks (ASTs) and 55-gallon drums. Basis material is unwound and washed, than coated with primer and rubber coatings. After coating, the coated basis material is dried/cured in ovens. Coated material is sold as is or is slit and stamped to client specifications. Facility operations include two coating lines, a rubber make-down process, and slitting and stamping operations. Building A houses a mix room and a coating line, Building B houses a coating line and material storage, and Building C houses the press floor.

As part of the Environmental Indicator (EI) inspection and evaluation for Current Human Exposures and Migration of Contaminated Groundwater, a comprehensive record search and review were conducted by the EPA and the U.S. Army Corps of Engineers (COE). This undertaking consisted of evaluating the Facility's manufacturing operations and waste management practices, RCRA permit applications, historical spills and releases, documentation of previous site inspections, RCRA closure activities and correspondence between the EPA, the Virginia Department of Environmental Quality(VDEQ) and the Facility.

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 near-term 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)?

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

- X 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.

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):

In October 2005, the EPA along with the VDEQ and the COE conducted a site visit. The visit consisted of a plant tour and information gathering to assess the current status of the Facility. No areas of concern were identified during the visit. The only site-related concern that was noted was a release of toluene that occurred in February of 1990. The Toluene Release Area was formerly identified in the National Corrective Action Prioritization System, Site Assessment Report (NCAPs SAR) as SWMU-1P. For the purpose of the Environmental Indicator inspection, the toluene release has been referred to as AOC-1. This AOC refers to a release of raw toluene that occurred from a subsurface pipeline leading to the facility. The pipeline extended from a bulk aboveground storage tank to the building. Toluene and three other raw chemicals (isobutanol, di-isobutyl ketone, and methyl ethyl ketone) are stored in four steel ASTs situated near the southeast corner of the facility. The toluene, isobutanol, di-isobutyl ketone, and methyl ethyl ketone ASTs are 10,000, 3,000, 5,000, and 5,000 gallons in capacity, respectively. The tanks are situated on concrete and surrounded with concrete walls, which provides secondary containment should a release occur. (Attachment 1, Figure 2).

The toluene release, subsequent assessment and cleanup activities implemented to address the release were discussed and detailed in several reviewed reports (prepared by Hatcher-Sayre, Inc. and Conestoga-Rover & Associates). A release of toluene was suspected in February 1990. The release was suspected based on a discrepancy in the toluene inventory. The source of the release was suspected to be a subsurface feed line leading from the tank to the manufacturing facility. The line was immediately replaced with an aboveground feed line. In March 1990, a soil gas survey conducted near the subsurface feed line indicated the presence of high concentrations of VOCs. The release was reported to the National Response Center and Commonwealth of Virginia State Water Control Board (SWCB) within 24 hours of completing the soil gas survey. The release incident was assigned case number 90-1168 by the Commonwealth of Virginia West Central Regional Office (WCRO).

After notifying the federal and state regulatory agencies of the release, Wolverine excavated and removed the subsurface feed line. Evidence of a release was noted during removal of the feed line. During removal of the feed line, approximately 20 cubic yards of soil were generated and stockpiled on the concrete pavement adjacent to the pipeline. The soil was

stockpiled and covered with plastic sheeting and surrounded by berms. Through analytical testing the stockpiled soil was found to contain toluene and was characterized as a U-220 listed waste. In July 1990, the stockpiled soil was loaded onto trucks and disposed at a hazardous waste landfill. In June 1990, Wolverine sent the Commonwealth of Virginia Department of Waste Management (DWM) a "Notification of Hazardous Waste Activity" notification documenting the disposal of the impacted soil. Upon notification, the DWM issued Wolverine a "Compliance Order" with an effective date of January 24, 1992. As a result of the compliance order, Wolverine was required to submit a Closure Plan that met the approval of the DWM (predecessor to the Virginia Department of Environmental Quality). The facility's Closure Plan was approved by the VDEQ on August 1, 1994. The facility cleaned and tested the concrete areas where impacted soil was formerly stockpiled. On December 5, 1994, the VDEQ sent correspondence to the facility which documented that they accepted the Closure Report prepared by Wolverine for the waste pile and agreed the closure complied with applicable RCRA Regulations and the Virginia Hazardous Waste Management Regulations (VHWMR). The VDEQ's letter of closure approval specified "The EPA retains authority to address possible corrective action of continuing releases pursuant to the Hazardous and Solid Waste Amendments of the RCRA of 1984."

