UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

DEC 19 2018

**CERTIFIED MAIL: 70170530000012675246**
**RETURN RECEIPT REQUESTED**

Colonel Aaron W. Reisinger
District Commander
U.S. Army Corp. of Engineers
Chicago District
231 S. LaSalle St., Suite 1500
Chicago, IL 60604

Re: 40 Code of Federal Regulations (C.F.R.) §761.61(c) Risk Based Approval for the Disposal of Indiana Harbor and Canal Polychlorinated Biphenyl (PCB) Containing Dredged Sediments into the Indiana Harbor Confined Disposal Facility
3500 Indianapolis Boulevard, East Chicago, Lake County, Indiana
EPA ID#: IND082547803

Dear Colonel Reisinger:

The U.S. Environmental Protection Agency has completed their review of information included in the Indiana Harbor and Canal Confined Disposal (Indiana Harbor CDF) March 24, 2014 permit application (application), the October 1, 2014 revised references, the December 19, 2014 revised figures, the January 6, 2015 revised figures, and the October 20, 2016 revised figures submitted by the U.S. Army Corp of Engineers (USACE) for a risk-based approval, pursuant to the Polychlorinated Biphenyl (PCB) regulations at 40 Code of Federal Regulations (C.F.R.) § 761.61(c).

The application request covers the disposal of 50 part per million (ppm) or greater PCB containing dredged sediments from the Indiana Harbor and Canal dredging project into the Indiana Harbor CDF located on property formerly occupied by Energy Cooperative Industries. This property currently is owned by the East Chicago Waterway Management District (ECWMD) and located at 3500 Indianapolis Boulevard in East Chicago, Indiana.

On August 7, 2000, USACE and ECWMD entered into an agreement, known as the "Project Cooperation Agreement between the Department of the Army and the East Chicago Waterway Management District for Construction of a Confined Dredged or Excavated Materials Disposal Facility at the Indiana Harbor and Canal, East Chicago, Indiana." This agreement establishes the approved use of the land for the CDF; land access; and operational, closure and long-term management obligations under the

Resource Conservation Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA).

To date, activities that have occurred on the property include the placement of a slurry wall system near the western, northern, and eastern boundary of the property; the installation of a steel sheet pile anchor wall along the southern boundary and the Lake George Branch of the Indiana Shipping Canal (IHC); the installation of a groundwater gradient control system including approximately ninety six (96) extraction wells, forty (40) monitoring wells, two (2) ultrasonic water level indicators, an instrumentation and control building, fourteen (14) groundwater piezometers (seven (7) pairs located on the four corners and the midpoint of the three non-sheetpile sides), installation of a perimeter clay dike wall encompassing the Indiana Harbor CDF; and installation of an interior dike bisecting the Indiana Harbor CDF into two cells. Since completion of construction, the USACE has placed non-RCRA hazardous and non-TSCA regulated dredged materials in the Indiana Harbor CDF.

In accordance with this approval, USACE, with EPA and the Indiana Department of Environmental Management (IDEM), will determine if the groundwater sampling that occurred in 2017 suffices as the baseline groundwater monitoring sampling event at the Indiana Harbor CDF. Any required additional groundwater sampling will be conducted before USACE disposes of the 50 ppm or greater PCB sediments in the Indiana Harbor CDF.

EPA has determined that if the sediment is managed as discussed in this application and the facility is operated as described in the application in accordance with the "Conditions of Approval", disposal of the 50 ppm or greater PCB contaminated sediment into the Indiana Harbor CDF should not pose an unreasonable risk to human health or the environment. Therefore, EPA hereby grants approval to USACE for the disposal of PCB contaminated sediment from the Indiana Harbor and Canal dredging project into the Indiana Harbor CDF. This approval is effective as of the date of this letter.

This approval is granted in accordance with the federal PCB regulations codified at 40 C.F.R. § 761.61(c), under which the EPA Regional Administrator may approve a method to sample, cleanup, or dispose of PCB remediation waste if it is found that the method will not pose an unreasonable risk of injury to human health or the environment. The authority to grant such approvals in this Regional office has been delegated to the Director of the Land and Chemicals Division.

