

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 Systems, Inc., (Former Bristol Service Center)
Facility Address: 2146 King Mill Pike, Bristol, VA 24201
Facility EPA ID #: VAD 981 042 955

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

Safety-Kleen's Former Bristol Service Center is located on approximately 2 acres of land, approximately 1,000 feet northeast of the intersection of King's Mill Pike and Valley Drive in Bristol, Washington County, Virginia. This Safety-Kleen facility actively operated as a permitted hazardous waste management facility between August 1981 and June 1994. The facility operated as a large quantity generator of hazardous waste and processed and stored four types of hazardous wastes: spent mineral spirits, spent immersion cleaner solvent, paint wastes, and dry cleaning wastes. The site was an accumulation point for spent solvents generated by Safety-Kleen's customers and a distribution center for reclaimed solvents for delivery to customers; fresh (recycled and reclaimed) solvents were stored in drums and a large storage tank. Waste solvents and used oils were regularly shipped from this service center to either a regional Safety-Kleen recycling center or a contract reclaimer.

During Safety-Kleen's operational years, several SWMUs were maintained at the site including a Drum (Container) Storage Area; Paint Waste Shelter; Waste (Spent) Mineral Spirits Storage Tank; Return and Fill Stations; Waste Oil Storage Site; Former Truck Washing Area/Mineral Spirits Spill Site; Trash Dumpster; and Soils Underlying Return and Fill Stations.

At the time of the August 27, 2008 site visit, the site of the Former Bristol Service Center was being occupied by a printing company.

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.
- 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 former Bristol Service Center operated by Safety-Kleen maintained a number of SWMUs. Although groundwater monitoring wells have not been installed, contamination above appropriately protective levels is not suspected for this site. Prior to closure in 1994, the majority of SWMUs and AOCs were concrete or asphalt to limit the potential for impacts to underlying groundwater. Currently, the majority of the site is either covered by the former warehouse building or is paved.

Groundwater, surface soil, and subsurface soil is not known or reasonably suspected to be contaminated above appropriately protective risk-based levels at Safety-Kleen’s Former Bristol Service Center. Similarly, there is no indication of releases that would have reached surface water or sediment in the vicinity of the site. As Safety-Kleen is no longer operational at the facility, there is no indication of current air emissions that would negatively impact indoor and/or outdoor air quality. Several air inspections were completed because of complaints. However, these inspections did not document visible emissions or odors.

According to Safety-Kleen representatives, there were no wells on the facility property when Safety-Kleen operated the facility and potable water was provided by the local public water supply (PWS) system. In addition, all sanitary wastewater generated at the facility was discharged to the sanitary sewer system for subsequent treatment at the local publicly-owned treatment works (POTW) system.

The former Container Storage Area, SWMU No. 1, was a 680 ft² area utilized to store drums of immersion cleaner, dry cleaning waste, and bottom sediment from the Spent Mineral Spirits Storage Tank. SWMU No. 1 was located within the warehouse building. According to Safety-Kleen representatives, this unit was curbed, epoxy-coated concrete, and provided with secondary containment that was lined with steel and had a sump to collect liquids. Closure for this unit was granted on July 9, 1999 based on hazardous constituent concentrations in the final rinse water sample meeting risk-based closure standards. The concrete unit was certified to be intact during closure.

SWMU No. 2, the former Paint Waste/Flammable Waste Shelter and Transfer Pad were utilized to store paint waste and other flammable wastes prior to shipment off-site. This SWMU was a 20-foot by 15-foot self-contained metal shelter with secondary containment pans on a concrete pad. Closure for this unit was granted on July 9, 1999 based on hazardous constituent concentrations in the final rinse water sample meeting risk-based closure standards.

The former Waste Mineral Spirits Storage Tank, SWMU No. 3, was used to store mineral spirits. This was an Aboveground Storage Tank (AST) with concrete secondary containment. During closure, SWMU No. 3 was found to be structurally sound (i.e., no cracks, gaps, etc.). Closure for this unit was granted on July 9, 1999 based on hazardous constituent concentrations in the final rinse water sample meeting risk-based closure standards.

The facility maintained a former Return and Fill Station, SWMU No. 4, at the site that consisted of a steel dock structure that housed wet dumpsters/drum washers. Prior to 1987 this unit was present over asphalt that was determined to be cracked. This unit was upgraded in 1987 to include steel containment pans and a concrete pad. The December 7, 1998 Closure Plan for the Return and Fill Station included the planned excavation of approximately 2,000 tons of impacted soils in the loading dock area in front of the SWMU (to a depth of 4 to 6 feet to bedrock). On August 18, 1998, the VDEQ

completed a closure verification inspection of this permitted unit. As noted in a July 9, 1999 VDEQ letter, the Return and Fill Station achieved clean closure through a residential risk-based determination.

