



DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final /5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: Safety-Kleen Systems, Inc.
Facility Address: 86 Highway 202 Leeds, Maine
Facility EPA ID #: MED 980 667 810

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, 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 are not available skip to #6 and enter "TN" (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 "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "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 "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

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).

RCRA RECORDS CENTER
FACILITY Safety-Kleen
ID. NO. MED980667810
FILE LOC. R-13
OTHER *106611

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “**contaminated**”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>X</u>	___	___	Petroleum compounds, VOCs, metals
Air (indoors) ²	___	<u>X</u>	___	Occupational use of building for PCE storage
Surface Soil (e.g., <2 ft)	X	___	___	Assumption of same contaminants above
Surface Water	___	<u>X</u>	___	_____
Sediment	___	<u>X</u>	___	_____
Subsurf. Soil (e.g., >2 ft)	X	___	___	Assumption of same contaminants above
Air (outdoors)	___	<u>X</u>	___	_____

___ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

___ If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale: Tetrachloroethene (PCE) is present in groundwater at levels above the MCL of 5 ppb in 8 wells on site. TCE is present in 3 wells above MCL of 32 ppb; 1,2 DCE is present in 6 wells above the MCL of 70 ppb. Manganese exceeded 500 ppb MEG in 6 wells, but is a reduction from 12 wells identified earlier. Arsenic is present in two wells about the 10 ppb at 11 ppb and 23 ppb respectively.

Maine uses the lower value of either the EPA MCL or the state Maximum Exposure Guideline (MEG) for groundwater. All groundwater must meet the drinking water guidelines to be considered remediated.

There are no direct analyses for subsurface soil, however since the groundwater shows these contaminants, it is assumed the subsurface soil also contains the listed contaminants.

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

The risk due to vapor intrusion into this occupational setting has been assessed relative to expected background levels. The constituent of most concern for vapor intrusion, perchloroethylene, is still used inside the adjacent warehouse for on-going operations and processes. The impact of a reasonable worst case vapor intrusion scenario has been determined to be a small fraction of the concentrations that are already present in the indoor air due to occupational activities. Thus, the intrusion of subsurface vapors, if any, into this occupational setting, where perchloroethylene is currently being used, has been determined to be less than 'background' and not a priority for interim prioritization (Environmental Indicator, EI) purposes.

Reference(s) Safety Kleen June 2005 Monitoring "Status Report." Volume I & II.
See attachment Figure 1 for site buildings, monitoring wells, soil borings and remedial injection points.

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 appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

<u>"Contaminated" Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	NO	NO	NO	NO	NO	NO	NO
Air (indoors)	NO	YES	NO	NO	NO	NO	NO
Soil (surface, e.g., <2 ft)	NO	YES	NO	NO	NO	NO	NO
Surface Water	---	---	---	---	---	---	---
Sediment	---	---	---	---	---	---	---
Soil (subsurface e.g., >2 ft)	---	---	---	YES	---	---	NO
Air (outdoors)	---	---	---	---	---	---	---

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- ___ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- ___ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale(s):

For the worker exposure: The risk due to vapor intrusion into this occupational setting has been assessed relative to expected background levels. The constituent of most concern for vapor intrusion, perchloroethylene, is still used inside the adjacent warehouse for on-going operations and processes. The impact of a reasonable worst case vapor intrusion scenario has been determined to be a small fraction of the concentrations that are already present in the indoor air due to occupational activities. Thus, the intrusion of subsurface vapors, if any, into this occupational setting, where perchloroethylene is currently being used, has been determined to be less than 'background' and not a priority for interim prioritization (Environmental Indicator, EI) purposes.

In addition, the office and PCE storage area are adjacent to one another. In completing the "Vapor Intrusion Pathway Summary", the final list of potential contaminants of concern are PCE and TCE at PAL levels above the generic screening risk levels for the target volatile compounds in groundwater and noted on Table 2b & 2c**. OSHA's occupational standard for PCE and TCE exposure is limited to 100 ppm with a maximum exposure set at 300 ppm for 5 minute maximum peak in any 3 hours. For TCE the maximum OSHA peak is 10 ppm for 5 minutes in any 2 hours based upon current available toxicology data. Only one monitoring well shows ranges between 56 and 25 ppb for PCE, with several other wells fluctuating between 2 to 9 ppb. Thus the levels in groundwater are orders of magnitude below the 100 ppm exposure limit for a typical worker exposure scenario of eight hours per day, 250 days per year for twenty-five years. The TCE values range between 5 to 22 ppb for one monitoring well.

