

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
 Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater 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 the groundwater media, 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 #8 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 “Migration of Contaminated Groundwater Under Control” EI

A positive “Migration of Contaminated Groundwater Under Control” EI determination (“YE” status code) indicates that the migration of “contaminated” groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original “area of contaminated groundwater” (for all groundwater “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 “Migration of Contaminated Groundwater Under Control” EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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. Is **groundwater** known or reasonably suspected to be “**contaminated**”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

- If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.
- If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”
- If unknown - skip to #8 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.

The toluene release, as well as the 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 was 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.”

In April 1990, 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. 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.

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. The emergency measure was approved by the State Water Control Board (SWCB) in 1991. 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 or seeps 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 has 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 site.

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:

i“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 appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”² as defined by the monitoring locations designated at the time of this determination)?
- If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the “existing area of groundwater contamination”².
 - If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”²) – skip to #8 and enter “NO” status code, after providing an explanation.
 - If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

²“existing area of contaminated groundwater” is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of “contamination” that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of “contaminated” groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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4. Does “contaminated” groundwater **discharge** into **surface water** bodies?
- If yes - continue after identifying potentially affected surface water bodies.
 - If no - skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contamination” does not enter surface water bodies.
 - If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

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5. Is the **discharge**³ of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?
- If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.
- If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.
- If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

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6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

- If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment⁵, appropriate to the potential for impact that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
- If no - (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.
- If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

⁴Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

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7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the “existing area of contaminated groundwater?”
- If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”
- If no - enter “NO” status code in #8.
- If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

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8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), 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, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Wolverine Gasket facility, EPA ID # VAD065408692, located at 201 Industrial Park Road Blacksburg, Virginia. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control. This determination will be re-evaluated if the Agency becomes aware of significant changes at the facility.
- NO - Unacceptable migration of contaminated groundwater is observed or expected.
- 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, Land and Chemicals Division
EPA Region III

Locations where References may be found:

US EPA Region III
 Land and Chemicals Division
 1650 Arch Street
 Philadelphia, PA 19103

Contact telephone and e-mail numbers

Bill Wentworth
215-814-3184
wentworth.william@epa.gov

