

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Facility Name: **Premcor Port Arthur Refinery (Formerly Chevron Products Co.)**

Facility Address: **2001 S. Gulfway Drive, Port Arthur, TX 77641**

Facility EPA ID #: **TXD008090409**

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?

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”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	✓			Compared to RRS #2 MSCs: Several metals
Air (indoors) ²		✓		Evaluations conducted to date using the Draft RCRA Vapor Intrusion guidance and Johnson and Ettinger model indicate not a significant pathway.
Surface Soil (e.g., <2 ft)	✓			Compared to RRS #2 MSCs: Several PAHs
Surface Water		✓		Potential risks associated with exposure to surface water evaluated in the Joint Outfall Canal Tier II Report
Sediment		✓		Potential risks associated with exposure to sediment evaluated in the Joint Outfall Canal Tier II Report
Subsurf. Soil (e.g., >2 ft)	✓			Compared to RRS #2 MSCs: Several PAHs, benzene
Air (outdoors)		✓		Evaluations conducted to date indicate inhalation exposure route is not significant.

_____ 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.

_____ 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 and Reference(s):

Soil and groundwater data provided by various environmental media sampling programs including the following: Facility Assessment and Risk Reduction (FARR), RFI Phase I, and the RFI Report. The Modified Skinner List of metals and organics was referenced to ensure that all contaminants for a refinery setting were considered. Soil and groundwater data were compared to Risk Reduction Standard No. 2 medium-specific concentrations (MSCs).

Potential risks associated with exposures of human receptors to surface water and sediment in the Joint Outfall Canal (JOC) were evaluated in the *Joint Outfall Canal Tier II Report*, July 2000. It was determined that potential exposure of fishers and crabbers to surface water were below the acceptable risk range (i.e., Hazard Index less than one and potential excess lifetime cancer risks of 7×10^{-8}). It was also determined that there are no potentially complete exposure pathways with sediment because of the depth of the JOC (approximately 20 feet deep in the area where crabbers place their traps) and the type of traps used by the crabbers (i.e., open wire traps). Finally, potential risks

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.

associated with consuming fish from the JOC were evaluated and found to be below the acceptable threshold value (i.e., Hazard Index of one). No carcinogenic constituents of concern were identified in surface water.

References:

Chevron. *Joint Outfall Canal Tier II Report*. Port Arthur Facility, Port Arthur, Texas, July 2000.

Chevron. *RFI Report for Nonpriority Action Areas*. Port Arthur Facility, Port Arthur, Texas. April 2001.

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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

“Contaminated” Media	Potential Human Receptors (Under Current Conditions)						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater Air (indoors)	No	No	No	No	No	No	No
Soil (surface, e.g., <2 ft) Surface Water	No	No	No	No	No	No	No
Sediment Soil (subsurface e.g., >2 ft) Air (outdoors)	No	No	No	No	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).

_____ 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):

The groundwater pathway is incomplete because the groundwater at the Facility is Class 3 (nonpotable) and is not used for drinking water or industrial purposes. Therefore, there is no actual exposure associated with direct contact with groundwater.

There is minimal exposure of workers by direct contact with surface or subsurface soil. Facility workers are required to wear protective clothing based on “General Safety Procedure No. 11-04, Minimum Personal Protection (Revised Date: 05/18/98)” (Clark, May 1998). Gloves and long-sleeved clothing buttoned at the wrist are required.

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

In addition, fire retardant coveralls must be worn at all times in process units, tank fields, docks, pump houses and near high voltage equipment and other areas as may be specified. The protective clothing minimizes dermal contact with soil and the gloves minimize incidental ingestion of soil through hand to mouth contact. In addition, ongoing health and safety monitoring and policies are in place for these workers.

There is also minimal potential for trespassers to be exposed to soil. Trespassers have rarely been seen at the Facility. The Facility is fenced and access is strictly controlled so exposure of trespassers is unlikely.

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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.

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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):

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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):

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 Premcor Port Arthur Refinery facility, EPA ID #TXD08090409, located at Port Arthur, 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 _____ Date 8/23/2002
Mike D. Manka
Regulatory & Compliance Specialist

Supervisor _____ Date 8/23/2002
James Mailey
Manager
(EPA Region or State) 6

Locations where References may be found:

Port Arthur Remediation Team Offices
3400 Hwy 365
Suite 210
Port Arthur, Texas 77642-7711

Texas Natural Resource Conservation Commission
Region 10 Office
3870 Eastex Freeway
Beaumont, Texas 77703-1892

Remediation Division
Texas Natural Resource Conservation Commission
12100 PARK CIRCLE 35, BUILDING F
Austin, Texas 78753

Port Arthur library
4615 9th Ave.
Port Arthur, Texas, 77642

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.