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

For the construction worker exposure: The concern for the construction worker would only become an issue during closure of the facility, in particular during removal of structures and when contaminated soils are excavated in the two contaminated locations. Protective measures would be required at that time.

For soil samples, PCE was detected at concentrations up to 2.6 ppm north of the office/warehouse storage area from an investigation conducted in 1994. Soil samples collected between the mineral spirits warehouse and the truck containment area contained mineral spirits in the range of 890 to 2500 ppm, for PCE up to 420 ppm, trichloroethylene (TCE) up to 24 ppm, and dichloroethylene (DCE) at 10 ppm. Samples collected east of the truck containment area contained up to 60 ppm of mineral spirits and 1.8 ppm DCE. Concentrations generally declined with depth at all locations. Field results were confirmed by laboratory analysis of select samples. This soil will be dealt with if and when closure of the facility is proposed; for now risk to the Return and Fill building's structural integrity currently prevent any further soil removals.

Reference: OSHA Standards listed in NIOSH Pocket Guide to Chemical Hazards, January 2003
Vapor Intrusion Pathway Summary Page (attached)

** Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils.
Tables 2a, b and c for Generic Screening Levels.

Footnotes:

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be "**significant**"⁴ (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s): _____

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

Footnotes:

⁴ If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5- Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

NA If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable") - continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

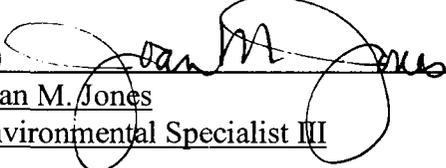
Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Safety-Kleen Systems, Inc. Facility located 86 Highway 202 Leeds, Maine EPA ID #:MED 980 667 810** 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 - "Current Human Exposures" are NOT "Under Control."

_____ IN - More information is needed to make a determination.

Completed by (signature) 
(print) Joan M. Jones
(title) Environmental Specialist III

Date 9-30-05

Supervisor (signature) 
(print) Stacy A. Ladner
(title) Unit Manager
State of Maine

