SWR# 31268

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: **Naval Weapons Industrial Reserve Plant - Dallas**
Facility Address: **Dallas, Texas**
Facility EPA ID #: **TX6170022770**

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).

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	___		Various VOCs, primarily trichloroethene and tetrachloroethene, and their breakdown products. Also hexavalent chromium.
Air (indoors)[2]	___	X	___	_____
Surface Soil (e.g., <2 ft)	_X_	___		Various VOCs including trichloroethene and tetrachloroethene, lead, various SVOA's including Benzo(a)pyrene, benzo(b)fluoranthene.
Surface Water	___	X_	___	Ground water recovery systems along the NWIRP Dallas southern boundary with Cottonwood Bay prevent contaminated ground water from discharging to the Bay.
Sediment	_X_	___	___	On-site: various VOCs including trichloroethene and Tetrachloroethene, lead, various SVOA's including benzo(a)pyrene, benzo(b)fluoranthene. Off-site: PCB's, benzo(a)anthracene, benzo(a)pyrene, benzo(b) fluoranthene, and dibenz(a,h) anthracene.
Subsurf. Soil (e.g., >2 ft)	_X_	___	___	On-site: various VOC's including trichloroethene and tetrachloroethene, lead, various SVOA's including benzo(a)pyrene, benzo(b)fluoranthene.
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.

Rationale and Reference(s): This information is based on the NWIRP Dallas Affected Property Assessment Report (on-site) dated July 1, 2002, and approved by the TCEQ on August 29, 2002, and the NWIRP Dallas Affected Property Assessment Report for Mountain Creek Lake dated October 31, 2002, and approved by the TCEQ on October 28, 2004. Ground water exceedances based on Texas Risk Reduction Program (TRRP) Tier 1Protective Concentration Levels (PCLs) for groundwater ingestion on-site (commercial/industrial standard) and off-site (residential standard). Surface and sub-surface soil exceedances based on TRRP Tier 1 PCL for commercial industrial on-site. Sediment exceedances includes a protective concentration level exceedance (PCLE) zone of approximately 25 acres of Cottonwood Bay (which is part of Mountain Creek Lake) based on TRRP Tier 1 PCLs for sediment.

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

- Ground water: Ground water pathway is incomplete on-site due to the installation's internal restriction from using on-site shallow ground water. Ground water pathway is incomplete off-site since there are no shallow ground water wells located within the protective concentration level exceedance (PCLE) zone. In addition, NWIRP Dallas has installed three ground water recovery systems along the facility boundary which effectively prevents off-site migration of contaminated ground water.

- Soils (surface and subsurface): Direct worker exposure to on-site surface and subsurface soils is controlled by limiting worker access to soils. Construction activities are not allowed in areas with contaminated soils without proper personal protection. There are no off-site soil PCLE zones.

- Surface water: The surface water pathway for direct contact or ingestion is incomplete due to the NWIRP Dallas ground water recovery systems which prevents contaminated groundwater from migrating off-site into Mountain Creek Lake. Note: Mountain Creek Lake is not designated as a public water supply source.

- Sediment: Exposure to contaminated sediment on-site (East and West Lagoons) is controlled by limiting worker access to sediment. Construction activities are not allowed in areas with contaminated sediments without proper personal protection.

  In 1996, the Texas Department of Health (TDH) issued a fish consumption ban for Mountain Creek Lake after fish tissue samples indicated unsafe levels of polychlorinated biphenols (PCBs), pesticides, and selenium. The Navy investigation of Mountain Creek Lake determined a large portion of the sediments within Cottonwood Bay are contaminated with PCBs above the TRRP sediment Protective Concentration Level (PCL). These releases occurred as a result of historic activities at the NWIRP Dallas facility. As an interim measure the Navy has strategically placed 10 warning signs along the lake shoreline (e.g., public boat ramps, park areas, etc.) with warning messages considered appropriate by the Texas Department of Health. These warning signs include messages indicating there is a ban on the consumption of fish caught in MCL. In addition to the warning signs, the fish consumption ban is published in the fishing license booklet distributed with purchase of a freshwater fishing license, as well as posted on the Texas Parks and Wildlife website. These warning signs and public notices satisfy the TRRP requirement to provide public notice in instances where potential exposure for publically accessible areas may occur. The Navy will be required to periodically sample fish tissue until TDH determines that the fish consumption ban can be removed.

  Exposure to contaminated sediments in Cottonwood Bay (part of Mountain Creek Lake) is controlled through restricted public access as there are no authorized public access points from any of the properties that surround Cottonwood Bay. Properties that surround Cottonwood Bay include: NWIRP Dallas, and former Naval Air Station Dallas (now owned by the City of Dallas) which includes a minimum of 60% of the Cottonwood Bay shoreline, Texas Utilities (TXU), and privately owned properties that comprise the remaining areas along the shoreline. Authorized access to Cottonwood Bay is possible only by boat using one of the public boat ramps located on the main body of Mountain Creek Lake. The primary recreational use of Mountain Creek Lake, including Cottonwood Bay, is fishing. No swimming signs are posted along the public access points on the main body of Mountain Creek Lake. The Navy has scheduled final remedial action for the contaminated sediments in Cottonwood Bay for fiscal year 2007/8. It is anticipated that final remedial action of the contaminated sediments will ultimately address the contaminated fish problem.

  References for the above information are same as for item no.2 above. In addition, minutes from the NWIRP Dallas Tier 1 Partnering Team meeting (which includes representatives from TCEQ, EPA Region 6 and the Navy) held on September 22, 2004 provide a description of the actions taken by the Navy to erect fish consumption warning signs on Mountain Creek Lake.

[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)?

_____ 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):

__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 **Naval Weapons Industrial Reserve Plant - Dallas** facility, EPA ID **#TX6170022770**, located at Dallas, TX 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 4/15/2005
Allan Posnick
DSMOA Program Manager

Supervisor _____ Date 4/15/2005
Ata Ur-Rahman Ph.D
Manager, Corrective Action Section
Texas Commission on Environmental Quality

Locations where References may be found:

TCEQ Central Records, Austin, Texas_____
_____
_____
_____
_____

Contact telephone and e-mail numbers:

Project Manager listed above
(512) 239-2343
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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.