

**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:** Safety-Kleen Corporation  
**Facility Address:** 1606 Pittsburgh Avenue, Erie, PA.  
**Facility EPA ID #:** PAD 08 667 3407

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).

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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):** EPA issued a “Corrective Action” permit to the Safety-Kleen Corporation, Erie, Pennsylvania facility on December 14, 1992. Based on the clean-up activities and subsequent facility investigation, EPA concluded that no further cleanup was required at the Facility. On May 3, 1998 the Hazardous and Solid Waste Amendments (HSWA) portion of the Resource Conservation and Recovery Act (RCRA) Permit (Permit) was terminated. The HSWA permit is no longer necessary to protect human health and the environment. The operational permit was issued to the Safety-Kleen Corporation by Pennsylvania Department of Environmental Protection (PADEP) on November 6, 1992; the expiration date is November 6, 2002.

The portion of the EPA Corrective Action Permit issued to the Safety-Kleen facility on December 14, 1992 required a RCRA Facility Investigation (RFI) for the soils and groundwater at certain units at the facility: the Return/Fill Receptacle and Emptying Area, and the Underground Tank Farm. In August of 1993, the Return/ Fill Area and the Underground Tank Farm were closed in accordance with an approved closure plan. In September of 1993 underground storage tanks were removed. According to soil sampling analytical results dated August of 1993, the concentration of total petroleum hydrocarbons (TPH) as diesel fuel in the soil borings ranged from less than 10 mg/kg to 350 mg/kg. TPH as lubricating oil was detected in all samples at concentrations between 44 mg/kg and 310 mg/kg. Discrete soil samples did not contain detectable concentrations of leachable metals. Composite samples from boring did contain detectable concentrations of leachable lead from 5.8 mg/l to 13 mg/l. However, lead and cadmium wastes were never handled at the facility.

Groundwater at the Safety-Kleen facility is very shallow from 2.33 to 5.23 feet in depth. The groundwater flows to the northwest. Groundwater monitoring wells at the facility have been sampled on five separate occasions. EPA contractors and a facility representative sampled the groundwater under the RCRA Corrective Action Permit in March of 1997. Samples from the five on-site groundwater monitoring wells were analyzed for cadmium and lead (total), cadmium and lead (dissolved), volatile organic compounds, TPH, lube oil, mineral spirits, and diesel oil. Groundwater monitoring results indicate no detectable levels of volatile organics beneath the Safety-Kleen facility. Low levels, below 5 parts per million (ppm), of mineral spirits, diesel fuel, and lube oil have been found in 3 monitoring wells on occasion. However, nothing above 0.4 ppm was discovered by EPA sampling completed in March of 1997. Also groundwater was sampled for dissolved lead and cadmium. Low levels of dissolved lead were discovered by facility representative in only 3 out of 20 samples. In EPA sampling no samples exceeding drinking water standards were discovered.

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The groundwater samples were tested for total lead and cadmium; and levels were noticeably higher, particularly in one up-gradient well. This test measures lead and cadmium contributed by soil particles as well as the metal “dissolved” into the water. EPA believes these results are due to the industrial nature of the plant vicinity and the likelihood that foundry sands were used as fill throughout the area. These results were also consistent with other investigations completed by EPA’s, CERCLA program and PADEP for eight neighboring parcels: Baldwin/Pontillo Landfill, Lakeview Forge Landfill, Zurn Industries Incorporation, Steris Corporation (formerly AMSCO or American Sterilizer Co.), Currie Site, Kimmel Site, Lincoln Site, Filmore Site, and Millcreek Dump. (These sites have the status of no-further-action as designated by the Superfund program.)

On September 24, 1996, EPA issued a memorandum addressing "Coordination between RCRA Corrective Action and Closure and CERCLA Site Activities". In this document, EPA outlined its policy to avoid occurrences of redundant remediation projects between the RCRA and Superfund programs. In this case “cleanup under RCRA corrective action or CERCLA will substantively satisfy the requirements of both programs. In most situations ... the expectation that no further cleanup will be required under the deferring program. Similarly, a remedy that is acceptable under one program should be presumed to meet the standards of the other.”

EPA believes the contamination resulting from the former underground storage tanks has been cleaned up and the Safety-Kleen facility has completed corrective action. No further action was recommended for the Safety-Kleen Service Center, Erie facility as of September 27, 1996.

**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)?

**X** 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):** See pages 2 and 3.

<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):** See pages 2 and 3.

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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 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.

**X** 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):** See pages 2 and 3.

<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<sup>4</sup>)?

- X** 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,<sup>5</sup> 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):** See pages 2 and 3.

<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.”

**X** If no - enter “NO” status code in #8.

\_\_\_\_\_ If unknown - enter “IN” status code in #8.

**Rationale and Reference(s):** See pages 2 and 3.



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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).

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 "Under Control" at the **Safety-Kleen Corporation**, EPA ID # PAD **08 667 3407**, located at **1606 Pittsburgh Avenue, Erie, PA** under current and reasonably expected conditions. 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.

Completed by (signature) Date: 07-02-02  
(print) Ioff, Victoria  
(title) Remedial Project Manager

Supervisor (signature) Date: 08-22-02  
(print) Gotthold, Paul  
(title) PA Operations Branch Chief  
(EPA Region or State) EPA, Region 3

**Locations where References may be found:**

1650 Arch Street, 3WC22  
RCRA EPA files.

**Telephone and e-mail numbers:**

(name) Ioff, Victoria  
(phone #) 215-814-3415  
(e-mail) ioff.vickie@epa.gov

**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.**