DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name:	Edmund Industrial Optics
Facility Address:	601 Montgomery Avenue, Pennsburg, PA18073
Facility EPA ID #:	PAD002334373

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?

Y 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 "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.

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.

Y

Rationale and Reference(s):

Edmund Industrial Optics (Edmund) manufactures industrial and commercial use lenses. The size of the property is approximately 7.65 acres. The site is located at 601 Montgomery Avenue in Pennsburg, Montgomery County, Pennsylvania. Adjacent properties to the north and east of the facility are residential, to the west are vacant and unimproved lands, and to the south are the Joint Water Authority facility and Green Lane Reservoir. Edmund generates two primary hazardous waste streams. One stream is composed of a mixture of waste solvents and the other is composed of lead waste sludge. Hazardous waste is stored onsite for less than 90 days. Non-contact cooling water was discharged to an onsite collection pond pursuant to a National Pollutant Discharge Elimination System (NPDES) permit # PA0053864. The solid waste management units at the facility include a former 1,500 gallon liquid hazardous waste storage tank and empty drum storage area, a former leaded sludge storage tank, the used acetone recycling still and 250-gallon aboveground storage tank, three 35-gallon used acetone vaulted storage tanks, a lens centering coolant oil filtering apparatus, a spray paint booth, a 350-gallon underground overflow vessel, a wastewater treatment and sludge storage room, a 2,000-gallon acetone tank, a 1,000 gallon aboveground liquid hazardous waste tank, a drum storage room, and a former underground storage tank field (February 2002 Environmental Indicator Inspection Report for Edmund Industrial Optics prepared by Foster Wheeler Environmental Corporation). There are no releases documented at the used acetone recycling still and 250-gallon above ground storage area, three 35-gallon used acetone vaulted storage tanks, the lens centering coolant oil filtering apparatus, the spray paint booth, the wastewater treatment and sludge storage room, the 2,000-gallon acetone tank, the 1,000-gallon aboveground liquid hazardous waste tank, and the drum storage room. The former underground storage tank field was closed in accordance with the Pennsylvania underground storage tank closure requirements (The February 2002 Environmental Indicator Inspection Report for Edmund Industrial Optics prepared by Foster Wheeler Environmental Corporation).

On July 30, 2004 and August 6, 2004, soil samples were collected around the underground overflow vessel, the former 1,500 gallon liquid hazardous waste underground storage tank, the former leaded sludge storage tank, and the empty drum storage areas by Tetra Tech FW, Inc. The samples were analyzed for volatile organic compounds (VOCs), semi-VOCs, and RCRA metals.

The analytical results show that VOCs were either non-detect or detected at concentrations below the EPA Region 3 Residential Soil Risk-Based concentrations (RBCs) and migration to groundwater soil screening levels (SSLs) (DAF 20). All semi-VOCs were either non-detect or detected at concentrations below the EPA Region 3 Residential Soil RBCs and migration to groundwater SSLs (DAF 20), except benzo(a)pyrene. Benzo(a)pyrene was detected at concentration as high as 220 ug/kg in surface soil samples (0-2 feet), above the EPA Region 3 Residential Soil RBC of 87 ug/kg, however, well below the EPA migration to groundwater SSL of 8000 ug/kg. Benzo(a) pyrene is not a hazardous constituent used in the processes or generated from the processes at Edmund Industrial Optics. Studies have shown various types of PAHs found in street soil dust due to exhaust of vehicles into the environment. Edmund Industrial Optics facility is bordered by two streets Montgomery Avenue and Mench Road and the soil is probably impacted by vehicle emissions as PAHs only found in surface soil samples. Metals were found at concentrations below the respective EPA Region 3 residential soil RBCs and migration to groundwater SSLs, except arsenic. Although arsenic was detected at concentrations above the respective EPA Region 3 residential soil RBC of 0.4 mg/kg, arsenic was detected at concentrations as high as 15.4 mg/kg, below the respective migration to groundwater SSL (DAF 20) of 29 mg/kg. Additionally, the detected concentrations fall within native soil ranges for arsenic, which are typically anywhere from 1 to 40 mg/kg (The November 9, 2004 Edmund Industrial Optics Final Trip Report for July and August 2004 Soil Sampling Event prepared by Tetra Tech FW, Inc.). VOCs, semi-VOCs and metals were detected at concentrations below the respective EPA migration to groundwater SSLs, therefore groundwater underneath the facility is reasonably suspected not to be impacted by the facility's operations and is not contaminated above the appropriately protective level.

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).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the

monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

If yes - continue after identifying potentially affected surface water bodies.

If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?
.

If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of <u>key</u> contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of <u>each</u> contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR

2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

If no - enter "NO" status code in #8.

If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), 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).

Y YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Edmund Industrial Optics facility , EPA ID # PAD002334373, located at 601 Montgomery Avenue, Pennsburg, PA 18073. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

NO - Unacceptable migration of contaminated groundwater is observed or expected.

IN - More information is needed to make a determination.

Completed by	(signature)		Date
	(print)	Tran N. Tran	
	(title)	RCRA Project Manager	

Supervisor	(signature)		Date
	(print)	Paul Gotthold	
	(title)	Chief, PA Operations Branch	
	(EPA Region or State)	EPA Region 3	

Locations where References may be found:

USEPA Region 3
Waste and Chemical Management Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers:

(name)	Tran N. Tran
(phone #)	215-814-2079
(e-mail)	tran.tran@epa.gov