Continental Cement - HW 15D 11-

Documentation of Environmental Indicator Determination in Accordance with EPA Interim Final Guidance 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS Code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name:
Continental Cement Company, L.L.C.
Facility Address:
10107 Highway 79, Hannibal, MO 63401
Facility EPA ID #:
MOD054018288

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 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 EIs 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 EIs 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 groundwater 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 Determination status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be "**contaminated**"[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

   _____ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

   __X__ 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.

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[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).

Rationale and Reference(s): A RCRA Facility Assessment was conducted at CCC by PRC Environmental, Inc. on behalf of the Environmental Protection Agency (EPA). The final RFA report dated September 23, 1992 identified a total of 27 SWMUs and 5 AOCs. Nine SWMUs and two AOCs were identified in the RFA Report as requiring further corrective action. The Missouri Department of Natural Resources conducted a site reconnaissance visit to observe and evaluate the SWMUs and AOCs. The Department found no documented reports of releases from the SWMUs/AOCs identified for further corrective action in the RFA report except for the SWMU designated SWMU #26 where lead was detected at elevated levels. The facility conducted, with Departmental review, investigation and excavation of the lead impacted sediments at SWMU #26. Post-excavation sampling indicated that levels of hazardous constituents at SWMU#26 were below applicable state and federal regulatory guidance criteria for contaminated environmental media. During the MDNR's site reconnaissance visit another SWMU designated SWMU #28 was discovered. The facility has decommissioned this SWMU and conducted a hazardous waste release assessment, which was completed prior to issuance of the final permit. Results of this assessment can be found in report entitled Final Stabilization Report for Frago Pond, dated June 11, 1999 and amended July 15, 1999. Based on review of this document the Department determined that no further corrective action was required at SWMU #28 or the remainder of the facility except for the development of an operation, maintenance, and monitoring plan for the cement kiln dust (CKD) landfill, CKD handling procedures, SWMU #26, and storm water run-off. Detailed information concerning the Department's corrective action decision can be found in a Departmental Memorandum to the Continental Cement Company, L.L.C. Hazardous Waste Treatment, Storage, and Disposal File dated December 7, 1998 (attached) and corrections dated September 26, 2000 (attached), Missouri Hazardous Waste Management Facility Permit # MOD054018288, Final Stabilization Report for Frago Pond dated June 11, 1999 and amended July 15, 1999, and a Departmental memorandum, dated July 23, 1999 to the Continental Cement Company, L.L.C., Hazardous Waste Treatment, Storage, and Disposal file.

In addition to levels of hazardous constituents in soil at the facility being below levels which would pose a potential threat to human health or the environment via leaching to groundwater, a geologic evaluation of the facility presented in the RFA and geologic/hydrogeologic information excerpted from an evaluation conducted for a nearby facility by the MDNR's Division of Geology and Land Survey (DGLS, I.D. 020-97, attached) indicate the presence of geologic strata of sufficient thickness and impermeability (400 feet of limestone and shale) which, coupled with the knowledge of the depth of local groundwater aquifers (in excess of 400 feet deep) and the low levels of hazardous constituents in environmental media at the noted SWMUs, indicates that significant impacts to the groundwater in the area are highly unlikely.

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

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

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

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

   Rationale and Reference(s):_____
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[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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

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

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

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

Rationale and Reference(s):_____

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times the appropriate groundwater "level," and there are no other conditions (e.g., the nature or 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.

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

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration [3] of <u>each</u> contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times the 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):_____

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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

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

[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.

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

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

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

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

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

Rationale and Reference(s):_____

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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 Continental Cement Company, L.L.C. facility, EPA ID # MOD054018288, located at Hannibal, MO. 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: _____ Date 9/26/00
David L. Maschler, P.E.
Environmental Engineer

Supervisor: _____ Date 9-26-00
Aaron Schmidt, P.E.
Unit Chief
Missouri Department of Natural Resources

Locations where References may be found:
Missouri Department of Natural Resources Hazardous Waste Storage Treament, and Disposal file for Continental Cement Company, L.L.C., Hannibal Missouri.

Contact telephone and e-mail numbers

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STATE OF MISSOURI
Mel Carnahan, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

MEMORANDUM

DATE: September 26, 2000

TO: Continental Cement Company, L.L.C. Hannibal, Missouri
EPA ID#: MOD054018288, Hazardous Waste – TSD File

THROUGH: Aaron Schmidt, P.E., Chief
Treatment Unit, Hazardous Waste Program

FROM: David L. Maschler, P.E., Environmental Engineer
Treatment Unit, Hazardous Waste Program

SUBJECT: Correction to Justification for No Further Corrective Action Memorandum Dated December 7, 1998

In the course of preparing documentation of Environmental Indicator (EI) determination, in accordance with EPA Interim Final Guidance 2/5/99 RCRA Corrective Action Environmental Indicator (EI) RCRIS Code (CA750), a small error was found in the December 7, 1998, memorandum from Fuad Marmash to the Continental Cement Company Hazardous Waste TSD File, Subject: Justification for no Further Corrective Action at Previously Identified Solid Waste Management Units and Areas of Concern for Continental Cement Company Facility Pursuant to Hazardous Waste Management Facility (HWMF) Permit. This memorandum stated that Benzo(a)pyrene was detected in sediment sample #019 at SWMU #26 at a concentration of 1.9 mg/kg, which was above potentially applicable health-based criteria including the Missouri Department of Health's (MDOH) proposed Any-Use Soil Levels (ASLs) of 0.68 mg/kg for Residential Settings. The actual concentration was 0.65 mg/kg which is below the ASL. The no further corrective action determination is not effected by this error.

DM:bi