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:	CCL Custom Manufacturing, Inc.
Facility Address:	1 West Hegeler Lane, Danville, Illinois
Facility EPA ID #:	ILD005141726

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):

Rationale:
Based on discussions presented in the Corrective Measures Study (CMS) and RCRA Facility Investigation (RFI) reports, facility groundwater appears to have been characterized as an Illinois Class II groundwater. Maximum concentrations of key contaminants detected in groundwater above Illinois Groundwater Quality Standards for Class II: General Resource Groundwater (Class II) and Maximum Contaminant Levels (MCLs) include: tetrachloroethene (PCE), 3,400 ug/L (Class II: 25 ug/L; MCL: 5 ug/L); trichloroethene (TCE), 788 ug/L (Class II: NA; MCL: 5 ug/L); 1,1,1-trichloroethane (TCA), 2,200 ug/L (Class II: 1,000 ug/L; MCL: 200 ug/L); cis-1,2-dichloroethene (DCE), 3,440 ug/L (Class II: 200 ug/L; MCL: 70 ug/L); 1,1-DCE, 317 ug/L (Class II: 35 ug/L; MCL: 7 ug/L); and, vinyl chloride, 242 ug/L (Class II: 10 ug/L; MCL: 2 ug/L). Trichlorofluoromethane was also detected at a maximum concentration of 4,840 ug/L; however, a Class II standard or MCL for trichlorofluoromethane has yet to be established.

Reference:
Updated Corrective Measures Study Report, dated January 2001
RCRA Facility Investigation Revised Report, dated April 1, 1997
Groundwater Monitoring Report, Second Quarter 2003, dated June 27, 2003
Illinois Administrative Code, Title 35, Chapter I, Part 620, Section 620.420: Groundwater Quality Standards for Class II: General Resource Groundwater, dated February 5, 2002
National Primary Drinking Water Standards, Maximum Contaminant Levels, dated July 2002

[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):

Rationale:
For the purpose of managing contaminated groundwater, a rectangular area comprising approximately eighty acres is viewed as a single unit. This portion of the facility extends from the former surface impoundments in the southwest to the main building area in the northeast. The facility has been operating a groundwater interceptor trench for nearly 20 years. The facility is fortunate to have a thick layer of shale from about 20 feet below the ground surface to about 75 feet below the ground surface. This shale prevents any significant downward migration of contaminated groundwater. Groundwater in the shallow aquifer (the upper 20 feet below ground surface) flows generally in a northwesterly direction. The interceptor trench has been constructed along the northern and western edges of this groundwater management area to stop the horizontal migration of contaminated groundwater in the shallow aquifer. The interceptor trench was constructed by excavating a trench to a depth of about fifteen feet, laying a perforated six-inch diameter pipe near the bottom, and backfilling the trench with highly permeable sand. The pipe is sloped to drain toward a sump in the northwest corner of the area. Contaminated groundwater flows into the sand where it is collected by the pipe. It drains to the sump and is pumped up to the ground surface, where it is treated and discharged to the local sewer system. Groundwater monitoring wells 3B, 3C, 3E, 7, 8, and 9A are located outside the interceptor trench to verify that contamination is not escaping through the trench. Monitoring wells 3L and 3M are located at the southern end of the interceptor trench and monitoring wells 9B and 9C are located eastern the eastern end of the trench to verify that groundwater contamination is not escaping around the ends of the trench. Samples have been collected from all of these wells, and have been analyzed for the hazardous constituents of concern. All of the samples indicate that the groundwater outside the interceptor trench meets the MCLSs for all constituents. Thus, the interceptor trench appears to be effectively stopping the migration of contaminated groundwater from the shallow aquifer. No evidence of contamination has been identified or is suspected in the deeper aquifer(s). Contaminant concentrations within the area of contamination have generally decreased since the trench has been in operation. Contaminants have not been detected in

[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.

groundwater samples collected from monitoring wells located beyond the groundwater interceptor trench (perimeter wells) above MCLs or Illinois Class II standards during the first and second 2003 quarterly groundwater monitoring events. Since the trench has been in operation, groundwater gradients towards the trench have been documented. Historical (pre-trench operation) groundwater flow in a northwest direction has been reversed in the vicinity of the trench. As a result, the trench is extracting both "contaminated" groundwater from the site to the south and east of the trench as well as groundwater exhibiting no impacts above regulatory criteria from areas west and north of the trench.

References:
Updated Corrective Measures Study Report, dated January 2001
RCRA Facility Investigation Revised Report, dated April 1, 1997
Groundwater Monitoring Report, Second Quarter 2003, dated June 27, 2003
Groundwater Monitoring Report, First Quarter 2003, dated March 27, 2003

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):

Rationale:
The only existing surface water body within the boundary of the groundwater interceptor trench appears to be the Fire Pond. Based upon the available and most recent groundwater sampling results (2003), contaminant concentrations in groundwater upgradient of the Fire Pond (well MW-5D) do not exceed Illinois Class II groundwater standards. Tetrachloroethene (PCE) was detected at a concentration of 7.58 ug/L, above the MCL (5 ug/L), but below the Illinois Class II standard (25 ug/L) during the second quarter of 2003. PCE was not detected at this location during the first quarter 2003. The nearest off-site surface water bodies are a creek (Grape Creek) located northwest of the facility and a Borrow Pond located southwest of the main plant. Both surface water bodies are located beyond the groundwater interceptor trench and does not appear to be subject to recharge by "contaminated" groundwater. The interceptor trench prevents the migration of contaminated groundwater into the creek. In addition, analytical results for perimeter monitoring wells indicate no detections of contaminants at concentrations above Class II standards or MCLs.

References:
Groundwater Monitoring Report, Second Quarter 2003, dated June 27, 2003
Groundwater Monitoring Report, First Quarter 2003, dated March 27, 2003

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

.

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of 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):

Rationale:
The facility appears to have an Illinois EPA post-closure groundwater monitoring program in place as the result of the closure of the former Surface Impoundments. In addition, the facility has indicated that the operation of the groundwater interceptor trench and groundwater monitoring are anticipated to continue for an extended period of time (September 2003 U.S. EPA/CCL Meeting). It will be necessary to continue groundwater monitoring to ensure the performance of the groundwater interceptor trench is maintained and the migration of contaminated groundwater is under control. Should groundwater monitoring be discontinued, the determination that the migration of contaminated groundwater is under control ("YE" status code) may no longer be valid.

References:
Updated Corrective Measures Study Report, dated January 2001
RCRA Facility Investigation Revised Report, dated April 1, 1997
Groundwater Monitoring Report, Second Quarter 2003, dated June 27, 2003
Groundwater Monitoring Report, First Quarter 2003, dated March 27, 2003

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 CCL Custom Manufacturing, Inc. facility , EPA ID # ILD005141726 , located at 1 West Hegeler Lane, Danville, Illinois. 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) _____
(title) _____

Supervisor (signature) _____ Date _____
(print) _____
(title) _____
(EPA Region or State) _____

Locations where References may be found:
USEPA Region V
WPTD Records Center
77 W. Jackson, Blvd.
Chicago, IL. 60604

Contact telephone and e-mail numbers

(name) Juan Thomas
(phone #) 312-886-6010
(e-mail) thomas.juan@epa.gov