QUICK REFERENCE FOR STATUS OF ENVIRONMENTAL INDICATORS							
Name and EPA I.D. Number	Location (City or Town)	1996 CA725 Decision	1996 CA750 Decision	2000 CA725 Decision	2000 CA750 Decision	If 2000 Decision is Negative, Projected Date for Positive EI	
						CA725	CA750
Florida Tile FLD 004 091 583	Lakeland	NO	NR	YE	IN	N/A	2002

4WD-RPB

SUBJ: Evaluation of Florida Tile's status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA I.D. Number: FLD 004 091 583

FROM: Wesley S. Hardegree
Corrective Action Specialist
South Programs Section

THRU: Doug McCurry, Chief
South Programs Section
RCRA Programs Branch

TO: Narindar M. Kumar, Chief
RCRA Programs Branch

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of Florida Tile's status in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

1) Current Human Exposures Under Control (CA725),

2) Migration of Contaminated Groundwater Under Control (CA750).

Concurrence by the RCRA Programs Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing at the appropriate location within Attachments 1 and 2.

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

This particular evaluation is the second evaluation for Florida Tile. The first evaluation concluded that current human exposures were not under control because offsite sediment contamination exists. Migration of contaminated groundwater was considered under control because there were no releases to groundwater reported. A copy of the first evaluation can be found in the Facility's File maintained that the EPA Regional Office in Atlanta.

III. FACILITY SUMMARY

Florida Tile manufactures ceramic wall and floor tile. The facility began operation in 1954. The process currently used for the production of ceramic tile is a dry-press, once fired method. The process involves three basic steps:

3) Blending and pressing the tile body mixture into "greenware."
4) Preparation of glaze slip by mixing relatively insoluble minerals with water in a ball mill.
5) Spraying the glaze onto the greenware and firing the glazed greenwae in kilns.

The facility is bordered by light industry to the west, an old abandoned railyard to the north, commercial and some residential to the east, and Lake Wire to the south.

IV. CONCLUSION FOR CA725
(Brief Outline of Issues Leading to an EI of YE, NO or IN)

Based on the analysis documented in Attachment 1 of this memo, current human exposures to contamination at Florida Tile are under control. No further immediate action is needed to protect human health in the short term; however, additional work may be needed to complete characterization for final remedy selection.

V. CONCLUSION FOR CA750
(**Brief Outline of Issues Leading to an EI of YE, NO or IN)**

Based on the analysis documented in Attachment 2, migration of contaminated groundwater is not under control because there is not enough information from which to make a decision on the stabilization of the groundwater plume. The sole constituent which has been released and detected in groundwater is boron. Boron is found only at the RCRA Regulated Unit. Boron is not a hazardous constituent, but rather an indicator parameter monitored at Florida Tile's RCRA Regulated Unit. However, the concentrations of boron detected in groundwater exceed by at least one order of magnitude the human health-based level for boron in water. Please see Section VI for an explanation as to what further actions are planned to determine if the boron plume is stabilized.

VI. SUMMARY OF FOLLOW-UP ACTIONS
(Discussion of What is Needed to Get to Yes, with EI Interim Milestone Schedule)

A. CA725

Not Applicable - Current Human Exposures Under Control.

B. CA750: The facility needs to assess the groundwater contamination emanating from the RCRA Regulated Unit. In order to complete this task, additional monitoring wells need to be installed downgradient of the RCRA Regulated Unit and monitored. In addition, given the exceedances of the human health-based level, it appears that a corrective action plan should be called. Below is a schedule listing specific activities which need to be performed in order to make a definitive EI determination on whether groundwater migration is under control.

FLORIDA TILE
EI INTERIM MILESTONE SCHEDULE
CA750

Activity(ies) (events as defined in RCRIS)	**CA RCRIS Event Code**	**Scheduled Date** (QTR& FY)	**Associated CA RCRIS Code**	**Remarks** (Include unit(s) and description of action(s))
Impose Downgradient Assessment	CA721	9/31/00	CA750	Determine extent of contamination.
Complete Downgradient Assessment	CA721	3/31/01	CA750	Determine extent of contamination.
Impose Corrective Action Plan	CA721	3/31/01	CA750	Impose CAP under the Post-Closure Permit.
Monitor Boron over Time	CA721	3/31/01	CA750	Determine if boron plume has stabilized.
Monitor Boron over Time	CA721	3/31/02	CA750	Determine if boron plume has stabilized.

