



# Five-Year Review Report

## Fourth Five-Year Review

for

**International Minerals and Chemical Corporation East Plant**

**Terre Haute**

**Vigo County, Indiana**

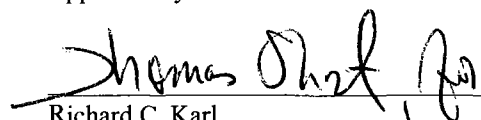
**January 2009**

**PREPARED BY:**

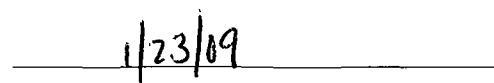
**U.S. EPA  
Region V  
Chicago, Illinois**

Approved by:

Date:



Richard C. Karl  
Superfund Division  
U.S. Environmental Protection Agency



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# Five-Year Review Report

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## List of Acronyms

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirements
BHC	Benzene Hexachloride
COC	Contaminant of Concern
CSC	Commercial Solvent Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FIT	Field Investigation Team
FS	Feasibility Study
ICs	Institutional Controls
IDEM	Indiana Department of Environmental Management
IMC	International Minerals & Chemical Corporation
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MW	Monitoring Well
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
ppb	Parts Per Billion
ppm	Parts Per Million
RAOs	Remedial Action Objectives
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SPM	State Project Manager
TCE	Trichloroethylene
U.S. EPA	United States Environmental Protection Agency
UU/UE	Unlimited Use/Unrestricted Exposure

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## **Executive Summary**

The remedy for the International Minerals and Chemical Corporation East Plant (IMC) Site in Terre Haute, Vigo County, Indiana, included collection, disposal, and capping of benzene hexachloride (BHC)-contaminated soils in excess of 50 parts per million (ppm) in a clay-capped mound located on a fenced Site area, a surface water drainage system around the cap, periodic groundwater monitoring, and deed restrictions on land use at the Site. The trigger for this review is the last Five-Year Review Report, dated April 28, 2004.

The assessment of this Five-Year Review found that the recommendations made in the last Five-Year Review Report were implemented. The selected remedy is functioning as anticipated. The remedy is protective of human health and the environment in the short term due to the implementation of remedial action measures at the Site. The current land use restrictions will be evaluated to determine whether the remedy will continue to be protective in the long term or if a restrictive covenant under Indiana Code 13-11-2-193.5 or other similarly effective long-term institutional control is necessary to allow the cessation of annual groundwater monitoring in 2010 (per the 1988 Record of Decision (ROD)).

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## Five-Year Review Summary Form

SITE IDENTIFICATION		
<b>Site name (from WasteLAN):</b> International Minerals and Chemical Corporation East Plant		
<b>EPA ID (from WasteLAN):</b> IND190010876		
<b>Region:</b> 5	<b>State:</b> IN	<b>City/County:</b> Terre Haute/Vigo County
SITE STATUS		
<b>NPL status:</b> <input type="checkbox"/> Final <input checked="" type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
<b>Remediation status</b> (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
<b>Multiple OUs?*</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<b>Construction completion date:</b> 06/22/1988	
<b>Has site been put into reuse?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REVIEW STATUS		
<b>Lead agency:</b> <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
<b>Author name:</b> Demaree Collier		
<b>Author title:</b> Remedial Project Manager	<b>Author affiliation:</b> U.S. EPA	
<b>Review period:**</b> September 2008 to January 2009		
<b>Date(s) of site inspection:</b> 09/15/2008		
<b>Type of review:</b>		
<input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion		
<b>Review number:</b> <input type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input checked="" type="checkbox"/> Other (specify) Fourth		
<b>Triggering action:</b>		
<input type="checkbox"/> Actual RA Onsite Construction at OU # _____ <input type="checkbox"/> Actual RA Start at OU# _____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify)		
<b>Triggering action date (from WasteLAN):</b> 04/28/2004		
<b>Due date (five years after triggering action date):</b> 04/28/2009		

\* ["OU" refers to operable unit.]

\*\* [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

## Five-Year Review Summary Form, cont'd.

### Issues:

1. Annual groundwater monitoring and deed restrictions end per the 1988 ROD in December 2010. There is a need to evaluate the deed restrictions to determine whether an enhanced restrictive covenant should be implemented to allow cessation of monitoring and ensure the long-term protectiveness of the remedy.
2. Outer well protective cover for MW-11 needs repair.
3. Assuring long-term stewardship which includes maintaining and monitoring effective ICs at the Site.

