

Current Human Exposures Under Control
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DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

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

Current Human Exposures Under Control

Facility Name: Heritage Environmental Services, LLC
Facility Address: CR 105, Burleson County, Texas
Facility EPA ID #: TXD 987995941

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, GPRAs). 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 RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary

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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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater		X		No shallow groundwater present (Phase II Report Revised, March 1998)
Air (indoors) ²		X		Facility closed; COCs were non-volatile
Surface Soil (e.g., <2 ft)		X		Remediation Completed (TRNCC letter dated 3/19/1998)
Surface Water		X		None Reported
Sediment		X		None Reported
Subsurf. Soil (e.g., >2 ft)		X		Remediation Completed (TRNCC letter dated 3/19/1998)
Air (outdoors)		X		Facility closed; COCs were non-volatile

- 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.
- 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):

Facility Background:

The Heritage Environmental Services, LLC (formerly Zia Technology of Texas (ZTT)) is located on County Road 105, one mile south of SH 21 in Burleson County, Texas. The facility is approximately one mile south of Caldwell, Texas. ZTT first notified the Texas Water Commission (TWC) of its operation in June 1990 (Executive Director’s

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) suggests 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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Revised Preliminary Report to the Commission, 1992). ZTT recovered lead, cadmium, iron, and zinc metals from waste electric arc furnace dust (EAFD). EAFD is a listed hazardous waste, K061, derived from the primary steel production industry. ZTT processed EAFD into iron oxide pellets, zinc bullion, and lead/cadmium bullion.

The facility is located on an outcrop of the Cool Mountain Formation of Tertiary age. The regional dip of the formation is to the southeast. The Cook Mountain formation consists of carbonaceous clay along with small amounts of sand, sandstone, limestone, glauconite, gypsum, and fossilized wood. It is known to yield small amounts of fresh to slightly saline water. According to ZTT, borings advanced during the facility's construction (1989) encountered no groundwater to a depth of 30 feet. Beneath the Cook Mountain Formation is the Sparta Sand, which is known to produce large quantities of fresh to slightly saline water.

Surface drainage from the Heritage facility flows in two directions, to the north and to the south. Northern drainage flows into the Elm branch of the Second Davidson Creek, while southern drainage flows into the Second Davidson creek. Both streams flow together in the Yeuga Creek. The Yeuga Creek is designated as stream segment 1211 of the Brazos River Basin.

Regulatory History

According to the Revocation of Permit No. HW50360-001, dated October 4, 2001, a Hazardous Waste Permit was originally issued to ZTT Minerals, Inc. by the Texas Natural Resource Conservation Commission on July 11, 1994. On January 5, 1999 this permit was transferred to Heritage Environmental Services LLC. The permit authorized the management of a hazardous waste container storage area (CSA). By letter dated April 13, 2001, the TNRCC accepted closure of the CSA and the permit was voluntarily revoked. Copies of the original and renewal permit were not found in the available file materials.

During the months of March and April of 1991, ZTT disposed of hazardous waste into 15 pits onsite. K061 waste generated during startup operations was disposed of in pits, which were dug by facility personnel. ZTT also discharged quench wastewater, a hazardous waste, into the adjacent plant ditch. It appeared that the discharge had led to run-off from the disposal area to the surrounding soil. In May of 1991, ZTT stockpiled sludge in the coal storage building. The TWC issued an Agreed Order dated July 22, 1992 based on these violations. The order required implementation of a Closure Plan approved by TWC on December 12, 1991 and submittal of a groundwater assessment plan.

ZTT began implementing site closure procedures in 1992. Almost 100 tons of waste was excavated and removed from the site. The coal storage building was cleaned in accordance with the site closure plan. In a site assessment communication, dated July 17, 1992, it was concluded that there were no groundwater impacts based on the impregnable nature of the clays underlying the site, and the absence of shallow groundwater. Therefore, installation of groundwater monitoring wells was not required.

