HZ/RC/TE

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRAInfo Code (CA725)

Current Human Exposures Under Control

Facility Name: Pioneer Americas LLC d/b/a Olin Chlor Alkali Products
Facility Address: 4205 Highway 75, St. Gabriel, Louisiana 70776
Facility EPA ID#: LAD062666540

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   √ If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   ____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, 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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	___	√	___	See Rationale and Reference(s) below for all media.
Air (indoors)[2]	___	√	___	
Surface Soil (e.g., <2 ft	___	√	___	
Surface Water	___	√	___	
Sediment	___	√		
Subsurf. Soil (e.g., >2 ft)	___	√	___	
Air (outdoors)	___	√	___	

√ 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.

___ 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):

The Pioneer Americas LLC d/b/a Olin Chlor Alkali (Olin) facility in St. Gabriel, Louisiana has conducted routine groundwater monitoring since the early 1990s as a requirement of the Louisiana Administrative Code (LAC) at LAC 33:V.4375 and Paragraph VI.G.8 of Olin's Resource Conservation and Recovery Act (RCRA) Post Closure Permit LAD062666540, dated November 4, 1991, and renewed in July 2007. A Corrective Action Strategy (CAS) Risk Evaluation/Corrective Action Program (RECAP) evaluation was conducted to address exceedances identified in the 20-Foot Zone as part of the routine groundwater monitoring activities required under the Permit.

The CAS RECAP activities included an evaluation of all suspected impacted environmental media including groundwater, surface soils, and subsurface soils. Indoor and outdoor air pathways were evaluated as part of the CAS RECAP, as applicable. There was no evidence that surface water or sediments were impacted based on the Conceptual Site Model developed for the site. Analytical results for soil and groundwater samples collected within the CAS AOI were evaluated under the RECAP Screening Option (SO) and/or Management Option 1 (MO-1) to determine whether constituent of concern (COC) concentrations are within acceptable levels based on site-specific conditions, or if remedial actions are necessary. Maximum detected concentrations of COC in soils (surface and subsurface) and groundwater were compared to the calculated RECAP SO Limiting Screening Standards (LSS) or MO-1 Limiting RECAP Standards (MO-1 LRS), as applicable. SO and MO-1 assessments concluded that risks to human health associated with potential exposures to COC at the CAS AOI are within acceptable levels and do not require remedial action. The completed Ecological Checklist indicates that further assessment of potential risks to ecological receptors from exposures to COC at the site is not required. Because these COC concentrations do not pose a threat to human health or the environment based on current site conditions, the facility requested to be placed under a Compliance Monitoring Program in accordance with LAC 33:V.3319, and that any further requirements of the CAS are suspended.

Olin also maintains a corrective action program at the Cell House Building, which includes monitoring and operation of three stand pipes for the extraction of groundwater from the shallow fill material located beneath the former Cell House Building. A RECAP investigation was performed of the potential risks to

human health and the environment from mercury identified in soil and groundwater within the former Cell House Building Area of Investigation (AOI) at the facility. Results of the RECAP evaluation, which showed mercury concentrations in soils exceeded the Management Option 2 (MO-2) LRS applied based on industrial land use, were submitted to the LDEQ on October 26, 2006. Corrective action was conducted to address the impacts to soils from mercury identified on the east side of the now former Cell House Building. Based on the evaluation of post-excavation data, mercury exposure concentrations in residual soils on the east side of the former Cell House Building were less than the MO-2 LRS applied as reported in June 2007, and no further action was required.

Subsequent to submittal of the June 2007 Cell House East Side Corrective Action Report, two separate discoveries of additional historical mercury soil impacts during pre-construction of a Membrane Chlor Alkali Unit were identified and removed within the former Cell House Building AOI. Confirmatory soil samples post-excavation were compared to MO-2 LRS applied. Residual mercury concentrations in soils were less than the MO-2 LRS applied. No further action was required for the former Cell House Building AOI. The former Cell House Building has been decommissioned, and no further discoveries of historical mercury impacts are expected.

Olin will continue operation of the existing mercury containment and extraction system (i.e. stand pipes). Olin will also conduct routine monitoring of the four existing water table zone wells (Wells 60, 61, 62, and 63) for total and dissolved mercury. Results of the monitoring will be included in the semiannual groundwater monitoring reports completed for the RCRA closed ponds.

Based on routine groundwater monitoring results and the RECAP evaluations conducted, there is no evidence that suggests that constituent levels in groundwater, surface soils, subsurface soil, indoor and outdoor air, surface water, and sediment at the facility exceed protective risk-based levels.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	___	___	___	___			___
Air (indoors)	___	___	___				
Soil (surface, e.g., <2 ft)	___	___	___	___	___	___	___
Surface Water	___	___			___	___	___
Sediment	___	___			___	___	___
Soil (subsurface e.g., >2 ft)				___			___
Air (outdoors)	___	___	___	___	___		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

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) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ 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):_____

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

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

_____ If no (exposures 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):

√ 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 Pioneer Americans LLC d/b/a Olin Chlor Alkali Products facility, EPA ID # LAD062666540, located at 4205 Highway 75, St. Gabriel, Louisiana 70776 under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

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

Completed by (signature) _____ Date 8/15/2013
(print) James Love
(title) Geologist

Supervisor (signature) _____ Date 8/15/2013
(print) Lewis Doncon
(title) Geologist Supervisor
(EPA Region or State) R6 Louisiana

Locations where References may be found:

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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.

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DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRAInfo Code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Pioneer Americas LLC d/b/a Olin Chlor Alkali Products
Facility Address: 4205 Highway 75, St. Gabriel, Louisiana 70776
Facility EPA ID#: LAD062666540

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?

