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QUICK REFERENCE FOR STATUS OF ENVIRONMENTAL INDICATORS					
Name and EPA I.D. Number	Location (City or Town)	Current CA725 Decision	Current CA750 Decision	If Current Decision is Negative, Projected Date for Positive EI	
				CA725	CA750
Pine Belt Wood Preserving, Inc. MSD 991 277 195	Laurel, Mississippi	YE	IN		FY01

4WD-RPB

SUBJ: Evaluation of Pine Belt Wood Preserving, Inc.'s status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA I.D. Number: MSD 991 277 195

FROM: Russ McLean
Environmental Engineer

THRU: Doug McCurry, Chief
South Programs Section

TO: Narindar M. Kumar, Chief
RCRA Programs Branch

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of Pine Belt Preserving, Inc.'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 the Pine Belt Wood Preserving, Inc. facility in Laurel, Mississippi. The first evaluation of the facility was conducted on April 29, 1997. This initial evaluation resulted in the determination that current human exposures to contamination are not currently controlled and the migration of contaminated ground water were not controlled as defined by the corrective action event codes CA725 and CA750, respectively. A copy of this initial evaluation is attached.

III. FACILITY SUMMARY

The Pine Belt Wood Preserving, Inc. facility consists of approximately 4.5 acres located in the city of Laurel, Jones County, Mississippi. The site is located in a light industrial area and is bounded on the south by a pulpwood yard, on the west by an inactive railroad line, on the east by undeveloped woodlands and on the north by the Daphne Branch of the Tallahala Creek. Wood preserving operations began in 1970 under the ownership of J. M. Christian, using the preservative pentachlorophenol (PCP). In 1975, the facility added the chromated copper arsenate (CCA) process. In June 1980 the facility was purchased by Pine Belt Wood Preserving, Inc. Pine Belt discontinued the use of CCA in 1985 and ceased all facility operations in 1989. All process equipment and storage tanks have been removed from the site.

Prior to 1983, bottom sediments generated from the treatment of process waste waters associated with PCP operations, were managed in an on-site surface impoundment. This impoundment was classified as a hazardous waste unit in 1980, under RCRA, and was closed with waste in-place in October 1987. The State of Mississippi issued a RCRA permit for post-closure care of the impoundment in June 1988, which contains the requirement to operate and maintain a ground-water detection monitoring system. The HSWA permit was issued by EPA in May 1990 and required an RFI for 17 of the 23 SWMUs identified during the RFA in April 1988.

In 1991, the EPA Region 4 Environmental Services Division conducted a RCRA Case Development Investigation. This investigation consisted of surface and subsurface soil sampling on-site and off-site and sediment sampling in the on-site drainage ditches and off-site in Daphne Branch. Samples were analyzed for metals, extractable and purgeable organic compounds and dioxin/furans.

In 1999, based on the findings of an assessment of the existing ground-water monitoring system, the decision was made to replace two of the down-gradient and the up-gradient wells with newly installed wells. This decision was based on anomalous water level data from historical monitoring events and structural integrity problems suspected in two of the down-gradient wells.

IV. CONCLUSION FOR CA725

It is recommended that the status code YE be entered into RCRIS for CA725, current human exposures are controlled. Although it is suspected that ground water is contaminated with pentachlorophenol and PAH constituents, no human exposure to contaminated ground water currently exists. Contamination is suspected based on the intermittent detection of constituents during semi-annual monitoring conducted prior to the replacement of detection monitoring wells

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and the presence of pentachlorophenol in subsurface soils in the former process area. Human exposure to this suspected contamination is not plausible as ground water discharges into Daphne Branch, which runs along the northern boundary of the facility and no ground-water supply wells operate on-site. Interim measures which include the capping of the former process area and the drip pad and the installation of fencing around the property, prevent any human exposure to contaminated soils on-site. Sediment sampling in Daphne Branch did not detect any constituents above relevant action levels.

V. CONCLUSION FOR CA750

It is recommended that the status code IN be entered into RCRIS for CA750, insufficient information available for determining if ground-water releases are controlled. As mentioned above, ground water is suspected of being contaminated with PCP and PAH constituents. Only one sampling event has been conducted following installation of the new monitoring wells. Though all constituents were below the analytical detection limit, subsequent sampling is required to determine whether releases have occurred from the closed surface impoundment. Also, subsurface soils in the former process area are contaminated with PCP at levels that pose the potential for migration to ground water. No ground-water monitoring has been conducted in this area of the facility.

VI. SUMMARY OF FOLLOW-UP ACTIONS

A. CA750

Semi-annual ground-water samples are collected in accordance with the Post-Closure permit by the detection monitoring system. This system was recently modified by the installation of replacement wells. Continued monitoring of this system will determine if releases to ground water from the closed surface impoundment are occurring. Ground-water monitoring will also be conducted as part of the RFI at locations down-gradient of all former process areas and up-gradient of Daphne Branch. It is projected that CA725 will reach YE in Fiscal Year 2001.

