DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRAInfo code (CA725)

Current Human Exposures Under Control

Facility Name:	Southwestern Refining Co.
Facility Address:	The intersection of County Roads 61 and 28, Robstown, TX
Facility EPA ID #:	TXD000807859 SWR34357

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 "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 "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 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).

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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Unit closed with constituents above Risk Reduction Standard 1; chromium, lead, nickel, toluene, anthracene, naphthalene
Air (indoors)[2]		X		Unit closed; no corrective action or post-closure care required; minor concentrations of volatiles
Surface Soil (e.g., <2 ft)	X			Unit closed with constituents above Risk Reduction Standard 1; metals
Surface Water		X		Unit closed; no corrective action or post-closure care required
Sediment		X		Unit closed; no corrective action or post-closure care required
Subsurf. Soil (e.g., >2 ft)	X			Unit closed with constituents above Risk Reduction Standard 1; metals
Air (outdoors)		X		Unit closed; no corrective action or post-closure care required t

___ 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.

[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) suggests 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.

FACILITY DESCRIPTION

The Southwestern Refining Company, Inc. (SWRCo) maintains a permitted land treatment facility (LTF) in Nueces County, near Robstown, TX. The LTF is located at the intersection of County Road 61 and County Road 28. The LTF received waste from SWRCo's refinery, located in Corpus Christi, TX. However, in August of 1995, the SWRCo Refinery was sold. All waste application activities at the LTF stopped in 1996. The Kerr-McGee Corporation (Kerr-McGee), which operates as the parent company to SWRCo, has retained ownership of the LTF since the sale date. The LTF is 60.9 acres and is divided into three cells. Historically only the North and South cells received waste from the refinery, and the mid-cell stored storm water run-off associated with the LTF area.

FACILITY HISTORY

The LTF historically operated under RCRA Part B Permit HW-50075-001, issued by the TNRCC. A permit renewal was filed with TNRCC in June 1997 and the renewal was issued on May 14, 1999. SWRCo submitted notification of closure to the Texas Natural Resources Conservation Commission (TNRCC) in a letter dated December 23, 1996. Since that time, all inspection and maintenance activities have continued under the direction of Kerr-McGee. In accordance with permit closure requirements and provisions of the approved Closure Plan (date not reported in available file materials), Kerr McGee conducted semi annual groundwater and soil core monitoring for over two years.

On February 26, 2003, Kerr McGee submitted a letter report to TCEQ demonstrating the Attainment of Risk Reduction Standard Number 2 Criteria for soils and groundwater. A sample deed certification was included as a part of the letter report indicating the location and concentrations of constituents remaining in place; however, it could not be verified within the available files that the deed certification was filed. By letter dated October 20, 2003, the TCEQ accepted the closure of the North and South LTFs, indicating there were no outstanding corrective action or post closure care requirements related to the permit. On January 7, 2004, TCEQ revoked the permit based on the closure of the regulated units.

RATIONALE

According to the TCEQ Revocation of Permit No. HW-50075-001, the LTFs are closed and the permit has been discontinued with "no further corrective action or post-closure care requirements (Reference 6). However, contamination of some constituents remains elevated at levels below the Risk Reduction Number 2 criteria for non-residential use for groundwater, surface soil and subsurface soil which are documented in a deed certification. Because it was demonstrated that groundwater at the site has a naturally occurring background of total dissolved solids greater than 10,000 mg/L, the groundwater and groundwater protection standards were multiplied by a factor of 100 per 30 TAC 335.559(d)(3) [Reference 2].

According to the Draft Deed Certification (Reference 3); the following constituents and maximum concentrations allowed to remain in place are as follows:

Soils - < 12 inches below ground level

Arsenic	30.3 mg/kg
Beryllium	1.2 mg/kg
Cadmium	13 mg/kg
Chromium	683 mg/kg
Copper	213 mg/kg
Lead	128 mg/kg
Nickel	1,150 mg/kg
Selenium	6 mg/kg
Vanadium	54.1 mg/kg
Zinc	1, 950 mg/kg

Subsurface Soils - 60 to 66 inches below ground level

Chromium	26 mg/kg
Lead	15.6 mg/kg
Nickel	16.5 mg/kg

Constituents present in Groundwater

Chromium	41.2 ug/l
Lead	11 ug/l
Nickel	51.8 ug/l
Toluene	14 ug/l
Anthracene	1 ug/l
Naphthalene	3 ug/l

REFERENCES

1. Southwestern Refining Company, Inc. (SWRCo) Land Treatment Facility (LTF) 2002 Annual Ground Water Detection Monitoring Report. February 21, 2003
2. SWRCo Demonstration of Attainment of Risk Reduction Standard (DARRS) Number 2. February 26, 2003
3. SWRCo Deed Certification Language and Industrial Solid Waste Certification of remediation. February 26, 2003
4. TCEQ correspondence RE: DARRS No 2. June 11, 2003
5. Texas Natural Resource Conservation Commission (TNRCC) Telephone Memo to the file. June 13, 2003
6. TCEQ Revocation of Permit No. HW-50075-001. January 7, 2004
7. RCRAInfo Comprehensive Corrective Action Report Run on December 28, 2005
8. Large detailed maps : Figure 1-2

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)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	No	No	No	No	No	No	No
~~Air (indoors)~~							
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No
~~Surface Water~~							
~~Sediment~~							
Soil (subsurface e.g., >2 ft)	No	No	No	No	No	No	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).

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.

X 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

The LTF is inactive, with no wastes added since 1996. The unit has achieved closure with no outstanding corrective

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

action obligations or post closure care obligations, and attained levels Risk Reduction Number 2 Criteria for non-residential use. A sample deed certification was included in the letter report, which demonstrated attainment of the criteria. However, it could not be confirmed within the available file material that the deed certification was recorded. Closure of the unit under an approved Closure Plan is expected to prevent exposures to surface soils, (although the Closure Plan was not found in the available files) with the deed certification minimizing the potential for exposure to subsurface soils. The uppermost aquifer in this area is not developed for potable or industrial use because the water is too saline and permeabilities are too low for practical use.

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)?

___ 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):

[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?

___ 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 RCRAInfo 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):

YE — 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 Southwestern Refining Company facility, EPA ID # TXD000807859, located at the intersection of County Roads 61 and 28 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) _____ Date _____
(print) _____
(title) _____

Researched by (signature) Cherelle Blazer Date May 12, 2006
(print) Cherelle Blazer
(title) TechLaw, Inc. (U.S. EPA Contractor)

Supervisor (signature) _____ Date _____
(print) _____
(title) _____
(EPA Region or State) _____

Locations where References may be found:
Texas Commission of Environmental Quality
File Room, Building E
12118 N IH 35
Austin, TX 78753

Filed under:
SWR34357

Contact telephone and e-mail numbers

(name) _____
(phone #) _____
(e-mail) _____

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.

Recommended Action Items:

1. The Agency may wish to confirm proper recording of the Deed Certification.