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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: E. I. DuPont de Nemours & Company, Pontchartrain Site
Facility Address: 560 Highway 44, LaPlace, Louisiana
Facility EPA ID #: LAD001890367

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).

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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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	___	X	___	___
Air (indoors)[2]	___	X	___	___
Surface Soil (e.g., <2 ft	___	X	___	___
Surface Water	___	X	___	___
Sediment	___	X	___	___
Subsurf. Soil (e.g., >2 ft)	X	___	___	___
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): Although there have been several historic releases of tetrachloroethene, 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene, the affected soils were excavated and, with one exception, remaining soil and groundwater concentrations are below Louisiana risk-based levels. One soil location associated with the release of 3,4-dichloro-1-butene had concentration above the screening level at a depth of 8 to 12 feet below ground surface. In addition, although VOCs were detected in groundwater in association with the release of PCE and 1,4-DCB, residual concentrations of VOCs have not been detected in groundwater within 100 feet of an occupied, enclosed structure.

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.

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Media	Yes	No	?	Rationale/Key Contaminants
Groundwater		X		Historic release of tetrachloroethene (PCE) and 1,4-dichloro-3-butene but monitoring indicated that residual concentrations measured in 2003 and 2005 are below Louisiana risk-based levels.
Air (indoors)[2]		X		Historic releases of PCE and 1,4-DCB but monitoring indicates that residual concentrations of VOCs have not been detected in groundwater within 100 feet of an occupied, enclosed structure.
Surface Soil (e.g., < 2 feet)		X		Historic releases of 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene; however, affected surface soils were excavated and remaining soil concentrations are below Louisiana risk-based levels.
Subsurface Soil (e.g., >2 feet	X			Historic releases of 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene; however, affected soils were excavated and remaining soil concentrations are below Louisiana risk-based levels except for one soil location that has 3,4-dichloro-1-butene above the screening level.
Air (outdoors)		X		Historic releases of 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene; however, affected surface soils were excavated and remaining soil concentrations are below Louisiana risk-based levels.

References:

Verification Groundwater Sampling Report for the BDU Area (DuPont, 2002)

Screening Options Submittal Report, AI 1101, DuPont Pontchartrain Works BDU Expansion Area , NFA-ATT Achieved (DuPont, 2003)

Determination of NFA-ATT Using RECAP MO-1 for 1-DCB Release (DuPont, 2005)

Tank Farm DA 1031 Release Evaluation for 3,4-DCB (DuPont, 2006)

Work Plan and Response Action to a Release of 1,4-Dichloro-2-Butene on March 29, 2009 (DuPont, 2009)

RECAP Report for an Investigation of AOC Caustic Storage Area (DuPont, 2011)

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

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).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): Although there have been historic releases of tetrachloroethene, 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene, the affected soils were excavated and, with one exception, remaining soil and groundwater concentrations are below Louisiana risk-based levels. One soil location had 3,4-dichloro-1-butene concentrations above the screening level at a depth of 8 to 12 feet below ground surface. The potentially exposed receptor would be a construction/excavation worker. In addition, although VOCs were detected in groundwater in association with the release of PCE and 1,4-DCB, residual concentrations of VOCs have not been detected in groundwater within 100 feet of an occupied, enclosed structure; therefore the indoor air pathway is incomplete.

Footnotes:

[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)?

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

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

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

Rationale and Reference(s): There is only one soil location that has 3,4-dichloro-1-butene above the screening level at a depth of 8 to 12 feet below ground surface, and this area would not be accessible unless it is exposed via excavation. Affected soil in the area has been excavated and replaced with clean fill. Additional sampling and analytical data that are near this location (within approximately 25 feet) are non-detect. Additionally, DuPont requires strict adherence to its intrusive activity permitting process. A rigorous system of health and safety policies and procedures are employed at the facility to protect against unacceptable human exposures. The purpose of the health and safety policies and procedures is to ensure that appropriate personnel protection measures (e.g., personal protective equipment [PPE]) are taken should such subsurface activity encounter affected soils or groundwater. In addition, construction practices are carried out so as to minimize the generation of potentially affected media and ensure that such media are properly characterized and disposed of in accordance with regulatory requirements. Therefore, no complete exposure pathway was identified at the Site.

