

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: Delbar Products Incorporated
Facility Address: 601 West Spruce Street, Perkasio, PA 18944
Facility EPA ID #: PAD002378149

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?

X 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 "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.

X 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):

Delbar manufactures mirrors for use by the automotive industry. In the past, the Delbar manufacturing process has involved stamping, pressing, and painting metal tubes and sheets to produce mirror mounts. The mirror mounts were packaged and shipped to Delbar’s Telford plant where the final product is assembled. Delbar no longer operates the painting process at the Perkasio plant and the assembling line has been moved from the Telford plant to the Perkasio location.

On September 28, 2001, EPA and Delbar entered into an Administrative Order on Consent (AOC) pursuant to Section 7003 of the Resource Conservation and Recovery Acts (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. Section 6973. As required by the AOC, Delbar submitted a RCRA Facility Investigation (RFI) Workplan. On April 26, 2004, EPA approved Delbar’s RFI workplan. Delbar performed a RCRA Facility Investigation (RFI) in accordance with the approved RFI workplan. On November 14, 2005, EPA approved the facility’s RFI and Corrective Measures Study (CMI) reports.

Groundwater samples were collected and analyzed in accordance with the approved RFI workplan. The RCRA metals including arsenic, barium, cadmium, chromium, and lead were detected in shallow and bedrock groundwater samples at concentrations as high as 0.01 mg/l, 0.32 mg/l, 0.0018 mg/l, 0.078 mg/l, and 0.009 mg/l, respectively. The MCLs for arsenic, barium, cadmium, and chromium are 0.010 mg/l, 2 mg/l, 0.005 mg/l, and 0.1 mg/l, respectively. The action level for lead is 0.015 mg/l. The detected concentrations of RCRA metals are below the respective federal MCLs or action level.

VOCs were detected in the shallow groundwater and bedrock groundwater samples. VOCs detected in shallow groundwater include 1,1-Dichloroethane (1,1-DCA) at concentration as high as 5.5 ug/l, 1,2-dichlorobenzene at concentration as high as 1.5 ug/l, 1,4(p)-dichlorobenzene at concentration as high as 0.74 ug/l, acetone at concentration as high as 3.2 ug/l, benzene at concentration as high as 1.4 ug/l, chloroethane at concentration as high as 2.8 ug/l, cis-1,2-dichloroethene (cis-1,2-DCE) at concentration as high as 2.3 ug/l, cyclohexane at concentration as high as 1.2 ug/l, ethylbenzene at concentration as high as 450 ug/l, isopropylbenzene at concentration as high as 32 ug/l, methylcyclohexane at concentration as high as 4.2 ug/l, tetrachloroethene (PCE) at concentration as high as 0.3 ug/l, toluene at concentration as high as 3.5 ug/l, total xylenes at concentration as high as 1400 ug/l, trans-1,2-dichloroethene (trans-1,2-DCE) at concentration as high as 0.9 ug/l, and trichloroethene (TCE) at concentration as high as 1.2 ug/l. VOCs detected in the bedrock groundwater include 1,1,1-trichloroethane (1,1,1-TCA) at concentration as high as 7.6 ug/l, 1,1-DCA at concentration as high as 4.1 ug/l, 1,1-dichloroethene (1,1-DCE) at concentration as high as 4 ug/l, 1,4-dichlorobenzene at concentration as high as 0.4 ug/l, chloroethane at concentration as high as 1.2 ug/l, chloroform at concentration as high as 0.41 ug/l, cis-1,2-DCE at concentration as high as 28 ug/l, PCE at concentration as high as 33 ug/l, trans-1,2-DCE at concentration as high as 0.49 ug/l, and TCE at concentration as high as 3900 ug/l.

The MCLs for 1,1,1-TCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-dichlorobenzene, 1,2-dichlorobenzene, benzene, ethylbenzene, PCE, toluene, total xylenes, and TCE are 200 ug/l, 7 ug/l, 70 ug/l,

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100 ug/l, 75 ug/l, 600 ug/l, 5 ug/l, 700 ug/l, 5 ug/l, 1000 ug/l, 10000 ug/l, and 5 ug/l, respectively. The EPA Region 3 Tap Water RBCs for 1,1-DCA, acetone, chloroethane, chloroform, cyclohexane, and methylcyclohexane are 900 ug/l, 5500 ug/l, 3.6 ug/l, 0.15 ug/l, 12000 ug/l, and 6300 ug/l, respectively. Since the MCL and EPA Region 3 Tap Water RBC for isopropylbenzene are not available, the PADEP Act 2 used aquifer MSC of 1100 ug/l is used.

The concentrations of the VOCs detected in groundwater and the corresponding MCLs, EPA Region 3 RBCs, and PADEP Act 2 MSCs are summarized in Table 1 and Table 2 as follows:

**Table 1
VOCs Detected in Shallow Groundwater**

VOCs	Results (ug/l)	MCLs (ug/l)	EPA Region 3 Tap Water RBCs (ug/l)	PADEP MSCs (ug/l)
1,1-Dichloroethane	5.5		900	
1,2-Dichlorobenzene	1.5	600		
1,4(p)-Dichlorobenzene	0.74	75		
Acetone	3.2		5500	
Benzene	1.4	5		
Chloroethane	2.8		3.6	
cis-1,2-Dichloroethene	2.3	70		
Cyclohexane	1.2		12,000	
Ethylbenzene	450	700		
Isopropylbenzene	32			1,100
Methylcyclohexane	4.2		6300	
Tetrachloroethene	0.3	5		
Toluene	3.5	1,000		
Xylenes	1400	10,000		
trans-1,2-dichloroethene	0.9	100		
Trichloroethene	1.2	5		

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**Table 2
VOCs Detected in Bedrock Groundwater**

VOCs	Results (ug/l)	MCLs (ug/l)	EPA Region 3 RBCs (ug/l)
1,1,1-trichloroethane	7.6	200	
1,1-dichloroethane	4.1		900
1,1-dichloroethene	4	7	
1,4-dichlorobenzene	0.4	75	
Chloroethane	1.2		3.6
Chloroform	0.41		0.15
Cis-1,2- dichloroethene	28	70	
Tetrachloroethylene	33	5	
trans-1,2-dichloroethene	0.49	100	
Trichloroethene	3900	5	

The concentrations of VOCs detected in shallow groundwater are below the MCLs, EPA Region 3 Tap Water RBCs or PADEP used aquifer MSCs.

Of the VOCs detected in bedrock groundwater, PCE and TCE were detected at concentrations above the MCLs . The groundwater investigation at Delbar facility performed by Delbar and EPA revealed that the contamination of TCE and PCE in bedrock groundwater underneath Delbar facility is not caused by releases from Delbar facility, however, by upgradient sources. (RCRA Facility Investigation Report, Delbar products Incorporated, December 5, 2005).

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

- 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

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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.

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):

5. Is the **discharge** 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.

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_____ 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.

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-assessment,⁵ 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.

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_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

⁴ Note, 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.

⁵ The 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.

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).

- X 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 Delbar Products Incorporated facility, EPA ID # PAD002378149, located at 601 West Spruce Street, Perkasie, PA 18944. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when 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 (signature) _____ Date _____
 (print) Tran Tran
 (title) RCRA Project Manager

Supervisor (signature) _____ Date _____
 (print) Paul Gotthold
 (title) Chief, PA Operations Branch
 (EPA Region or State) EPA Region III

Locations where References may be found:

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