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:	Bell Helicopter Textron – Plant #1
Facility Address:	600 East Hurst Blvd., Hurst, TX 76053
Facility EPA ID #:	TXD980626006

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).

Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be 2. "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	Х			PCE, TCE, Chromium
Air (indoors) ^{2}		Х		See below
Surface Soil (e.g., <2 ft)		Х		See below
Surface Water		Х		See below
Sediment		Х		See below
Subsurf. Soil (e.g., >2 ft)		Х		See below
Air (outdoors)		Х		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):

There are nine Solid Waste Management Units (SWMUs) located at the Bell Helicopter-Textron (BHTI) Plant #1 (i.e., SWMU 1 Heliport Landfill, SWMU 2 Wastewater Treatment Plant, SWMU 3 Inactive Surface Impoundment, SWMU 4 Oil Collection Facility, SWMU 5 Department 65 Area, SWMU 6 Department 66 Area, SWMU 7 Salt Pot Pit Area, SWMU 8 Gleason Gear Grinding Area, and SWMU 9 Big Three Area). Soil and groundwater investigations have been conducted in the vicinity of each SWMU in order to horizontally and vertically delineate impacted areas.

Groundwater: Two water-bearing units (Upper Sand Unit and Lower Sand Unit, both < 45 feet below ground surface) have been identified beneath the Plant 1 facility and are discussed in detail in SECOR's Affected Property Assessment Report dated November 30, 2004. Select groundwater concentrations in both of these shallow zones are greater than risk-based ingestion values for residential exposure; current maximum concentrations are Trichloroethene = $240 \,\mu g/L$, Tetrachloroethene = $1300 \,\mu g/L$ and Hexavalent Chromium = $6.9 \,\text{mg/L}$. Any potential construction worker exposure to groundwater is managed by BHTI's internal process to notify on-site contractors and workers who may be exposed to groundwater through trenching or excavation activities. This process is detailed in correspondence dated February 18, 2005.

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.

Air (indoors)[:] Air samples were collected by a facility industrial hygienist from within the manufacturing building located above the most impacted groundwater in order to evaluate the indoor air pathway; review of the results indicates all detection limits and detected concentrations were below OSHA Permissible Exposure Levels.

Surface Soil: For purposes of this EI determination, surface soil data was compared to risk-based levels protective of commercial/industrial exposure (i.e., combined ingestion, dermal contact, and inhalation of volatiles and particulates). The duration and magnitude of these exposures are expected to be greater for a commercial industrial worker than that of a construction worker. This screening approach is a reasonable evaluation of any potential risk to constructions workers. Surface soil data is less than the risk-based levels protective of commercial/industrial exposure. There for current conditions are protective of construction worker exposure. As an additional measure, BHTI has an internal process to notify any on-site contractors, workers and easement holders who may be exposed to soils through trenching or excavation activities. This process is detailed in correspondence dated February 18, 2005.

Surface Water and Sediment: Impacted groundwater from the Lower Sand Unit discharges to surface water bodies and to the perennial Walker Branch Creek, located to the east of the Big Three Area. However, laboratory analysis of surface water and sediment samples collected downstream of where the groundwater enters, contain concentrations of contaminants that are protective of human exposure to surface water and sediment, including fish ingestion.

Subsurface Soil: For purposes of this EI determination, subsurface soil data was compared to risk-based levels protective of commercial/industrial exposure (i.e., combined ingestion, dermal contact, and inhalation of volatiles and particulates). The duration and magnitude of these exposures are expected to be greater for a commercial industrial worker than that of a construction worker. This screening approach is a reasonable evaluation of any potential risk to constructions workers. Subsurface soil data is less than the risk-based levels protective of commercial/industrial exposure. Therefore current conditions are protective of construction worker exposure. As an additional measure, BHTI has an internal process to notify any on-site contractors, workers and easement holders who may be exposed to soils through trenching or excavation activities. This process is detailed in correspondence dated February 18, 2005.