Footnotes:

[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 E. I. DuPont de Nemours & Company, Pontchartrain facility, EPA ID # LAD001890367, located at 560 Highway 44, LaPlace, Louisiana 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 Kristine D. Carter Date 3-15-12
(signature)
Kristine D. Carter
(print)
Geologist 3, USTRD, OEC, LDEQ
(title)

Supervisor Date 3-16-12
(signature)
Carey J. Dicharry, Jr.
(print)
Geologist Supervisor, USTRD, OEC, LDEQ
(title)
State of Louisiana
(EPA Region or State)

Locations where References may be found:

The reports and data may be found at the E. I. DuPont de Nemours & Company, Pontchartrain Site located at 560 Highway 44, LaPlace, Louisiana, and in LDEQs Electronic Data Management System (EDMS) under Agency Interest Numbers 1101 and 38806.

Facility contact telephone and e-mail numbers

(name) Doug Melancon
(phone #) (504) 536-5202
(e-mail) Douglas.B.Melancon@usa.dupont.com

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: E. I. DuPont de Nemours & Company, Pontchartrain Site
Facility Address: 560 Highway 44, LaPlace, Louisiana
Facility EPA ID #: LAD001890367

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).

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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: E. I. DuPont de Nemours & Company, Pontchartrain Site
Facility Address: 560 Highway 44, LaPlace, Louisiana
Facility EPA ID #: LAD001890367

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).

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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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	___	X	___	___
Air (indoors)[2]	___	X	___	___
Surface Soil (e.g., <2 ft	___	X	___	___
Surface Water	___	X	___	___
Sediment	___	X	___	___
Subsurf. Soil (e.g., >2 ft)	X	___	___	___
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): Although there have been several historic releases of tetrachloroethene, 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene, the affected soils were excavated and, with one exception, remaining soil and groundwater concentrations are below Louisiana risk-based levels. One soil location associated with the release of 3,4-dichloro-1-butene had concentration above the screening level at a depth of 8 to 12 feet below ground surface. In addition, although VOCs were detected in groundwater in association with the release of PCE and 1,4-DCB, residual concentrations of VOCs have not been detected in groundwater within 100 feet of an occupied, enclosed structure.

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.

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Environmental Indicator (EI) RCRAInfo Code (CA725)
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Media	Yes	No	?	Rationale/Key Contaminants
Groundwater		X		Historic release of tetrachloroethene (PCE) and 1,4-dichloro-3-butene but monitoring indicated that residual concentrations measured in 2003 and 2005 are below Louisiana risk-based levels.
Air (indoors)[2]		X		Historic releases of PCE and 1,4-DCB but monitoring indicates that residual concentrations of VOCs have not been detected in groundwater within 100 feet of an occupied, enclosed structure.
Surface Soil (e.g., < 2 feet)		X		Historic releases of 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene; however, affected surface soils were excavated and remaining soil concentrations are below Louisiana risk-based levels.
Subsurface Soil (e.g., >2 feet	X			Historic releases of 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene; however, affected soils were excavated and remaining soil concentrations are below Louisiana risk-based levels except for one soil location that has 3,4-dichloro-1-butene above the screening level.
Air (outdoors)		X		Historic releases of 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene; however, affected surface soils were excavated and remaining soil concentrations are below Louisiana risk-based levels.

References:

Verification Groundwater Sampling Report for the BDU Area (DuPont, 2002)

Screening Options Submittal Report, AI 1101, DuPont Pontchartrain Works BDU Expansion Area , NFA-ATT Achieved (DuPont, 2003)

Determination of NFA-ATT Using RECAP MO-1 for 1-DCB Release (DuPont, 2005)

Tank Farm DA 1031 Release Evaluation for 3,4-DCB (DuPont, 2006)

Work Plan and Response Action to a Release of 1,4-Dichloro-2-Butene on March 29, 2009 (DuPont, 2009)

RECAP Report for an Investigation of AOC Caustic Storage Area (DuPont, 2011)