USACE is responsible for ensuring continued compliance with all applicable provisions of the Toxic Substances Control Act, the federal PCB regulations, and the conditions of this approval. Any departure from the conditions of this approval must receive prior written authorization from this office. Furthermore, this approval does not relieve USACE from compliance with any other federal, State, or local regulatory requirements.

If you have any further questions regarding this matter, please feel free to contact me or Jean Greensley, of my staff, at (312) 353-1171 or greensley.jean@epa.gov.

Sincerely,

Michael D. Harris for T.H.

Tinka G. Hyde
Director
Land and Chemicals Division

Enclosure

cc: Natalie Mills, USACE
Mike Nguyen, USACE
Linda Sorn, USACE
Jennifer Miller, USACE
Fernando Trevino, ECWMD
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Bill Robinson, IDEM
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STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

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| **IN THE MATTER OF:**<br><br>United States Army Corps of Engineers<br>East Chicago Waterway Management District<br>Indiana Harbor Confined Disposal Facility<br>3500 Indianapolis Boulevard<br>East Chicago, Indiana 46312<br><br>**APPLICANT.** | **RISK-BASED DISPOSAL APPROVAL TO DISPOSE OF THE UNITED STATES ARMY CORPS OF ENGINEERS INDIANA HARBOR AND CANAL DREDGING PROJECT TSCA-REGULATED SEDIMENT CONTAINING POLYCHLORINATED BIPHENYLS (PCBs) ISSUED PURSUANT TO 40 C.F.R. § 761.61(c)** |

## AUTHORITY

The United States Environmental Protection Agency is issuing this risk-based disposal approval (Approval) to the United States Army Corps of Engineers (USACE), pursuant to Section 6(e)(1) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e)(1), and the federal regulations for disposal of Polychlorinated Biphenyls (PCBs) at 40 Code of Federal Regulations (C.F.R.) § 761.61(c).

Section 6(e)(1)(A) of TSCA, 15 U.S.C. § 2605(e)(1)(A), requires that the EPA promulgate rules to prescribe methods for the disposal of PCBs. The regulations at 40 C.F.R. § 761.61 set out the cleanup and disposal options for PCB remediation waste. PCB remediation waste is waste containing PCBs as a result of a spill, release, or other unauthorized disposal at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations 50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was 500 ppm PCBs beginning on April 18, 1978, or 50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under 40 C.F.R. § 761. *See* 40 C.F.R. § 761.3. PCB remediation waste includes environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines; and aqueous decantate from sediment. PCB remediation waste also includes soil, rags, and other debris generated as a result of any PCB spill cleanup.

40 C.F.R. § 761.61(a) sets out the requirements for the self-implementing on-site cleanup and disposal of PCB remediation waste. The self-implementing procedures may not be used to clean up sediments in marine and freshwater ecosystems. 40 C.F.R. § 761.61(a)(1)(B). Cleanup and

disposal of dredged material must be approved under the risk-based disposal approval regulations at 40 C.F.R. § 761.61(c). *See* 40 C.F.R. § 761.61(c)(1).

40 C.F.R. § 761.61(c) prescribes the process by which a party can request a risk-based disposal approval for the disposal of PCB remediation waste. 40 C.F.R. § 761.61(c)(1) requires any person wishing to dispose of dredged material to apply in writing to the EPA Regional Administrator, to include information described in the notification required by 40 C.F.R. § 761.61(a)(3), and to submit other information that the EPA believes necessary to evaluate the application. 40 C.F.R. § 761.61(c)(2) requires the EPA to issue a written decision on each application for a risk-based disposal method for PCB remediation wastes. The EPA approves a risk-based disposal application only if it finds that the method will not pose an unreasonable risk of injury to health or the environment.

The EPA Headquarters Delegation 12-5 authorizes the re-delegation of approval authority for PCB disposal facilities from Regional Administrators to Regional Division Directors. Under EPA, Region 5 Delegation 12-5, dated July 15, 2014, the approval authority for PCB risk-based approvals was delegated from the Regional Administrator to the Director, Land and Chemicals Division, EPA, Region 5.

None of the information required to be maintained under or submitted pursuant to this Approval is subject to the requirements of the Paperwork Reduction Act, 44 U.S.C. § 3501, et seq., because such information is collected by the EPA from the USACE for the purpose of assuring compliance with this Approval.

