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
Amerada Hess Corporation MSD 079 461 406	Purvis, MS	YE	YE		

4WD-RPB

SUBJ: Evaluation of Amerada Hess Corporation's status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA I.D. Number: MSD 079 461 406

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 Amerada Hess Corporation'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 Amerada Hess Corporation, Purvis, Mississippi Terminal. The first evaluation of the facility was conducted on September 18, 1998. This initial evaluation resulted in the determination that insufficient information was available to conclude whether current human exposures or the migration of contaminated ground water were under control as defined by the corrective action event codes CA725 and CA750, respectively. A copy of this initial evaluation is attached. A second phase RFI was conducted to further delineate contamination detected during the initial phase of the investigation. The resulting Draft RFI Phase II Report has been submitted and is the basis for performing this second evaluation.

III. FACILITY SUMMARY

Amerada Hess Corporation (AHC) operated a 35,000 barrel per day petroleum refinery where crude oil was processed into gasoline and fuel oil. AHC also operated a land farm system to treat oily sludges generated from the production of petroleum products at the site. The refinery was decommissioned on January 17, 1994 and now serves as a bulk storage and petroleum distribution terminal. The facility is located about 3.5 miles north of the city of Purvis, Lamar County, Mississippi. The refinery was originally built by Pontiac Eastern Corporation in 1955 and purchased by Gulf Oil in 1968. AHC purchased the refinery from Gulf Oil in 1972. The facility covers approximately 335 acres and is located in a rural area. Surrounding land use is agricultural with row crop production and forestry.

Wastes generated during operation of the refinery consisted of; Dissolved Air Flotation (DAF) Float (K048), Slop Oil Emulsion Solids (K049), Heat Exchanger Bundle Wash Sludge (K050), API Separator Sludge (K051), Leaded Tank Bottom Sludges (K052), Corrosive Tank Bottoms (D002), Benzene Characteristic Sludges (D018), Chromium Characteristic Wastes (D007) and Lead Characteristic Wastes (D008). Currently only characteristic wastes from current operations and very limited amounts of RCRA listed wastes are being generated as the result of ongoing maintenance, closure and investigation and/or remediation projects. These include tank bottom sludges produced when tanks or process equipment are cleaned and soils/cuttings from investigation/remediation activities.

Waste management operations consisted of an onsite Wastewater Treatment System comprised of the API Separator, the DAF Unit which utilized two (2) short term storage tanks for float material and a series of surface impoundments for secondary wastewater treatment. The facility received a RCRA permit issued by the Mississippi Department of Environmental Quality in March 1988, concurrently with the HWSA permit issued by EPA. The RCRA permit authorized the operation of the land farm treatment system, a 20,000 gallon tank for sludge storage and a container storage area . Sludges from the permitted storage tank were fed to a fluid bed coker reactor for the recycling of K048-K052 wastes. The permitted storage tank, the container storage area and the coker were closed during 1997, in accordance with the closure plan contained in the facility's RCRA permit. AHC maintains a ground-water detection monitoring system for the land farm treatment system pursuant to 40 CFR, Subpart F, §264.98.

IV. CONCLUSION FOR CA725

It is recommended that the status code YE be entered into RCRIS for CA725, as human exposures are controlled. Though ground-water monitoring of the surficial aquifer underlying the site has detected lead and benzene above relevant action levels, no plausible human exposures to this contamination currently exist. A lead plume is associated with Landfill No. 2, located in the northwestern corner of the facility. This plume has been delineated and is limited to a small area immediately down-gradient of the unit. Chromium was detected above the relevant action level of 100 µg/l in several wells during the Phase I RFI. Subsequent sampling conducted as part of the Phase II RFI, utilizing the low-flow sampling procedure, in accordance with EPA guidance, has resulted in only isolated detections of chromium which can not currently be associated with a discrete source. These detections, though above background, are not above the relevant action level. Benzene has been detected above the relevant action level of 5 µg/l in only two wells in different areas of the facility. These detections have preceded or followed sampling events in each of these wells in which benzene was non-detect. The facility has operated a detection monitoring system, associated with a regulated land farm unit, since 1988 with no detections above background concentrations for any of these constituents. No water supply wells in the surficial aquifer are utilized on-site, and none are identified within a one-mile radius of the facility. Sediments within the on-site treatment and collection ponds contain PAH constituents and chromium above relevant action levels. These sediments are below water level and contained within the bermed area of the ponds. Surficial soils within the bermed area of storage tanks are contaminated with PAH constituents and lead above relevant action levels. Access to this area is limited to workers who are not required to be in this area as refinery operations are shut down. Access to this area is also controlled by fencing.

V. CONCLUSION FOR CA750

It is recommended that the status code YE be entered into RCRIS for CA750, as ground-water releases are controlled. Ground-water monitoring has defined the extent of the contamination, which is limited to onsite areas of the facility. No water supply wells are located on-site, nor are any identified within a one-mile radius of the facility. No ground-water contamination is currently being discharged into surface water bodies.

