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:	Rohm and Haas Co. (formerly Morton International, Inc)
Facility Address:	10 S. Electric Street, West Alexandria, Ohio 45381
Facility EPA ID #:	OHD 045 566 098

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			Tetrachloroethene (PCE), 1,1,1-trichloroethane, carbon tetrachloride
Air (indoors) [2]		X		
Surface Soil (e.g., <2 ft)	X			Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and arsenic
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)	X			Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and arsenic
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):

Maximum groundwater concentrations were compared to risk-based human health screening levels. See Tables 7-13, 7-14 and 7-15 from the RCRA Facility Investigation (RFI) Report prepared by Geomatrix Consultants dated March 2000.

Indoor air is not affected by impacted media via a direct exposure pathway. Indirect exposures related to VOCs in indoor air as a result of volatilization from groundwater were evaluated in the RFI and found to be insignificant.

Maximum soil concentrations were compared to risk-based human health and ecological screening levels. See Table 6-4 of the RFI Report (Geomatrix, 2000) for the ecological evaluations and Tables 7-10, 7-11 for the human health

[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.

evaluation. No distinction was made between surface and subsurface soil.

Maximum surface water concentrations for constituents of concern were below human health and ecological risk-based screening values. See Tables 6-2 and 7-16 of the RFI Report.

Maximum sediment concentrations for constituents of concern were below human health and ecological risk-based screening levels. See Tables 6-3 and 7-17 of the RFI Report.

Calculation of potential transfers of volatile organics from soils and groundwater indicated that this pathway was not significant. See Section 7.3 of the RFI Report.

(Ref: Geomatrix, RCRA Facility Investigation Report, Rohm and Haas, March, 2000)

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	Yes	No	No	No	No	No	No
~~Air (indoors)~~							
Soil (surface, e.g., <2 ft)	No	Yes	No	Yes	Yes	No	No
~~Surface Water~~							
~~Sediment~~							
Soil (subsurface e.g., >2 ft)	No	No	No	Yes	No	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.

___ 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).

_X_ 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):

- Residents could come in contact with contaminated groundwater through the use of existing domestic supply wells.
- Workers could come in contact with surface soils in unpaved areas of the site. Currently, these areas are not

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

exposed, i.e. they are covered with lawns, landscaping or gravel.

- Construction personnel could come in contact with surface soils or subsurface soils in the course of excavation work. However, any such work would be performed under appropriate health and safety measures to avoid creation of a complete exposure pathway.
- Trespassers could come in contact with surface soils in unpaved areas of the site. Currently, these areas are not exposed, i.e. they are covered with lawns, landscaping, or gravel. In addition, access to on-site areas is restricted and generally controlled.

(Ref: Geomatrix, RCRA Facility Investigation Report, Rohm and Haas Co., March, 2000)

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)?

X 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):
A human health risk assessment was conducted to evaluate the potential risks associated with the presence of chemicals in soils and groundwater at the site. For soils, the chemicals of potential concern evaluated in the risk assessment were: arsenic, benzo(a)pyrene, benzo(a)anthracene, and benzo(a)fluoranthene. For groundwater, the chemicals of potential concern were (based on a comparison to federal MCLs): PCE and carbon tetrachloride. The risk assessment assumed the plant will remain an active industrial facility for the foreseeable future. The assessment estimated the theoretical lifetime excess cancer risk and noncarcinogenic hazard indexes for on-site industrial workers, on-site construction workers, and off-site residents under future and current use scenarios. The risk assessment did not identify any significant risks to current receptors (e.g. hazard indices were <1 for noncarcinogens and cancer risks were below or within the acceptable range of $1x10^{-4}$ to $1x10^{-6}$). Current residents with wells historically impacted by contamination are further protected by the provision of an alternate water supply.
(Ref: Geomatrix, RCRA Facility Investigation Report, Rohm and Haas Co., March, 2000)

