

US EPA ARCHIVE DOCUMENT

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

**RCRA Corrective Action  
Environmental Indicator (EI) RCRIS code (CA725)****Current Human Exposures Under Control**

<b>Facility Name:</b>	Former Federated Metals Corporation
<b>Facility Address:</b>	2330 Indianapolis Blvd., Hammond, Indiana
<b>Facility EPA ID #:</b>	IND 005 444 104

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 Control" 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).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”<sup>1</sup> 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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	x			Arsenic
Air (indoors) <sup>2</sup>		x		
Surface Soil (e.g., <2 ft)		x		
Surface Water		x		
Sediment		x		
Subsurf. Soil (e.g., >2 ft)	x			Arsenic, Lead, Zinc, Copper, fluoride and Tin
Air (outdoors)		x		

—— If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

X 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): Based on the results of a 1998 RFI Investigation Report, 10 SWMUs and 2 areas of concerns (AOCs) were determined to have inorganic Constituents of Concern (COC) above the State of Indiana’s industrial clean up objectives. SWMU #1, a landfill consists of blast furnace slag was designated a CAMU. Waste present in SWMUs #2, #4, #5, #7 and #8 were excavated and impacted subsurface soils to a depth of 1 foot were removed and place in the CAMU. These SWMUs were then backfilled with clean soils and capped with Asphalt. Waste present in SWMUs #3, #6, #9 and #10 which were all indoor, including 1 foot of contaminated soils were also removed. These SWMUs currently are covered by asphalt, concrete or are under buildings. Based on data collected from 2001 to 2004, groundwater has been impacted with arsenic at the site. Arsenic detected in MW-17S range from 341ppb to 947ppb and in MW-17D range from 722ppb to 1470ppb. Based on the RFI report, there is no evidence that groundwater contamination is migrating offsite. The current contaminant plume boundary delineated at the onsite monitoring wells 17S and 17D located at the northern boundary of the facility, does not appear to extend beyond the facility boundary or to be affecting offsite receptors. Groundwater samples collected from temporary offsite wells as close as 1700 feet north and 2800 feet North and downgradient of all onsite

<sup>1</sup> “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).

<sup>2</sup> 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.

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monitoring wells MW-17S, 17D, 16S, 16D, 11S and 10S, show varying arsenic concentrations with no discernable pattern. Only MW-17 and MW-11 show arsenic concentrations above MCL. It appears that the offsite arsenic in groundwater contamination is ubiquitous in this region and not related to the facility. Therefore, it does not appear that arsenic is migrating offsite. Additional offsite monitoring wells will be installed for confirmation. If it is determined that arsenic is migrating offsite, additional remedial measures will be taken during the ongoing implementation of the remedial measures. SWMU #7 that was removed as indicated above is suspected as the source of arsenic reported in wells 17S and 17D.

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 <b>Human Receptors</b> (Under Current Conditions)						
<b>“Contaminated” Media</b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	No	No	No	Yes	No	No	No
Air (indoors)	—	—	—				
Soil (surface, e.g., <2 ft)	—	—	—	—	—	—	—
Surface Water	—	—			—	—	—
Sediment							
Soil (subsurface e.g., >2 ft)	No	No	No	Yes	No	No	No
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).

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<sup>3</sup> Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

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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).
- X 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): Current and future routine worker exposure through direct contact has been eliminated. All impacted soils, fills and debris excavated from SWMUs #2, #4, #5, #7 and #8 that exceeded the Indiana RISC clean-up standard have been consolidated into the CAMU. Engineered barriers, asphalt, concrete or building structures are located over all soils, sediments and impacted debris that exceed the clean-up standard and remains at the site. Construction work that could disturb these locations are not planned. However, future construction activities could provide a complete pathway for construction workers. A 2-foot clay cover has been placed over the entire CAMU. The material requiring excavation within the Sedge Meadow (wetland) were excavated and consolidated into the CAMU to reduce the infiltration of rain water. The excavated portion of the sedge meadow has been backfilled as required by the CAMU. The meadow will be re-planted by late November 2004. An additional 6 inches of topsoil will be placed on the clay cover to promote the growth of the vegetative cover. A phyto-remediation cap will be placed over the clay cover in the year 2005 to provide additional attenuation of the groundwater contaminants located beneath the site. The facility is fenced in with access restricted to a main gate that has a 24 hour guard service. Groundwater beneath the site is contaminated with arsenic however, it is not used as a drinking water source. Also there is no potential for offsite exposure to arsenic in contaminated shallow groundwater from the site because the groundwater is not used for drinking water or for any other purpose. There is also no evidence indicating that contaminated onsite groundwater has impacted the adjacent Lake George, however, there is also a fish advisory for Lake George. A groundwater monitoring system will be installed in the spring of 2005. The objectives of the groundwater monitoring will be, to evaluate the effectiveness of the phyto-remediation groundwater remedy and determine if arsenic is migrating offsite. Groundwater uptake through the vegetative CAMU cap is expected to increase with each year of monitoring, thus attenuating groundwater impacts at the site. In addition, a storm water control system will be constructed to reroute storm water around the CAMU. A geotextile liner has been installed at the toe of the CAMU adjacent to Lake George to separate the CAMU from the Lake George. Rip Rap will also be placed at the toe of the CAMU by mid-October 2004. In addition, Operations and Maintenance Plan will be implemented upon the completion of the remedial measures. The purpose of the plan is to maintain the vegetative cover over the CAMU and inspect the fence surrounding the CAMU. Finally, deed restriction will be placed on the property to restrict the use of the property to commercial and industrial uses.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**<sup>4</sup>(i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1)

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<sup>4</sup> 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.