Activity(ies) (events as defined in RCRIS)	**CA RCRIS Event Code**	**Scheduled Date** (QTR& FY)	**Associated CA RCRIS Code**	**Remarks** (Include unit(s) and description of action(s))
EI Determination	CA750	3/31/02	CA750	Re-evaluate EI for Migration of Groundwater NOTE: Earlier re-evaluation may be possible based on the results of the assessment/monitoring/ Corrective Action Plan.

VII. LEVEL OF CONFIDENCE IN REACHING A POSITIVE EI EVALUATION AND MAJOR ISSUES

It is this project manager's opinion that characterizing the extent of boron contamination should be easy to complete. Whether long-term monitoring of the characterized plume will lead to an opinion that the plume has stabilized is unknown. If stabilization is not demonstrated, then a CA750 YE determination will have to rely on the demonstration that remedial measures are successful at controlling the migration of contamination.

		Schedule	Actual
CA750 YE	Current Human Exposures Under Controlled	3/31/02	- - -
	Comment: Medium Confidence		

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

Version: Interim Final
2/5/99

ATTACHMENT 1
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS Code (CA725)
Current Human Exposures Under Control

Facility Name: Florida Tile
Facility Address: One Sikes Blvd, Lakeland, Florida 33815
Facility EPA ID #: FLD 004 091 583

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).

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			There are no groundwater contaminants detected by the groundwater monitoring system above a risk-based level except for boron.
Air (indoors)[2]		X		Metals are the contaminants of concern. Releases of these contaminants from SWMUs/AOCs is not expected.
Surface Soil (e.g., <2 ft)	X			Lead and Arsenic have been detected in soil.
Surface Water		X		All wastewater and stormwater is contained on site. There are no surface water releases from the facility. Surface Water Sampling of Lake Wire has not detected constituents of concern above levels of concern.
Sediment	X			Metals have been detected in sediment with Lake Wire above levels of concern (e.g., Lead, cadmium, arsenic, chromium, zinc, etc.).
Subsurface Soil (e.g., >2 ft)	X			There are elevated levels of metals in the RCRA Regulated Unit which is currently capped.
Air (outdoors)		X		Metals are the contaminants of concern. Releases of these contaminants from SWMUs/AOCs is not expected.

[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.

____ 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):

GROUNDWATER: Results from both ten (10) years of groundwater monitoring associated with the regulated unit (see Quarterly Monitoring Reports) and groundwater sampling under the RFI process (see March 26, 1999, RFI Report) indicate that no groundwater releases have occurred except for one constituent, boron. The boron is associated with the closed regulated unit.

INDOOR AIR: Although no air samples have been collected, there is no reason at this time to suspect that the hazardous constituents of concern at Florida Tile (i.e., metals) from unpermitted or unregulated releases from SWMUs or AOCs are causing unacceptable levels in indoor air.

SOIL (surface soil): According to the March 26, 1999, RFI Report, the Wastewater Treatment Facility (SWMU #4) and the Glaze Tub Storage Area (AOC A) have released hazardous constituent concentrations to the environment at levels above the constituents respective residential human health-based levels. Specifically, these releases have resulted in soil concentrations above residential human health-based levels for the following metals: lead and arsenic. The maximum levels detected for lead and arsenic are as follows:

Constituent	Concentration Detected	Residential Human Health-Based Level
Lead	927 ppm	400 ppm
Arsenic	120 ppm	0.39 ppm

It is possible that the arsenic concentrations are associated with fill material brought into the plant or the result of former pesticide use and not directly associated with releases from the manufacturing process. However, the limited analysis of the glaze waste material currently available to EPA shows the presence of arsenic at concentrations exceeding the residential human health-based level and EPA cannot ignore the health ramifications associated with this metal.

Near shore sampling of offsite soil at four locations around Lake Wire did not detect any hazardous constituents above residential human health-based levels except for arsenic. The arsenic values detected

are as follows:

Constituent	Concentration Detected	Residential Human Health-Based Level
Arsenic	0.6 ppm 0.7 ppm 0.9 ppm 1.5 ppm	0.4 ppm

SURFACE WATER: Based on data found in the June 1996 Background Lake and Sediment Sampling Interval Report for the Lake Wire Area of Concern, water quality impacts from hazardous constituents are suspected since the maximum lead concentration is 48.6 ug/L. The human health-based level of concern is 15 µg/L. However, the maximum concentrations from subsequent quarterly sampling events in 1996 and 1997 are lower. Further, the mean concentration for the 1997 fourth quarterly sampling event (11 µg/L, May 1997) is below the Drinking Water Criterion and dissolved concentrations are well below the Action Level (fourth quarter maximum of 4.6 µg/L). Florida Tile currently does not release any wastewater or stormwater directly to any surface water bodies.