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

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).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): Although there have been historic releases of tetrachloroethene, 1,4-dichloro-2-butene, 3,4-dichloro-1-butene, aniline, caustic, and 1,2-dichlorobenzene, the affected soils were excavated and, with one exception, remaining soil and groundwater concentrations are below Louisiana risk-based levels. One soil location had 3,4-dichloro-1-butene concentrations above the screening level at a depth of 8 to 12 feet below ground surface. The potentially exposed receptor would be a construction/excavation worker. In addition, although VOCs were detected in groundwater in association with the release of PCE and 1,4-DCB, residual concentrations of VOCs have not been detected in groundwater within 100 feet of an occupied, enclosed structure; therefore the indoor air pathway is incomplete.

Footnotes:

[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)?

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

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

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

Rationale and Reference(s): There is only one soil location that has 3,4-dichloro-1-butene above the screening level at a depth of 8 to 12 feet below ground surface, and this area would not be accessible unless it is exposed via excavation. Affected soil in the area has been excavated and replaced with clean fill. Additional sampling and analytical data that are near this location (within approximately 25 feet) are non-detect. Additionally, DuPont requires strict adherence to its intrusive activity permitting process. A rigorous system of health and safety policies and procedures are employed at the facility to protect against unacceptable human exposures. The purpose of the health and safety policies and procedures is to ensure that appropriate personnel protection measures (e.g., personal protective equipment [PPE]) are taken should such subsurface activity encounter affected soils or groundwater. In addition, construction practices are carried out so as to minimize the generation of potentially affected media and ensure that such media are properly characterized and disposed of in accordance with regulatory requirements. Therefore, no complete exposure pathway was identified at the Site.

Footnotes:

[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 E. I. DuPont de Nemours & Company, Pontchartrain facility, EPA ID # LAD001890367, located at 560 Highway 44, LaPlace, Louisiana 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 3-15-12
(signature)
Kristine D. Carter
(print)
Geologist 3, USTRD, OEC, LDEQ
(title)

Supervisor _____ Date 3-16-12
(signature)
Carey J. Dicharry, Jr.
(print)
Geologist Supervisor, USTRD, OEC. LDEQ
(title)
State of Louisiana
(EPA Region or State)

Locations where References may be found:

The reports and data may be found at the E. I. DuPont de Nemours & Company, Pontchartrain Site located at 560 Highway 44, LaPlace, Louisiana, and in LDEQs Electronic Data Management System (EDMS) under Agency Interest Numbers 1101 and 38806.

Facility contact telephone and e-mail numbers

(name) Doug Melancon
(phone #) (504) 536-5202
(e-mail) Douglas.B.Melancon@usa.dupont.com

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.

HZ|RC|TE

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: E. I. DuPont de Nemours & Company, Pontchartrain Site
Facility Address: 560 Highway 44, LaPlace, Louisiana
Facility EPA ID #: LAD001890367

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"**[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.

   __X__ 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):

In a letter dated May 11, 2004, the State of Louisiana Department of Environmental Quality – Remediation Services Division (LDEQ-RSD) stated that no further action was necessary at this time (NFA-ATT) for constituents of concern (COCs) present in groundwater beneath the Business Development Unit (BDU) Expansion Area (a.k.a., Area of Investigation [AI] # 1101). This is the only groundwater beneath the DuPont Dow Elastomers Pontchartrain Facility that contains COCs.

NFA-ATT was prescribed by LDEQ-RSD based on its review of existing groundwater analytical data and site hydrogeologic conditions provided in the Risk Evaluation/Corrective Action Program (RECAP) Report and Assessment Reports dated April 5, 2005, September 8, 2003, and March 16, 2004. This review indicated that, at the time of the review, the only COC present in groundwater at a concentration above the RECAP screening standard was vinyl chloride (detected at a maximum 0.0039 milligrams per liter [mg/L], which was above the RECAP standard of 0.002 mg/L). However, a RECAP Management Option 1 (MO1) site-specific dilution factor (DF) of 84 was calculated which resulted in a MO1 Groundwater Class 2 site-specific vinyl chloride standard of 0.168 mg/L, which is greater than the maximum detected vinyl chloride concentration.

