GZA
GeoEnvironmental, Inc.

Engineers and Scientists

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

April 8, 2002

Mr. Mark Lavine,
Environmental Protection Superintendent
Whyco Chromium Company, Inc.
670 Waterbury Road
Thomaston, CT 06787

RE: Ground Water Migration Under Control Environmental Indicator Status

Dear Mr. Lavine:

The purpose of this letter is to inform you that my review of the2001 Annual Report, RCRA Ground Water Monitoring, Whyco Chromium Company, Inc. indicates that, at least, wells WC-1A and WC-2 located at the southern end of the facility are exhibiting upward trends for several hazardous constituents (e.g. chromium, copper, nickel, zinc). This is accompanied by a downward trend in pH levels. These trends indicate that the site no longer meets the criteria for a "yes" determination to the Ground Water Migration Under Control Environmental Indicator. EPA encourages Whyco Chromium to investigate the causes and extent of the increases in metal contamination exhibited in these wells and take whatever actions are required to again achieve the Ground Water Migration Under Control Environmental Indicator.

EPA is aware that the site is currently undergoing investigation and remediation under the Connecticut Property Transfer program and is confident that your work within the requirements of this program will gather the data needed to understand the cause of this increase and, as necessary, remediate it.

If you have any questions please call me at 617-918-1369.

Sincerely,

Ernest Waterman
RCRA Corrective Action Section - Mail code HBT

cc: J. Hirshfeld, CT DEP
T. Stark, GZA

STABILIZATION DEMONSTRATION
ENVIRONMENTAL INDICATORS
RCRIS CODE CA725 and CA750
WHYCO CHROMIUM COMPANY
670 WATERBURY ROAD
THOMASTON, CONNECTICUT

PREPARED FOR:
Whyco Chromium Company
670 Waterbury Road
Thomaston, CT 06787

PREPARED BY:
GZA GeoEnvironmental, Inc.
27 Naek Road
Vernon, CT 06066

September 1999
File No. 41569

GZA
GeoEnvironmental, Inc.

Engineers and Scientists

September 29, 1999
File No. 41569

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Attention: Mr. Ernest Waterman

Dear Mr. Waterman:

By this letter we are transmitting a "Stabilization Demonstration" for the Whyco Technologies Site (CTD 001450154) located at 670 Waterbury Road in Thomaston, Connecticut. Based on the information presented in this Demonstration we conclude that the two Environmental Indicators, Current Human Exposures Under Control (CA 725) and Migration of Contaminated Groundwater Under Control (CA 750) have been met and the Whyco Technologies facility should be listed as Stabilized.

Specifically, this Demonstration consists of this Transmittal letter, a brief text providing the regulatory background for the Demonstration, completed copies of the February 5, 1999 CA 725 and CA 750 worksheets, and, as referenced in the Rationale and References sections of the worksheets, appended materials providing documentation of the results of recent investigations on which we used to substantiate that the Site met the stabilization criteria. Also appended to this Demonstration is the August, 1997 Environmental Indicators Evaluation report, which identified all of the Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) at the Site and based on the results of historic site investigations whether or not additional work was required for each to conclude whether or not the criteria for being stabilized were met. Table 1-1 summarizes the current status of each of the SWMUs and AOCs.

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As previously discussed, at this time there is little precedent for the format of a Stabilization Demonstration. We have tried to provide all of the documentation needed in as concise a manner as possible using the February 5, 1999 worksheets as the base document. We also note that, as discussed at several of our meetings, where the worksheets refer to "appropriately protective risk-based levels" to determine the significance of constituents in the environment, we have relied upon those portions of

Connecticut DEP's 1996 Remediation Standard Regulations (RSRs) that are relevant to the Whyco Site setting. Specifically, that groundwater is not used for potable water and that the Site is in use as an industrial operation.