SOIL (subsurface soil): According to the March 26, 1999, RFI Report and the September 11, 2000, Phase II RFI Report, the soil concentrations of the hazardous constituents detected at depth do not exceed any residential human health-based levels except for some minor discontinuous hits of arsenic at AOC A (i.e., Glaze Tub Area) and SWMU 4 (i.e., Wastewater Treatment Facility). For example, the maximum concentration of arsenic detected in Phase II at depth was 4.93 ppm. However, the hazardous wastes contained in the closed RCRA Regulated Unit does contain elevated levels of metals well above residential human health-based levels. Table 2 from the June 30, 1995 RFI Work Plan provides the following maximum concentrations of some key constituents contained in the sludge of the closed unit:

Constituent	Concentration Detected	Residential Human Health-Based Level
Lead	56,000 ppm	400 ppm
Zinc	50,000 ppm	23,000 ppm

SEDIMENT: Sampling within Lake Wire has detected lead and zinc at concentrations which are above the respective human health-based levels for these two (2) constituents, lead and zinc. According to the November 19, 1996, Sampling Report for Sediments near Outfalls 001 and 002 and for Shoreline Soil at the Lake Wire Area of Concern, the maximum concentrations (0-1 ft interval) of the primary metals of concern detected in Lake Wire sediment which are above residential human health-based levels (0-1 foot interval) are as follows:

Constituent	Concentration Detected	Residential Human Health-Based Level
Lead	11,700 ppm (dry wt)	400 ppm
Zinc	37,000 ppm (dry wt)	23,000 ppm
Arsenic	71.5 ppm (dry wt)	0.39 ppm
Chromium	58 ppm (dry wt)	30 ppm

Although not always directly applicable, residential soil human health-based levels were used for comparison purposes.

OUTDOOR AIR: Although no air samples have been collected, there is no reason to suspect that the hazardous constituents of concern at Florida Tile (i.e., metals) from unpermitted or unregulated releases

from SWMUs or AOCs are causing unacceptable levels in indoor air.

NOTE: All Residential Human Health-Based Levels are Region 9 Preliminary Remediation Goals as of July 30, 2000.

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

Instructions for Summary Exposure Pathway Evaluation Table:

1. 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.

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) are not assigned spaces in the above table (i.e, **N/L - not likely**). 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).

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

__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):

GROUNDWATER:

(Residents): All permitted potable water supply wells located within a mile of the facility withdraw water from the Floridan aquifer and are between 700 and 850 feet deep. Several hundred feet of the Hawthorn Group confining unit separate the surficial aquifer from the Floridan aquifer in the vicinity of the Florida Tile facility. Until evidence to the contrary is provided (e.g., during implementation of the planned full assessment of the boron plume - see schedule in Section VI of the cover memo), it is assumed in this determination that this unit acts to prevent downward migration of water from the surficial aquifer to the Floridan aquifer, and the residential pathway is incomplete.

(Workers): There are no drinking water wells located on-site or off-site; therefore, there are no complete pathways from which exposures to contaminated groundwater can occur.

SOIL (<2 ft) (resident): This pathway is not complete since no one lives on those areas of the property which are contaminated or uncontaminated for that matter. However, the pathway is complete with regard to the low arsenic concentrations detected around Lake Wire.

(worker): The pathway for ingestion by workers of surface soil contamination is complete at the Glaze Tub Area and portions of the Wastewater Treatment Facility.

(daycare): This pathway is not complete because there are no daycare facilities present at the facility.

(construction): The pathway for ingestion by workers of surface soil contamination is complete at the Glaze Tub Area and portions of the Wastewater Treatment Facility.

(trespasser): This pathway is not complete because adequate security exists at the facility (e.g., security guard at entrance(s), fencing surrounding the facility).

(recreation): This pathway is not complete because there are no recreation areas at the facility except for some picnic tables; however, these picnic tables are not near the two (2) known areas of soil contamination.

(food): This pathway is not compete because there are no crops grown at the facility.

SEDIMENT (residents/recreation): These pathways are considered incomplete for several reasons. First, for this purposes of this Environmental Indicator Evaluation of current exposures, EPA is following the Region 4 Human Health Risk Assessment Bulletin - Supplement to RAGs. This Bulletin states that it is unnecessary to evaluate human exposures to sediments covered by surface water. Second, even if recreation exposures were carried in this qualitative risk analysis because Lake Wire contains a sidewalk and benches for public use as a park, it is likely that unacceptable exposures would not occur for several reasons.

