



September 29, 2005
File No. 31197.7, C



Ms. Carolyn J. Casey
RCRA Facility Manager
Office of Site Remediation and Restoration
New England Region
U.S. Environmental Protection Agency
1 Congress Street, Suite 1100 (HBT)
Boston, Massachusetts 02114-2023

Lightolier Norwich
CTD000841130
R-13
104051

Re: Migration of Groundwater Under Control
RCRA Corrective Action Environmental Indicator Questionnaire
Lightolier Norwich Facility
Norwich, Connecticut

140 Broadw. :
Providence
Rhode Island 02903
401-421-4140
FAX 401-751-8613
www.gza.net

Dear Ms. Casey:

At your request and on behalf of Genlyte Thomas Group, LLC (GTG), GZA GeoEnvironmental, Inc. (GZA) completed the attached *Migration of Contaminated Groundwater Under Control RCRA Corrective Action Environmental Indicator Questionnaire Form (CA750)* for the Lightolier Facility in Norwich, Connecticut. As indicated on the Form, GZA concluded that the available site information supports a finding that "Migration of Groundwater Under Control" has been verified for the Lightolier site.

If you have any question or comments, please do not hesitate to contact John Spirito at (401) 421-4140, ext. 3405, or via E-mail at jspirito@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

John J. Spirito, P.E.
Principal

Thomas J. Stark
Project Reviewer

JJS:etb

Attachments: Form CA 750

cc: Donald Gentry, GTG
Richard Smith, Robinson & Cole
Ronald Westgate, Lightolier

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U.S. ENVIRONMENTAL PROTECTION AGENCY FORM DOCUMENT

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: Lightolier
Facility Address: 40 Wisconsin Ave., Norwich, CT
Facility EPA ID #: CTD 000841120

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?

X¹ 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.

¹ Please be aware that in our preparation of this form and in an attempt to provide the agency with a thorough understanding of the site conditions, we have included information that has been gathered during investigations performed to assess Solid Waste Management Units (SWMU's) and Regulated Units under RCRA, as well as non-RCRA regulated units which are being investigated under the authorities of the Connecticut DEP. Specifically, in our opinion, the site investigation work performed at the site shows that the VOCs (primarily trichloroethene) present at the site are not the result of routine or systematic releases from discernible units into which solid wastes had been placed at any time.

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

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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.”

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

Rationale and Reference(s): As summarized in Section 4.00 of GZA's September 8, 2005 "Annual (April 2004 to April 2005) Groundwater Monitoring Report", trichloroethene (TCE), chromium, lead, and cyanide are currently present in groundwater at the site at concentrations that exceed CTDEP GA Groundwater Protection Criteria (GWPC), which presently apply to the site. The current distribution of TCE across the site is shown in Figure 5 of the Groundwater Monitoring Report. The results of the groundwater monitoring performed from April 2004 through April 2005 are compared to GA GWPC in Tables 4 through 7 in the September 2005 Groundwater Monitoring Report.

Footnotes:

"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): Affected groundwater is expected to remain within the (horizontal and vertical) dimensions of the existing area of affected groundwater, based upon the groundwater exploration and testing that has been performed at the site and given the remedial actions that have been taken at the site. Identified releases occurred prior to 1991. Industrial

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activities at the site that involved the use of hazardous materials ceased in 1991. The soil and groundwater data collected from 1985 to June of 2002 is summarized in GZA's June 2002 "SWP Site Characterization Report". Historical groundwater test results are summarized for each monitoring well location in Tables 14 through 60 of GZA's September 2005 "Groundwater Monitoring Report". Both reports are on file with the EPA and CTDEP. Prior to 2001, constituents were identified above CTDEP Pollutant Mobility Criteria (PMC) in soil within in five Areas of Concern (AOC) 3, 4, 5, 7 and 21. During site characterization, a total of six release areas were identified. As summarized in GZA's September 2005 Remedial Action Plan, remedial actions have been taken that have either removed the impacted soil, significantly reduced levels of released constituents in soil via soil vapor extraction (SVE) and/or ensured that impacted soils are maintained beneath structures in an "environmentally isolated" condition (i.e., the soil is not subject to rainfall infiltration). Therefore, the potential for migration of constituents to the groundwater from each of the soil release areas has either been eliminated or greatly reduced by the remedial actions taken. The current limit of the TCE plume is shown in Figure 5 of the September 2005 Groundwater Monitoring Report. Consistent with the improved soil release area conditions, essentially the same distribution and the same or much lower concentrations of TCE were observed in groundwater collected from individual monitoring wells in 2005 than in earlier years. In addition, the distribution and concentrations of metals and cyanide have decreased significantly with time. As illustrated for cyanide and chromium in Figures 8 through 10 and 11 through 13, respectively, of the September 2005 Groundwater Monitoring Report, the concentrations of cyanide and chromium is decreasing in wells near the release areas and has remained low in downgradient well locations. The TCE, metal and cyanide plume configuration is consistent with the identified soil release areas and estimated groundwater flow patterns (i.e., constituents in soil above PMCs are present in groundwater beneath and/or directly downgradient of the soil release areas). The data shows the presence of a TCE plume that migrates towards and into Elisha Brook, located near the easterly border of the site. Hydraulic heads in wells on both sides of the Brook show that groundwater flow is towards and into the Brook. The available data does not indicate the presence of residual contamination conditions, such as the presence of dense non-aqueous phase liquid, that could result in increased TCE concentrations over time or plume expansion. Monitoring of groundwater quality in multilevel wells placed on the opposite side of the Brook have shown an absence of plume migration beyond the Brook.

