DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Current Human Exposures Under Control

Facility Name: England Air Force Base
Facility Address: Alexandria (Rapides Parish), Louisiana
Facility EPA ID #: EPA ID No. LA9572124452, AI# 9029

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"**[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			See Below
Air (indoors) [2]		X		See Below
Surface Soil (e.g., <2 ft)	X			See Below
Surface Water		X		See Below
Sediment	X			See Below
Subsurf. Soil (e.g., >2ft)	X			See Below
Air (outdoors)		X		See Below

____ 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): **England Air Force base is located in Alexandria, Rapides Parish (see Figure 1). The existing permit for England Air Force Base identifies 35 Solid Waste Management Units (SWMUs) / Areas of Concern (AOCs) requiring investigation pursuant to the RCRA Facility Investigation (RFI); additionally one AOC, the TCE plume (SS-45) has been identified during the course of the RFI and is proposed for addition to the permit. Table 1 summarizes these SWMUs/AOCs; Figure 2 depicts the location of these units within England AFB.**

Of these SWMUs/AOCs, 33 have completed the RCRA Facility Investigation phase and have been recommended for a No Further Action – At This Time" determination, based on the results of the RFI process and risk-evaluation. Three SWMUs/AOCs, including SWMU No. 41 (the Sanitary Landfill; LF-5), SWMU No. 47 (the POL Sludge Pit; WP-02), and AOC 39 (the TCE Plume; SS-45; POI-332), have been recommended for long-term monitoring. SWMU No. 41 has been closed with a RCRA composite cover system. Limited excavation was conducted at SWMU 47 to remove constituents of concern from surface and subsurface soils. Monitored Natural Attenuation is the proposed remedy for AOC No. 39. The operations and maintenance, inspection, monitoring and response requirements for these units will be specified in the RCRA/HSWA Permit Renewal.

Although volatile organic compounds exist in groundwater beneath an enclosed structure at England AFB, an evaluation of site-specific conditions indicates that indoor air is not impacted based on depth of the groundwater contaminant plume and relatively low dissolved concentrations. Additionally, Passive Vapor Diffusion Sampling (PVDS) and analysis of tree cores taken in Big Bayou adjacent to SWMU No. 41 indicate the potential for chlorinated VOCs to discharge from contaminated groundwater to the sediments and surface water in Big Bayou (BRAC Closure Team (BCT) meeting, 2003). However, the results of surface water and sediment sampling at these locations in Big Bayou reveal no detectable concentrations of site-related constituents in these media. (AFCEE, 2003).

See Attachment 3, "Description and Status of SWMUs/AOCs" for a description of each of these plumes. See Attachment 4 for a listing of references providing detailed information regarding type and concentrations of contaminants, vertical and horizontal extent of plumes, and site-specific, risk-based remedial goals.

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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.

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

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).

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

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): **Contaminated groundwater at England Air Force Base is limited to three distinct contaminant plumes; these are the SWMU No. 41 plume, the SWMU No. 47 plume, and AOC No. 39 plume. In each case, these areas are undergoing long-term groundwater monitoring in order to monitor contaminant concentrations and ensure that the plume is not migrating. Additionally, groundwater from the impacted zone is not utilized at the site due to groundwater use restrictions encompassing the entire site. Therefore, the potential for exposure to contaminated groundwater or subsurface soil exists only for a construction worker.**

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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)?

   _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 (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

[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.

Rationale and Reference(s): **Contaminated soils exceeding risk-based levels at England AFB are limited to subsurface soils. All surface soils exceeding industrial risk-based levels have been excavated and disposed. Each of the SWMUs/AOCs containing residual contamination at or above industrial risk-based levels is subject to a conveyance notification recorded on the official deed in the parish courthouse describing the type, concentration, and location of remaining contaminants.**

As a result of periodic Base Realignment and Closure (BRAC) Closure Team (BCT) meetings between LDEQ, USEPA, the Air Force, and the Local Reuse Authority (LRA), a mechanism has been established whereby all proposed construction activities are evaluated in order to assess the potential for exposure to construction workers. Based on this evaluation, the BCT will provide specific recommendations regarding the necessity for personnel protective equipment (PPE) to protect workers during a construction scenario. Because of this procedure, along with the afore-mentioned institutional controls, the potential for exposure to a construction worker is minimized.

See Attachment 3, "Description and Status of SWMUs/AOCs" for a description of each of these plumes. See Attachment 4 for a listing of references providing detailed information regarding type and concentrations of contaminants, vertical and horizontal extent of plumes, and site-specific, risk-based remedial goals.

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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): **Not Applicable**

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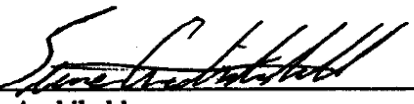
6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

__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 England Air Force Base facility, EPA ID No. LA9572124452, AI#9029 , located at Alexandria, Louisiana 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 6/30/2003
(print) Steve Archibald
(title) Geologist 2

Supervisor (signature) _____ Date _____
(print) Narendra M. Dave
(title) Geological Manager
(EPA Region or State) Louisiana DEQ

Locations where References may be found:

LDEQ Records Management – Hazardous Waste Files
LDEQ Records Management – Ground Water Files
U.S. EPA – Region 6 Files
On-site facility records and correspondence files

Contact telephone and e-mail numbers

(name) Steve Archibald
(phone #) (318) 362-3048
(e-mail) stevena@LDEQ.ORG

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.