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:	Former Teledyne Monarch Plants 2 & 5
Facility Address:	State Route 434, Hartville, OH
Facility EPA ID #:	OHD 000 821 348

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			Trichloroethene, Light Non-Aqueous Phase Liquid (oil)
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)		X		
Surface Water		X		
Sediment		X		
Subsurface. 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):

As described in detail in the November 2001 RCRA Subsurface Investigation Report, surface, subsurface and groundwater samples were collected from solid waste management units (SWMU) and Areas of Concern (AOC). The following five areas were subjected to remediation that involved the excavation of contaminated surface soil based on visual surface soil staining.

- Solid Waste Management Unit (SWMU) –16 (location of Former Driveway Runoff Collection System)
- SWMU–47 (100,000-gallon WWTP Equalization Tank) (2 locations)
- SWMU– 49 (20,000-gallon WWTP Feed Tank)

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[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.

- AOC–C (Stained Area Adjacent to Air Conditioner)
- 9 A pump shed and underground piping associated with former fuel oil underground storage tanks (USTs) on the southeastern side of the plant.

No pre-excavation soil samples were collected. Post-excavation soil samples results were non detects for benzene, toluene, ethylbenzene, total xylene, and semi-volatiles for SWMU-16, SWMU-47, SWMU-49, and AOC-C. At the pump shed and underground piping associated with former fuel oil UST, the post soil sample results were non detects for benzene and semi-volatiles, toluene 2.6 mg/kg, ethylbenzene 2.7 mg/kg, and total xylene 16 mg/kg. The USEPA Region 9 industrial preliminary remediation goals (IPRGs) are benzene 1.4 mg/kg, toluene 880 mg/kg, ethylbenzene 230 mg/kg, and total xylene 320 mg/kg (RCRA Subsurface Investigation Report., November 7, 2001). USEPA Region 9 IPRG were used to screen contaminants in soil.

Trichloroethene (TCE) was identified in groundwater at site monitoring well MW-3 during June and August 2001 sampling events at concentrations of 12 ：g/l and 13 ：g/l, respectively. These concentrations exceed the federal drinking water Maximum Contaminant Level (MCL) of 5 ：g/l. A small pocket of oil (i.e., Light Non-Aqueous Phase Liquid [LNAPL]) was identified on the shallow groundwater table at well MW-2. This well was installed in the former location of a small wastewater pond, which was closed in the early 1970s (RCRA Subsurface Investigation Report., November 7, 2001).

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)~~	___	___	___				
~~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.

_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):

Contaminated groundwater is within the confines of the facility's industrial complex, which is zoned for industrial use. The groundwater does not intersect any surface water within the perimeter of the plume. The depth to groundwater is six feet to 18 feet in the eastern portion and north western portion of the site respectively (RCRA Subsurface Investigation Report, November 7, 2001). The site is not used for habitation, has no full time residents,

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

and does not house any recreational, healthcare, day-care, or playground facilities. No recreational areas are located within the facilities boundary, and no growth of crops, grazing of livestock, or harvesting of fish occurs on the property. There are no human exposures to contaminated groundwater on- or off-site. Verification that the Human Exposure and Migration of Contaminated Groundwater Environmental Indicators associated with the presence of TCE in site groundwater are under control is based on the following factors:

- MW-3 is located on the western side of the site's Main Parcel, approximately 1,200 feet away from the down gradient property boundary as shown by the groundwater data presented in Harding ESE's November 2001 RCRA Subsurface Investigation Report. No TCE has been identified in wells located down gradient of MW-3, including wells located along the down gradient property boundary.

- MW-3 is located near the facility's active and backup cooling water supply wells. Data indicate MW-3 is within the capture zone of the supply wells, which pump from the deeper zone of the overburden aquifer at an approximate depth of 100 feet. Quarterly sampling and analyses of the supply wells have occurred since the 1980s and have not identified the presence of any TCE or any other volatile organic substance above the MCLs (Clarifications to Environmental Indicators Report, June 13, 2003).

LNAPL was identified on the shallow groundwater table at well MW-2. This well was installed in the former location of a small wastewater pond, which was closed in the early 1970s. Field observations and groundwater monitoring indicate that the oil is similar to machine oil or cutting oil and is limited to the immediate vicinity of MW-2 (Summary of Product Recovery, March 1, 2002). A pneumatic product recovery system was installed in MW-2 during the fall of 2002, as part of an interim measure (Summary of Product Recovery, March 1, 2002). Operation of the recovery system is ongoing. No LNAPL has been recovered from the well in the period from March to July 2003 (Progress Report-Second Quarter 2003, July 16, 2003).

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):

Not Applicable

[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):

Not Applicable

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 Former Teledyne Monarch Plants 2 & 5 facility, EPA ID #OHD 000 821 348, located at State Route 434, Hartville, Ohio 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 _____
(print) John Nordine
(title) Geologist

Supervisor (signature) _____ Date _____
(print) George Hamper
(title) Chief, Corrective Action Section
(EPA Region or State) EPA Region 5

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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.