

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: Westvaco Corporation
Facility Address: John Hopkins Road, Laurel, Maryland
Facility EPA ID #: MDD 04 800 5839

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 #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).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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): **The Westvaco facility in Laurel, Maryland is located on Johns Hopkins Road approximately one-half mile west from Highway 29. The focus at this facility is on research and development. Tetrachloroethene (PCE) at 7.0 ug/l and chloroform at 3.2 ug/l had been identified above their respective Risk Based Concentrations (RBC’s) of 1.1 ug/l and 0.15 ug/l in on-site production wells from sampling events in 1986 and 1987. Furthermore, analytical results of samples collected from settling tanks during the 1989 removal of an on-site leach field effluent disposal system, revealed the presence of several volatile organic chemicals. There was some concern that these compounds may have been discharged to the groundwater underlying the leach field. The former leach field was re-developed into a storm water retention pond that is currently used by the facility. In order to assess the current groundwater quality at the facility, Westvaco conducted a sampling event in March 2002. Four temporary monitoring wells (TMW) were installed around the former leach field using hollow stem auger drilling. The wells were completed about 10 feet below the water table at depths ranging from 22 feet to 40 feet below existing grade. Groundwater samples were collected from the four temporary wells using the low-flow method. A groundwater sample was also collected from one of the production wells (Well #5). This sample was collected from a spigot at the well head located prior to the check valve. All samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs). The temporary wells around the former leach field were also analyzed for dissolved cadmium and lead.**

An environmental consulting firm conducted the sampling activities for Westvaco. EPA Region III utilized personnel from the Army Corps of Engineers (ACE), Baltimore Office to provide oversight of the sampling event and to collect split samples. Analytical results from this event revealed no lead or cadmium in any of the groundwater samples. The analytical results provided by Westvaco’s consultant revealed a low concentration of chloroform (1ug/l) in the production well and in TMW #1, located on the up-gradient side of the former leach field. Acetone (3ug/l) was detected in TMWs #3 and #4. Analytical results from the split samples collected by the ACE revealed chloroform (1.2 ug/l) and tetrachloroethene (0.8 ug/l) in the production well. Chloroform (1.3 ug/l) was also detected in TMW#1 in the split sample collected by ACE. The only other positive detection in the split samples collected by ACE was chloromethane (1.2 ug/l) found in TMW #3. It should be noted that a duplicate sample collected by the ACE at this location revealed no contamination. The only contaminant identified in this sampling event that exceeded a risk based concentration (RBC) is chloroform. The RBC for chloroform is .15 ug/l. A few detections of chloroform (up to 1.3 ug/l) were found in samples from the production well and the upgradient TMW #1. It should be noted that no chloroform was found in the TMWs downgradient of the leach field. However, chloroform is regulated with the group of compounds referred to as trihalomethanes, and this group has a Maximum Contaminant level (MCL) of 100 ug/l. Chloroform was the only trihalomethane found in on-site groundwater. Therefore, the 1.3 ug/l of chloroform found in groundwater from the site is well below the MCL (100ug/l) for this compound group.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Furthermore, no nearby groundwater users were identified during the investigation. Based on the topography in the area of the facility, groundwater is expected to flow to the south and discharge into Hammond Branch located adjacent to the facility property. No residential properties have been identified immediately south of the site. Based on the fact that the results of the groundwater sampling did not reveal any contaminant exceeding MCLs, no further RCRA corrective action is necessary at this site at this time.

Refs.

Environmental Priorities Initiative Preliminary Assessment of Westvaco. Final Report, November, 1989. Prepared by Maryland Department of the Environment.

State of Maryland Analytical Data Forms. Department of Health and Mental Hygiene. Volatile Organic Analysis. November 18, 1988.

**Environmental Indicator Inspection Report for Westvaco Corporation, Laurel, Maryland. Prepared by: U.S. Army Corps of Engineers, Baltimore District
Final Report: November 30, 2001**

**Data Package from Analytical Laboratory Services, Inc.
Project Title: USACE Westvaco
Dated: April 20, 2002**

Investigation Report for a Focused Ground Water Investigation at the Westvaco Corporation's Laurel, Maryland Facility. April 16, 2002. Prepared by Environmental Resources Management, Inc.

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).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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): _____

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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.

_____ 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.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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.

_____ 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.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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): _____

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

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 **Westvaco Corporation** facility, ID # **MDD 04 800 5839**, located in **Laurel, Maryland**. 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 <u>08-16-02</u>
	(print) <u>Bill Wentworth</u>	
	(title) <u>Remedial Project Manager</u>	
Supervisor	(signature) _____	Date <u>08-16-02</u>
	(print) <u>Robert E. Greaves</u>	
	(title) <u>Chief, General Operations Branch</u>	
	(EPA Region or State) <u>EPA, Region 3</u>	

Locations where References may be found:

EPA Region III, RCRA File Room
1650 Arch Street
Philadelphia, Pa 19103

Contact telephone and e-mail numbers:

(name)	<u>Bill Wentworth</u>
(phone #)	<u>(215) 814-3184</u>
(e-mail)	<u>wentworth.william@epa.gov</u>