During March and April 1990, soil samples were collected from the location of the excavated toluene feed line. In addition, twelve soil test borings were advanced around the tank farm and feed line trench. Soil samples were collected from six of the test borings for analytical testing. Four soil samples were collected from the feed line trench. Toluene was detected in the samples at concentrations ranging from 3 to 120,000 milligrams per kilogram (mg/kg). Toluene was detected in soil samples collected from the shallow subsurface and extended to more than 17 feet below grade. Competent bedrock was encountered in the investigated area at depths ranging from 12 to 26 feet below grade. Of the 20 soil samples analyzed, only one sample (120,000 mg/kg toluene at location B-5) at a depth of 17 feet, exceeded the EPA residential screening level for this compound. At a depth of 17 feet, this soil would not present a direct contact threat. This soil sample was collected at a point most directly below where the actual 1/8 inch hole in the toluene feed line was discovered. Soil samples collected from a three-foot depth as you approach the concrete pad underlying the nearby storage tanks decreased in toluene concentrations to 2800 mg/kg at a sample point nearest to the concrete pad. The residential Risk Based Concentration for toluene is 5000 mg/kg. Also, the fact that the concentration of toluene in groundwater has decreased to below the EPA Maximum Contaminant Level (MCL) for this compound, would tend to indicate that the soil concentrations are naturally attenuating.

In November 1991, three groundwater monitoring wells were installed adjacent to the tank farm. The wells were installed within competent bedrock to depths ranging from 26 to 40 feet below grade. Groundwater samples were collected from the monitoring wells and a former facility fire protection well shortly after the monitoring wells were installed. The fire protection well is several hundred feet deep. A natural spring was identified approximately 1,200 feet north-northeast of the tank farm. A second spring was identified near the first one in February 1992. A sheen was noted on water exiting the springs. Surface water samples were collected from the springs and the tributary of Cedar Run Creek shortly after the springs were discovered. Toluene was detected in the groundwater samples collected from the monitoring wells at concentrations ranging from 11 to 120 milligrams per liter (mg/l). Toluene was detected in the groundwater sample collected from the fire protection well at a concentration of 0.001 mg/l. Toluene was detected in the water samples collected from the springs and tributary at concentrations ranging from 0.078 to 92 mg/l.

Shortly after discovering the first spring, water exiting the spring was diverted through a biological treatment unit (an out-of-service City of Blacksburg POTW, with city approval) as an emergency measure in 1991. The emergency measure was approved by the State Water Control Board (SWCB). Three more springs were identified downgradient of the facility at a later date. All of the springs discharged to the tributary of Cedar Run Creek. Water exiting all of the springs was diverted to the previously mentioned POTW in 1991.

Correspondence from the VDEQ, dated September 28, 2000, was sent to the Wolverine Gasket facility which documented that the Groundwater/Storage Tank Program of the VDEQ, WCRO, would be the guiding regulatory program with the DEQ for this project. This correspondence specified the criteria, standards, and procedures needed to satisfactorily close out remediation sites and to demonstrate there is no adverse risk to human health and the environment from any contamination that is not remediated. The groundwater concentrations data in the source area and the groundwater discharged in the springs were requested. The above correspondence indicated that the in-stream Surface Water Quality Standard for Toluene is 175 ppb or 0.175 mg/l. The groundwater protection standard was the EPA maximum contaminant level (MCL) for toluene which is 1.0 mg/l.