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(*FACILITY NAME*) EI INTERIM MILESTONE SCHEDULE CA750			
Activity(ies) (events as defined in RCRIS) [1]	**CA RCRIS Event Code**	**Scheduled Date** [2] (QTR& FY)	**Remarks** [3] (Include unit(s) and description of action(s))
RFI Supplemental Activities Received	CA160	12/31/00	Ground-water investigation required down-gradient of SWMUs
RFI Supplemental Activities Approved	CA170	3/30/01	Ground-water investigation
RFI Report Received	CA190	6/30/01	Review of ground-water investigation
Migration of Contaminated Groundwater Under Control	CA750	9/30/01	Revised EI Memo

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

Attainment of a CA750 YE determination in FY2001 is contingent on no ground-water contamination above relevant action levels detected down-gradient of the closed surface impoundment or SWMUs. As ground-water discharges into Daphne Branch immediately off-site of the facility and no evidence of impact to this stream was identified by limited sediment sampling previously conducted, there is a high level of confidence that a controlled determination will be made.

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

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

Facility Name: **Pine Belt Wood Preserving, Inc.**
Facility Address: **Highway 15 South, Laurel, Mississippi 39440**
Facility EPA ID #: **MSD 991 277 195**

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).

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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).

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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)?

Media	Yes	No	?	Rationale/Key Contaminants
Groundwater	X			PCP & PAH Constituents
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			Arsenic, Chromium , PCP, PAH constituents and Dioxins
Surface Water			X	
Sediment	X			Arsenic, PCP & Dioxins
Subsurface Soil (e.g., >2 ft)	X			PCP
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):Groundwater: Groundwater is monitored by an on-site detection monitoring system associated with the closed surface impoundment. This system has detected organic constituents associated with wood preserving operations. These detections have been sporadic, being detected in all

[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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four (4) monitoring wells, including the up-gradient well. Since January 1995, the following constituents have been detected above the relevant action level during the semi-annual sampling events: Pentachlorophenol at a maximum concentration of 2009 µg/l. (MCL = 1 µg/l) 2,4-Dinitrophenol at a maximum concentration of 520 µg/l. (Region 9 RPG = 73 µg/l.), Naphthalene at a maximum concentration of 3409 µg/l. (Region 9 RPG = 6.2 µg/l) and Acenaphthylene at a maximum concentration of 2257 µg/l. (Region 9 RPG = 370 µg/l.).

No monitoring wells have been installed in areas of the facility where releases from SWMUs would be detected. Pentachlorophenol has been detected in subsurface soils in the former process area at levels with the potential for migration to ground water.

Surface soils: During the CDI performed by the EPA Region 4 Environmental Services Division, surface soil sampling indicated chromium, arsenic, pentachlorophenol, PAH constituents and dioxins at levels above relevant action levels. Chromium and arsenic were detected at levels of 1200 mg/kg and 790 mg/kg, respectively, in the former CCA process area.. This is above the Region 9 PRG for soils at industrial sites of 2.7 mg/kg for arsenic and 450 mg/kg for chromium. The level of 2.7 mg/kg for arsenic is based on carcinogenic risk. An industrial level of 440 mg/kg is applicable to non-carcinogenic risk. In addition to the metals found in surficial soils, PAH constituents , PCP and dioxins were detected at levels exceeding the relevant action level. For a complete listing of the sampling results conducted during the CDI, see the tables attached to the initial EI Evaluation (attached).

Surface water: The nearest surface water body is the Daphne Branch of Tallahala Creek, which runs east to west along the northern boundary of the facility. Surface water within Daphne Branch has not been sampled, though a limited amount of sediment sampling was conducted in the stream. This sediment sampling did not detect any of the constituents of concern above relevant action levels.

Sediments: Sediment sampling was conducted on-site in the drainage ditch leading to Daphne Branch. Results of this sampling indicated arsenic, PCP and dioxins at levels exceeding relevant action levels. PCP was detected at a concentration of 880 mg/kg, arsenic at 27 mg/kg and Dioxins at 430 µg/kg.

References: Ground water Monitoring System Assessment, January 11, 1999, Ground-Water Monitoring Reports, March 1, 1999, September 1, 1999 and March 1, 2000. Summary of Facility Investigations and Planned Corrective Actions, October 31, 1997, SWMU Corrective Action Information, July 26, 1999, RCRA Case Development Investigation/Evaluation, ESD Project No. 91e-330, April 1991..

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3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table Potential **Human Receptors** (Under Current Conditions)							
"Contami-nated" Media	**Residents**	**Workers**	**Day-Care**	**Construction**	**Trespassers**	**Recreation**	**Food[3]**
Groundwater	No	No	No	No	No	N/L	N/L
~~Air (indoors)~~							
Soil (surface, e.g., <2 ft)	No	No	No	No	N/L	No	No
Surface Water	No	No	No	No	No	No	No
Sediment	No	No	No	No	N/L	No	No
Soil (subsurface, e.g., >2 ft)	No	No	No	No	No	No	No
~~Air (outdoors)~~							

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**.