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

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

Facility Name: **Amerada Hess Corporation**
Facility Address: **Highway 11 North, Purvis, Mississippi**
Facility EPA ID #: **MSD 079 461 406**

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			Lead, Chromium and Benzene detected in ground water around Landfills No. 2, 3, and 4 and the Wastewater Treatment Area
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)		X		
Surface Water		X		
Sediment	X			Chromium, PAH constituents in wastewater treatment ponds
Subsurface Soil (e.g., >2 ft)	X			TPH in soils in bermed area of Tanks 43-45
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.

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[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.

Rationale and Reference(s): During the initial evaluation of the Amerada Hess facility, only ground water was identified as a potential pathway for human exposure to contamination detected in the uppermost aquifer underlying the facility. Although soils and sediments are contaminated above relevant action levels, it was determined that based on the fact that the facility is not operating, access controls are in place and the areas of contaminated soils and sediment are confined within bermed areas which provide access as well as rainfall run-off control, no potential for adverse human exposure to this contamination exists. Even though the determination was made that human exposures to soil and sediment contamination were controlled, the Phase II RFI investigation included a complete delineation of the areas where contamination was identified in the initial phase of the RFI. All of the information presented herein is found in the Comprehensive RFI Report , July 2000, which contains the results of the Phase I and Phase II RFIs.

Groundwater: Groundwater within the uppermost aquifer underlying the facility is contaminated with lead and chromium above relevant action levels. Benzene was also detected above relevant action levels in two wells during the RFI. A general description of the ground-water system is found in the initial EI Evaluation (Attached). As discussed in the initial EI evaluation, lead and chromium were detected in ground water during the initial investigations at Landfill No. 2 in the northwestern portion of the facility, at Landfill No. 3, located in the central portion of the facility between the tank farms and the wastewater treatment ponds, at Landfill No. 4 , located on the northern boundary of the facility, and at the Wastewater Treatment Area, located to the south of the tank farms. The Phase II RFI included the re-sampling of all monitoring wells associated with each of the landfills and the installation of additional monitoring wells at Landfill No. 2, the Wastewater Treatment Area, down-gradient of Pond D-1 and down-gradient of the Tank Farm Unloading Rack All ground-water sampling conducted during the Phase II RFI utilized the low-flow sampling procedure in accordance with EPA guidance.

Lead, which was detected at a level of 131 µg/l in one down-gradient well at Landfill No. 2during the Phase I RFI, was again analyzed for in the supplemental investigation. Results of this investigation indicated lead at a concentration of 357 µg/l in this same well and at concentrations ranging from 3.2 to 21 µg/l in all other monitoring wells at Landfill No. 2. This included the sampling of two additional wells installed further down-gradient of the landfill in order to delineate the extent of the lead plume. The limits of the lead plume are generally well defined and limited in aerial extent. The plume follows the direction of ground-water flow which is to the southeast. None of the monitoring wells associated with the Land farm detection monitoring system has detected lead above background concentrations. The Land farm unit is located approximately 600 feet to the east-northeast of Landfill No.2 and is comprised of eleven (11) monitoring wells which have been sampled semi-annually since 1988. Though not down-gradient from the landfill, the land farm detection monitoring system would detect any lateral dispersion of contamination caused by the eastward moving component of ground-water flow in this area of the facility. Chromium, which had been detected during the initial RFI at Landfill No. 2, was non-detect for all wells during the Phase II RFI.

The ground-water investigation conducted at Landfill No. 3,, during the Phase I RFI, revealed lead at a concentration of 16.7 µg/l in the up-gradient well and chromium at concentrations of 119, 20.7, and 28.8, µg/l in the up-gradient well and two of the down-gradient wells.. All wells were re-sampled for lead and chromium during the supplemental investigation. All samples reported chromium as non-detect and the up-gradient well reported a lead concentration of 3.8 µg/l.

Lead and chromium were also detected in ground water during the Phase I RFI at Landfill No. 4 along with low levels of Oil & Grease. This landfill is, hydraulically up-gradient from all former processing and storage areas at the facility. Chromium was detected in one up-gradient and one down-gradient well at levels of 62.3 µg/l and 67 µg/l respectively. The MCL for chromium is 100 µg/l. Re-sampling of these wells during the Phase II RFI indicated chromium at 12.3 µg/l in the up-gradient well and non-detect in the down-gradient well.

Lead was detected in only the up-gradient well during the Phase I RFI, at a concentration of 32.6 µg/l. Although lead was not sampled for in this well during the subsequent investigation, the land farm monitoring well system, which is down-gradient from this landfill, has not detected lead above background levels. During the Phase II RFI, ground water was sampled for volatile and extractable hydrocarbons in an effort to characterize the oil & grease detections during the initial investigation. This analysis did not identify any of the specific target constituents. The original oil and grease detections are attributed to naturally occurring organic material in the Citronell Formation.