Monitoring of groundwater and treatment of water exiting the springs was conducted until June 2004. In August 2004, Wolverine requested case closure from the VDEQ. Case closure was granted by the VDEQ's WCRO Storage Tank

Program by correspondence, dated September 7, 2004. The VDEQ's Tank Program correspondence specified that "You should check with the VDEQ's Waste Division to determine if that Program has any additional requirements for closure of this case file. At the time of closure under the VDEQ's Tank Program, toluene in groundwater in the three shallow monitoring wells had decreased to concentrations ranging from 0.0003 to 0.0049 mg/l, and in the deeper fire protection well to below the analytical method detection limit (less than 0.001 mg/l), and in surface water in the springs to below the analytical method detection limit (less than 0.005 mg/l). The EPA's MCL for toluene of 1.0 mg/l was achieved. The monitoring wells were closed (abandoned) in accordance with Virginia's regulatory requirements shortly after case closure was granted.

It should be noted that the groundwater quality at the facility site and in the offsite springs or seeps have sufficiently recovered by natural attenuation processes to meet the EPA's MCLs and the DEQ's Surface Water Quality Standard for toluene. Therefore, the site has met the water quality clean-up criteria and standards under RCRA Corrective Action and there is no further action deemed necessary for groundwater remediation at the facility .

Regarding Remaining Subsoils – In 1990, at the time of the excavation of the piping trench and upon the initial identification of the release, the facility removed the surface soils and shallow subsoils at the site along the trench and in the vicinity of the AST farm. The facility identified potential levels of contamination in the shallow subsoils and deeper subsoils at the site by use of Photoionization detector (PID) readings and by sampling and analyses of the remaining subsurface soils around the perimeter of the AST's secondary containment unit. Twenty subsoil samples were taken from the excavation bottom and from soil borings as documented in the Site Evaluation Report, dated 1990, and the Site Characterization Report, dated 1992 (essentially the same document). The subsoil sampling and analyses indicated that toluene in the post-excavation soil samples ranged from 0 ppm (Non-detect) to 3,800 ppm (mg/kg); however, one soil sample, boring location B-5, revealed toluene at 120,000 ppm at a depth of 17 to 17.5 ft. below grade. The relative subsoil sampling concentrations in the source area in 1990 vs. the downgradient spring or seep concentrations in 1990 should also be noted. In 1990, the toluene concentrations at the downgradient springs or seeps (S-1 and S-2) were 50 and 92 ppm (mg/l), respectively. However, in 2004, the toluene concentrations in S-1 and S-2 were at less than 0.005 mg/l. Therefore, it may be reasonably assumed that the remaining subsoil concentrations in the source area should be expected to be significantly lower than when first sampled in 1990, based upon the correlation of the data and the natural attenuation processes.

References:

1. **Site Characterization Report, Wolverine Gasket Division, Blacksburg, Virginia. Prepared for Wolverine Gasket Division. Prepared by Hatcher-Sayer, Inc. April 1992.**
2. **Request for Site Closure Letter Report, Eagle Picher Automotive, Wolverine Gasket Division . To Mr. Donald Edge, VDEQ. From Edward M. Kuhn, Conestoga-Rovers and Associates, August 13, 2004.**
3. **Review of Report and PC Close-Out Letter, Toluene AST Release, Wolverine Gasket, Blacksburg, PC No. 90-1168, FAC ID. No. 2-026505. To Mr. Paul Jenkins, Eagle-Picher Automotive, Wolverine Gasket Division, from Donald Edge, P.G., Remediation Specialist, Senior, WCRO, VDEQ, September 7, 2004.**
4. **Final RCRA Site Visit Report, Eagle Picher Automotive – Wolverine Gasket Division, EPA ID No. VAD065408692, 201 Industrial Park Road, Blacksburg, VA, by U.S. Army Corps of engineers, dated April 25, 2006.**

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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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

Potential **Human Receptors** (Under Current Conditions)

<u>“Contaminated” Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)							
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).
- 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):

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

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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)?
- 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):

⁴ If there is any question on whether the 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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5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?
- If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).
 - If no - (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.
 - If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code.

Rationale and Reference(s):

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI (event code CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (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 Wolverine Gasket facility, EPA ID # VAD065408692, located at 201 Industrial Park Road Blacksburg, Virginia 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 _____ Date: August 27, 2009____
Bill Wentworth
Remedial Project Manager

Supervisor _____ Date: August 27, 2009____
Luis Pizarro
Associate Director
EPA Region III

Locations where References may be found:

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