Air (outdoors): Soil and groundwater data show that concentrations of volatile contaminants are below risk-based levels protective of inhalation due to volatilization from soil and groundwater.

References

Affected Property Assessment Report, SECOR International, Inc., November 30, 2004 2004 Semi-Annual Groundwater Monitoring Report (First and Second Quarters), SECOR International, Inc., October 1, 2004 2003 Semi-Annual Groundwater Monitoring Report (Third and Fourth Quarters), SECOR International, Inc., April 20.2004 EPA Environmental Indicator Form (CA 750), SECOR International, Inc., March 26, 2004 Results of Additional Investigation Activities at the Heliport Landfill, Arcadis Geraghty & Miller, February 18, 2000 RCRA Facility Investigation Report, Geraghty & Miller, Inc., December 21, 1998 RCRA Facility Investigation Report, Big 3 Area, Geraghty & Miller, Inc., April 1996 RCRA Facility Investigation Report Unit 01-Heliport Landfill, Geraghty & Miller, Inc., April 1997 Aquifer Hydraulic Conductivity Evaluation, Geraghty & Miller, Inc., July 18, 1994. Limited Subsurface Investigation, Geraghty & Miller, Inc., April 11, 1994. Limited Subsurface Investigation, Geraghty & Miller, Inc., March 9, 1993.

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	No	No	No
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)							
Air (outdoors)							

-- = Media are not contaminated above human health risk-based levels as described in #2 above

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.

Х

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 <u>Pathway</u> <u>Evaluation Work Sheet</u> 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):

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

BHTI Plant #1 is a defense contractor with significant security measures to prevent any unauthorized entry to the facility. All COCs exceeding risk-based levels are within the boundaries of BHTI property and within the security zone of the facility, these conditions preclude the potential for residential, day care, food production and trespasser exposures. However, a human health risk assessment was performed for a trespasser swimming/wading scenario in the surface waters receiving groundwater discharges. Results of the risk assessment indicate current conditions are protective of this exposure scenario.

The two water-bearing units beneath BHTI Plant #1 are not used as a drinking water source and there are no residents immediately down gradient of BHTI Plant #1. A water well inventory conducted within 0.5 mile of the facility boundary identified three water wells, each have been plugged and abandoned by their owner according to State records. On-site investigation data indicates the impacted groundwater is limited to the two shallow groundwater zones.

Using risk-based human ingestion values as a screen for potential construction worker exposure to groundwater (e.g., dermal contact and inhalation) shows potential risk. However, BHTI has an internal process to notify any onsite contractors, workers and easement holders who may be exposed to groundwater through trenching or excavation activities. This process is detailed in correspondence dated February 18, 2005.

References

Affected Property Assessment Report, SECOR International, Inc., November 30, 2004 See additional references in #2.

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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References

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 <u>and</u> 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

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 **Bell Helicopter Textron Inc. Plant 1** facility, EPA ID # **TXD980626006**, located at **600**

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NO - "Current Human Exposures" are NOT "Under Control."

IN - More information is needed to make a determination.

Completed by	(signature)		Date	2/28/05
	(print)	John Wilder		
	(title)	Project Manager		

Supervisor	(signature)			Date	2/28/05
	(print)	Catherine	Remmert		
	(title)	Team II L	eader		
	(EPA Region or State)		Texas		

Locations where References may be found:	
TCEQ Central Records, Austin, Texas	

Contact telephone and e-mail numbers Project Manager listed above (512) 239-2343 corract@tceq.state.tx.us

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 El event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the El 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 Bell Helicopter Textron Inc. Plant 1 facility, EPA ID # TXD980626006, located at 600 East Hurst Boulevard, Hurst, TX 76053 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)	100	Date	2/28/05			
	(print)	John Wilder					
	(title)	Project Manager					

Supervisor	(signature)	atherine Remmer	Date	2/28/05			
	(print)	Catherine Remmert					
	(title)	Team II Leader					
	(EPA Regio	a or State) Texas					

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