### Recommendations and Follow-up Actions:

1. Evaluate current deed restrictions to determine whether a restrictive covenant under Indiana Code 13-11-2-193.5 or a similarly effective IC is necessary prior to the cessation of annual groundwater monitoring in 2010.
2. Repair protective cover of monitoring well MW-11.
3. Develop a plan to oversee and monitor ICs to ensure long-term stewardship.

### Protectiveness Statement(s):

The remedy is protective of human health and the environment in the short term due to the implementation of remedial action measures at the Site. The current land use restrictions will be evaluated to determine whether the remedy will continue to be protective in the long term or if a restrictive covenant under Indiana Code 13-11-2-193.5 or a similarly effective IC is necessary to allow the cessation of annual groundwater monitoring in 2010 (per the 1988 ROD).

Date of last Regional review of Human Exposure Indicator (from WasteLAN): 09/28/2006

Human Exposure Survey Status (from WasteLAN): Long-Term Human Health Protection Achieved

Date of last Regional review of Groundwater Migration Indicator (from WasteLAN): 6/22/2007

Groundwater Migration Survey Status (from WasteLAN): Contaminated Groundwater Migration Under Control

Ready for Reuse Determination Status (from WasteLAN): Undetermined

## Five-Year Review Report

### I. Introduction

The United States Environmental Protection Agency (U.S. EPA) Region 5, in consultation with the Indiana Department of Environmental Management (IDEM), has conducted the fourth Five-Year Review for the IMC East Plant, Terre Haute, Vigo County, Indiana. The U.S. EPA conducted this review from September 2008 through January 2009. This report documents the results of our fourth Five-Year Review at the IMC Site.

#### Purpose

The U.S. EPA conducts a Five-Year Review at a cleanup Site to determine whether the remedy is, or is expected to be, protective of human health and the environment. We document our review methods, findings, and conclusions in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and recommendations to address them.

#### Authority

The U.S. EPA prepared this Five-Year Review report pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The U.S. EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

#### Triggering Action

A Five-Year Review is applicable to the IMC Site because hazardous substances, pollutants, or contaminants at the Site remain on site above levels that allow for unlimited use

and unrestricted exposure (UU/UE). The hazardous substance benzene hexachloride (BHC-tech) was manufactured, packaged, and warehoused on-site.

The triggering action for this policy review is the date of the third Five-Year Review for the IMC Site as shown in U.S. EPA's CERCLIS database: April 28, 2004. The U.S. EPA shall undertake future Five-Year Reviews at the IMC Site using previous trigger dates as long as hazardous substances, pollutants, or contaminants remain on site above levels that allow for unlimited use and unrestricted exposure.

## II. Site Chronology

<b>Table 1: Chronology of Site Events</b>	
Site Discovery	10/1/1979
Site Proposed for the National Priorities List (NPL)	10/15/1984
Administrative Consent Order by U.S. EPA	05/06/1986
Placed as final on the NPL	06/10/1986
Remedial Investigation/Feasibility Study (RI/FS) began	08/06/1986
Proposed Plan released to public	03/29/1988
Public Meeting for Proposed Plan held	04/07/1988
ROD signed/No Further Action Determination	06/22/1988
Construction Completion/O&M began	06/22/1988
Site Deletion	02/11/1991
First Five-Year Review Report	09/26/1996
Second Five-Year Review Report	03/29/1999
Third Five-Year Review Report	04/28/2004

### **III. Background**

#### **Physical Characteristics**

The IMC East Plant Site (Figure 1) is located in Vigo County, approximately 1.8 miles east of the Wabash River and one mile north of Thompson Ditch. The plant Site, which has an area of approximately 37 acres, is bordered on the west by the Milwaukee, St. Paul and Pacific Railroad and on the east by the Louisville Railroad. The disposal area encompasses approximately 6 acres in the northeastern portion of the plant Site. The Wabash River is the most prominent physiographic feature in the area. The topography of the area is characterized by wide alluvial plains and valleys that have low relief and a slightly undulated land surface.

