

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: Capital Lubricants Company, Inc.
Facility Address: 569 Industrial Drive, Lewisberry, PA 17339
Facility EPA ID #: PAD980537609

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?

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 nonhuman (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).

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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.

Rationale and Reference(s):

According to the New Cumberland, Pennsylvania topographic map (1998), the elevation of the facility is approximately 540 feet above mean sea level. Groundwater flow direction at the facility is not known, but normally reflects the topography of the area. Based on the topographic map and observations during the URS site visit, groundwater at the property flows to the east, south, southeast, and southwest. According to the PA, the facility and surrounding area are underlain by the Triassic Gettysburg Formation that consists of interbedded red shale and siltstone, gray sandstone, brown and red quartz conglomerate, and limestone conglomerate (NUS, 1990). Groundwater occurs largely in the jointed and fractured unweathered bedrock. As noted in the PA, two dominant fracture traces (one trending N 30° E and the other trending N 30° W) have been mapped near the facility. The fractures may not be hydraulically connected; therefore, water levels in adjacent wells may not be at the same elevation. Depth to groundwater ranges from 0 to approximately 80 feet bgs, in the vicinity of the facility (NUS, 1990). Groundwater was not encountered in the overburden materials during Dunn’s subsurface environmental evaluation in 1989 (believed to be at 570 Industrial Drive property), but was encountered at approximately 12 feet bgs during the removal of the USTs in 1993 (569 Industrial Drive property). The dominant direction of groundwater flow was expected to be to the southeast toward an intermittent stream located approximately 1,300 feet southeast of the facility (NUS, 1990).

According to the PaGWIS database, a 125-foot-deep open-hole well owned by the Capital Lubricants was installed on October 17, 1978; however, it is believed that this well is located at the 570 Industrial Drive facility although it could also be the one documented on the 569 Industrial Drive Site layout maps. The Site Layout map included in the 569 Industrial Drive facility’s 1995 NPDES Permit application identified a water supply well between the main building and the outdoor AST farm. The PaGWIS database indicates that a water bearing zone yielding 10 gpm was encountered at 109 feet bgs. Depth to bedrock was 62 feet bgs. The PaGWIS database places this well (PA Well ID 156370) approximately 0.5 mile east of facility along Industrial Drive (assumed to be an incorrect location). According to the Dunn report (1989), the well was located on the northeastern portion of the property. Dunn sampled this well for VOCs during their investigation conducted in 1989. Only PCE was detected at a concentration of 2.2 ug/L (2.1 ug/L in the duplicate sample), which is below the current PADEP Land Recycling Program’s nonresidential used-aquifer medium-specific concentration (MSC) of 5 ug/L.

Recent reports from 2005 (URS) and 2010 (BL Companies) did not observe a water supply well at the 569 Industrial Drive property, and a well was not observed onsite during the 2013 site visit. (Note: If the northeastern portion of the property is appropriate, the water supply well located at the 569 Industrial Drive facility is located in the northeast quadrant of the fenced-in area and the well located at the 570 Industrial Drive facility is located in the northwest quadrant of the site. However, if the north arrow was incorrect on the missing 1989 map, as noted on other facility maps (1993/1995), the sampled well may have been the one at 570 Industrial Drive.)

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).

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According to the PA (NUS, 1990), residents within a three mile radius of the facility obtained their drinking water from private wells and two water companies: the Pennsylvania American Water Company (PAWC) and the Dauphin Consolidated Water Company (DCWC, now United Water). PAWC obtained their water from two surface water intakes and two wells. One surface water intake was located 15 miles northwest of the facility on the Conodoguinet Creek near Sample Bridge Road north of Route 11. The other surface water intake was located four miles north-northwest of the facility on the Yellow Breeches Creek, 2,000 feet west of the confluence with the Susquehanna River, upstream of the facility. Neither intake received drainage from the facility. The two PAWC wells were reportedly located near the water tank in Fairview Park, 1.5 miles north-northwest of the facility (NUS, 1990). (Note: PAWC's 2010 Annual Water Quality Report states that its source water is obtained from the Yellow Breeches and Conodoguinet Creeks.) DCWC obtained water from two wells located 0.75 miles and 1.5 miles southeast of the facility (NUS, 1990). According to the PADEP eMapPA database, none of United Water's supply wells are located within a 1-mile radius of the facility.

Residential wells have been identified and previously sampled northeast and southwest to southeast of the facility. Although other unidentified residential wells may also exist; PADEP has tasked a neighboring/unrelated facility with identification and subsequent monitoring (if needed) of these wells. In addition, the neighboring/unrelated facility monitors the shallow monitoring wells on their property (located in the assumed downgradient direction from the subject facility). It has been reported, there are no known concerns at these nearby residential well locations at this time.

Groundwater is not used at the facility. Shallow groundwater was encountered in May 4, 1993, when ESC removed three USTs from the southern parking lot of the facility. The native soil consisted of dark red-brown clayey silt and gravel (saprolite) to an approximate depth of 12 feet bgs, the depth at which bedrock was encountered. Groundwater was encountered at the soil/bedrock interface (approximately 12 feet bgs) (reported to be perched groundwater). One groundwater sample was collected from beneath each UST (T1GW and T2GW) from approximately 12 feet bgs. The groundwater samples were analyzed for BTEX, TPH, and ethylene glycol. None of the constituents analyzed were above the laboratory detection limits in the groundwater samples.

On January 24, 1989, Dunn collected a groundwater sample from the potable well identified as being located on the northeastern corner of the property (assumed to be 570 Industrial Drive). The sample was collected from an outside faucet and analyzed for VOCs via USEPA Method 601/602. PCE was detected at 2.2 ug/L (2.1 ug/L in a duplicate sample), which is below the current PADEP nonresidential used-aquifer MSC of 5 ug/L. Mineral spirits was detected at the reporting limit of 20 ug/L. No other VOCs were detected in the groundwater sample. VOCs have not been detected in the nearby residential wells monitored by the neighboring/unrelated facility.

Although there is known groundwater contamination in the vicinity of the facility, there have been no known releases to groundwater at this facility, groundwater is not used at this facility, several potential downgradient receptors (residential wells to the northeast and southwest to southeast) have been or are currently being monitored by the neighboring/unrelated facility, and these wells appear not to have been impacted at this time. Therefore, it is concluded that the groundwater exposure pathway is not relevant and no controls are deemed necessary at this time.

Reference: Environmental Indicator Inspection Report— Capital Lubricants Company, Baker, June 2014.

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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):

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):

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.

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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)?

_____ 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 judgement³ 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 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):

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

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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)?

_____ 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.

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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).

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 Capital Lubricants Company, Inc. facility, EPA ID # PAD980537609, located at 569 Industrial Drive, Lewisberry, PA 17339. 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 reevaluated 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></u>	Date	<u>9-16-14</u>
	(print)	<u>Griff Miller</u>		
	(title)	<u>Remedial Project Manager</u>		
Supervisor	(signature)	<u></u>	Date	<u>2-10-15</u> 2-10-14 <u>pgs</u>
	(print)	<u>Paul Gotthold</u>		
	(title)	<u>Associate Director</u>		
	(EPA Region or State)	<u>EPA Region 3</u>		

Locations where References may be found:

USEPA Region III Land and Chemicals Management Division 1650 Arch Street Philadelphia, PA 19103	PADEP South Central Regional Office 909 Elmerton Ave. Harrisburg, PA 17110
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