_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

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

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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):Groundwater: As indicated in the discussion above, ground water monitoring at the closed surface impoundment has indicated PCP and creosote constituents above relevant action levels. These detections have been sporadic in each of the wells sampled. Following the detection of a monitored constituent, subsequent re-sampling has indicated non-detect values for all analyzed constituents. The structural integrity of the down-gradient wells was brought into question due to anomalous waster level readings following rainfall events and high pH levels recorded during sampling events in two of the three down-gradient wellsIn 1999 the ground-water monitoring system was re-assessed due to historically anomalous ground-water elevations in one of the down-gradient wells and consistently high pH levels in two of the three down-gradient wells. In response to this re-assessment, a modification to the RCRA permit was required to replace two of the down-gradient wells and the up-gradient well. Only the results of one monitoring event have been reported to date using the new wells. None of the constituents analyzed for were detected. The results of future sampling events will be required before it can be determined if a release is occurring from the closed surface impoundment.

The uppermost aquifer underlying the facility is composed of alluvium of Holocene age and consists of sand and silty clays. Thickness varies across the site from 5 to 25 feet. This is a water table aquifer with ground-water elevations vary from 2 to 9 feet below ground surface based on wet or dry periods/. This aquifer is separated from the underlying Miocene aquifer system by a locally continuous confining unit in the upper Miocene, with an average thickness of 150 feet. The Miocene system supplies drinking waster to the City of Laurel at depths from 200 to 500 deep.

Ground water with in the alluvial aquifer underlying the facility flows to the northeast and discharges into Daphne Branch, on the north boundary of the facility. No water supply wells are located on-site therefore, no exposure to human receptors exists for contaminated ground water.

Soils/Sediments: Although soils and sediments have been identified on-site to contain PCP, PAH constituents, Dioxins , arsenic and chromium above relevant action levels, no plausible human exposures currently exist. All facility operations have ceased and all process equipment has been removed. Additionally, limited soil excavations were performed of all visibly contaminated soils and disposed off-site, the former process area and drip pad were capped and all other areas of the facility containing low concentrations of these constituents have been tilled and vegetated in order to control run-off. A six-foot security fence with warning signs surrounds the entire site. Although sediments in the on-site drainage ditch contained concentrations of PCP and dioxins above relevant action levels, sediment sampling in Daphne Branch indicated dioxins at levels below the detection limit and PCP and arsenic at levels that do not pose a risk to human health. The CID developed by ESD stated the "facility had a minimal impact on the stream".

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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):_____

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[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

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5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):_____

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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 **Pine Belt Wood Preserving facility**, EPA ID #**MSD 991 277 195**, located at **Laurel, Mississippi** 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 _____ Date _____
Russ McLean
Environmental Engineer
EPA Region 4

Supervisor _____ Date _____
Doug McCurry
Chief, South Programs Section
EPA Region 4

Branch Chief _____ Date_____
Narindar M. Kumar
Chief, RCRA Programs Branch
EPA Region 4

Locations where References may be found:

EPA Region 4 RCRA File Room
10th Floor, 61 Forsyth Street SW
Atlanta, Georgia 30303

Contact telephone and e-mail numbers

Russ McLean
(404) 562-8504
mclean.russ@epa.gov

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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: **Pine Belt Wood Preserving, Inc.**
Facility Address: **Highway 15 South, Laurel, Mississippi 39440**
Facility EPA ID #: **MSD 991 277 195**

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.

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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).

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2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[5] 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):As discussed in Attachment 1, PCP and PAH constituents have been detected in ground water in the Alluvial aquifer above relevant action levels. These detections were made utilizing wells whose structural integrity was suspect. In 1999, two of the suspect down-gradient wells and the up-gradient well were replaced with newly installed wells. One sampling event has been reported since the installation of the new wells. Until more sampling data is received, a determination that a release from the closed surface impoundment has not occurred cannot be made.

Additionally, subsurface soil sampling conducted in the former process area has indicated that PCP is present at concentrations (1100 mg/kg) which pose the potential for migrating to the alluvial aquifer. No ground-water investigation has been conducted down-gradient of this area.

[5] "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).

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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"[6]) - 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):_____

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[6] "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.

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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):_____

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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[7] 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):_____

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

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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[8])?

____ 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,[9] 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):_____
_____
_____

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[8] Note, 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.

[9] 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.

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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?"

____ 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):_____
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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 _____ _____facility , EPA ID # _____ , located at_____. 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 _____
Russ McLean
Environmental Engineer
EPA Region 4

Supervisor: _____ Date_____
Doug McCurry
Chief, South Programs Section
EPA Region 4

Branch Chief: _____ Date_____
Narindar M. Kumar
Chief, RCRA Programs Branch
EPA Region 4

Locations where References may be found:

EPA Region 4 RCRA File Room
10th Floor, 61 Forsyth Street SW
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