#### **Land and Resource Use**

The IMC East Plant Site is located in the southeastern part of Terre Haute approximately 1.8 miles from the Wabash River at its closest point in a semi-industrialized area of the city. Railroad tracks are located along the west and east boundaries of the facility. The IMC Site is located in a heavy industrial local zoning classification area. Historically, the IMC Site, formerly Commercial Solvent Corporation, was used (prior to 1946) for agriculture, as a chemical manufacturing unit (1946), and as an animal housing facility (1966). A portion of the IMC property, upgradient of the disposal area, is used as an employee picnic area. Although city water is available, some residents in the vicinity of IMC East Plant Site obtain water from private wells.

#### **History of Contamination**

In 1946, the former Commercial Solvent Corporation (CSC) purchased land parcels (approximately 36 acres) and the area became East Plant property. A small facility was constructed on a six-acre segment of this property for manufacturing, packaging, and warehousing of technical-grade BHC-tech. BHC-tech is a mixture of several isomers, primarily alpha, beta, gamma, and delta. The gamma isomer of BHC-tech was once a widely used pesticide, called "Lindane." This material was sold to insecticide manufacturers as raw material for the production of insecticide. Production of BHC-tech ceased at this facility in 1954. In 1966, the BHC-tech warehouse was converted into an animal housing facility. In 1975, CSC was purchased by IMC. In 1979, soil samples, surficial and subsurface, were taken by IMC. Analytical results of the soil samples indicated BHC contamination was confined within the first seven feet of subsurface, but above the groundwater table. The shallow depth of contaminant penetration, 25 years after plant operation was discontinued, illustrated the low mobility of BHC-tech. IMC installed seven monitoring wells (MW) at the Site. The wells were located (Figure 2) upgradient and downgradient of the Site. Groundwater was found not to be contaminated with BHC.

## **Initial Response**

In 1980, Camp Dresser & Mckee, Inc., advised IMC on methods for preventing off-site migration of BHC. Approximately 18,500 cubic yards of soil and other debris were excavated and placed in a secure clay-capped mound. Soil samples were collected and analyzed to allow for the removal of soils at the Site containing in excess of 50 ppm BHC. The residual concentration remaining in the on-site soil is substantially less than 50 ppm BHC. The clay-capped mound was designed in accordance with U.S. EPA guidelines (U.S. EPA 43 FR 59011, December 8, 1978) for closure of hazardous waste landfills. The clay-capped mound included a surface water drainage system and soil gas venting. Monitoring wells located upgradient (MW-1, MW-2, MW-7, and PW-1) and downgradient (MW-9, MW-10, and MW-11) have been monitored periodically since 1981 by IMC (Figure 2).

In May 1986, the U.S. EPA signed a CERCLA 106 Administrative Order on Consent (AOC) with IMC that required undertaking of a RI/FS at the IMC Site. The RI was focused on determining the nature and extent of contamination at the Site. The FS was focused on evaluation of remedial alternatives to prevent or mitigate the migration of contamination from the IMC Site. The RI/FS was completed in April 1988. The RI/FS concluded that the on-site waste (BHC-contaminated soils in excess of 50 ppm concentration) capped in an on-site area (clay-capped mound) was not adversely impacting groundwater in the area. The study further concluded that the initial remedial measures implemented by IMC were protecting human health and the environment and that no further action, except continuation of monitoring and land use restrictions for 30 years, was necessary at the Site.

## **Basis for Taking the Action**

CSC was purchased by IMC in mid-1975. CSC had constructed a facility for manufacturing, packaging and warehousing of BHC-tech. This facility was operated from 1946-1954. Following its purchase of the property, IMC collected surficial soil samples from the East Plant Site that were suspected to be contaminated with BHC. In 1980, Camp, Dresser & Mckee Inc. recommended the BHC-contaminated soils be excavated and capped at the Site. Approximately 18,500 cubic yards of soil in excess of 50 ppm of BHC were excavated and placed in a secure clay-capped mound at the Site. IMC installed six monitoring wells (three upgradient and three downgradient) near the Site. In 1981, the Indiana State Board of Health requested assistance from the U.S. EPA in the investigation of possible groundwater contamination from the waste mound at the East Plant facility. The U.S. EPA tasked the Field Investigation Team (FIT) to undertake the investigation at the facility. The FIT report concluded that the contaminants from the waste mound at the facility may potentially impact the groundwater.