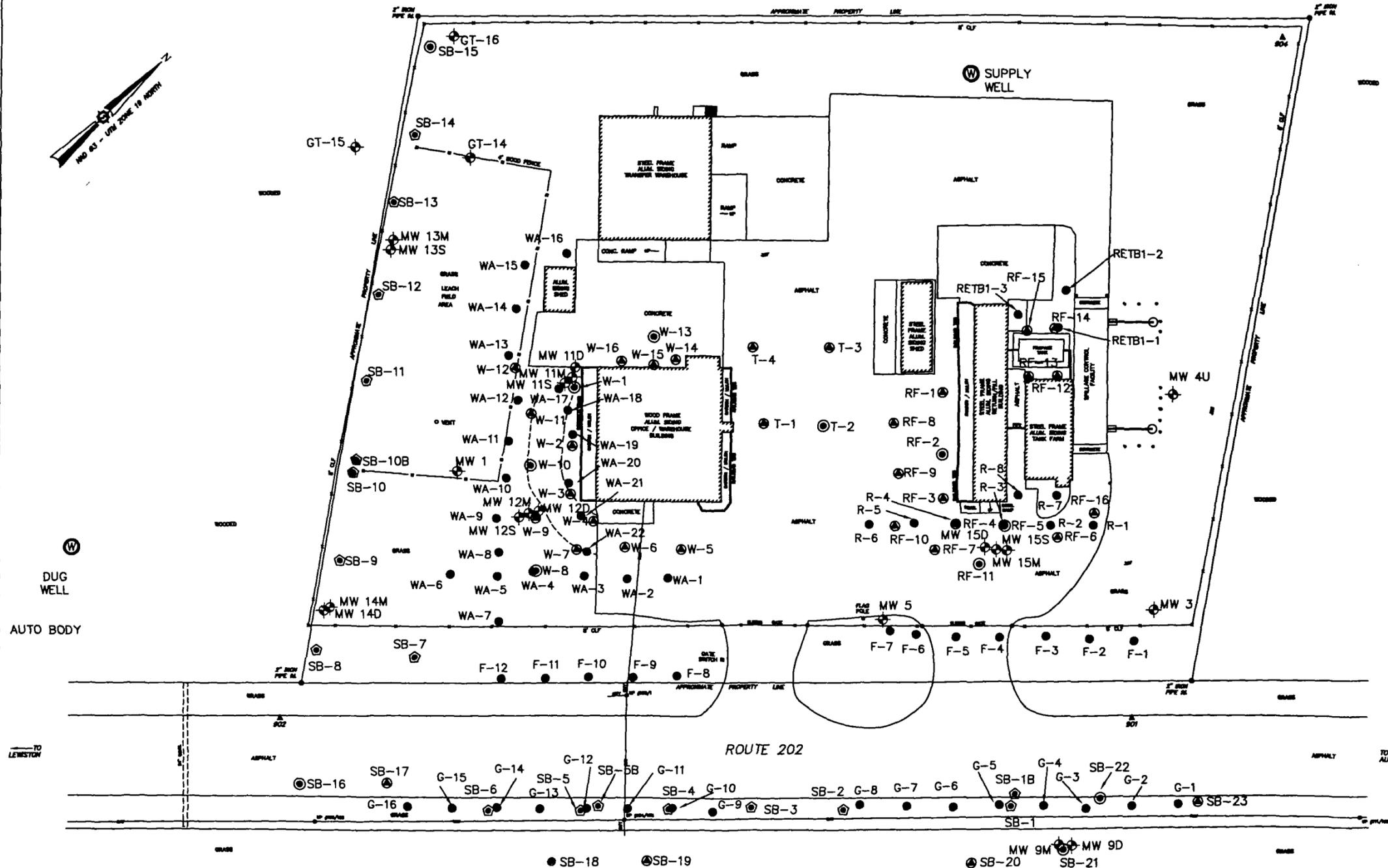
Date 9-30-05

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

Locations where References may be found:
Maine DEP File Room, Augusta, Maine
Contact telephone and e-mail numbers

(name) _____ Joan M. Jones
(phone #) _____ 207-287-7879
(e-mail) _____ Joan. M. Jones@maine.gov

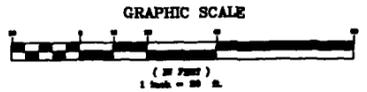
FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RIS



LEGEND

- SB-3 ● APPROXIMATE 1998 SOIL BORING AND DUAL LEVEL GROUND WATER SAMPLING LOCATION
- MW 15D ● MONITORING WELL LOCATION
- T-2 ● APPROXIMATE MIP PROFILE LOCATION (2001)
- SB-22 ● APPROXIMATE MIP PROFILE AND GROUND WATER SAMPLING LOCATION (2001)
- G-1 ● APPROXIMATE MRC INJECTION POINT
- R-1 ● APPROXIMATE MRC INJECTION POINT
- WA-1 ● APPROXIMATE MRC INJECTION POINT
- F-1 ● APPROXIMATE MRC INJECTION POINT
- RETB-1 ● APPROXIMATE MRC INJECTION POINT

- NOTES**
1. This survey was conducted on the ground using a Topcon GTS-300 Total Station and Trimble geodetic-grade GPS receivers from 21 August to 22 August 2003. A field check was conducted on 8 October 2003.
 2. The horizontal datum is the North American datum of 1983 (NAD 83), Universal Transverse Mercator (UTM) Zone 19, North. All units shown are U.S. Survey Feet.
 3. Elevations refer to the North American Vertical Datum of 1988 (NAVD 88).
 4. The boundary line shown was derived from Deed Book 1604, Page 60 (1982) and monuments found in the field. No boundary survey was conducted.



Barton
Loguidice, P.C.
 Consulting Engineers
 200 Elwood Davis Road / Box 3107, Syracuse, New York 13220

MRC INJECTION LOCATION PLAN
 SHOWING THE
 SAFETY-KLEEN SITE
 IN
 LEEDS, MAINE
 ANDROSCOGGIN COUNTY
 OCT. 2004 614-009-10

Figure
 1
 Project No.
 614-009

VII. VAPOR INTRUSION PATHWAY SUMMARY PAGE

Facility Name: Safety Kleen

Facility Address: 86 Highway 202 Leeds, Maine

Primary Screening Summary

Q1: Constituents of concern Identified?

