

ADEM



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JAMES W. WARR
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MEMORANDUM

DATE: August 18, 2003

TO: Phillip D. Davis, Chief 
Industrial Hazardous Waste Branch
Land Division

THROUGH: Vernon H. Crockett, Chief 
Engineering Services Section
Industrial Hazardous Waste Branch
Land Division

FROM: John T. Thompson 
Engineering Services Section
Industrial Hazardous Waste Branch
Land Division

RE: Environmental Indicator Evaluation of GTE Products Corporation facility in Huntsville,
Madison County, Alabama
USEPA Identification Number ALD 050 166 750

Facsimiles (334)
Administration: 271-7950
General Counsel: 394-4332
Air: 279-3044
Land: 279-3050
Water: 279-3051
Groundwater: 270-5631
Field Operations: 272-8131
Laboratory: 277-6718
Mining: 394-4326
Education/Outreach: 394-4383

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of the status of GTE Products Corporation ('GTE'), in relation to the following corrective action event codes defined in the RCRAInfo database:

- 1) Current Human Exposures Under Control (CA725),
- 2) Migration of Contaminated Groundwater Under Control (CA750).

Concurrence by the Industrial Hazardous Waste Branch Chief is required prior to entering these event codes into RCRAInfo. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing at the appropriate locations within Attachments 1 and 2.

II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE FACILITY AND REFERENCE DOCUMENTS

This particular evaluation is the second evaluation performed by the Alabama Department of Environmental Management (ADEM) for the GTE facility. A previous evaluation was completed by ADEM, on December 9, 1998. The evaluation, and associated interpretations and conclusions on contamination, exposures and contaminant migration at the facility are based on information obtained from the following documents:



- Inspection Report by Dennis Reese – September 26, 2002
- Semi-Annual Report – December 2002; Effectiveness of the Corrective Actions and Evaluation of Groundwater Conditions – May 8, 2003
- Comprehensive Monitoring Evaluation – October 16, 1998
- Post-Closure Care Permit – September 8, 1998
- Environmental Indicators Evaluation – December 9, 1998

III. FACILITY SUMMARY

The GTE Huntsville facility is located at 2951 Green Cove Road within the corporate limits of Huntsville, in Madison County, Alabama. The facility began operations in January 1969. During operation, GTE manufactured telephones, spare parts, and ancillary equipment, (e.g., public telephone booths). Process operations at the plant included metal fabrication activities including punching, molding, soldering, coating and electroplating. The facility's wastewater, which included wastewater from the electroplating process, was treated at an on-site wastewater treatment plant and discharged to two surface impoundments located in the western portion of the facility. The metal-hydroxide sludge resulting from the treatment process is a listed hazardous waste (EPA waste code F006). The facility ceased operations in 1987, and the building and most of the property were sold in November 1987. GTE retained approximately 16.3 acres, which encompass the two surface impoundments. Historical releases from the surface impoundments have resulted in groundwater contamination above maximum contaminant levels (MCLs). Chloroform, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride are the primary constituents of concern at the facility.

The EPA and ADEM jointly issued post-closure permits to GTE on December 8, 1986. The surface impoundments were closed as a landfill in February 1987. The closure consisted of stabilization of the sludge, placement of the sludge from both the north and south cells into the south cell, backfill of both cells to cover stabilized sludge and/or contaminated soil, and construction of a composite cover comprising a clay cap, high density polyethylene membrane, sand drainage layer, and a vegetative cover. Groundwater evaluation activities have been in progress since 1985, beginning prior to issuance of the original permits. Groundwater recovery wells were installed in 1987, and GTE began corrective action of groundwater via a pump- and-treat system. On September 8, 1998, ADEM renewed GTE's permit for continued post-closure care of the closed surface impoundments.

The site is zoned industrial; however, the only current industrial use of the facility is the operation of the groundwater remediation system. There is a residential subdivision immediately to the north, separated from the facility by Green Cove Road. The former GTE manufacturing facility, currently owned and operated by SCI Systems, Inc. of Huntsville is located to the east. The land to the south and west is undeveloped and/or agricultural. There are three residences associated with the agricultural activities, located southwest of the facility. The Tennessee River is located approximately 3/4 miles south of the surface impoundments, and the facility is located near the edge of its 100-year flood plain, thereby limiting potential development of that area.

IV. CONCLUSION FOR CA725

The appropriate status code to be entered for RCRAInfo event code CA725 (Current Human Exposures Under Control) is "YE." The closed surface impoundment is the only known source of contamination on the GTE property. It is properly capped, fenced and poses minimal risk of significant human exposure. Groundwater is not used locally for human consumption.