The results from sampling of monitoring wells at the East Plant facility showed that only one upgradient well (MW-5) contained 7 parts per billion (ppb) of chloroform, 9 ppb of toluene, and 14 ppb of trichloroethylene (TCE). One residential well indicated 41 ppb of chloroform, 8 ppb of TCE and 5 ppb of carbon tetrachloride. One city well indicated 5 ppb of TCE. The potential health concern associated with IMC East Plant Site is the quality of the Wabash River

Valley aquifer. The groundwater analyses for a period of six years (1981-1986) indicated that BHC contamination was always below the U.S. EPA-established Maximum Contaminant Level Goal (MCLG) of 0.2 ppb. No BHC contamination above the Maximum Contaminant Level (MCL) of 4.0 ppb or MCLG of 0.2 ppb was ever found in groundwater. In October 1984, the U.S. EPA proposed placing the IMC East Plant Site on the NPL and it was finalized in June 1986.

## **IV. Remedial Actions**

### **Remedy Selection**

The remedial action objectives (RAOs) for the Site included a No Action/Maintenance Program which involved systematic monitoring with a contingency plan. The program objectives are to:

- Confirm that closure system continues to prevent transfer of contamination to the groundwater.
- Provide early warning should capping system failure occur.
- Establish a contingency plan for cap repair or replacement.

The ROD was signed on June 22, 1988. The ROD required that the on-going groundwater monitoring at the Site be continued until December 2010 (30 years after closure was completed in 1980). The remedy selected in the June 1988 ROD included inspection of the clay-capped mound located on-site, a surface water drainage system, continuation of periodic groundwater monitoring, and deed restrictions on Site land use.

### **Remedy Implementation**

Because of the immediate remedial measures implemented by IMC in 1980, a decision was reached in 1988 by the U.S. EPA that no further cleanup action was necessary at the Site. The ROD recommended a No Action/Maintenance Program for the Site involving systematic monitoring backed up by a contingency plan. The contingency plan described in the ROD included an analytical protocol to initiate a remedial action and methods for cap repair and replacement, if necessary.

### **Institutional Controls**

Institutional Controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for UU/UE. ICs are required at the IMC Site to protect the integrity of the cap to prevent exposure to the contaminated soil and debris and to protect groundwater. The ICs restrict use of the capped area to ensure the protectiveness of the remedy. Because the selected remedy includes 30 years of groundwater monitoring for the landfill and for

the landfill to be maintained on the property, the ROD called for access and land use restrictions. Specifically, the ROD states that deed restrictions should not allow private use of the Site for the 30-year monitoring period (Figure 3).

IMC proposed language in a letter dated February 27, 1990, for a deed restriction consistent with the ROD requirement and stated the deed restriction “will be made in any subsequent transfer of the property.” U.S. EPA had no record of deed restrictions ever being implemented at the Site, and based upon the recommendation in the previous Five-Year Review that deed restrictions needed to be in place, IDEM contacted the current owner. In May 2005, a “Declaration of Notice” was submitted to U.S. EPA and IDEM by Mallinckrodt Veterinary, Inc., the owner of the Site. This Declaration of Notice was recorded pursuant to the ROD for the IMC Site. The Notice stated that a portion of the Site was used for disposal of debris containing BHC-tech, and pursuant to the ROD, the Site is “subject to an ongoing monitoring program which consists of long-term maintenance of ground-cover and fencing and groundwater monitoring, until at least 2010, and no use of the Site is permitted that would adversely affect the Site or interfere with the ongoing monitoring program.”

Although the current IC provides notice of the on-site contamination, monitoring and restrictions on adverse use of the Site, U.S. EPA, in consultation with IDEM, will reevaluate the IC and determine if new restrictions beyond 2010 are necessary to ensure the long-term protectiveness of the remedy. Such restrictions should comply with Indiana’s definition of a Restrictive Covenant at Indiana Code 13-11-2-193.5 or be similarly effective in the long term. If it is determined that access or use must be restricted beyond 2010, particularly as all monitoring shall cease at the Site in December 2010, U.S. EPA will complete the necessary documentation of that decision and require that necessary enhanced ICs be put into place at the IMC Site.

