DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures 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 soil, groundwater, surface water/sediments, and air, 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 "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 "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

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).

Current Human Exposures Under Control
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2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated"[1] 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 (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale/Key Contaminants
Groundwater		X		Groundwater samples collected from the site in September 2005 indicate no non-residential used or non-use aquifer exceedances at the point of compliance.
Air (indoors)[2]		X		No evidence of violations of the current air permits
Surface Soil (e.g., <2 ft)		X		Soil samples were collected in April and September 2005. One slight direct contact exceedance (arsenic level was 53.1 – MSC is 53); no other direct contact or non-residential used or non-use aquifer exceedances
Surface Water		X		The closest water body (Lake Erie) is 7 miles from the site.
Sediment		X		
Subsurface Soil (e.g., >2 ft)		X		Soil samples were collected in April and September 2005. One slight direct contact exceedance (arsenic level was 53.1 – MSC is 53); no other direct contact or non-residential used or non-use aquifer exceedances
Air (outdoors)		X		No evidence of violations of the current air permits

X If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient support documentation demonstrating that these "levels" are not exceeded.

If yes (for any media) – continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

If unknown (for any media) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

See following page for response to Rationale and Reference(s).

[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 appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Question #2 - Current Human Exposures under Control
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. 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:

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

Air (Indoor and Outdoor)
The facility is currently active, however no evidence of recent violations of air permits was found. Kaiser Aluminum historically received several Notices of Violations for air emissions.

Soil (Surface and Subsurface)
No evidence was found in PADEP or USEPA Region III files indicating that soil samples have been collected. A March 2005 Work Plan submitted to PADEP indicated that several soil samples would be collected in the future. Sampling activities are ongoing.

Surface and subsurface soil contamination is possible 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, alleged onsite disposal of boiler ash, 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.

Soil sampling was completed in April and September 2005. Soil 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 April and September 2005 soil sampling results for the site.

MACTEC compared the soil results to PADEP Act 2 MSCs for Direct Contact Non-Residential Surface Soil, Direct Contact Non-Residential Subsurface Soil, and Soil to Groundwater Pathway for a Non-Residential Used Aquifer. Results were as follows:

AREA/MEDIA	COMMENTS
Golf Driving Range/Soil	
VOCs	No direct contact or non-residential, used or non-use aquifer soil to groundwater exceedances
SVOCs	No direct contact or non
PCBs	No direct contact or non
Metals	No direct contact or non-residential non-use aquifer soil to groundwater exceedances
Balance of Site/Soil	
VOCs	No direct contact or non-residential used or non-use aquifer soil to groundwater exceedances
SVOCs	No direct contact or non-residential, non-use aquifer soil to groundwater exceedances
PCBs	No direct contact or non-residential used or non-use aquifer soil to groundwater exceedances
Metals	One slight direct contact exceedance (arsenic level was 53.1 – MSC is 53); no non-residential non-use aquifer soil to groundwater exceedances.

MACTEC reported that the total chromium from the surface soil sample collected at B2-002 (golf driving range) exceeded the hexavalent chromium MSC. MACTEC collected another sample at this location and analyzed it for hexavalent chromium; the concentration was non-detected. According to MACTEC, therefore, the chromium is likely trivalent chromium and the MSC is not exceeded.

Surface Water and Sediment
There are no surface water bodies (or sediment) at the site. However, surface water enters the site from railroad tracks through an open drainage ditch on the south central side of the property. The nearest major water body is Lake Erie, which is located 7 miles northwest of the site. No impacts to Lake Erie are expected from the site.

A 30-gallon release of a petroleum-based product in 1991 did impact the Garrison Run (unclear how far from the site). The material was discharged into a nearby storm sewer, which discharges to the Garrison Run.

2005 sampling data is summarized in the following tables.

3. Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[1]
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface, e.g., >2 ft)							
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors -- spaces for Media which are not "contaminated" as identified in #2 above.
2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media – Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations, some potential "Contaminated" Media – Human Receptor combinations (Pathways) do not have check spaces ("_____"). While these combinations may not be probable in most situations, they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media –receptor combination) – skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet) to analyze major pathways.

_____ If yes (pathways are complete for any "Contaminated" Media – Human Receptor combination) – continue after providing supporting explanation..

_____ If unknown (for any "Contaminated" Media – Human Receptor combination) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

[1] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"** (i.e., potentially[2] " unacceptable" levels) because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures (can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) – skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) – continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

[2] If there is any question on whether the identified exposures are "significant' (i.e., potentially "unacceptable") consult a Human Health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) – continue and enter a "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable") – continue and enter a "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) – continue and enter "IN" status code.

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE – Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Former Kaiser Aluminum and Chemical facility, EPA ID PAD 005 031 737, located at 1015 East 12th Street, in Erie, PA under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

_____

_____ NO – "Current Human Exposures" are NOT "Under Control."

_____ 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) Assoicate 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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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.