**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**
Interim Final 2/5/99
**RCRA Corrective Action**
**Environmental Indicator (EI) RCRIS code (CA725)**
**Current Human Exposures Under Control**

**Facility Name:** **DuPont Chestnut Run Plaza**
**Facility Address:** **Center and Faulkland Roads, Wilmington, DE 19898**
**Facility EPA ID #:** **DED 0003930799**

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).
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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.

☐ 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):

Throughout the operational history of the Chestnut Run facility, no waste material has ever been disposed of on-site. The wastes generated on-site are the result of product development.

The June 1991 RCRA Facility Assessment (RFA) conducted by DuPont and the September 1991 RFA conducted by DNREC identified numerous SMWUs and AOCs. Those areas which warranted further investigation are covered below:

RCRA Permitted Hazardous Waste Storage Pad east of building 718. Unit was a 50 foot by 40 foot pad with roof and it initially started storing hazardous waste in September, 1984. No evidence exists that the area has released contaminants to the environment. The Solid and Hazardous Waste Management Branch (SHWMB) reviewed the RCRA closure certification sampling and analytical report dated February 16, 2004 for the closure of the storage pad. Based on SHWMB's review permit number HW05A11 was terminated. The storage pad was given a clean closure approval from DNREC in a letter dated September 2, 2004.

Crawlspace under building 711(E). The crawl space soil is contaminated with oil that leaked from overhead milling machinery. A crawl space soil investigation conducted by DuPont in February 1991 revealed localized areas of soil discoloration up to 5 feet deep. Total petroleum hydrocarbon (TPH) was detected at levels up to 38,000 ppm. Soil borings installed around building 711 in May 1991 indicate that the area consists of 15 feet to 20 feet of clay-silt overlaying weathered bedrock. Groundwater occurs primarily in the weathered bedrock with minor areas of perched water in the clay silt layer. DuPont capped the crawl space with concrete in June 1991 which eliminated the dripping of oil onto exposed soils. The potential for migration of the TPH contamination is minimal because: 1) the contaminated area's location underneath a building limits infiltrating rainwater as a means of transport; 2) the contamination occurs in low permeability clay-silt; and 3) TPH biodegrade relatively easily. For further information see:

*Field Report Soil Investigation Chestnut Run Building 711 Carwlspace, March 22, 1991*
*Field Report Soil Investigation Chestnut Run Surrounding Building 711, October 1, 1991*

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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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.)

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

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

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

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

Rationale and Reference(s):

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

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

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

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

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

Rationale and Reference(s):

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI (event code CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (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 DuPont Chestnut Run Plaza, EPA ID # DED 003930799, located at Center and Faulkland Roads, Wilmington, DE 19898.

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

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

Completed by /s/ Date 8/11/09
Douglas R. Zeiters
Project Officer

Supervisor /s/ - Bryan A. Ashby - Acting Date 8/11/09
Nancy C. Marker
Environmental Program Manager II - DNREC

Locations where References may be found:

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