

**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:** Maryland Environmental Services Hawkins Point Controlled Hazardous Substance Landfill  
**Facility Address:** 5501 Quarantine Road, Baltimore, MD 21226  
**Facility EPA ID #:** MDD 000 731 356

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**

The Maryland Environmental Services (MES) Hawkins Point Controlled Hazardous Substance (CHS) Landfill is located within the Curtis Bay Industrial Area adjacent to Thomas Cove, near the southern Baltimore City limits, at the Francis Scott Key Bridge. The Hawkins Point Landfill is owned by the Maryland Port Administration (MPA), has a total area of 67 acres, and is permitted by the MDE and the EPA. MES is the landfill permittee. The MPA obtained the 67-acre site in 1958 and developed it as a landfill for chrome-ore processing residue (COPR) from the former AlliedSignal, Inc. Baltimore Works Plant. In 1979, MES began operating the Hawkins Point Landfill for the MPA. The Hawkins Point property is divided into six areas; Areas 1, 2, 3, 4, 5, and 6, as described below:

**Area 1** - Area 1 is located outside of the fenced area of the Hawkins Point facility. There are no known wastes in Area 1. This area is the MPA's property, but is leased to EASTALCO Aluminum Company.

**Area 2 and Area 3** - From 1975 to 1979, COPR materials were disposed of in three clay-lined cells located in Areas 2 and 3. Areas 2 and 3 contain COPR cells, constructed by MPA, are managed by MES. Leachate generated from Areas 2 and 3 is managed by a leachate collection system constructed in the late 1970s and rehabilitated in 2002. The collected leachate is conveyed to an in-ground wet well and an aboveground storage tank respectively before being transported off-site by tanker truck for disposal at a permitted facility.

**Area 4** - Area 4 contained two temporary leachate holding lagoons during construction of Area 5. These temporary lagoons were lined basins used for storage of surface water collected during landfill construction. They were removed when landfill construction was completed in 1993. Area 4 has also been identified as a location where a "paint sludge" material was reportedly observed in a June 27, 1985 Assessment of Continuing Releases Report. This sludge storage area pre-dates landfill closure and there is no documentation indicating the status of the paint sludge. SWMU No. 4 is shown in Photograph 5 in Appendix A at the time of the 2010 RCRA Site Visit.

**Area 5** - Area 5 was used for the disposal of COPR and demolition debris from Allied Signal, Inc. (now Honeywell). Area 5 is comprised of 10 waste cells (numbered 1-3, and 5-11, there is no cell 4) containing COPR and chromium contaminated soil, trash, construction debris from demolition of the former Allied Signal Corporation, Baltimore Works Plant. MES operated Area 5 while it was active, from approximately 1980 to 1994. In January 1983, MES began accepting COPR from the Baltimore Works facility owned by Allied Signal. In 1985, the Baltimore Works facility closed. As part of closure, portions of the Baltimore Works facility were dismantled, and yielded chromium contaminated debris consisting of structural beams, concrete, brick, asbestos, soil (up until

May 8, 1980) and other chrome contaminated debris which was disposed in Area 5 until 1993. An estimated 451,450 tons of COPR and demolition materials were disposed of in Area 5.

**Area 6** - Area 6 is located outside of the fenced area of the Hawkins Point facility, but within the property boundaries. It was previously leased to the Cosmin Corporation, and this area is not currently being used. Area 6 was used for short-term storage of containerized ferrous sulfate by MES before being transported to other facilities. Additionally, a small-scale, limited duration pilot test for solid waste treatment was performed in Area 6 circa 1996. The pilot testing was performed within a contained area which was removed following the completion of the pilot testing activities.

In January 2004, MES requested that the NPDES Permit for Hawkins Point Landfill be discontinued because on-site leachate treatment had been discontinued. The MDE granted that request. Since that time, collected leachate has been stored in an aboveground storage tank and then transported to an off-site permitted disposal facility by a licensed waste hauler. The NPDES permit was replaced by a general discharge permit in 2004. The facility operates under Controlled Hazardous Substance (CHS) Permit A-264. The surrounding land use is primarily zoned for heavy industrial use. Some limited undeveloped parkland does exist as indicated. There are no residences within 1,000 feet of the facility boundary.

An April 2009 Operations and Maintenance (O&M) inspection indicated the facility is being operated and maintained in an acceptable manner which included groundwater sampling and other such activities.

#### **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”**<sup>1</sup> 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):

Ten monitoring wells are sampled twice per year in the southern part of the facility. These wells are used to monitor the potential presence of constituents specified in the CHS permit in groundwater in Areas 2, and 3. These wells were rehabilitated approximately three years ago. According to facility representatives and review of the quarterly sampling reports, there have been no groundwater monitoring violations of the CHS permit. The only analytes detected have been due to naturally occurring contaminants.

Seven monitoring wells are sampled quarterly (in quadruplicate) in Area 5. In 2008, statistical analysis yielded a result of a Statistically Significant Increase (SSI) in well 2d. Subsequent review of the result concluded that this SSI was an anomaly.

Footnotes:

<sup>1</sup>“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”<sup>2</sup> 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”<sup>2</sup>).
- If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”<sup>2</sup>) – 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):

<sup>2</sup> “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** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration<sup>3</sup> 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 concentration<sup>3</sup> 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 judgment/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 concentration<sup>3</sup> 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 concentrations<sup>3</sup> 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):

<sup>3</sup> 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 implemented<sub>4</sub>)?

- 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<sub>5</sub>, 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):

<sup>4</sup> 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.

<sup>5</sup> 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.

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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 Maryland Environmental Services Hawkins Point Controlled Hazardous Subustance Landfill, EPA ID # MDD 000 731 356, located at 5501 Quarantine Road, Baltimore, MD 21226. 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	<u>(signature)</u> <u>(print) Denis Zielinski</u> <u>(title) Senior RPM</u>	Date <u>8/17/2010</u>
Supervisor	<u>(signature)</u> <u>(print) Luis Pizarro</u> <u>(title) Associate Director</u> <u>EPA Region III</u>	Date <u>10/6/2010</u>

Locations where References may be found:

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