We hope that this format makes your review easy and that all of the support information you need, extracted from over 15 years of investigations at the Site, is appended. If you have any questions, please contact me at (860) 875-7655.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Philip E. Warner
Senior Project Manager

Thomas F. Stark
Principal

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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: Whyco Chromium
Facility Address: 670 Waterbury Road, Thomaston, CT
Facility EPA ID #: CTD01450154

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).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA 725)

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			See Note (a)
Air (indoors)[2]		X		No RSR Volatilization Criteria Exceedances
Surface Soil (e.g., <2 ft)		X		See Note (b)
Surface Water		X		See Note (c)
Sediment		X		See Note (d)
Subsurf. Soil (e.g., >2 ft)		X		See Note (b)
Air (outdoors)		X		See Note (e)

_____ 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):

a. **Groundwater:** Although numeric Ground Water Protection Criteria for GA-classified groundwater have been exceeded, there are no potable uses of groundwater on the Site or in the adjacent area. A deep bedrock well supplies process water to the facility.
b. **Surface and Subsurface Soil:** As shown in Tables A-3a through A-3e, laboratory testing of soils, including surface and subsurface soil samples, did not identify contaminants, metals or VOCs, at concentrations that exceed CTDEP direct exposure criteria for present conditions, except for two locations. The concentrations at these two locations are inconsistent with surrounding locations and in aggregate, the soil concentrations do not exceed appropriate risk-based levels.
c. **Surface Water:** The most recent test results, which are summarized in Table 8, showed that metals concentrations in the adjacent surface water body, the Naugatuck River, were below drinking water standards and Ambient Water Quality Criteria.
d. **Sediment:** The adjacent surface water body, the Naugatuck River, is a shallow river (except for spring flood) with a cobble stone bottom. The section of the River adjacent to the Site also receives discharge from the Thomaston POTW directly across the River. Available data indicates no exceedances with the conservative application of residential direct exposure criteria. There are no abutting residential areas.
e. **Air (outdoors):** The existing operations at the facility which discharge to the atmosphere are regularly tested. Emissions are in compliance with regulatory framework.

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 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.

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

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): The property is currently used primarily for custom metal finishing. There are no residents, day care, or food exposures. The groundwater contamination is generally beneath and adjacent to the former metal hydroxide sludge landfill which has been closed and capped. There is no potable groundwater use on the Site, but groundwater is used for process water which is drawn from a deep bedrock well that has not been impacted based on available data. Indoor air quality is compliant with ongoing OSHA regulations

[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)?

__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):

Groundwater: Workers at the facility may come in contact with process water which comes from a deep bedrock well. Available data indicates that this water has not been impacted; as such, although an exposure pathway is complete, there is a very low potential for exposure. Most potential construction work on the site (e.g. utility repair/installation, construction of footings for building additions) is likely to occur within the upper 4 feet of the subsurface. Contaminated groundwater is present at depths of between 5 and 10 feet below ground surface (average of greater than 7 feet). Therefore, in our opinion, exposure of construction workers to contaminants in the groundwater can not be reasonably expected to be significant; there is a very low potential for human exposure to the contaminated groundwater. If encountered, the short duration of exposure to the groundwater with moderate to low levels of VOCs and metals is not believed to be significant.

Air (indoors and outdoors): Although an exposure pathway is complete for workers and construction workers at the facility, there is a very low potential for exposure. Indoor air quality is compliant with ongoing OSHA regulations and the existing operations at the facility which discharge to the atmosphere are in compliance with regulatory framework

Surface and Subsurface Soil: Facility workers, construction workers and trespassers have a complete exposure pathway to surface soil; however, under current conditions there are no exceedances of RSR direct exposure criteria (industrial/commercial), except for two locations. The average concentration of constituents of concern do not exceed the RSR direct exposure criteria; as a result, there is a low potential for exposure. Construction workers have a complete exposure pathway to subsurface soil; however, available data does not indicate exceedances of RSR direct exposure criteria (industrial/commercial). As a result, there is a low potential for exposure. Any potential exposure to soil is controlled by appropriate health and safety measures required by Whyco.

Surface Water: A complete exposure pathway exists for recreation activities in the adjacent Naugatuck River. Recent sampling indicates no exceedances of RSR surface water criteria. In addition, with the location of the Thomaston Wastewater Treatment Plant across the river, recreation use of this stretch of the river is considered low.

Sediment: A complete exposure pathway exists for recreation activities in the adjacent Naugatuck River. Available data indicates no exceedances of conservative RSR residential direct exposure criteria. In addition, the bottom of the Naugatuck River consists of cobbles and fine-grained sediments are in low abundance. With the location of the Thomaston Wastewater Treatment Plant across the river, recreation use of this stretch of the river is considered low.