## EFFECTIVE DATES

This Approval is effective upon the signature of the Director of the Land and Chemicals Division (LCD), EPA, Region 5. This Approval is valid only for the disposal of 50 part per million (ppm) or greater TSCA-regulated PCB dredged material generated from the Indiana Harbor and Canal (IHC) dredging project into the Indiana Harbor Confined Disposal Facility (CDF) under the supervision of the USACE. USACE's authorization to dispose of the 50 ppm or greater TSCA-regulated PCB dredged material from the IHC dredging project into the CDF is valid for the duration of the USACE Project unless such authorization is suspended or terminated, as provided herein, or unless the time period is modified by the EPA. Upon signature by the Director of LCD, EPA, Region 5, the issuance of this Approval shall be considered final agency action.

## BACKGROUND

The Indiana Harbor CDF is an existing disposal facility in East Chicago, Lake County, Indiana. The USACE began construction of the IHC CDF in 2001 on a portion of the site of the former Energy Cooperative Industries (ECI) petroleum products refinery. The site is bordered by the Lake George Branch of the Indiana Harbor Canal to the south, Indianapolis Boulevard to the east, Cline Avenue to the north and the British Petroleum Refinery to the west. The site is

owned by the East Chicago Waterway Management District (ECWMD) and the CDF is operated, managed and maintained by the USACE.

USACE has used the CDF for the disposal of less than fifty part per million (ppm) PCB contaminated dredged materials from the Indiana Harbor and Canal since 2012. USACE is requesting approval to accept dredged material from the IHC dredging project with a PCB concentration at or greater than 50 ppm. A risk-based application is required because the IHC sediments have in-situ PCB concentrations of 50 ppm and greater and the CDF is not a permitted TSCA chemical waste landfill or RCRA hazardous waste disposal facility. The PCB regulations require disposal of dredged material with a PCB concentration of 50 ppm or greater in a permitted TSCA or RCRA disposal facility.

On March 24, 2014, USACE, as operator of the Indiana Harbor CDF, submitted to EPA a risk-based application, pursuant to TSCA and 40 C.F.R. § 761.61(c), for the disposal of TSCA-regulated, PCB-contaminated dredged material from the IHC dredging project into the Indiana Harbor CDF. On October 1, 2014, EPA received three compact discs with revised references in support of their risk-based application. On December 19, 2014, USACE submitted, via email, revised figures in support of their risk-based application. On January 6, 2015, USACE submitted, via email, a revised figure in support of their risk-based application. On October 20, 2016, USACE submitted, via email, revised figures in support of their risk-based application.

## FINDINGS

The following Findings are made pursuant to 40 C.F.R. § 761.61(c) and are based on U.S. EPA's review of information submitted by USACE in its March 24, 2014 Application for a Disposal Approval, the October 1, 2014 revised references, the December 19, 2014 revised figures, the January 6, 2015 revised figure and the October 20, 2016 revised figures pursuant to 40 C.F.R. § 761.61(c)(1).

Based on the geology, hyrdrogeology, construction design and operating conditions presented in the following Findings, the EPA finds that the disposal of TSCA-regulated Indiana Harbor and Canal dredged sediment with PCB concentrations at 50 ppm or greater does not pose an unreasonable risk of injury to health or the environment under 40 C.F.R. § 761.61(c)(2).

1. The ECWMD is the owner of the approximately 160-acre ECI Site and the Indiana Harbor CDF, which is located at the ECI site, as defined by 40 C.F.R § 260.10. During the active operation of the Indiana Harbor CDF, the ECWMD's responsibility is limited to ECI site access and notice. Subsequent to the closure of the facility, USACE is responsible for the post-closure care of the Indiana Harbor CDF and cleanup of all hazardous releases, including any TSCA sediment releases.

   The USACE is the operator of the ECI site and the Indiana Harbor CDF as defined by 40 C.F.R. § 260.10. USACE currently is responsible for the operation, management and maintenance of the Indiana Harbor CDF.

2. The physical address of the Indiana Harbor CDF is 3500 Indianapolis Boulevard, East Chicago, Lake County, Indiana.

3. The mailing address for the Indiana Harbor CDF is U.S. Army Corps of Engineers, Chicago, District, 231 S. LaSalle, Suite 1500, Chicago, Illinois 60604.

