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:	Bayer Crop Science (formerly Aventis CropScience USA)
Facility Address:	Route 25 Institute, West Virginia
Facility EPA ID #:	WVD005005509

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

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

____ If no - re-evaluate existing data, or

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

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

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

Definition of "Current Human Exposures Under Control" EI

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

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Analytical results from the Verification Investigation and Focused RFI revealed a couple of inorganic contaminants (lead and arsenic) slightly above their action levels at a few locations. Several organic compounds (including benzene, toluene, chlorobenzene, and others) were identified at significantly elevated concentrations at several locations throughout the facility.
Air (indoors) [2]		X		
Surface Soil (e.g., <2 ft)	X			Widespread surface soil contamination was not identified at the facility. PAH contamination was identified in surface soil at SWMU #1, exceeding RBCs.
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)	X			PAH contamination was identified in subsurface soils at SWMU #1 and SWMU #2.
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):

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	___	___			___
Air (indoors)	___	___	___				
Soil (surface, e.g., <2 ft)	no	no	___	___	___	___	___
Surface Water	___	___			___	___	___
Sediment	___	___			___	___	___
Soil (subsurface e.g., >2 ft)	no	no		___			___
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.

X If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major 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): The Bayer CropScience (formerly Aventis CropScience and Rhone-Poulenc Ag Company) facility located in Institute, West Virginia, was issued a RCRA Permit on January 21, 1991. The facility conducted a Verification Investigation and is presently completing a Phased RFI. The investigations have involved the installation of more than 74 groundwater monitoring wells and the collection of several soil samples from various SWMUs throughout the facility. Several rounds of groundwater sampling at the facility have revealed that groundwater underlying the site is contaminated. Although groundwater contamination is present at the facility, the groundwater is presently not being used. Soil sampling at the facility revealed that surface soil contamination above Region III Risk Based

Concentrations (RBC) was identified at only SWMU#1 during the Verification Investigation and the Phased RCRA Facility Investigation. Subsurface contamination was identified at both SWMU#1 and SWMU#2. SWMU#1 was used for the disposal tarry materials. This landfill is now a one acre, gravel covered, level area crossed by rail lines. Several seeps of black tar-like substance have surfaced in this SWMU area. Soil samples collected from this SWMU have revealed concentrations of several PAHs including Benzo(a)pyrene (up to 98 mg/kg) above their respective RBCs. In order to minimize the direct contact threat to workers that may move through this area, Bayer CropScience designed a corrective measures program that will involve the removal/covering of existing surface oozes as they occur and the use of institutional controls and safe work practices. Institutional controls will consist of placing signs and other administrative measures restricting access of equipment and personnel to the site. The plan calls for the excavation and off-site disposal of tar-like oozes from the ground surface. These areas will then be covered with gravel. Periodic monitoring and, if necessary, removal/covering of subsequent surface oozes will continue as part of the corrective measures program. Slightly elevated concentrations of PAHs, including Benzo(a)pyrene at 9.7 mg/kg were identified in the subsurface soils at SWMU#2. Subsurface contamination at SWMU#1 is similar to the surface soil contamination at this SWMU. Proper safety measures will need to be implemented in these two SWMU areas if excavation activities were to take place.

References:

Verification Investigation Report, Rhone-Poulenc AG Company
Institute Plant, Institute , West Virginia, July 9, 1992.

RFI Report (Stage III)
Low Priority Solid Waste Management Units
Aventis CropScience USA
Institute, West Virginia, February, 2001

RFI Stage III Additional Investigation, Low Priority Solid Waste Management Units
Bayer CropScience, Institute, West Virginia, June 2003

Corrective Measures Evaluation for Solid Waste Management Unit 1
Bayer CropScience, Institute, West Virginia
August, 2003

[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):

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 Bayer CropScience facility, EPA ID # WVD005005509, located at Route 25 Institute, West Virginia 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)	/s/	Date 9/15/03
	(print)	Bill Wentworth	
	(title)	Remedial Project Manager	

Supervisor	(signature)	/s/	Date 9/15/03
	(print)	Bob Greaves	
	(title)	Chief, General Operations Branch	
	(EPA Region or State)	Region III	

Locations where References may be found:

EPA Region III
RCRA File Room, 11 th Floor
1650 Arch Street
Philadelphia, Pa 19103

Contact telephone and e-mail numbers:

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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.