

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: Carlisle SynTec, Incorporated
Facility Address: 1285 Ritner Highway, Carlisle, Pennsylvania 17013
Facility EPA ID #: 069 784 049

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

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):

There were six identified Solid Waste Management Units (SWMUs) on the Carlisle SynTec, Incorporated (CSI) property according to the 1989 NUS Corporation Preliminary Assessment. No remedial action is known to have occurred at these units and no spills or releases are known to have occurred at the Facility from any of these units. Therefore, there is no evidence to suggest groundwater contamination has occurred from these SWMUs.

The EI Inspection Report notes that the Facility has either abandoned in-place or removed all Underground Storage Tanks (USTs) at the site in accordance with applicable PADEP programs.

An Underground Storage Tank Closure Report from October 1995 is included as Attachment 6 of the EI Report. It describes the removal of two non-regulated USTs, a 15,000 gallon mineral oil tank and 300 gallon wastewater tank, on August 17, 1995. The wastewater tank collected water generated from the washing of forklift trucks prior to repair work. During removal, no pits or corrosion were observed indicating that these USTs were in good condition. All analytical results from the soils around the tanks were below PADEP limits for petroleum. Therefore, there is no known or suspected impact to groundwater.

Attachment 5 of the EI report is a letter to PADEP dated September 5, 1990 discussing the closing of 2 USTs; a 30,000 gallon #6 fuel oil tank and a 2,000 gallon waste oil tank. No evidence of structural failure was noted during removal. Analytical results from soils sampled were below PADEP limits for petroleum. Therefore, there is no known or suspected impact to groundwater.

Attachment 5 also includes information regarding three 15,000 gallon USTs, formerly used to store process oil, that were removed from the subsurface at an unknown date. The tanks were removed and contaminated soils were stockpiled and sampled. The Total Petroleum Hydrocarbon (TPH) analysis showed elevated levels above PADEP’s limit of 100 parts per million (ppm). However, the analytical results for individual hazardous constituents (Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)) were all below EPA’s screening level for residential soil. Therefore, there is no known or suspected impact to groundwater. Additionally, the Material Safety Data Sheets describe the products as not being a threat to health. In a discussion with representative of the PADEP UST Program, it was agreed to that due to the age of the release, the type of oil, and the analytical results that no corrective action is necessary in this are at this time.

On December 18, 1992, a 1000 gallon #6 fuel oil tank located in Plant No. 4 overflowed due to failure of an automatic valve. 50 to 100 gallons of fuel oil were released and entered a nearby floor drain, which connected to the stormwater drainage system. CSI thought they cleaned up all of the free product, however, after a heavy rain, contamination was detected in the stormwater drainage system. Remediation efforts were performed consisting of plugging or diking vulnerable floor drains and removing soil at the stormwater discharge point at the rear of the plant. After two rounds of soil excavation, confirmatory sampling showed TPH levels of less than 5.8 ppm, well below the PADEP guidelines. No known or suspected groundwater impact resulted from this incident.

On April 20, 1993 an aboveground 90 Solvent pipeline leak was discovered. During the course of remedial activities, it was discovered that the 90 Solvent came in contact with the groundwater. A groundwater monitoring point was installed in one of three soil borings. At the time, there was no reportable quantity for naphtha, but a conversation

between PADER and GemChem resulted in PADER agreeing that the established limit for TPH could be used to show acceptable remediation. Furthermore, the analytical results for BTEX were below EPA's RBC for residential soil and groundwater. The monitoring point was to be sampled quarterly for six months to confirm there was no impact. There is no documentation in the files to show that this additional sampling was done. However, a Complaint Detail Report from PADEP dated 1/10/1994 noted this spill as a non-violation and mentioned that it was covered during a Hazardous Waste Inspection and the complaint file was closed.

The VOC contamination of local groundwater from an unknown source is mentioned in the 1989 NUS Corporation Preliminary Assessment. To gain a better understanding of this and determine if CSI was contributing to this area-wide concern, EPA researched the reports regarding local facilities and properties listed in the references. The map of the Area of Concern in the NUS Report and the 1986 letters to the residents of the *Meeting House Inn* Project indicate a large area (>1 mi²) of contaminated groundwater. The compounds consist of the organic chemicals 1,1,1-Trichloroethane; Trichloroethene; Tetrachloroethene; 1,1-Dichloroethene; Benzene; Toluene; Ethylbenzene; Toluene; Methyl tert-butly-ether (MTBE); Methylene chloride; Chloroform; 1,1-Dichloroethane; and 1,2-Dichloroethene. The UST Report for Carlisle Petroleum Inc. indicates contamination related to earlier tanks. PADEP issued a letter requesting that the extent of this contamination be determined but no response was located. A conversation with the project manager verified that this was the last correspondence. The EPA believes this is the cause of the MTBE and BTEX contamination downgradient of the Facility.

The remaining reports consider the groundwater contamination upgradient and sidegradient to the Facility. The reports are all demonstrations, at a minimum, of attaining the background standard according to PADEP's Land Recycling and Environmental Remediation Standards Act. All three reports indicated the most probable source was located near the Carlisle Livestock Market, located approximately 1 mile from CSI. These reports were approved by PADEP. EPA believes that the weight of evidence suggests that Carlisle SynTec is not contributing to this area-wide contamination.

References:

General reports:

- *Preliminary Assessment*, NUS Corporation, 1989
- *Emergency Spill Response Report*, GemChem, 1993
- *Environmental Indicator Inspection Report*, United States Army Corps of Engineers, May, 2002

Area-wide contamination specific:

- *Meeting House Inn, North Middleton Township, Cumberland County Investigation*-letters that were sent to the residents along with sample results November 5-7, 1986
- *Underground Storage Tank Closure Report, Carlisle Petroleum Inc.*, April 7, 1994
- *Subsurface Environmental Investigation Final Report, Lippert Family Tract* March 13, 1997
- *Final Report, Demonstration of Attainment of Background, Area-Wide Standard for Groundwater, Royer Tract Site* April 30, 1999
- *Final Report-Demonstration of Attainment Under Act 2, former GS Electric Facility* December 2004

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).

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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):

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-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 Carlisle SynTec, Incorporated facility, EPA ID # PAD069784049, located at 1285 Ritner Highway, Carlisle, Pennsylvania 17013. 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) _____ /s/ _____ Date 9/6/07
 (print) _____
 (title) _____

Supervisor (signature) _____ /s/ _____ Date 9/12/07
 (print) _____
 (title) _____
 (EPA Region or State) _____

Locations where References may be found:

US EPA Region III
Waste & Chemicals Management Division
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Philadelphia, PA 19103

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