The only other detection of chromium made during the Phase I RFI was in the Wastewater Treatment Area, located in the central portion of the facility. Chromium was detected in five of the six monitoring wells at concentrations ranging from 17.2 µg/l to 67.1 µg/l. Two additional monitoring well were installed during the Phase II RFI and reported chromium at 11.1 µg/l and non-detect.

Benzene was detected at a concentration of 17.5 µg/l in one well associated with Landfill No. 2 during the Phase II investigation. This well was non-detect for benzene during Phase I RFI sampling. This is above the MCL of 5 µg/l for this constituent. Benzene was also detected in one well during the Phase I RFI at a concentration of 5.6 µg/l. This detection was made in the Wastewater Treatment area located in the central area of the facility. Re-sampling of this well during the Phase II RFI was non-detect for benzene.

As a result of soil contamination detected during the Phase I RFI, ground-water monitoring was required down-gradient of Pond D-1 and the Truck Loading Rack which is part of the Tank Farm investigation. Ground-water sampling at Pond D-1 was conducted in response to high levels of chromium and PAH constituents detected in pond sediments. Ground-water sampling results were non-detect for chromium, PAH constituents and all other organic constituents on the Skinner List. Additionally, native soil samples were taken at depth below the pond and in the pond berms and indicated a rapid attenuation of constituent concentrations with depth. All organic constituents were non-detect below 0.5 ‘ in depth and chromium and lead were only slightly above background levels below this depth. Groundwater sampling down-gradient of the Truck Rack was conducted because of high surficial and sub-surface (5'-6') soil concentrations of TPH constituents in the bermed area of Tanks 43-45., which is the location of the Truck Loading Rack. Ground-water was analyzed for all volatile and extractable hydrocarbon constituents. No specific target constituents were detected.

In response to receiving the initial EI Evaluation, Amerada Hess installed a series of sentinel monitoring wells as part of the Phase II RFI. These wells are located down-gradient of all former process, storage and disposal areas. This well system was installed in order to determine the overall quality of ground water flowing off the facility. All ground water samples from these wells were analyzed for volatile, purgeable and extractable hydrocarbon constituents, lead and chromium. Analytical results indicated non-detect for all organic constituents and non-detect or background concentrations of lead and chromium.

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

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

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

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):_____
_____
_____

_____

_____

_____

_____
_____
_____
_____

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):_____

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

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 **Amerada Hess Corporation** facility, EPA ID # **_MSD 079 461 406**, located at **Purvis, 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_____

Locations where References may be found:

EPA Region 4 RCRA File Room
10th Floor, 61 Forsyth Street SW
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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: **Amerada Hess Corporation**
Facility Address: **Highway 11 North, Purvis, Mississippi**
Facility EPA ID #: **MSD 079 461 406**

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"**[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, ground water sampling has indicated a limited plume of lead contaminated ground water associated with Landfill No. 2 in the northwestern area of the facility. This plume has been defined and is completely contained on-site. Ground-water sampling associated with two other landfills have indicated sporadic detections of lead and chromium above background concentrations but bellow relevant action levels. These detections appear to be random and limited with no discrete source identified. Benzene was also detected in two wells in two separate areas of the facility. Separate sampling events conducted on each of the wells has been non-detect for benzene. One location is associated with Landfill No. 2 and the monitoring well is located adjacent to a county highway which runs through the property. The benzene detection could possibly be attributable to the discarding of material along this roadway.

[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).

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?

_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"[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.

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

Rationale and Reference(s): The overall quality of ground water flowing off-site is currently being monitored by a series of seven (7) wells located down-gradient of all former process, storage and disposal areas. These wells are non-detect for all constituents being monitored, which includes volatile, extractable and purgeable hydrocarbons along with lead and chromium. Additionally, the facility is operating as a storage terminal only, all refinery operations have ceased and all former process equipment has been removed. No ground-water supply wells are operating on-site. The facility also operates a detection monitoring system associated with the closed land farm unit. No contamination has been detected by this system.

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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.

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):_____

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):_____

[7] 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[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):_____
_____
_____

[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.

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.

Rationale and Reference(s): A Corrective Measures Study will be required at all SWMUs where contaminated ground-water has been detected above relevant action levels. This will require the continued monitoring of ground water associated with these SWMUs. In addition the Sentinel Well System will be maintained and monitored on a routine basis during the Post-Closure period for the closed land farm. The detection monitoring system associated with the closed land farm will also be maintained and monitored during the post-closure period as required by the Post--Closure permit.

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 **Amerada Hess Corporation** facility , EPA ID # **MSD 079 461 406** located at **Purvis, Mississippi**. 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: _____ 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:

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