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 Whyco Chromium facility, EPA ID # CTD01450154, located at 670 Waterbury Road in Thomaston, Connecticut 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) E W — Date 11-1-1999
(print) Ernest Waterman
(title) Geologist

Supervisor (signature) Matthew R. Hogeland — Date 11/10/99
(print) Matthew R. Hogeland
(title) Section Chief
(EPA Region or State) Region I

Locations where References may be found:

CDM-Federal Programs Corporation RCRA Facility Assessment - December 29, 1989
GZA's Post-Closure Part B Application - December 1991
GZA's and Fuss & O'Neill's RCRA Groundwater Monitoring Reports (1983 - 1999)
GZA's Environmental Indicators Evaluation - August 1997

Contact telephone and e-mail numbers

(name) Mark LaVine
(phone #) (860) 283-5826
(e-mail) markl@whyco.com

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: Whyco Chromium
Facility Address: 670 Waterbury Road, Thomaston, CT
Facility EPA ID #: CTD01450154

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 #8 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).

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

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): As indicated in Tables 1-2 and 1-3, various VOCs, metals and cyanide have been detected in on-site monitoring wells at concentrations above CTDEP Remediation Standard Regulations (RSRs) Criteria, which presently applies to the site. These contaminants include: vinyl chloride; trichloroethene; tetrachloroethene; cadmium; chromium; nickel, and cyanide.

Although the area of the Whyco facility is classified as GA, the use is industrial. Consistent with this, review of water use patterns in the area has demonstrated that there is no potable use of groundwater and that reclassification to GB is appropriate. Reclassification would remove the RSR numeric criteria and allow this question to be answered "No".

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)?

___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): Contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the existing area of groundwater contamination, based upon the groundwater exploration and testing that has been performed at the site. The data collected from 1983 to 1999 shows the presence of a plume in the southwest portion of the Site that migrates towards and into the Naugatuck River, located along the western border of the Site. In addition, hydraulic heads in wells show that groundwater flow is towards and into the River.

Appendix 1-3 presents the results of sampling groundwater monitoring wells in the northwest portion of the Site.

[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?

__X__ 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): As stated above, groundwater flow patterns developed from groundwater elevation data indicate that groundwater from the site migrates to and into the Naugatuck River. The typical gradient of the shallow overburden aquifer is downward. The typical gradient of the deep overburden aquifers is upward which indicates a discharge to the Naugatuck River.

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)?

__X__ 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): Recent sampling of the Naugatuck River during low flow - drought conditions, (August 1999), did not detect the presence of constituents of concern at concentrations exceeding RSR Surface Water Criteria. During low-flow conditions the available dilution is greater than 1,000 times and would be larger under typical stream flow conditions. As a result, the established groundwater plume and points of discharge to the Naugatuck River are stabilized with minor fluctuation relative to the stage of the Naugatuck River.

Although not specifically related to a human health risk, a rapid bioassessment of macroinvertebrate communities within potentially impacted reaches of the Naugatuck River was performed. The bioassessment results indicate a well developed population including sensitive species both upstream and downstream of the Site and did not identify impacts to the river's benthic community resulting from the Whyco heavy metals plume. The rapid bioassessment report is attached as Appendix A-1

[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): _____

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[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): Continued observation and sampling of groundwater from the existing RCRA monitoring well network.

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

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 Whyco Chromium facility , EPA ID # CTD01450154 , located at 670 Waterbury Road, Thomaston, CT. 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) E W Date 11-1-1999
(print) Ernest Waterman
(title) Geologist

Supervisor (signature) Matthew P. Hogglund Date 11/10/99
~~(print)~~ Section Chief
~~(title)~~ Matthew P. Hogglund
(EPA Region or State) Region I.

Locations where References may be found:

CDM-Federal Programs Corporation RCRA Facility Assessment - December 29, 1989
GZA's Post-Closure Part B Application - December 1991
GZA's and Fuss & O'Neill's RCRA Groundwater Monitoring Reports (1983 - 1999)
GZA's Environmental Indicators Evaluation - August 1997

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