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: **Westcode, Inc.**
Facility Address: **90 Great Valley Parkway, Frazer, Pennsylvania 19355**
Facility EPA ID #: **PAD071451389**

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])

   [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?

____ 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):

Westcode, Inc. (Westcode or facility) operated at 90 Great Valley Parkway (Building 4) within the Great Valley Corporate Center in Frazer, Chester County, Pennsylvania from September 1979 until June 1989, when the company moved to Malvern, PA. The facility consists of a single building situated on 5.6 acres, approximately 90 percent of which are covered with impermeable surfaces (asphalt parking areas, concrete walkways, and building footprints), and the remaining area is grass or tree-covered. The facility manufactured and assembled railroad freight car brake valves and transit car components and subassemblies. The manufacturing process included a small electroplating operation and associated metal cleaning and preparation operations. Process areas at the facility included a treatment area containing electroplating process and wastewater treatment tanks, a process chemical storage area, and a waste drum storage area. The process chemical storage and treatment tank areas were located in the northeastern corner of the building

Centocor purchased the facility in September 1989 and completely renovated the interior of the building to accommodate its biological processes. While still owned by Centocor, the facility is currently operated by Janssen Biotech, Inc. (Janssen) for the production of Remicade®, a human protein that is utilized to treat pain and inflammation. Janssen is a large quantity generator of hazardous waste in total at its properties in the Great Valley Corporate Center, but produces only one 55-gallon drum per month of bioreactor cleanout liquids consisting of water, acetone and methanol at the former Westcode property.

Four potential solid waste management units (SWMUs) were identified in an Environmental Priorities Initiative Preliminary Assessment (EPI-PA), dated August 10, 1990: the waste drum storage area, the below-grade spill tank, the sludge dewatering tank, and the treatment/storage tank. All four of the potential SWMUs were located in the northeastern corner of the building.

SWMU 1 - Waste Drum Storage Area: The waste drum storage area was located immediately south of the treatment area. A single layer of drums containing spent solvents, electroplating sludges and other ignitable or corrosive wastes was shown stored along the wall in Westcode's August 1983 Part A Hazardous Waste Permit Application. The drums were stored directly on the concrete floor. The building itself provided additional containment for this area.

SWMU 2 - Below-grade Spill Tank: A 4-foot by 4-foot by 4-foot below-grade spill tank was located outside the northeastern corner of the building. The below-grade spill tank serviced the process chemical storage area.

SWMU 3 - Sludge Dewatering Tank: The sludge dewatering tank that contained electroplating sludges was located in the former treatment area. At the time of its operation, the treatment area was situated on a concrete floor and was surrounded by an approximately 1-foot high concrete berm and the concrete walls of the building.

SWMU 4 - Treatment/Storage Tank: The treatment/storage tank that contained electroplating sludges, plating bath wastes,

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPLand/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).

and spent stripping and cleaning bath solutions was also located in the former treatment area described above.

During Westcode's operation at the facility, no spills, discharges or dumping of any types of hazardous waste were reported. The SWMU's listed above, with the exception of the Below-grade Spill Tank, are known to have been removed from the facility prior to Westcode vacating the property in June 1989. The approximate locations of the former interior SWMUs were observed during an EPA site visit on February 13, 2013. The former waste drum storage area was located within a portion of what is now the loading dock. The process chemical storage area was located in what is now the water room. The former treatment area could not be completely observed because it is a process area that required gowning training for access. This area was viewed through the windows of the entry door. All of the areas within the building were exceptionally clean, as required for Jannsen's biopharmaceutical processes

The area where the below-grade spill tank was reportedly located was also observed during the February 13, 2013 site visit. There was no evidence that the tank was still in place at that location and no piping to the spill tank on the either the interior or exterior walls of the building was observed. The area where the below-grade spill tank was located was grass-covered and no stressed vegetation was observed. Janssen representatives had no knowledge of the tank's existence or fate.

Groundwater

The facility is underlain by Conestoga Series soil, a deep, well drained silt loam with moderate permeability that developed from calciferous schist, micaceous limestone, or marble. The rocks in the area range in age from Precambrian to Ordovician and are mostly metamorphosed sediments, but include large amounts of igneous rocks The Elbrook formation consists of a light blue to gray, finely laminated, fine-grained marble, containing some interbeds of dolomite and limestone. The formation has a moderate porosity and moderate to high permeability. Solution channels provide secondary porosity of moderate magnitude. The expected direction of shallow groundwater flow is to the north toward the north branch of Valley Creek.

The 1990 EPI-PA estimated that 850,000 people within a 3-mile radius of the facility relied on groundwater for their drinking water supply. Two water companies, the Borough of Malvern Water System and the Philadelphia Suburban Water Company, supplied the majority of those people with drinking water. Currently, water is supplied by Aqua Pennsylvania. Approximately 18 private wells were located within a 1-mile radius of the facility with the nearest well located 3,000 feet from the facility.

The Pennsylvania Department of Conservation and Natural Resources Groundwater Information System, accessed in October 2011, indicated 15 groundwater wells located within a 0.6 mile radius of the facility. One former commercial well was identified approximately 0.5 miles northeast of the facility within the quarry. One unused domestic well is located approximately 0.4 miles east of the facility, and the remaining 13 wells are located southwest, south, and southeast of the facility. Twelve of those wells are used for domestic purposes and range in depth from 80 to 360 feet. One 360-foot deep commercial well is located southeast of the facility.

Groundwater has never been monitored at the facility as a release of hazardous constituents is neither documented nor suspected at the facility. There are no known potable water wells on the property or within the Great Valley Corporate Center.

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.

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?"

____ 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):

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 **Westcode, Inc.** facility, EPA ID # **PAD071451389** , located at **90 Great Valley Parkway, Frazer, Pennsylvania 19355**.

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)	Andrew Clibanoff	Date 6/24/13
	(print)	Andrew Clibanoff	6/24/13
	(title)		
Supervisor	(signature)	Paul Gotthold	Date 6-26-13
	(print)	Paul Gotthold	
	(title)	ASSOCIATE DIR, PA Rem LCD	
	(EPA Region or State)	Region 3	

Locations where References may be found:

USEPA Region III
Land and Chemicals
Management Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
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2 E. Main Street
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