ZTT was cited for several violations during an inspection on February 28, 1997, which included the discharge of Electric Arc Furnace Dust (K061) and ferro-lime waste, resulting in a threat to surface water. ZTT and the TNRCC entered into an Agreed Order on February 4, 1998 which called for the assessment and remediation of contamination.

In response to the violations, a Phase II Soil Investigation was conducted in 1997, which recommended excavation of approximately 3,800 cubic yards of soil throughout the facility. According to the Site Completion Report, removal of contaminated soils took place between December 1997 and February 1998. During the course of the excavation 4,710 cubic yards of soil were excavated. The Site Completion Report concluded that remediation activity achieved the TNRCC's Risk Reduction Standard No. 1, which requires remediation of affected media to background levels. The TNRCC issued a letter approving the closure/remediation at the site, and released ZTT from deed recordation and post-closure care requirements. The letter also stated that ZTT Minerals, Inc. had satisfactorily complied with the Agreed Order dated February 4, 1998.

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On October 4, 2001, the TNRCC approved a voluntary revocation of Heritage's solid waste permit. The permit accepted closure of the container storage area, and stated that there are no outstanding corrective action or post closure care requirements related to the permit.

References

- Letter to D. Willis, ZTT Minerals, Inc., from E. Johnbull, TNRCC granting Class I permit modification; no legible date.
- Letter to Ms. Vanessa Shiller, TWC, from Alex Onjanow, Jones And Neuse; regarding addenda to the approved closure plan; dated May 26, 1992.
- Notice of Executive Director's Preliminary Report and Amended Petition for a Texas Water Commission Order Assessing Administrative Penalties and Requiring Certain Actions of Zia Technology of Texas, Inc.; Zia Technology, inc. and Babcock International Group PLC; dated June 19, 1992.
- Letter to Ms. Vanessa Shiller; TWC; from Jones and Neuse, Inc.; regarding deletion of copper as constituent; dated June 19, 1992.
- Agreed Order Resolving an Enforcement Action by TWC against Zia Technology of Texas, Inc.; Zia Technology, inc. and Babcock International Group PLC; dated July 22, 1992.
- Phase II Soil Investigation Report; ZTT Minerals, Inc.; prepared by Code 3 Environmental Services, Inc.; dated September 1997.
- Agreed Order Docket No. 97-0620-IHW-E resolving enforcement action regarding ZTT Minerals, Inc.; dated February 04, 1998.
- Memorandum to file; from Don Naylor, TNRCC; regarding ZTT Minerals, Inc. CEI conducted on January 28, 1998; dated February 25, 1998.
- Phase II Soil Investigation Report; ZTT Minerals, Inc.; prepared by Code 3 Environmental Services, Inc.; dated September 1997; revised March 1998.
- Site Completion Report; ZTT Minerals, Inc.; prepared by Code 3 Environmental Services, Inc.; dated March 1998
- Letter to Mr. Donnie Willis, ZTT Minerals, Inc.; from Richard Clarke. TNRCC; approval of Closure/Remediation Final Report; dated March 19, 1998
- Letter to Mr. Gary Lindgren, Heritage Environmental Services from TNRCC; deficiencies in Part B Permit Application; dated December 23, 1998.
- Letter to Ms. Angela Martin; Heritage Environmental Services; from Katherine Nelson, TNRCC; Approval of Closure Certification Report of Container Storage Area; dated April 13, 2001.
- Revocation of Permit No. HW-50360 by TNRCC; dated October 4, 2001.
- Letter to Katherine Nelson, TNRCC; from Heritage Environmental Services Requesting Consent to Revocation of TNRCC Permit; dated September 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

Potential **Human Receptors** (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation Food ³
Groundwater						
Air (indoors)						
Soil (surface, e.g., <2 ft)						
Surface Water						
Sediment						
Soil (subsurface e.g., >2 ft)						
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.

___ 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):

³ 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”**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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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.

Recommended Action Items:

1. Operating status of facility could not be confirmed in available records. EPA may wish to conduct drive-by inspection to determine if facility is still in operation or is vacant.