

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

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

Current Human Exposures Under Control

Facility Name: Huntsman Petrochemical Corporation, Aromatics and Olefins Facility  
Facility Address: P. O. Box 968, Port Arthur Texas, 77640  
Facility EPA ID #: TXD 000820923

- 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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>X</u>	_____	_____	<u>See Below</u> _____
Air (indoors) <sup>2</sup>	_____	<u>X</u>	_____	_____
Surface Soil (e.g., <2 ft)	<u>X</u>	_____	_____	<u>See Below</u> _____
Surface Water	_____	<u>X</u>	_____	_____
Sediment	_____	<u>X</u>	_____	_____
Subsurf. Soil (e.g., >2 ft)	<u>X</u>	_____	_____	<u>See Below</u> _____
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 and Reference(s):**

References: Texas Compliance Plan CP-500132 was granted on 3/18/94 approving a Stabilization Project and a Groundwater Monitoring Plan. Huntsman submitted the RFI Report for HW - 500132 in September, 1997. This report has not been approved by the TNRCC. Key contaminants identified are benzene, benzo(a)pyrene and lead. Of the twelve (12) SWMU investigated, the report confirmed four (4) units had releases above risk based standard criteria for groundwater, shallow soils (<2 ft) and subsurface soils (>2 ft).

**Footnotes:**

<sup>1</sup> "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).

<sup>2</sup> 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.

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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

Potential Human Receptors (Under Current Conditions)

<u>"Contaminated" Media</u>	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food</u> <sup>3</sup>
Groundwater	No	Yes	No	Yes	No	No	No
Air (indoors)	----	----	----	----	----	----	----
Soil (surface, e.g., <2 ft)	No	Yes	No	Yes	No	No	No
Surface Water	----	----	----	----	----	----	----
Sediment	----	----	----	----	----	----	----
Soil (subsurface e.g., >2 ft)	No	Yes	No	Yes	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 -- 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): Exposures were evaluated using the data provided in the Huntsman RFI submitted to the TNRCC in September 1997 on SWMU's which did not meet risk based closure criteria. No off-site soil or groundwater contamination has been identified. No air contamination from SMWU's has been documented to be above risk based criteria. Completed pathways were marked "yes" for on-site workers and construction workers due to potential exposure during normal excavation practices. Groundwater was also marked yes for these receptors due to a shallow groundwater table.

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

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4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant"<sup>4</sup> (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 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):**

The rationale for being identified as "not reasonably significant" for "complete" pathways (on-site workers and construction workers) is that the contaminated areas have been identified, the constituents and their respective concentrations have been determined, therefore, exposures can be minimized during construction by pre-planning. Huntsman also has guideline for excavations in potentially contaminated areas. In general, the guidelines require sites to be re-evaluated prior to field activities. This process allows Huntsman to eliminate the potential receptors (i.e. on-site workers and construction workers) from completing the exposure path..

<sup>4</sup> 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):**

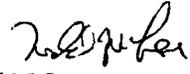
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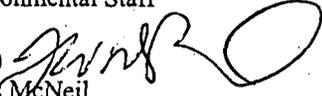
6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

**YE**    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 Huntsman Petrochemical Corporation, EPA ID # TXD 00082098, located at Savannah Ave. 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    (signature)                       Date 11/14/99  
                          (print) Todd McLane  
                          (title) Environmental Staff

Supervisor        (signature)                       Date 11/12/99  
                          (print) Wes McNeil  
                          (title) Superintendent, Environmental  
                          (EPA Region or State) Region VI, Texas

Locations where References may be found:

Contact telephone and e-mail numbers  
(name) Todd McLane  
(phone #) (409) 723-4035  
(e-mail) Todd\_Mclane@Huntsman.com

**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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This form is based on EPA's 2/5/99 Interim Final "Documentation of Environmental Indicator Determination" Checklist. Use this form to update previously completed checklists.

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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 Huntsman Corp facility, EPA ID #TXD008820928, located at Port Arthur 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. "IN" is based on:  
(1) Incomplete information submitted by facility  
(2) Reports in house, yet to be reviewed  
(3) Unfamiliar with site

For "NO" or "IN" determinations, estimate a date that "YE" may be achieved: \_\_\_\_\_

Completed by Kirk Coulter  
TNRCC  
Kirk Coulter

Date 27 June 01

Supervisor Phyllis Primrose  
Phyllis Primrose  
TNRCC

Date 29 June 01

Locations where References may be found:

*If "YE" is assigned, attach a copy of this facility's database printout. Highlight the reports which support the "YE" determination.*

\_\_\_\_\_  
\_\_\_\_\_

Contact telephone and e-mail numbers (if different from above)

(name) NA  
(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.**

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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):

- 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 **Huntsman Corp** facility, EPA ID #TXD000820928, located at **Port Arthur** 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) signed by ✓ Date 29 June 01  
 (print) Kirk Coulter  
 (title) Corrective Action Project Manager

Supervisor (signature) signed by ✓ Date 29 June 01  
 (print) Phyllis Primrose  
 (title) Corrective Action Team Leader  
 (EPA Region or State) TNRCC

Additional References: 12/29/98 Modification of Permit HW-50132 & Compliance Plan CP-50132;  
 1/212/00 2<sup>nd</sup> Semiannual 1999 Groundwater Monitoring Report/Additive Settling Pond; 7/10/00 1<sup>st</sup>  
 Semiannual 2000 Groundwater Corrective Action Monitoring Report - Closed Additive Settling  
 Pond

Locations where References may be found:

TCEQ Central Records, Austin, Texas

Contact telephone and e-mail numbers (as of 2003)

**Peggy Laird**  
 (512) 239-6162  
 plaird@tceq.state.tx.us

**Final Note: The purpose of the Human Exposures EI is to qualitatively screen exposures based on current land and groundwater use. A "YE" determination does not constitute a screening tool that ends the corrective action process. The "YE" determination may be changed at any time as new information becomes available.**

*This electronic version of signature page is based on the original. Administrative information on this page only was updated on 6/2/2004.*