DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA75)

Current Human Exposures Under Control

Facility Name: *Mobil Oil Corporation Beaumont Refinery*
Facility Address: *P.O. Box 3311 Beaumont, Texas 77704*
Facility EPA ID #: *TXD990797714*

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 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. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated" 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 [1]
Groundwater	X			*Benzene*
Air (indoors) [2]		X		
Surface Soil (e.g., <2 ft)	X			*Lead, benzene, chrysene*
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)		X		*Lead, benzene, chrysene*
Air (outdoors)		X		

___ 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] Rationale and Reference(s):

Concentrations of benzene, lead, and chrysene were detected in surface soil and subsurface soils at levels exceeding TNRCC Risk Reduction Standard No. 2 criteria. Benzene and 1,1-Dichlorethylene have been detected in shallow ground water at levels exceeding TNRCC Risk Reduction Standard No. 2 criteria. Cited in "Refinery-Wide Remedial Investigation Report and Phase II RCRA Facility Investigation (RFI) Report" dated December, 1997.

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) ground water 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)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food [3]
Groundwater	*No*	*No*	*No*	*Yes* [1]	*No*	*No*	*No*
Soil (surface, e.g., <2 ft)	*No*	*Yes*	*No*	*Yes*	*No*	*No*	*No*
Soil (subsurface, >2 ft)	*No*	*No*	*No*	*Yes*	*No*	*No*	*No*

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.

___ 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).

_X_ 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 and Reference(s):

[1] *Water wells for industrial or drinking purposes are not completed in the contaminated water bearing zones at the Mobil Oil Refinery. Exposure to contaminated shallow ground water may be a complete exposure pathway for the construction worker where excavations are made to a depth penetrating the saturated H-I Fill Zone.*

[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 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):

Significant exposures to surface soil by refinery workers and exposure to subsurface soil by construction workers is not expected to be significant based on expected low frequency of exposure and duration. The intensity of the exposure is expected to be very low because workers are required to wear boots, long sleeves, gloves, and other PPE if necessary, and actual handling of soil material would normally be performed using equipment rather than by hand.

[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?

X 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).

NA 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):

Exposures to surface and subsurface soils are not believed to be significant in terms of exposure frequency, duration or intensity. A Baseline Risk Assessment quantifying the hazards and risks associated with exposures has not yet been performed at the facility, but is scheduled to be completed following TNRCC approval of the December 1997 Facility-Wide Remedial Investigation and Phase II RFI Report.

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 Mobil Oil Corporation Beaumont Refinery facility, EPA ID # TXD990797714, located at Beaumont, Texas 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)

Supervisor (signature) Date

(print)
(title)
(EPA Region or State)

Locations where References may be found:

The reports entitled "Refinery-Wide Remedial Investigation and Phase II RCRA Facility Investigation (RFI) Report" dated December 1997 and the "Phase I RFI Report" dated march 22, 1993 (revised August 21, 1995, and approved November 8, 1995) may be found at the Mobil Oil Corporation Beaumont Refinery Environmental Department and at the Central Records of the TNRCC located in Austin and Beaumont, Texas.

Contact telephone and e-mail numbers

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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.

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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 **MOBIL OIL CORPORATION, BEAUMONT** facility, EPA ID # **TXD990797714** located at **BEAUMONT, TEXAS** 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." Doc # 6558 Rep 2894

___ IN - More information is needed to make a determination.
(1) **Incomplete information**
(2) **Reports in house, yet to be reviewed**
(3) **Unfamiliar site**

For "NO" or "IN" determination, expected date of "YE" determination _____

Completed by (signature) M. M. Padaki Date 01/31/2000
MURALI M. PADAKI
CORRECTIVE ACTION SPECIALIST

Supervisor (signature) Cathy Remmert Date 2/2/00
(print) CATHY REMMERT
(title) SUPERVISOR
(EPA Region or State) TEXAS

Locations where References may be found:

If "YE" Code is assigned then attach a copy of database, highlight the reports which support "YE"determination.

_____
_____
_____
_____
_____

Contact telephone and e-mail numbers

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