

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: Gulf Coast Waste Disposal Authority
Facility Address: 1600 Campbell Bayou Rd., Texas City, TX 77590
Facility EPA ID #: TXD000835249

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 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)?

| | <u>Yes</u> | <u>No</u> | <u>?</u> | <u>Rationale / Key Contaminants</u> |
|-----------------------------|------------|-----------|----------|--|
| Groundwater | | X | | No evidence of contamination – see Rationale Below |
| Air (indoors) ² | | X | | “ |
| Surface Soil (e.g., <2 ft) | X | | | Molybdenum concentration of 8 mg/l above EPA’s maximum accumulation established at 5 mg/l. Lead levels at SSI. |
| Surface Water | | X | | “ |
| Sediment | | X | | “ |
| Subsurf. Soil (e.g., >2 ft) | | X | | “ |
| 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):

Facility Description

The Gulf Coast Waste Disposal Authority (GCWDA) operated a hazardous waste landfill and a land treatment unit. The facility encompasses 200 acres of a 450 acre tract in the city limits of Texas City, Galveston County. Forty (40) acres have been developed and are currently in use. The area surrounding the facility consists of industrial and undeveloped land. To the north is the closed Texas City Municipal Landfill. The area south and west of the facility belongs to the University of Texas and is undeveloped. The Malone Service Company borders the facility on the east.

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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The facility has identified the following five waste management units:

- Notice of Registration (NOR) No. 001—Two 5000-gallon steel tanks
- NOR No. 003—One surface impoundment
- NOR No. 014—One miscellaneous storage container
- NOR No. 019—One 16.5-acre landfill consisting of nine cells (five hazardous and four non-hazardous)
- NOR No. 020—One 150,000-gallon tank.

An 11.3-acre closed land treatment unit is also located at the facility just north of the landfill. Permit HW-50133, originally issued on November 9, 1988, authorizes five hazardous and four non-hazardous landfill cells and the land treatment unit. The landfill and the land treatment unit are closed and under post-closure care. The permit was renewed on December 1, 1999. GCWDA conducts groundwater detection monitoring at the landfill and land treatment unit. Two background, seven point-of-compliance, and five supplemental wells monitor the landfill. The land treatment unit is monitored by 2 background and 14 point-of-compliance wells. All wells are monitored on a semi-annual basis.

The surface impoundment (NOR No. 003) collects surface water runoff from the land treatment unit. No additional information could be found for this unit. NOR No. 001 collects leachate from the landfill. Storage is less than 90 days prior to shipment off site for disposal. This unit is still active. No information was found on the miscellaneous storage container (NOR No. 014), other than it is a dumpster that handles plant trash. The 150,000-gallon tank (NOR No. 020) stores storm water and discharges under NPDES and TPDES permits (Reference 16).

The type of cap constructed for the landfill or steps taken to close the land treatment unit cannot be determined from the file materials available for review. However, since the closure was approved by TCEQ it is assumed that the closure design was in accordance with RCRA closure standards.

Rationale:

The land treatment unit began operation in 1980 and was closed in 1992. The unit is covered with a vegetative cover and graded to minimize run-on (Reference 6). In 1992, sampling results from the land treatment unit indicated exceedance of the maximum accumulation limit for molybdenum of 8mg/l for surficial soil. EPA's maximum accumulation is established at 5 mg/l. In a letter dated December 1, 1992 (Reference 1), the Texas Water Commission (now TCEQ) concluded that the potential for human health effects was low and stated that no further action was required of GCWDA. In 1997, during post-closure monitoring, a statistically significant increase (SSI) in lead was noted, but in a letter dated August 20, 1997 (Reference 5), TNRCC said the increase was not due from a release from the land treatment unit.

The non-hazardous waste cells of the landfill are lined with three feet of compacted clay and HDPE liner and have a leachate collection system. The hazardous waste cells are lined with three feet of compacted clay and a double HDPE liner and have a double leachate collection system (Reference 8). Results from first 2005 semi-annual groundwater sampling at the landfill indicated exceedance above permit levels for arsenic and selenium in point-of-compliance wells. Arsenic was determined to be at a maximum sampling concentration (MSC) of 0.0274 mg/l and selenium was determined to be at a MSC of 0.461 mg/l. Five additional sampling events were completed to conduct a trend analysis. In a letter dated October 5, 2005 (Reference 15), TCEQ concluded that the trend analysis showed no statistically significant increase of arsenic and selenium and that the concentrations were below permit limits. Arsenic and selenium concentration limits were again exceeded during the second semi-annual sampling in 2005, but GCWDA indicated to TCEQ that the exceedance was attributable to the introduction of suspended material into the samples during well purging and sample collection with a bailer. In a letter dated December 16, 2005 (Reference 16), TCEQ noted the results and requested GCWDA to submit a permit modification for a change of sampling procedures.