1. The expected infrequency of contact between the public and the contaminated sediments (i.e., low exposure frequency and low exposure duration).
2. The limitations in lake management activities results in a large/wide submergent and emergent plant community which limits access to the sediment from the shoreline.

(workers): This pathway is complete because Lake Wire is subject to dredging and vegetation clearing to maintain capacity and flow of this lake which is part of the city's stormwater management system. The city states that they perform water quality sampling and aquatic plant management activities occur quarterly. In addition, Hydrilla is harvested annually from the lake using mechanical harvesters. Some hand removal of emergent aquatic plants are conducted on an as needed basis.

(trespassers): Lake Wire, the lake with sediment contamination, is beyond the confines of the facility and open for public use. Hence, the act of trespassing on public property is not possible. For this reason, this pathway is considered incomplete.

(food): This pathway is complete because fishing in the lake is a possibility. In fact, fishing has been observed in the past.

SOIL (>2 ft) (workers): This pathways is considered complete for SWMU 4 (i.e., Wastewater Treatment Facility) and AOC A (i.e., Glaze Tub Storage Area).

(construction): This pathway is considered complete for SWMU 4 (Wastewater Treatment Facility) and AOC A (Glaze Tub Storage Area). The pathway is not complete for the material found in the capped, fenced and monitored RCRA Regulated Unit.

(food): This pathway is considered incomplete because the contamination at depth is found in the capped, fenced and monitored RCRA Regulated Unit.

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

Rationale and Reference(s):

SOIL (residents): Although detections of arsenic around Lake Wire exceed the residential human health-based screening level (0.4 ppm), EPA considers these exceedances minor and not a threat to human health for the purposes of this qualitative risk analysis. For example, even the maximum concentration detected (1.5 ppm) is well within the protective risk range for arsenic (i..e, 0.4 ppm to 40 ppm). Final determinations as to whether additional assessment or remediation will be made during the RFI and CMS reviews.

(workers): Exposures to the contamination found at the two (2) areas of known surface soil contamination is not considered significant for several reasons: First, the lead levels encountered above 400 ppm were only in two (2) locations and these locations are below concrete. Second, the arsenic concentrations detected in soil generally exceeded the industrial human health-based level; however, the areas with exceedances cover very small portions of the facility. In addition, most of the arsenic exceedances at the Wastewater Treatment Facility are covered with concrete. Overall, worker utilization to soil containing arsenic above the industrial human health-based level is considered low. In other words, exposure frequency and exposure duration are considered low; in fact, the expected exposure frequency and duration assumptions for workers at Florida Tile are not expected to match, even remotely, the assumptions contained in the industrial human health-based level (i.e, exposure frequency: 250 days a years; exposure duration: 25 years). The arsenic detections at the Glaze Tub Area are covered by concrete/asphalt.

Note: The facility reports that it appears that the elevated arsenic levels might be associated

[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.

with fill material and therefore not constituents which would have been released from facility operations. The facility has declared that procedures are in place to control future excavations and site-specific health and safety plans will address the possible contact with subsurface contaminated media.

(construction): The facility's environmental manager at the facility is aware of the soil contamination, and the Health and Safety Plan contains controls to limit construction worker exposure to soil contamination encountered at the two (2) contaminated units. The facility has declared that procedures are in place to control future excavations and site-specific health and safety plans will address the possible contact with subsurface contaminated media.

SEDIMENT (workers): The city's safety manager is aware of the contamination in Lake Wire. Protocols are in place so that city workers who perform lake management activities (e.g., clearing shoreline vegetation) take appropriate precautions. For example, employees must wear rubber boots, wash hands after completion of lake tasks and before eating, drinking, smoking, etc. The city does not dredge the lake because of the sediment contamination. Furthermore, the frequency of vegetation removal actions is low (i.e., once a year) and when performed, accomplished with mechanical harvesters. Hand removal of emergent plants is also low. Therefore, the exposure frequency is very low.

(food): Based on the July 3, 1997, letter report on Test Results of Metals in Fish Relative to the Lake Wire AOC, fish contained in Lake Wire do not contain levels of metals which warrant further action to address human health concerns due to consumption.