__√__ 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"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

_____ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

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

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

Rationale and Reference(s):

The Pioneer Americas LLC d/b/a Olin Chlor Alkali (Olin) facility in St. Gabriel, Louisiana has conducted routine groundwater monitoring since the early 1990s as a requirement of the Louisiana Administrative Code (LAC) at LAC 33:V.4375 and Paragraph VI.G.8 of Olin's Resource Conservation and Recovery Act (RCRA) Post Closure Permit LAD062666540, dated November 4, 1991, and renewed in July 2007.

A Corrective Action Strategy (CAS) Risk Evaluation/Corrective Action Program (RECAP) evaluation was conducted in accordance with the Special Conditions Pursuant to Hazardous and Solid Waste Amendments – Corrective Action Strategy, Condition VIII, of the Permit and the January 27, 2012 letter issued by the Louisiana Department of Environmental Quality (LDEQ) for the Olin facility in St. Gabriel, Louisiana. The CAS RECAP evaluation was completed to evaluate risks to human health and the environment from the RCRA closed ponds managed under the Permit, and was initiated to address chlorides and barium exceedances identified in the 20-Foot Zone as part of the routine groundwater monitoring activities required under the Permit. All activities have been conducted following the Schedule of Compliance (Condition II.E.21.b) and the CAS Notification and Reporting Requirements of the Permit. All activities were conducted under review and approval from the LDEQ.

Analytical results for groundwater samples collected within the CAS AOI were included in the RECAP evaluation. Screening Option and/or Management Option 1 (MO-1) evaluations were conducted to determine whether constituent of concern (COC) concentrations in groundwater are within acceptable levels based on site-specific conditions, or if remedial actions are necessary. The COC evaluated as part of the CAS RECAP evaluation consisted of constituents required by LDEQ to be evaluated per the Schedule of Compliance (Condition II.E.21.b) and based on December 16, 2008 meeting discussions, constituents detected above a groundwater protection standard (GPS), constituents for which a Statistically Significant Increase (SSI) had been identified, and constituents detected based on the most recent available groundwater monitoring results, including groundwater monitoring results from 2011 and the first quarter of 2012, as follows:

- Total and dissolved arsenic
- Total and dissolved barium
- Calcium
- Chlorides
- Cyanide
- Magnesium
- Total and dissolved mercury
- pH
- Phenol
- Sodium
- Sulfate
- Sulfide
- Total and dissolved zinc
- Total dissolved solids (TDS)

Total and dissolved metals concentrations, when available, were included in the groundwater evaluation, whether dissolved metals concentrations were detected or not, as dissolved metals are more representative of true groundwater conditions. All COC listed above were evaluated in groundwater.

Current and anticipated future land usage is industrial. However, site concentrations were conservatively compared to applicable SO LSS and/or MO-1 LRS based on non-industrial land use.

COCs in 20-Foot Zone groundwater were evaluated under MO-1. Maximum detected concentrations [or proxy sample quantitation limits (SQL) for non-detects] in groundwater were identified as Compliance Concentrations (CCs) for each respective COC. CCs for groundwater COC were compared to calculated MO-1 Limiting RECAP Standard (LRS). The CCs were less than the MO-1 LRS applied for all groundwater COC. Concentrations of all COC evaluated in groundwater are within acceptable levels, and further evaluation and/or remediation is not warranted. Delineation is considered to be complete, and impacts are confined within the property boundary.

SO and MO-1 assessments concluded that risks to human health associated with potential exposures to COC at the CAS AOI are within acceptable levels and do not require remedial action. The completed Ecological Checklist indicates that further assessment of potential risks to ecological receptors from exposures to COC at the site is not required. Because these COC concentrations do not pose a threat to human health or the environment based on current site conditions, the facility requested to be placed under a Compliance Monitoring Program in accordance with LAC 33:V.3319, and that any further requirements of the CAS are suspended.

Olin also maintains a corrective action program at the Cell House Building, which includes monitoring and operation of three stand pipes for the extraction of groundwater from the shallow fill material located beneath the former Cell House Building. A RECAP investigation was performed of the potential risks to human health and the environment from mercury within the former Cell House Building Area of Investigation (AOI) at the Olin St. Gabriel Facility. This RECAP evaluation included an investigation of mercury in groundwater. Results of the RECAP evaluation showed mercury concentrations in groundwater were less than the Management Option 2 (MO-2) LRS applied based on industrial land use, and no further action was required for groundwater within the former Cell House Building AOI. The Cell House Building has been decommissioned. Olin will continue operation of the existing mercury containment and extraction system (i.e. stand pipes). Olin will also conduct routine monitoring of the four existing water table zone wells (Wells 60, 61, 62, and 63) for total and dissolved mercury. Results of the monitoring will be included in the groundwater monitoring reports completed for the RCRA closed ponds.

Footnotes:

[1]"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

_____ 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"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

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

Rationale and Reference(s):_____

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

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

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

_____ 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[3] 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[3] 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) provide 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[3] 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[3] greater than 100 times their appropriate groundwater "levels," 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 identify if there is evidence that the amount of discharging contaminants is increasing.

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

Rationale and Reference(s):_____

[3] 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[4])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of 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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[4] 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.

[5] 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?"

_____ 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 Pioneer Americans LLC d/b/a Olin Chlor Alkali Products facility , EPA ID # LAD062666540, located at 4205 Highway 75, St. Gabriel, Louisiana 70776. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

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

____ **IN** - More information is needed to make a determination.

Completed by (signature) _____ Date 8/15/2013
(print) Jana Hoke
(title) Geologist

Supervisor (signature) _____ Date 8/15/2013
(print) LEWIS DONLON
(title) GEOLOGIST SUPERVISOR
(EPA Region or State) R6 LOUISIANA

Locations where References may be found:

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Contact telephone and e-mail numbers

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