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There have been no reported releases to air, sediment, or surface water in the files.

Files Referenced:

1. Texas Water Commission (TWC). Letters from Minor Brooks Hibbs to Steven J. LeBlanc and Dick Brown (Gulf Coast Waste Disposal Authority [GCWDA]). December 1, 1992.
2. GCWDA. Letter from Steven J. LeBlanc to Mr. Jesus Garza (TWC). July 20, 1992.
3. GCWDA. Letter from Dick Brown to Mr. Dan Pearson (Texas Natural Resource Conservation Commission [TNRCC]). January 16, 1997.
4. TNRCC. Interoffice Memorandum re: Compliance Monitoring Evaluation at GCWDA on January 10 and 20, 1997. March 20, 1997.
5. TNRCC. Letter to Mr. Dick Brown (GCWDA). August 20, 1997.
6. GCWDA. Letter from Mr. Dick Brown to Mr. Dan Pearson (TNRCC). January 20, 1998.
7. TNRCC. Signatory Page for Permit HW-50133-001. December 1, 1999.
8. GCWDA. Selected Sections of the Part B Permit HW-50133-001. Undated.
9. TNRCC. Letter to Mr. Charles Ganze (GCWDA) re: Class 1 Permit Modification. March 7, 2001.
10. State of Texas, Galveston County. Disposal Site Deed Recordations. March 24, 1003 and July 23, 2001.
11. GCWDA. Letter to TNRCC Data Analysis and Management Team re: Changes to Notice of Registration (NOR). August 15, 2001.
12. GCWDA. Letter from Mr. Charles Ganze to Mr. Edward J. Biskup (Texas Commission on Environmental Quality [TCEQ]) re: 2003 Annual Detection Monitoring Report. January 21, 2004.
13. TCEQ. Report for Compliance Evaluation Inspection on February 25-26, 2004. April 20, 2004.
14. GCWDA. Letter to TCEQ Data Analysis and Management Team re: Changes to the NOR. March 9, 2004.
15. TCEQ. Letter from Enoch Johnbull to Mr. Charles Ganze (GCWDA). October 5, 2005.
16. TCEQ. Letter to Mr. Charles Ganze re: Second Semi-Annual 2005 Groundwater Monitoring Analysis. December 16, 2005.
17. TCEQ. Comprehensive Permitting Report. December 22, 2005.
18. TCEQ. Comprehensive Corrective Action Report. December 28, 2005.
19. Facility Maps

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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

| <u>“Contaminated” Media</u> | Potential <u>Human Receptors</u> (Under Current Conditions) | | | | | | |
|-------------------------------|---|---------|----------|--------------|-------------|------------|-------------------|
| | Residents | Workers | Day-Care | Construction | Trespassers | Recreation | Food ³ |
| Groundwater | | | | | | | |
| Air (indoors) | | | | | | | |
| Soil (surface, e.g., <2 ft) | No | Yes | No | No | No | No | No |
| Surface Water | | | | | | | |
| Sediment | | | | | | | |
| Soil (subsurface e.g., >2 ft) | | | | | | | |
| Air (outdoors) | | | | | | | |

Instructions for Summary Exposure Pathway Evaluation Table:

- Strike-out specific Media including Human Receptors spaces for Media which are not “contaminated” as identified in #2 above.
- 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).
- 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): In 1992, sampling results from the land treatment unit indicated exceedance of the maximum accumulation limit for molybdenum of 8 mg/l for surficial soil. EPA’s maximum accumulation is established at 5 mg/l. In 1997, during post-closure monitoring, a statistically significant increase (SSI) in lead was noted.

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): In 1992, sampling results from the land treatment unit indicated an exceedance of the maximum accumulation limit for molybdenum of 8mg/l for surficial soil. EPA’s maximum accumulation is established at 5 mg/l. In a letter, dated December 1, 1992 (Reference 1), the Texas Water Commission (now TCEQ) concluded that the potential for human health effects was low and stated that no further action was required of GCWDA. In 1997, during post-closure monitoring, a statistically significant increase (SSI) in lead was noted, but in a letter dated August 20, 1997 (Reference 5), TNRCC said the increase was not due from a release from the land treatment unit.

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):