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):_____

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 Florida Tile facility, EPA ID # FLD 004 091 583, located at One Sikes Blvd, Lakeland, Florida 33815 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 _____
(print) Wesley S. Hardegree
(title) Corrective Action Specialist

Supervisor (signature) _____ Date _____ [5]
(print) Narindar M. Kumar
(title) Chief, RCRA Programs Branch
EPA Region: 4

Locations where References may be found:

Region 4 RCRA Files for Florida Tile
(61 Forsyth Street, Atlanta, GA 30303)

Contact telephone and e-mail numbers

(name): Wesley S. Hardegree
(phone #): (404) 562-8486
(e-mail): hardegree.wes@epa.gov

[5] **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.**

ATTACHMENT 2
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS Event Code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: **Florida Tile**
Facility Address: **One Sikes Blvd, Lakeland, Florida 33815**
Facility EPA ID #: **FLD 004 091 583**

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 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).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[6] 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.

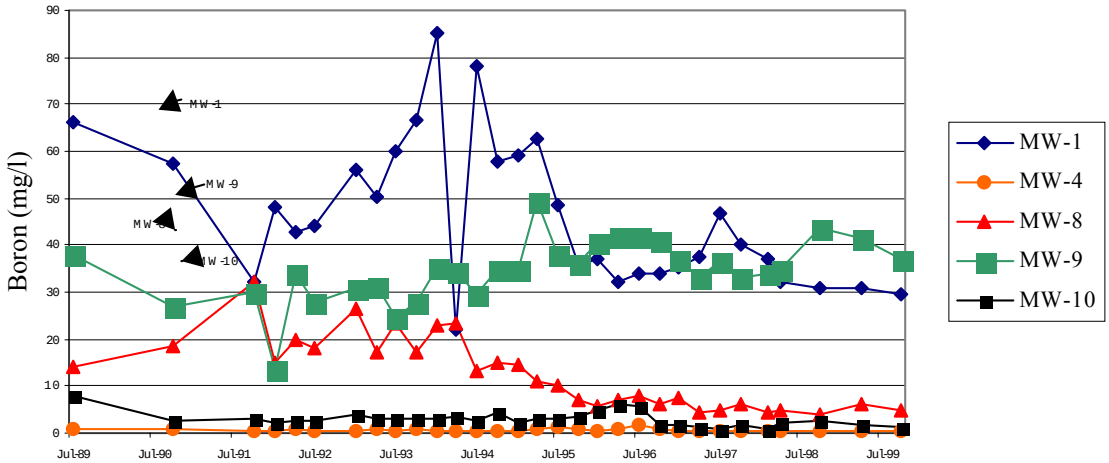
____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

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

Rationale and Reference(s):

Only one groundwater constituent of concern has been detectected above levels of concern at Florida Tile. This constituent is boron. According to Quarterly Sampling Results over the past ten (10) years, boron has been an indicator parameter which has been detected in the three (3) downgradient point of compliance (POC) wells. Although not a hazardous constituent as defined by inclusion on Appendix VIII of 40 CFR 264, there is a human health-based level for boron. The following graph shows the concentrations of boron are shown in the following graph. MW-4 is upgradient of the unit and the rest are downgradient of the unit. The Tap Water Human Health-Based Level for boron is 3.3 ppm.

Comparison of Boron Concentrations



6 "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).

The extent of the boron plume emanating from the RCRA Regulated Unit has not been determined.

NOTE: All Residential Human Health-Based Levels are Region 9 Preliminary Remediation Goals as of July 30, 2000.

3. Has the **migration** of contaminated groundwater **stabilized** such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[7] as defined by the monitoring locations designated at the time of this determination?

____ 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"[7]).

____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[7]) - skip to #8 and enter "NO" status code, after providing an explanation.

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

Rationale and Reference(s): The extent of the boron plume emanating from the RCRA Regulated Unit has not been determined.

[7] "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.

____ 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):

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[8] 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 concentration[8] 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 concentration[8] 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 concentrations[8] 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):

[8] As 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 implemented[9])?

   ____ 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,[10] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) 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):_____
   _____
   _____
   _____
   _____
   _____
   _____

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?"

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[9] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refuge) 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.

[10] The 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.

____ 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.

Rationale and Reference(s):

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).

____ 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 Florida Tile facility , EPA ID # FLD 004 091 583, located at One Sikes Blvd, Lakeland, Florida 33815. 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.

__X__ IN - More information is needed to make a determination.

Completed by _____ Date _____
(print) Wesley S. Hardegree
(title) Corrective Action Specialist

Supervisor (signature) _____ Date _____ [11]
(print) Narindar M. Kumar
(title) Chief, RCRA Programs Branch
EPA Region: 4

Locations where References may be found:

Region 4 RCRA Files for Florida Tile
(61 Forsyth Street, Atlanta, GA 30303)

Contact telephone and e-mail numbers

(name): Wesley S. Hardegree
(phone #): (404) 562-8486
(e-mail): hardegree.wes@epa.gov

[11] **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.**