Yes

No (If NO, skip to the conclusion section below and check NO to indicate the pathway is *incomplete*.)

Q2: Currently inhabited buildings near subsurface contamination?

Yes

No

Areas of future concern near subsurface contamination?

Yes

No (If NO, skip to the conclusion section below and check NO to indicate the pathway is *incomplete*.)

Q3: Immediate Actions Warranted?

Yes

No

Secondary Screening Summary

Vapor source identified:

Groundwater

Soil

Insufficient data

Indoor air data available?

Yes

No

Indoor air concentrations exceed target levels?

Yes

No

Subsurface data evaluation: (Circle appropriate answers below)

Medium	Q4 Levels Exceeded?	Q5 Levels Exceeded?	Data Indicates Pathway is Complete?
Groundwater	YES <u>(NO)</u> NA / INS	<u>(YES)</u> NO / NA / INS	YES <u>(NO)</u> INS
Soil Gas	YES / NO / NA <u>(INS)</u>	YES / NO / NA / <u>(INS)</u>	YES / NO / <u>(INS)</u>

NA = not applicable

INS = insufficient data available to make a determination

Site-Specific Summary

Have the nature and extent of subsurface contamination, potential preferential pathways and overlying building characteristics been adequately characterized to identify the most-likely-to-be-impacted buildings?

X Yes

_____ No

_____ N/A

EPA recommends that if a model was used, it be an appropriate and applicable model that represents the conceptual site model. If other means were used, document how you determined the potentially most impacted areas to sample. EPA recommends that predictive modeling can be used to support Current Human Exposures Under Control EI determinations without confirmatory sampling to support this determination. Current Human Exposures Under Control EI determinations are intended to reflect a reasonable conclusion by EPA or the State that current human exposures are under control with regard to the vapor intrusion pathway and current land use conditions. Therefore, if conducting evaluation for an EI determination, document that the **Pathway is Incomplete** and/or does not pose an unacceptable risk to human health for EI determinations.

Are you making an EI determination based on modeling and does the model prediction indicate that determination is expected to be adequately protective to support Current Human Exposures Under Control EI determinations?

_____ Yes

X No

_____ N/A

Do subslab vapor concentrations exceed target levels?

_____ Yes

_____ No

_____ N/A

Do indoor air concentrations exceed target levels?

_____ Yes

_____ No

Conclusion

Is there a Complete Pathway for subsurface vapor intrusion to indoor air?

Below, check the appropriate conclusion for the Subsurface Vapor to Indoor Air Pathway evaluation and attach supporting documentation as well as a map of the facility.

NO - the "Subsurface Vapor Intrusion to Indoor Air Pathway" has been verified to be incomplete for the Safety-Kleen facility, EPA ID # 0, located at Rt 102 Leeds Maine. This determination is based on a review of site information, as suggested in this guidance, check as appropriate:

for current and reasonably expected conditions, or
_____ based on performance monitoring evaluations for engineered exposure controls. This determination may be re-evaluated, where appropriate, when the Agency/State becomes aware of any significant changes at the facility.

_____ YES -The "Subsurface Vapor to Indoor Air Pathway" is Complete. Engineered controls, avoidance actions, or removal actions taken include: _____

UNKNOWN - More information is needed to make a determination.

Locations where References may be found:

DEP Ray Building File Room

Contact telephone and e-mail numbers:

(name) Jean M. Jones

(phone #) 207-287-7879

(e-mail) Jean.M.Jones@Maine.gov

Reminder: As discussed above, this is a guidance document, not a regulation. Therefore, conclusions reached based on the approaches suggested in this guidance are not binding on EPA or the regulated community. If information suggests that the conclusions reached using the approaches recommend are inappropriate, EPA may (on it's own initiative or at the suggestion of interested parties) choose to act at variance with these conclusions.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

5 Can the “significant” exposures (identified in #4) be shown to be within **acceptable** limits?

 NA If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

 If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

 If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):