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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)?

- X   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): The facility will have a health and safety plan that will require the use of personal protective equipment whenever necessary. Thus the exposure to contaminated groundwater and subsurface soil is expected to be insignificant.

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 “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).

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\_\_\_\_\_ If no (there are current exposures that can be reasonably expected to be “unacceptable”)-  
continue and enter “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):

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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 Federal Metal Corporation facility, EPA ID # IND 105 444 194, located at 2230 Indianapolis Blvd., Hammond, Indiana 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) Jonathan Adenuga  
(title)

Supervisor (signature) Date \_\_\_\_\_  
(print) George Hamper  
(title)  
(EPA Region or State) U.S. EPA Region 5

Locations where References may be found: U.S. EPA Region 5  
7<sup>th</sup> Floor Record Center  
77 West Jackson Blvd  
Chicago, Il 60604

Contact telephone and e-mail numbers

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(e-mail)	adenuga.jonathan@epa.gov

**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.**



## 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:** Former Federated Metals Corporation  
**Facility Address:** 2230 Indianapolis Blvd., Hammond, Indiana  
**Facility EPA ID #:** IND 005 444 104

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 #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).

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2. Is **groundwater** known or reasonably suspected to be “**contaminated**”<sup>1</sup> 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?

- X   If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.
- 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):

Compound Name	State Default Closure Level (mg/l)	MCL (mg/l)
1,2-dichloroethylene (trans/cis)	2/1	0.1/0.07
trichloroethylene	0.00072	0.005
tetrachloroethylene	0.055	0.005
toluene	20	1
lead	0.042	0.015
copper	3.8	1.3
zinc	31	Not Applicable
fluoride	Not Applicable	Not Applicable

<sup>1</sup>“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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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”<sup>2</sup> as defined by the monitoring locations designated at the time of this determination)?

- X   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”<sup>2</sup>).
- \_\_\_\_\_ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”<sup>2</sup>) - 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): A clay cover has been placed over the former landfill area and all other SWMUs have been covered greatly reducing rain water percolation through potential sources of contaminants to the groundwater. The groundwater data from the RFI report, indicates that the groundwater plume had stabilized.

<sup>2</sup> “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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4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

  X   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): The groundwater discharges to the sedge meadow and Lake George.

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5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration<sup>5</sup> 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)?

  X   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<sup>3</sup> 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<sup>3</sup> 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<sup>3</sup> 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): There were no organic compounds from the site detected in the sedge meadow and Lake George waters collected during the RFI investigation. It is not possible to determine if metals dissolved in the groundwater entering the lake or sedge meadow came from the groundwater because these areas were also contaminated with the same constituents in the sediments as were found in the groundwater. The concentrations of dissolved metals are low within the site boundary and would attenuate further as the groundwater discharged through the sediments of Lake George and the sedge meadow, so it is likely that the concentrations in the groundwater discharge will be insignificant.

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<sup>3</sup> 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<sup>4</sup>)?

  X   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<sup>5</sup>, 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): The majority of the U.S. EPA-approved Corrective Measures have been implemented at the site. The phyto-remedial, vegetated cover will be planted in the spring of 2005. Concentrations were low enough at the site during the evaluation of the potential corrective measures to be selected as a Corrective Measures at the site. In addition, the Corrective Measures required the excavation of all of the fill within a designated areas and depths in the sedge meadow and adjacent areas of Lake George.

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<sup>4</sup>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.

<sup>5</sup> 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?”

  X   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): There is a ground water monitoring program is required for at least 2 years upon the completion of the major field remedial activities. The Groundwater Monitoring Plan is located in Appendix I of the U.S. EPA-approved Corrective Measures Implementation document.

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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 Former Federated Metals Corporation facility, EPA ID # **IND 005 444 104**, located at 2230 Indianapolis Blvd., Hammond, Indiana. 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) \_\_\_\_\_  
                  (title) \_\_\_\_\_

Supervisor      (signature) \_\_\_\_\_ Date \_\_\_\_\_  
                  (print) \_\_\_\_\_  
                  (title) \_\_\_\_\_  
                  (EPA Region or State) \_\_\_\_\_

Locations where References may be found:

Contact telephone and e-mail numbers

(name) \_\_\_\_\_  
(phone #) \_\_\_\_\_  
(e-mail) \_\_\_\_\_



