

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: Philips Semiconductors, Inc.
Facility Address: 9201 Pan American Freeway, NE, Albuquerque, NM 87113
Facility EPA ID #: NMD000709782

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).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	___	<u>X</u>	___	_____
Air (indoors) ²	___	<u>X</u>	___	_____
Surface Soil (e.g., <2 ft)	___	<u>X</u>	___	_____
Surface Water	___	<u>X</u>	___	_____
Sediment	___	<u>X</u>	___	_____
Subsurf. Soil (e.g., >2 ft)	___	<u>X</u>	___	_____
Air (outdoors)	___	<u>X</u>	___	_____

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):

(PRC Environmental Management, Inc. (PRC), October 26, 1992) – RCRA Facility Assessment (RFA) Report – The Phillips Semiconductor (formerly known as Signetics Corporation) facility primarily manufactured metal oxide semiconductor integrated circuits. Construction of the plant began in 1978 and operations began in 1982. All production, wastewater treatment, and waste storage areas are located inside the fabrication buildings.

Signetics generated four classes of hazardous wastes; corrosive (D002), toxic (D004 and D009), ignitable (D001), and listed (F002 and F003). These wastes were either treated and disposed of into the City of Albuquerque Publicly Owned Treatment Works, or were stored onsite prior to shipment to a permitted disposal facility.

Signetics Corporation Albuquerque facility submitted a RCRA Part A and Part B permit application to EPA Region 6 on August 14, 1980. The permit application identified six hazardous wastes generated and stored at the facility. Three of these wastes, Solvent I, hydrofluoric acid, and buffered oxide etching solution, were stored in bulk storage tanks. Wastes referred to as Solvent II, and arsenic- and mercury-contaminated wastes were stored in 55-gallon containers in contain storage areas/rooms. Signetics operated under interim status until receiving a draft RCRA hazardous waste storage permit from the State of New Mexico on February 11, 1985. The permit was finalized April 1, 1986. Signetics discharged neutralized acid wastewater into the City of Albuquerque’s POTW under a city wastewater discharge permit number 2023A-3 which was current as of the time of the RFA.

As a result of the RFA, PRC identified eight Solid Waste Management Units (SWMUs) at Signetics Corporation. Of these, five were active and three were inactive. The five active SWMUS were those permitted units referred to as Tank 3, Tank 4, Tank 5, Flammable Storage Room 4, and Chemical Storage Room 2. The three inactive SWMUs are referred to as the Segregated Drains, the Neutralization Wastewater Treatment System, and the Coronado Municipal Landfill. No areas of concern (A)Cs were identifies. PRC recommended further investigation based on a determination of the possibility of a release at only one SWMU, the abandoned Coronado Municipal Landfill.

(NMED's Notice of Clean Closure Approval, March 29, 1996) Clean closure approval for five permitted hazardous waste storage units at the Phillips Semiconductor facility; Tank 3, Tank 4, Tank 5, Flammable Storage Room 4, and Chemical Storage Room 2. These five units constitute all of the formerly permitted units at the facility. This approval is based on a review of Phillips' closure certification report and a site inspection.

(NMED's Statement of Basis for approval of no-further-action at SWMU #8, the Coronado Municipal Landfill, December 28, 2005) - The basis for no-further-action (NFA) at SWMU #8 is that the SWMU has been characterized in accordance with current applicable state regulations and the available data indicates that contaminants pose an acceptable level of risk under current and projected future land use.

Investigation History

Excavation activities in 1981 during plant construction encountered landfill materials consisting of household garbage and construction debris. Excavation did not encounter any materials that could be considered hazardous waste. This landfill is determined to be the Coronado Municipal Landfill.

In 1987 EMCON Associates conducted a baseline groundwater investigation of the facility by constructing four groundwater monitoring wells. During this investigation it was determined that groundwater at an approximate depth of 250 feet is contaminated with tetrachloroethene (PCE).

In 1992 EPA collected additional soil and groundwater samples. In 1996 Phillips SC began collecting quarterly groundwater samples from the four monitoring wells. In 1997 the City of Albuquerque initiated its own investigation of the landfills which included the construction of additional monitoring wells. These new up gradient wells indicate that the PCE in the wells on the Phillips SC property is flowing onto the property from an up gradient source. Phillips SC conducted a soil vapor survey in 1999 suggesting that the landfill material is not the source of the PCE. EPA further evaluated possible soil contamination in 2002.

Investigation Conclusions

Investigations at the former Coronado Municipal Landfill, SWMU #8, have determined that there has not been a significant release of compounds of concern to surface or subsurface soils. Investigations have not indicated the presence of PCE and all detected compounds of concern in the soil have been compared to NMED's residential human health based screening levels and have been shown to pose an acceptable risk. Soil investigations have been determined to have adequately delineated both the horizontal and vertical extent of contamination. Furthermore, there are no significant sources of landfill gasses or landfill waste that pose an unacceptable risk to human health or the environment.

PCE groundwater contamination in up-gradient wells and the lack of an on-site source of PCE at the Phillips SC facility results in the conclusion that Phillips SC is not responsible for this contamination. The City of Albuquerque has taken the responsibility for delineating and remediating the PCE groundwater contamination.

References:

PRC; 1992, RCRA Facility Assessment (RFA) Report

NMED; 1996, Notice of Clean Closure Approval for Five Hazardous Waste Management Units

NMED; 2005, Statement of Basis for approval of no-further-action at SWMU #8, the Coronado Municipal Landfill

Padilla, C., 2006, Final permit decision: class III permit modification for no further action status for one solid waste management unit, Philips Semiconductors, Inc, Albuquerque, NM, 2 p.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
 Page 3

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.)

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

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): _____

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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6

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 Philips Semiconductors, Inc. facility, EPA ID # NMD000709782, located at 9201 Pan American Freeway, NE, Albuquerque, NM 87113, 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 _____
William S. McDonald
Environmental Scientist/Specialist

Supervisor _____ Date _____
John E. Kieling
Program Manager
NMED – Hazardous Waste Bureau

Locations where References may be found:

Hazardous Waste Bureau Library
2905 Rodeo Park E., Bldg 1
Santa Fe, NM 87505-6303

Contact telephone and e-mail numbers

William McDonald
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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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
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Completed by (signature) William S. McDonald Date March 19, 2007
(print) William S. McDonald
(title) Environmental Scientist/Specialist

Supervisor (signature) Steve Pulley Date 3/19/2007
(print) Steve Pulley
(title) Environmental Scientist/Specialist PROGRAM MANAGER
(EPA Region or State) NMED/HWB

Locations where References may be found:

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2905 Rodeo Park E., Bldg 1
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Contact telephone and e-mail numbers

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