[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 **Rohm and Haas Morton Plant**, **EPA ID # OHD 045 566 098**, located at **10 S. Electric Street, West Alexandria, OH 94533**, 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)	*original signature on file*	Date 11/08/00
	(print)	Lisa K. Geist	
	(title)	Ecologist	
Supervisor	(signature)	*original signature on file*	Date 11/09/00
	(print)	Joseph M. Boyle	
	(title)	Chief, ECAB	
	(EPA Region or State)	U.S. EPA Region 5	

Locations where References may be found:

U.S. EPA
RCRA Records Center
7th Floor
77 W. Jackson Blvd
Chicago, IL 60604

or

West Alexandria Branch Library
Town Hall Building
16 North Main Street
West Alexandria, Ohio 45381

Contact telephone and e-mail numbers

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(e-mail)	geist.lisa@epa.gov

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.

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:	Rohm and Haas Co. (formerly Morton International, Inc.)
Facility Address:	10 S. Electric Street, West Alexandria, Ohio 45381
Facility EPA ID #:	OHD 045 566 098

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?

   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 "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?

X 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.

Rationale and Reference(s):

Historically, groundwater has contained elevated levels of tetrachloroethene (PCE), carbon tetrachloride, and 1,1,1-TCA. The 1999 sampling results indicate that maximum concentrations of PCE were 35 ug/L on-site and 44 ug/L in off-site wells. Carbon tetrachloride was detected at concentrations <5 ug/L on-site and at a maximum of 8 ug/L in an off-site well. 1,1,1-TCA was detected at concentrations of 12 ug/L onsite and up to 92 ug/L offsite. The federal MCL for PCE and carbon tetrachloride is 5 ug/L, whereas the MCL for 1,1,1-TCA is 200 ug/L.

reference: Geomatrix, RCRA Facility Investigation Report, Rohm and Haas Co., West Alexandria, Ohio, March, 2000

For additional information on historical levels of contamination, see also:
Geomatrix, Description of Current Conditions, Morton International, Inc., West Alexandria, Ohio, November, 1998
Geomatrix, RCRA Facility Investigation Workplan, Morton International, Inc., West Alexandria, Ohio, January, 1999.

[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)?

X 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):
Groundwater investigations conducted since the early 1990's have routinely detected volatile organic compounds (VOCs) in both on-site and off-site wells. As a result, residents with wells impacted by the plume of contamination were offered alternative drinking water supplies. The current RCRA RFI investigation updated the historical data, and acquired data in new locations. A review of both the historical and current data indicates that concentrations of organic compounds are stable or declining at all locations both on-site and off-site. Where increases are observed, they are minor and consistent with normal groundwater data fluctuation.

Maximum concentrations of detected organic compounds, including tetrachloroethene (PCE), carbon tetrachloride, and 1,1,1-trichlorethane (TCA), remain stable or have declined from historical highs. The concentrations of some compounds (PCE) have fluctuated periodically within a normal range of sampling variability, but overall levels appear to be decreasing over time, especially at the outer edges of the initial plume of contamination. The number of compounds detected in groundwater has also declined; most of the VOCs detected historically were not detected in any samples from 1999. The overall area of groundwater affected by organic compounds related to the facility has declined. Sampling in 1995 identified PCE in wells up to 1.5 miles south of the plant, whereas the 1999 data shows the affected area now extends less than 1 mile south of the plant.

The apparent declines in contamination are likely due to aerobic degradation and source reduction for aromatic compounds and mono- and dichlorinated compounds. Tri- and tetrachlorinated compounds may be declining primarily due to dilution and source reduction. In addition, a soil vapor extraction system has been operating beneath the main plant building since October 1997 and has removed 400-500 pounds of TCA and PCE from the underlying soils. Therefore, there does not appear to a remaining source area and the migration has stabilized.

See the following table for a comparison of concentrations over time.

[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.