**Table 2. Institutional Controls Summary**

<b>Media, Engineered Controls &amp; Areas that Do Not Support UU/UE @ Current Conditions</b>	<b>IC Objective</b>	<b>IC Instrument Implemented or Planned</b>
Clay-capped mound	Prevent any disturbance to the cap or the landfilled materials	<ul style="list-style-type: none"> <li>• Currently protected by 1988 ROD until 2010 and Owner Declaration of Notice</li> <li>• Continued protection under an Indiana Restrictive Covenant (to be considered)</li> </ul>
Groundwater underlying the Site	Prohibit contact with or any use of the groundwater	<ul style="list-style-type: none"> <li>• Currently protected by 1988 ROD until 2010 and Owner Declaration of Notice</li> <li>• Continued protection under an Indiana Restrictive Covenant (to be considered)</li> </ul>



## System Operations/Operation and Maintenance (O&M)

The June 1988 ROD described a recommended No Action/Maintenance Program for the Site involving systematic monitoring. The ROD-recommended program also included a monitoring program which required that the on-going periodic groundwater monitoring continue until December 2010 (30 years after closure was completed in 1980), and that deed restrictions be placed to prohibit private use of the Site for the monitoring period. The major elements of this O&M program included:

- Clay-capped mound inspection and maintenance of vegetative cover;
- Sampling of three upgradient wells with analysis conducted for BHC isomers. (Semi-annual sampling for initial 5 years and annual sampling thereafter until year 2010);
- Sampling of three downgradient wells with analysis conducted for BHC isomers. (Semi-annual sampling for initial 5 years and annual sampling thereafter until 2010);
- Annual reporting of monitoring results to the State of Indiana; and
- A review of analytical results at the end of each five-year period.

Dates		Total Cost rounded to nearest \$1,000
From	To	
2005*	2008*	\$5,000 per year for annual groundwater monitoring

\* Exact costs are not available so the reported number is only for annual groundwater monitoring

## V. Progress Since the Last Five-Year Review

This is the fourth five-year review for the Site. Since the last five-year review the responsible parties have been continuing O&M activities at the Site. The activities continued since the completion of the last Five-Year Review Report, dated April 28, 2004, include:

- Annual groundwater monitoring of upgradient and downgradient wells.
- Inspection of clay-capped mound and Site security fence.
- Reporting of analytical results to the State.
- Recording and submission of a Declaration of Notice by the owners in May 2005 relating to deed restrictions in place at the Site.

Analytical results from 2004 through 2008 indicate that the levels for the main contaminant of concern (COC), the gamma isomer of BHC, are below the U.S. EPA-established MCLG of 0.2 ppb.

<b>Table 4: Actions Taken Since the Last Five-Year Review</b>					
<b>Issues from Previous Review</b>	<b>Recommendations/ Follow-up Actions</b>	<b>Party Responsible</b>	<b>Milestone Date</b>	<b>Action Taken and Outcome</b>	<b>Date of Action</b>
Institutional Controls	Review Institutional Controls for Site	Owner	May 2005	Submission of a Declaration of Notice	May 2005

## **VI. Five-Year Review Process**

### **Administrative Components**

The IMC Five-Year Review was conducted by the U.S. EPA Remedial Project Manager (RPM) for the Site. The support agency coordinator, the State Project Manager (SPM) from IDEM, assisted in the review. The review consisted of perusal of past Site-related documents, previous Five-Year Review Reports, and a review of analytical results since the completion of the last Five-Year Review Report, dated April 28, 2004.

### **Community Involvement**

Members of the community were notified of initiation of the five-year review by a press notification published in the local newspaper, the Tribune Star, dated October 17, 2008. The notification included major components of the selected Site remedy. The IMC Site has generated little public interest or media attention since the Site was identified as a Superfund Site.

### **Document Review**

For this review, the RPM reviewed the previous Five-Year Review Reports, periodic monitoring reports and Site inspection reviews in conjunction with the SPM.

### **Data Review**

The purpose of Site inspections and groundwater monitoring at the Site is to assess the physical condition of the clay-capped mound and security fence at the Site and to monitor groundwater concentrations of pesticides. Lindane was identified as a COC at this Site. Groundwater samples are collected annually from six monitoring wells (three upgradient and three downgradient). The most recent (June 2008) and the historic analytical results have indicated that the Lindane concentrations are always below the U.S. EPA established MCLGs of 0.2 ppb. The IMC Groundwater Analytical Results (2004-2008) are attached to this report (Appendix A). The existing Lindane concentrations do not pose any threat to human health and the environment.

## Site Inspection

The SPM conducted a five-year review Site inspection on September 15, 2008. The purpose of the visit was to determine the protectiveness of the remedial measures, which included a clay-capped mound, Site security fence, and groundwater monitoring system. The climatic conditions at the time of the Site visit were warm, sunny, and temperature was in the upper 50s Fahrenheit. Based on the Site inspection, the clay-capped mound, Site security fence and all the existing monitoring wells except MW-11 are in good condition. The outer well protective cover for MW-11 was damaged and needs repair. The vegetation on the top of the clay-capped mound was thick and healthy. Current Site photographs are attached in Appendix B.