V. CONCLUSION FOR CA750

The appropriate status code to be entered for RCRAInfo event code CA750 (Migration of Groundwater Under Control) is "YE." A groundwater recovery and monitoring system is in place to control the migration of contaminated groundwater. Effectiveness monitoring results indicate consistent reductions in contaminant concentrations over the operating life of the corrective action system.

VI. SUMMARY OF FOLLOW-UP ACTIONS

Current monitoring and recovery operations will continue to ensure consistent control of the contamination.

- Attachments:
1. CA725: Current Human Exposures Under Control
 2. CA750: Migration of Contaminated Groundwater Under Control

JTT / GTE EI Memo

ATTACHMENT 1
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
RCRAInfo Event Code (CA725)
Current Human Exposures Under Control

Facility Name: GTE Products of Connecticut
Facility Address: 2951 Green Cove Road, Huntsville, Madison County, Alabama
Facility EPA ID #: ALD 050 166 750

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 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).

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)?

Media	Yes	No	?	Rationale/Key Contaminants
Groundwater	X			Chloroform, PCE & degradation products.
Air (indoors) ²		X		N/A
Surface Soil (e.g., <2 ft)		X		Impoundment is capped with uncontaminated soil.
Surface Water		X		Rainfall drainage only; does not contact contaminated soil.
Sediment		X		N/A
Subsurface Soil (e.g., >2 ft)	X			Chloroform, PCE & degradation products under soil cap.
Air (outdoors)		X		No evidence of unacceptable levels.

_____ 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):

Surface Water: Because the surface impoundments have been filled and capped, the only surface water at the facility is that found during wet weather in drainage features and as sheet flow. Surface water is not likely to be exposed to the wastes within the impoundments, and it is unlikely that groundwater would discharge to the existing drainage features under most conditions.

Air: Several volatile organics are included in the constituents of concern for the facility. These compounds could volatilize from the *in situ* groundwater and migrate through the subsurface, or they could volatilize when exposed to the atmosphere when removed during the remedial operation. Subsurface soil gas has not been investigated thoroughly at the site, but exposure to employees engaged in on-site operation and maintenance of the corrective action system could theoretically be exposed. It is noted, however, that a screening level risk assessment at the site concluded that exposures to on-site workers and off-site residents would not result in risks exceeding a cancer risk of 10^{-6} or a non-cancer hazard quotient of 1. Consequently, outdoor air exposure is not deemed to be a significant concern.

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	Food³
<u>Groundwater</u>	No	No	No	No	No	No	No
<u>Air (indoors)</u>	N/C	N/C	N/C	N/C	N/C	N/C	N/C
<u>Soil (surface, e.g., <2 ft)</u>	N/C	N/C	N/C	N/C	N/C	N/C	N/C
<u>Surface Water</u>	N/C	N/C	N/C	N/C	N/C	N/C	N/C
<u>Sediment</u>	N/C	N/C	N/C	N/C	N/C	N/C	N/C
<u>Soil (subsurface, e.g., >2 ft)</u>	No	No	No	No	No	No	No
<u>Air (outdoors)</u>	N/C	N/C	N/C	N/C	N/C	N/C	N/C

Instructions for Summary Exposure Pathway Evaluation Table:

- For Media which are not "contaminated" as identified in #2, please strike-out specific Media, including Human Receptors' spaces, or enter "N/C" for not contaminated.
- 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 assigned spaces in the above table. 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):

Exposure to contaminated soils and waste materials is mitigated by the final cover system. The post-closure permit prohibits disturbance of the cover system and requires deed notices which mitigate residential uses of the property thereby addressing all potential points of exposure.

With regard to contaminated groundwater, exposure is controlled by the corrective action system. There are no workers present at the site, except for periodic monitoring and maintenance activities associated with the final cover and groundwater corrective action systems. Construction activities in the area of the groundwater plume are strictly regulated, and are unlikely given the nature of the site. Offsite migration of contaminated groundwater has not been observed, although the Department is not aware of any off-site use of groundwater in the area of the site.

³Indirect 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 cannot 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):

N/A

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):

N/A

⁴If 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.