Limited information was available in relation to the Former Waste Oil Storage Site (SWMU No. 5), Former Truck Washing Area/Mineral Spirits Spills Site (SWMU No. 6), and Former Trash Dumpster (SWMU No. 7). Minor releases of waste oil occurred at the Former Waste Oil Storage Site. Available information indicates that all units at the facility achieved clean closure.

SWMU No. 8, former Return and Fill Station, was designated as a separate unit based on the identification of contaminated soil underlying SWMU No. 4. A subsurface assessment conducted in August 1990 concluded that mineral spirits existed in the gravel crusher run associated with this unit. All contaminated soils were removed as part of the closure of SWMU No. 4.

Several releases and the presence of contamination have been documented at the site. A release of an unknown quantity of mineral spirits to the surrounding soils occurred at the Return and Fill Stations. Approximately 200 cubic yards (yd³) of soil with mineral spirit concentrations as high as 630 mg/kg were removed during efforts to upgrade the Return and Fill Stations in 1987. However, residual concentrations of mineral spirits (i.e., 1.3 mg/kg to 8.6 mg/kg) remained in the soil underlying this area. The 1992 RCRA Part B Application noted several releases in 1988, including 60 gallons of waste mineral spirits, a 10 gallon leak of mineral spirits from a drum, and an 80 gallon release during pumping operations. A subsurface assessment conducted in August 1990 concluded that mineral spirits existed in the gravel crusher run between the asphalt cap and the soil to the east of the wet dumpsters at the Return and Fill Stations.

On April 24, 1990, a transfer hose split and released approximately five gallons of waste oil from the Waste Oil Storage Site. Spills ranging from 10 to 100 gallons also occurred at the Former Truck Washing Area/Mineral Spirits Spills Site, according to a 1991 Draft Phase II RCRA Facility Assessment Report. Safety-Kleen's Former Bristol Service Center is located on approximately 2 acres of land, approximately 1,000 feet northeast of the intersection of King's Mill Pike and Valley Drive in Bristol, Washington County, Virginia. This Safety-Kleen facility actively operated as a permitted hazardous waste management facility between August 1981 and June 1994. The facility operated as a large quantity generator of hazardous waste and processed and stored four types of hazardous wastes: spent mineral spirits, spent immersion cleaner solvent, paint wastes, and dry cleaning wastes. The site was an accumulation point for spent solvents generated by Safety-Kleen's customers and a distribution center for reclaimed solvents for delivery to customers; fresh (recycled and reclaimed) solvents were stored in drums and a large storage tank. Waste solvents and used oils were regularly shipped from this service center to either a regional Safety-Kleen recycling center or a contract reclaimer.

In summary, documentation for SWMUs and AOCs indicate that all permitted hazardous waste management units (HWMUs) were "clean closed" to the satisfaction of the Virginia Department of Environmental Quality (VDEQ) in accordance with the approved Closure Plan, dated December 7, 1998. In addition to the closure of the permitted HWMUs the Closure Plan also addressed removal of contaminated soils from the facility identified based upon previous release documentation and a pre-closure soil sampling program that was conducted at the site in May 1994. The Closure Plan included the planned excavation of approximately 2,000 tons of contaminated soils in the loading dock area in front of the SWMU No. 4, Former Return and Fill Stations, to a depth of 4 to 6 ft to bedrock. The groundwater was not contaminated and required no remediation. Closure Report information documentation and certifications were submitted to the VDEQ. A closure verification inspection of the facility's HWMUs was conducted on August 18, 1998. In accordance with the VDEQ letter, dated July 9, 1999, the facility achieved "clean closure" under the RCRA Regulations that is protective of human health and the environment. All wastes were removed and manifested from the facility site for subsequent off-site treatment and disposal. All equipment was decontaminated and all contaminated soils were removed to confirmatory levels so to meet residential risk criteria and standards. All former decontaminated equipment was removed from the facility site and was either disposed in accordance with the Regulations or used at another Safety-Kleen facility.

The Safety-Kleen facility has been inactive since 1994. The site was reportedly vacant between 1995 and 1998. At the time of the August 27, 2008 site visit, the site of the Former Bristol Service Center was being occupied by a printing company.

For additional information see the February 13, 2009 Final Site Visit Report for the Safety-Kleen Systems, Inc. facility.

Footnotes:

(3/19/2009)

r“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 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 concentration₃ 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-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):

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 Safety-Kleen Inc. (Former Bristol Service Center) facility, EPA ID # VAD 981 042 955, located at 2146 King Mill Pike, Bristol, VA 24201. 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) SIGNED Date 3/17/09
Denis M. Zielinski
Senior RPM

Supervisor (signature) SIGNED Date 3/18/09
Luis Pizarro
Associate Director, Office of Remediation
EPA Region III

Locations where References may be found:

US EPA Region III
Land and Chemicals Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers

(name) Denis M. Zielinski
(phone #) 215-814-3431
(e-mail) zielinski.denis@epa.gov