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:	Kaiser Aluminum and Chemical Facility
Facility Address:	1015 East 12th Street, Erie, PA 16503
Facility EPA ID #:	PAD 005 031 737

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 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 "Current Human Exposures Under Controls" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "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 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 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"[3] above appropriately protective risk-based "levels" (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 (for any media) – skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Groundwater

In 1993, contamination was encountered on the Kaiser property south of Building 3 during storm sewer maintenance activities. PADEP and the Erie County Health Department were notified. PADEP sampled the oil and determined it to be weathered fuel oil. Monitoring wells were subsequently installed by Kaiser; however these monitoring wells no longer exist. The Phase I ESA report indicated that no further action was required of Kaiser. No sampling results were found in PADEP or USEPA Region III files.

A March 2005 Work Plan submitted to PADEP indicated that several monitoring wells would be installed and sampled and several soil samples would be collected. Monitoring wells were installed during the week of September 26, 2005. Sampling activities are ongoing.

Groundwater contamination is expected due to historic operations including leaking presses (144 tons of oil-contaminated soil and debris were removed in 2000 beneath Buildings 7, 8, and 9 during floor replacement activities), disposal of caustic and oily sludges to an onsite lagoon for approximately 30 years, alleged disposal of caustic and oily sludges on the Driving Range Parcel, and use of several above and underground storage tanks (ASTs and USTs). While several USTs and ASTs have been removed or closed in place, no soil samples were collected.

Groundwater sampling was completed in September 2005 (monitoring wells were installed during the week of September 26, 2005). Groundwater samples were collected from the former golf driving parcel (eastern portion of the site, west of the fenceline) and the balance of the site.

MACTEC recently provided the September 2005 groundwater sampling results for the site. MACTEC indicated in documents provided to TtEC that they intend to request from PAFEP a non-use aquifer designation for the site where "the aquifer under a site is not used or planned to be used for drinking water or agricultural purposes". Groundwater is not used within the City of Erie, therefore MACTEC expects PADEP to grant this designation.

MACTEC compared the groundwater results to PADEP Used Aquifer Non-Residential Groundwater MSCs and the Non-Use Aquifer Non-Residential Groundwater MSCs. Results were as follows:

[3] "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).

AREA/MEDIA	COMMENTS
Golf Driving Range/Groundwater	
VOCs	No non-residential used or non-use aquifer exceedances at the point of compliance.
SVOCs	No non-residential used or non-use aquifer exceedances at the point of compliance.
PCBs	No non-residential used or non-use aquifer exceedances at the point of compliance.
Metals	No non-residential used or non-use aquifer exceedances at the point of compliance.
Balance of Site/Groundwater	
VOCs	No non-residential used or non-use aquifer exceedances at the point of compliance.
SVOCs	No non-residential used or non-use aquifer exceedances at the point of compliance.
PCBs	No non-residential used or non-use aquifer exceedances at the point of compliance.
Metals	No non-residential used or non-use aquifer exceedances at the point of compliance.

MACTEC plans to collect groundwater samples from balance of the site the monitoring wells before the end of 2005.

2005 groundwater sampling data was summarized in the Human Health exposure form. Due to the size of the tables, they were not provided here.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[4] 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] "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 [5] 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 judgment/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 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 "level(s)," and if 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):

[5] 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[6])?

_____ 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[7] 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 a "NO" status, 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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[6] 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.

[7] 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 Former Kaiser Aluminum and Chemical, EPA ID # PAD, PAD 005 031 737 located at 1015 East 12th Street, in Erie, PA. 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) Richard Marttala

(title) _____

Supervisor: (signature) _____ Date _____

(print) _____

(title) _____

(EPA Region or State) _____

Completed by: (signature) _____ Date _____

(print) Richard Marttala

(title) _____

Supervisor: (signature) Paul Gotthold signed Date 8-4-09

(print) Paul Gotthold

(title) Associate Director, LCD

(EPA Region or State) EPA 3LC30

Locations where References may be found:

All reference documents are appended to the EI Report, which can be found at the USEPA Region III office in Philadelphia and the PADEP Northwest Regional office in Meadville.

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