## Interviews

No Site interviews were conducted due to very minimal community interest at this Site.

## VII. Technical Assessment

### Question A: Is the remedy functioning as intended by the decision documents?

Yes. A review of the available information indicates that the remedy is functioning as was intended by the decision documents. There was no migration of contamination from the Site and groundwater was not contaminated.

### Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

Yes. No new exposure assumptions are needed at this time. There have been no major changes in physical conditions of the Site or the quality of groundwater that would affect the protectiveness of the remedy.

As the remedial work at the Site has been completed, the primary applicable or relevant and appropriate requirements (ARARs) for the groundwater contamination cited in the ROD have been met. All federal and state requirements are being met. No new ARARs need to be considered at this time.

The exposure pathways assumption applicable to current and future trespassers was effectively reduced by the Site security fence. There have been no changes in the toxicity factors for the contaminant of concern at the Site. No change to these assumptions or cleanup levels developed from them is warranted at this time. The remedy is progressing and all groundwater cleanup goals are being met. It is planned that annual groundwater monitoring and deed restrictions will continue through December 2010. The need for a long-term IC will be evaluated to determine whether a restrictive covenant pursuant to Indiana's Restrictive Covenant Code 13-11-2-193.5 or similarly effective IC is necessary

to ensure the long-term protectiveness of the remedy in order to allow the cessation of annual groundwater monitoring at the Site.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. There has been no new information that would suggest that the selected remedy is not protective.

Technical Assessment Summary

According to the analytical data reviewed and the Site inspection reports, the remedy is functioning as intended by the ROD. There have been no changes in the physical condition of the Site that would affect the protectiveness of the remedy in the short and long term. There have been no changes in the toxicity factors for the contaminant of concern. There is no other information that calls into question the protectiveness of the remedy.

**VIII. Issues**

<b>Table 5: Issues</b>		
<b>Issues</b>	<b>Affects Current Protectiveness (Y/N)</b>	<b>Affects Future Protectiveness (Y/N)</b>
Annual groundwater monitoring and ICs end per the ROD in December 2010. Need to evaluate need for long-term ICs and determine whether to implement Indiana's Restrictive Covenant Code 13-11-2-193.5 or similarly effective IC prior to the cessation of annual groundwater monitoring in 2010	N	Y
Outer well protective cover for MW-11 needs repair	N	N
Long-term stewardship must be assured which includes maintaining and monitoring effective ICs	N	Y

## IX. Recommendations and Follow-up Action

Table 6: Recommendations and Follow-up Actions						
Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Annual groundwater monitoring and ICs end per the ROD in December 2010.	Evaluate and determine need for long-term ICs (determine whether a restrictive covenant <i>under Indiana's Restrictive Covenant Code 13-11-2-193.5</i> or similar IC is necessary) to ensure all necessary ICs are in place prior to the cessation of annual groundwater monitoring in 2010.	U.S. EPA, in consultation with IDEM	U.S. EPA	June 2009	N	Y
	If such long-term ICs are determined to be necessary, PRPs to conduct and provide to agencies mapping, title and survey work regarding the area to be restricted in the long term to determine precise area to be restricted and what, if any, are the current title encumbrances.	PRPs	U.S. EPA	January 2010		
	Record necessary IC	Owner	U.S. EPA	June 2010		
Outer well protective cover for MW-11 needs repair	Repair well	PRPs	U.S. EPA	June 2009	N	N
Long-term stewardship must be assured which includes maintaining and monitoring effective ICs	Develop a plan to oversee and monitor ICs to ensure long-term stewardship	U.S. EPA and IDEM	U.S. EPA	December 2010	N	Y

## **X. Protectiveness Statement(s)**

The remedy is protective of human health and the environment in the short term due to the implementation of remedial action measures at the Site.

The ICs will be evaluated to determine whether the remedy will continue to be protective in the long term or if a restrictive covenant under Indiana's Restrictive Covenant Code 13-11-2-193.5 or similarly effective IC in the long term is necessary to allow the cessation of annual groundwater monitoring in 2010 (per the 1988 ROD).

## **XI. Next Review**

The next five-year review for the IMC East Plant Site is required by January 2014, five years from the signature date of this review.