Supporting Documentation:

LDEQ-RSD. May 11, 2004. No Further Action Notification, DuPont Dow Elastomers, Pontchartrain Facility; AI# 1101, Business Development Unit Expansion Area.

DuPont. April 5, 2004. Identification of Management Option 1 Groundwater RECAP Standard, DuPont Pontchartrain Works.

DuPont. March 16, 2004. Groundwater Classification Determination, DuPont Ponchartrain Works.

DuPont. September 8, 2003. Screening Options Submittal Report, AI 1101, DuPont Pontchartrain Works BDU Expansion Area, NFA-ATT Achieved.

DuPont. January 2002. Verification Groundwater Sampling Report for the BDU Area, Third/Final Event, DuPont Pontchartrain Site.

DuPont. November 4, 1998. Verification Groundwater Sampling Report for the BDU Area, Second Event, DuPont Pontchartrain Works.

DuPont. January 9, 1996. Verification Groundwater Sampling Report for the BDU Area, DuPont Pontchartrain Works.

DuPont. November 17, 1994 Second Supplemental Assessment Report for the Proposed BDU Expansion Area, DuPont Pontchartrain Works.

DuPont. February 23, 1994. Supplemental Assessment Report for the Proposed BDU Expansion Area, DuPont Pontchartrain Works.

C-K Associates, Inc. May 1993. Groundwater Quality Assessment BDU Expansion.

History:

The BDU Expansion Area is located at the DuPont Pontchartrain Works chemical manufacturing facility, located on the north bank of the Mississippi River near the town of LaPlace in St. John the Baptist Parish, Louisiana (see Figure 1). The DuPont Pontchartrain Works chemical manufacturing facility is built on the natural levee deposits of the Mississippi River with an elevation approximately fifteen (15) feet above mean sea level.

Three regional distinguished water-bearing units are located beneath the site. They are the Shallow Deposits [0 to 150 feet below ground level (bgl)], the Norco Aquifer (200 to 400 feet bgl), and the Gonzales-New Orleans Aquifer (600 to 800 feet bgl). The two major sources of potable water in the LaPlace area are the Norco and the Gonzales-New Orleans Aquifers.

Two water-bearing zones within the Shallow Deposits have been identified at the site: the Upper Zone and the Lower Zone. Both zones are separated from the Norco Aquifer by a 50-foot thick clay layer. The Upper Zone is found from 10 to 35 feet bgl and comprises clay and laterally discontinuous sandy and clayey silts. In addition, the Upper Zone is interpreted to be organic-rich fluvial overbank and interdistributary deposits. The top of the Lower Zone is usually encountered at approximately 35 to 50 feet bgl and comprises clay, sandy silts and silty sands that are more laterally continuous that the Upper Zone.

The BDU Expansion Area extends from the BDU Building south to the Synthesis Building (see Figure 2). Prior to beginning the execution of expansion plans in May 1992, DuPont conducted a field investigation to characterize soil and groundwater conditions in the proposed BDU Expansion Area. Vinyl chloride and 1,2-dichloroethene (1,2-DCE) were detected in shallow groundwater. As a result, DuPont halted work and cancelled its BDU Area expansion.

Subsequent groundwater sampling detected one additional compound (1,1-dichloroethane [1,1-DCA]) and delineated vinyl chloride both vertically and horizontally to the 0.010 mg/L reporting limit available at that time. In 2002 LDEQ requested DuPont re-sample for vinyl chloride using the lower 0.002 mg/L reporting limit. Re-sampling results indicated vinyl chloride was present in groundwater at a maximum concentration of 0.0039 mg/L. Vinyl chloride concentrations had decreased by one to two orders of magnitude since the original detections in 1993, supporting the theory that methanogenic conditions have led to biodegradation/natural attenuation of COCs. Because the maximum detected vinyl chloride concentration was above the 0.002 mg/L RECAP standard, DuPont proposed (and LDEQ-RSD accepted) NFA-ATT under RECAP MO1, as discussed above.

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).