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

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(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 Elisha Brook and that flow on the side of the Brook opposite the site, is also towards the Brook. Sampling of the Brook, from 1987 to 2005, has shown the presence of part per billion (ppb) levels of TCE, that are consistent with the groundwater flow regime discharging into the Brook. As shown in Table 75 and as illustrated in Plot I 6 in Appendix I of the September 2005 Groundwater Monitoring Report, the detected concentrations of TCE in surface water have declined from those observed in 1987 and have been fairly stable, generally in the range of 4 to 8 ppb since 1989.

5. Is the **discharge** of “contaminated” groundwater into surface water likely to be **“insignificant”** (i.e., the maximum concentration³ 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 concentration³ 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

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potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ 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 concentrations³ 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): In our opinion, as discussed in the September 2005 Groundwater Monitoring Report, available groundwater and surface water quality data indicates that the TCE plume reached the Brook years ago and that the levels of TCE reaching the Brook have stabilized (with resultant Brook concentrations generally in the range of 4 to 8 ppb since 1989) and are expected to decline to below detection limits. Concentrations of constituents of concern in groundwater have not increased and have either remained stable or declined at individual well locations over at least the last 10 years. As discussed in the September 2005 Report, of the inorganic constituents, only a few metals and cyanide were detected in the last few years in samples of groundwater at concentrations above the SWPC (which is the Freshwater Aquatic Life Criteria (FWALC)) and then only in groundwater samples from a few wells. From April 2004 through April 2005, these only included the samples from monitoring wells MW-2, MW2001-9D and MW-6 on one or two occasions. In addition, with the exception of two metals (copper and lead), the mean concentration of these metals and cyanide did not exceed the FWALC in samples collected since April 2004 from downgradient wells proximate to the Brook. As shown in Table 12 of the September 2005 Report, which lists the more recent test results for the downgradient in-plume wells near the Brook, the mean of the copper and lead concentrations were 0.007 and 0.003 mg/l, only slightly above the FWALC of 0.0048 and 0.0012, respectively.

The most recent surface water test results, which are summarized in Table 13B of the September 2005 Groundwater Monitoring Report, show that detectable VOC and metals concentrations in the adjacent surface water body, Elisha Brook, downstream of the site were below Water Quality Benchmarks (WQBs) and/or CTDEP Freshwater Aquatic Life Criteria (FWALC), as defined in the Table. Historically, as summarized in Table 75 of the September 2005 Groundwater Monitoring Report, constituents have been below WQBs and/or FWALC, with few exceptions. The exceptions include the past detection of cadmium, copper, and/or lead above FWALC sporadically at the upstream, midstream, and downstream location during sampling rounds in the past (between 1987 and 2003). This occurred for cadmium only once and for the other two

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metals only three times over the 18 years of monitoring. Of greater significance, whenever these metals were detected at the downstream location they were also detected at the same or higher concentration at the upstream location. Therefore, the presence of the metal was not a result of plume discharge to the Brook (i.e., was due to conditions not associated with the site).

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 implemented⁴)?

_____ 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.

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

1. 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): Groundwater and surface water monitoring is proposed to continue at the site to verify that contaminants in groundwater will remain within the dimensions of the existing area of contaminated groundwater. The proposed plan, which was submitted to the DEP for review and approval, is presented in GZA's September 2005 RAP. A copy was also forwarded to the EPA. The plan specifies that samples of groundwater and surface water will be collected from 13 monitoring well locations and 2 surface water stations on an annual schedule with laboratory analysis for VOCs, metals and cyanide. The stated objectives of the proposed confirmation monitoring program is to provide a means to evaluate if the following conditions

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are being met: 1- No Expansion of Plume Limits; 2- Concentrations Downgradient of On-going Source Area Remedial Activities continue declining; 3- No Evidence of Adverse Impact to the Brook; and 4- Declining Concentrations in shallow Groundwater Proximate to Occupied Buildings do not present indoor air quality concerns.

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 Lightolier facility, EPA ID # CTD000841120, located at 40 Wisconsin Avenue in Norwich, Connecticut. 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) <u>Carolyn J. Casey</u>	Date	<u>12/7/05</u>
	(print) <u>CAROLYN J. CASEY</u>		
	(title) <u>RCRA FACILITY MANAGER</u>		
Supervisor	(signature) <u>Raphael J. Cody</u>	Date	<u>2-23-06</u>
	(print) <u>RAPHAEL J. CODY</u>		
	(title) <u>ACTING SECTION CHIEF</u>		
	(EPA Region or State) <u>EPA REGION 1</u>		

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Locations where References may be found:

GZA's June 2002 "Supplemental Work Plan Site Characterization Report"
GZA's July 2004 "Addendum to Supplemental Work Plan (SWP) for Site
Characterization Report"
GZA's September 2005 "Annual (April 2004 to April 2005) Groundwater
Monitoring Report . These reports are on file with the CTDEP and EPA

Contact telephone and e-mail numbers

(name) Ronald Westgate
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(e-mail) rwestgate@genlyte.com



Ron Westgate
<RWestgate@genlyte.com>
11/29/2005 04:16 PM

To Carolyn Casey/R1/USEPA/US@EPA
cc Dgentry@genlytegroup.com, aflori@gza.com,
jspirito@gza.com, peter.hill@po.state.ct.us
bcc
Subject GWM Pogram for Norwich

Carolyn,

As per your E mail and our subsequent discussion, we will include MW2004-3M and MW2004-3D in the Proposed GWM Program which is currently under review and yet to be approved. Additional changes may be required following the Departments review but these two wells will be added.

Ron Westgate