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):

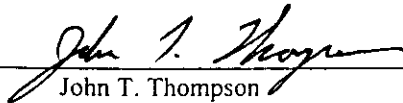
X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the GTE facility, EPA ID # ALD 050 166 750, located in Huntsville, Alabama under current and 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)

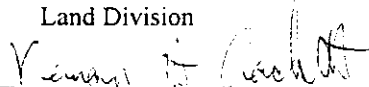


(date) 8/18/03

John T. Thompson
Engineering Services Section
Industrial Hazardous Waste Branch
Land Division

Supervisor:

(signature)



(date) 8/18/2003

Vernon H. Crockett, Chief
Engineering Services Section
Industrial Hazardous Waste Branch
Land Division

Hazardous Waste:
Branch Chief

(signature)



(date) 19-AUG-03

Phillip D. Davis, Chief
Industrial Hazardous Waste Branch
Land Division

Location where References may be found:

Alabama Department of Environmental Management Main Office
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2059
(334) 271-7700

Contact telephone number and e-mail address:

Tim Thompson
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ATTACHMENT 2
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
RCRAInfo Event Code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: GTE Products of Connecticut
Facility Address: 2951 Green Cove Road, Huntsville, Madison County, Alabama
Facility EPA ID #: ALD 050 166 750

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, 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 #8 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 "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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).

2. Is **groundwater** known or reasonably suspected to be "**contaminated**"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?
- X If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.
- _____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."
- _____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The following are contaminants of concern at the GTE facility: chloroform, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride are the primary constituents of concern at the facility. The relevant risk-based levels are the drinking water MCLs for these compounds.

3. Has the **migration** of contaminated groundwater **stabilized** such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination?
- X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"⁶.
- _____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.
- _____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The contaminant plume appears to be contained within the boundaries of the GTE property with no evidence of continuing migration. Groundwater monitoring shows contaminant concentrations trending downward in all wells, except for an increase in cis-DCE removed from the recovery well RW-1. RW-1 exhibited spikes in cis-DCE during the December 2000 and June 2002 monitoring event. Over the past five years of monitoring, there appears to be a gradual upward trend in RW-1, but levels of cis-DCE remain generally low; the most recent sampling event yielded a result of 4.7 µg/L. While no TCE is detected in RW-1, it is possible that the DCE increase may be indicative of natural attenuation occurring in adjacent portions the contaminated zone.

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 appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

²"existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

 X If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

There is no surface water adjacent to the contaminant plume.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration⁸ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature and number of discharging contaminants, or environmental setting) which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration⁸ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) providing a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration⁸ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," providing the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identifying if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s);

N/A

³As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either:

1) identifying the Final Remedy decision incorporating these conditions, or other site-specific

criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR

2) providing or referencing an interim assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of trained specialists, including ecologists) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

N/A

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

 X If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

⁴Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Rationale and Reference(s):

Post-closure care and groundwater monitoring continues at the site, in accordance with the requirements of the facility's post-closure permit. Specifically, monitoring wells MW-1, MW-2, MW-3, MW-7, MW-8, MW-11, MW-12, MW-17A, MW-20, MW-21 and MW-22 define the point of compliance for the uppermost aquifer, and MW-10 and MW-23 serve as background wells.

Furthermore, a corrective action monitoring system is in place with wells MW-24, MW-25, MW-29, MW-31A and MW-31B serving as boundary wells, monitored to ensure that the plume is not migrating beyond the limits of the well system. The effectiveness of the corrective action system shall be assessed by monitoring effectiveness wells MW-6, MW-9, MW-15A, MW-15B, MW-15C, MW-26, MW-28 and MW-30. Wells RW-1, RW-2, RW-3, RTW-5 and RW-6 are used for recovery of contaminated groundwater.

If the current well system is at some point deemed inadequate to monitor changes in the extent of the contaminant plume, additional wells will be constructed after the appropriate permit modifications are approved.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

 X YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the GTE facility, EPA ID # ALD 050 166 750, located at Huntsville, Alabama. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

 NO - Unacceptable migration of contaminated groundwater is observed or expected.

 IN - More information is needed to make a determination.

Completed by:

(signature) John T. Thompson (date) 8/18/03
John T. Thompson
Engineering Services Section
Industrial Hazardous Waste Branch
Land Division

Supervisor:

(signature) Vernon H. Crockett (date) 8/21/03
Vernon H. Crockett, Chief
Engineering Services Section
Industrial Hazardous Waste Branch
Land Division

Hazardous Waste:
Branch Chief

(signature) Phillip G. Davis (date) 19-AUG-03
Phillip G. Davis, Chief
Industrial Hazardous Waste Branch
Land Division

Location where References may be found:

Alabama Department of Environmental Management Main Office
1400 Coliseum Boulevard
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(334) 271-7700

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