Compound	Historical Max.	1999 Max.		Location
PCE	210	35	µg/L	onsite (MW-13)
TCA	860	12	µg/L	onsite (MW-1S)
Carbon tetrachloride	18	nd	µg/L	onsite (FSC-2)
PCE	69.4	44	µg/L	1500 ft. downgradient, offsite (MW-26/28)
TCA	175	65	µg/L	1500 ft. downgradient, offsite (MW-26/28)
Carbon tetrachloride	4.7	nd	µg/L	1500 ft. downgradient, offsite (MW-26/28)
PCE	nd	nd	µg/L	3500 ft. downgradient, offsite (MW-12)
TCA	120	92	µg/L	3500 ft. downgradient, offsite (MW-12)
Carbon tetrachloride	8.1	8	µg/L	3500 ft. downgradient, offsite (MW-12)
PCE	nd	nd	µg/L	4250 ft. downgradient, Twin Creek (TC-4)
TCA	nd	nd	µg/L	4250 ft. downgradient, Twin Creek (TC-4)
Carbon tetrachloride	nd	nd	µg/L	4250 ft. downgradient, Twin Creek (TC-4)
PCE	0.83	nd	µg/L	7500 ft. downgradient, offsite (#23-Knaff)
TCA	nd	nd	µg/L	7500 ft. downgradient, offsite (#23-Knaff)
Carbon tetrachloride	nd	nd	µg/L	7500 ft. downgradient, offsite (#23-Knaff)

Note: MCLs = 5 µg/L for PCE, 5 µg/L for carbon tetrachloride, and 200 µg/L for TCA

Reference: Geomatrix, RCRA Facility Investigation Report, Rohm and Haas, Co., March, 2000.
See Figures:
Figure 5-3 - Cross Section B-B' South to North
Figure 5-5 - Potentiometric Surface Map, November 2, 1999
Figure 5-8 - Organic Compounds Detected in Off-Site Groundwater and Surface Water

Well 26 (Meyers) was abandoned and MW-28 installed in 1999 to monitor conditions in the vicinity. MW-28 is screened from 38' to 48' feet below ground surface, and bedrock is encountered at 53'. South of MW-28 and Meyers Lane, bedrock drops off to over 130' feet below ground surface, covered by a layer of clay and silt. A deep transmissive zone lies beneath this clay/silt layer at approximately 125' feet below ground surface around Black Road. However, MW-12 is screened from 24.3' to 33.9' feet below ground surface in the overlying sand and gravel zone where a shallow transmissive zone yields groundwater. MW-12 terminates at 36' feet below ground surface.

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

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

_X_ 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):

Sampling conducted during the RFI (Geomatrix, 2000) confirmed that the plume of contaminated groundwater is stable or receding and has not impacted nearby surface waters such as Twin Creek. All analytes at samples TC-2, TC-3 and TC-4 collected downgradient of the site in Twin Creek were non-detect.

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)?

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_____ 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 key 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 each 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?"

   X 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):

The proposed monitoring program will sample 9 initial wells on a semi-annual basis for 2 years. If no significant changes in the concentration or distribution of groundwater constituents are observed, the program will then monitor on a yearly basis. Stand-by wells will be utilized is necessary based on initial/future results. Proposed criteria for termination of the groundwater monitoring program include: concentrations of all monitoring analytes are below background or applicable health based levels for 3 consecutive sampling events and concentrations remain below these levels after a 2 year waiting period.

Reference: Streamlined Corrective Measures Study (Geomatrix, August 2000).

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).

X 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 **Rohm and Haas Morton Plant, EPA ID # OHD 045 566 098**, located at **10 S. Electric Street, West Alexandria, OH 45381**. 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) Lisa K. Geist
(title) Ecologist

Supervisor (signature) _____ Date _____
(print) Joseph M. Boyle
(title) Chief, ECAB
(EPA Region or State) U.S. EPA Region 5

Locations where References may be found:

U.S. EPA
RCRA Records Center
7th Floor
77 W. Jackson Blvd
Chicago, IL 60604

or

West Alexandria Branch Library
Town Hall Building
16 North Main Street
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