

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRAInfo Code (CA750) Migration of Contaminated Groundwater Under Control

Facility Name: Clean Harbors BDT, LLC (BDT)
Facility Address: Research Parkway, Clarence, NY 14031
Facility EPA ID #: NYD000632372

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EIs) 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 EIs 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 EIs 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 Determination status codes should remain in RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

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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 is not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

The BDT facility treated reactive hazardous wastes, pressurized waste, pharmaceuticals and packaged laboratory chemicals. The BDT facility was initially owned and operated by Wilson-Greatbatch, Inc. It was subsequently sold to Laidlaw Environmental Services, then to Safety Kleen, Inc., and finally to Clean Harbors BDT, LLC. Residues from treatment were disposed off-site. All of the waste storage areas included a sealed concrete floor, secondary containment, and a collection system to eliminate release of hazardous material to surrounding areas and to contain any release for prompt cleanup. The operating record indicates that there were no releases of hazardous waste or hazardous waste constituents beyond the secondary containment structures during operation of the facility. However, on August 14, 2002, a fire occurred at the BDT facility. During the course of the fire, the fire consumed large portions of the waste stored at the facility. All remaining waste was removed by March 14, 2003.

As a result of the firefighting efforts, approximately 140,000 gallons of water were applied to the fire. The firefighting water that ran off from the fire accumulated in site swales, depressions, and low-lying structural features such as the loading dock. Approximately 80,000 gallons of the total amount of water were recovered and shipped off-site for disposal. Based upon analytical data, this water was classified as non-hazardous. The remaining 60,000 gallons of water were either released as steam during the fire or infiltrated the soil.

On August 15, 2002, samples of the firefighting water were collected at various locations and the sample results were compared to USEPA and NYSDEC groundwater screening criteria. A Screening-Level Evaluation of the Potential Effect of Firefighting Water on Groundwater Quality Report was completed by ENVIRON which concluded that the firefighting runoff water did not present a short-term or long-term threat to public health or the environment via the groundwater pathway.

An Order on Consent between BDT and the NYSDEC required BDT to submit a RCRA Facility Investigation (RFI) workplan to complete an assessment of the nature and extent of contamination associated with the soil and groundwater. BDT completed the RFI in September 2005. The NYSDEC and NYS Department of Health (NYSDOH) approved of the RFI in December 2005. The NYSDEC and NYSDOH determined that as a result of the soil and groundwater sampling and soil removal activities, no further action was required.

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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 known or reasonably suspected to be "contaminated."

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

Rationale:

Please refer to facility's background for further information under Question #1.

References:

A RCRA Facility Investigation for Clean Harbors BDT, LLC was completed in September 2005 and approved by the NYSDEC and NYSDOH in December 2005. The BDT hazardous waste facility in Clarence, NY experienced a fire on August 14, 2002 and ceased operations. An Order on Consent between the NYSDEC and BDT required BDT to perform a RCRA Facility Investigation. An RFI Work Plan (July 2004) was developed and was implemented in November 2004. RCRA closure activities were also implemented. Site field work concluded in August 2005. The major components of the field work included: demolition and removal of the structures of the operating portion of the facility in May 2005, soil removal to bedrock at the hydrolysis sump Area of Concern (AOC), and soil removal where ponded firefighting water collected.

Groundwater monitoring wells were installed in the overburden and bedrock to assess the groundwater quality. Soil sampling was performed in areas where firefighting water accumulated to determine if there were any impacts to the soil. Additional soil samples were collected from beneath the concrete slab of the operating portion of the facility. Two temporary groundwater wells were installed beneath the concrete slab to assess the groundwater conditions beneath the operating portion of the facility. Firefighting water was also collected after the fire to determine the water quality. All of the firefighting water that was collected (approximately 80,000 gallons) was disposed off-site as a non-hazardous waste.

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).

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Corrective action was required at the hydrolysis sump AOC. An area of approximately 700 square feet was excavated to depths up to 8 feet (top of bedrock). Excavation continued until all visibly stained soil was removed. Soil and groundwater samples were obtained to confirm all contaminated soils were removed that were associated with this AOC.

Several locations from the shallow soil (0-2") sampling program showed an impact from the firefighting water that collected in shallow depressions. In the areas that were impacted by the firefighting water, the upper 3-4 inches of soil were removed and replaced with clean soil. After the initial removal, confirmation sampling was done at depths from 3-6", 6-9", and 9-12" below the original grade. At a few locations, additional soil was excavated at depths below the original top 3-4 inches. Approximately 260 cubic yards of soil were removed from the areas that were impacted by the firefighting water.

Monitoring wells were installed in the overburden and bedrock to assess the groundwater quality associated with the BDT facility. No volatile organic compounds were detected above the TAGM standards. No semi-volatile compounds were detected above NYSDEC GA standards. Manganese, magnesium, antimony, and selenium slightly exceeded NYSDEC GA standards at several wells. Arsenic was detected above NYSDEC GA standards at two wells, MW-2 (overburden well) and MW-5 (bedrock well). Arsenic did not exceed the TAGM soil standards at any location. The locally elevated arsenic levels may have been due to a release from the hydrolysis sump AOC (impacted soils were removed) or may be from naturally occurring conditions. Due to the Arsenic levels being only slightly elevated, the lack of an exposure pathway, and no definitive connection to facility operations or the fire, no corrective action or long term monitoring was required.

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.

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

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.

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 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 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.

³As 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-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.

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?"

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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_____ 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.

8. Check the appropriate RCRAInfo 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 **Clean Harbors BDT, LLC** facility, EPA ID # **NYD000632372**, located at **Research Parkway, Clarence, New York**. Specifically, this determination indicates that the migration of known or reasonably suspected to be "contaminated" groundwater is under control, and that monitoring will be conducted, as necessary, to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the Agency/State 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.

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.