4. The Indiana Harbor CDF is located at the southern end of Lake Michigan in northwestern Indiana. Lake Michigan is approximately two miles north of the ECI site. It is located in the SW quadrant of Section 17 and the NW quadrant of Section 20 of North Township, T37N, R10W, East Chicago, Lake County, Indiana (Attachment 1).

5. The ECI site is bounded by Indianapolis Boulevard to the east, Cline Avenue to the north, a railroad corridor and the British Petroleum Refinery to the west and the Lake George Branch of the Indiana Harbor Canal to the south. East Chicago Central High School and MacArthur Golf Course are south of the site. West Side Junior High School is southeast of the site, directly east of the High School on the east side of Indianapolis Boulevard.

6. All parcels of land abutting the Indiana Harbor CDF site are zoned industrial with the exception of the Park District Property. The closest residential area is three quarters of a mile south, on the south side of Columbus Drive. The Calumet Harbor residential area is located one mile east, on the east side of Canal street. The Mark Town residential neighborhood is about one and one-half miles northwest of the site. There are no residential areas directly north of the site.

7. The ECI site was an oil refinery with an underground transportation network. The above ground structures were dismantled and removed. The below ground pipes and contaminated soils remain with the exception of those that were removed as part of the construction of the Indiana Harbor CDF.

8. ECI unit areas I, IIA and IIB, as identified in the 1999 Comprehensive Management Plan, are subject to closure and post-closure requirements under the Resource Conservation and Recovery Act (RCRA). All parcels are subject to RCRA Corrective Action.

9. The ECI site lies within the Calumet Lacustrine Physiographic Province. The Province is characterized by distinct dune/beach complexes.

10. Three main aquifers are present in the unconsolidated overburden in Lake County. These sand and gravel units have been designated at the Calumet, the Valparaiso and the Kankakee aquifers. The Calumet aquifer is present at the ECI site.

11. The unconfined Calumet aquifer is a fine to medium grained sand aquifer with a saturated thickness of 0-45 feet. It is recharged by direct precipitation and discharges to the little Calumet River, the Grand Calumet River/Indiana Harbor and Canal system and Lake

Michigan. It is not a major water supply since the local municipalities obtain water from Lake Michigan.

12. The groundwater table at the ECI site is approximately five feet below the surface. There are private wells scattered through the region. The wells are typically completed in sands less than 50 feet below ground surface (bgs). British Petroleum and the B&O Railroad maintain several groundwater monitoring wells near the Indiana Harbor CDF.

13. Lacustrine deposits constitute much of the near-surface soils in the area. The fine sands, silts and clays make up a regional physiographic unit call the Calumet Lacustrine Plain. Bedrock in the area is comprised of Devonian and Silurian limestone, shale and dolomite. Ordovician shale, sandstone and limestone underlie the Silurian and Devonian formations. Cambrian sandstone and shale underlie the Ordovician formations and overlie Pre-Cambrian granite.

14. Soil borings at the ECI site indicate there are five distinct layers at the site. From top to bottom, the layers are described below.

    a. Layer 1 consists of 0 to 12 feet of fill consisting of sand, cinders and slag contaminated with free-phase hydrocarbons.

    b. Layer 2 (Calumet aquifer), most likely the Atherton Formation, consists of 20 to 25 feet of medium dense to dense gray, silty, coarse to fine sand (SM) which is heavily contaminated with free-phase hydrocarbons. The hydraulic conductivity for this layer ranges from $1.6 \times 10^{-3}$ centimeters/second (cm/sec) to $8.4 \times 10^{-3}$ cm/sec.

    c. Layer 3 consists of 60 to 65 feet of stiff, dark gray silty clay (CL) which probably formed as part of the Valparaiso Moraine. The hydraulic conductivity for this layer ranges from $1.1 \times 10^{-8}$ cm/sec to $1.9 \times 10^{-8}$ cm/sec.

    d. Layer 4 consists of approximately 16 feet of extremely dense, gray and olive coarse to fine sand or hardpan, possibly of the Lagro formation.

    e. Layer 5 consists of gray dolomitic limestone bedrock with a hydraulic conductivity of $1.2 \times 10^{-4}$ cm/sec. The bedrock is moderately hard, moderately to slightly weathered and slightly fractured. This formation is typical of the Racine formation of the Silurian system.

15. The Indiana Harbor CDF is designed and currently constructed as follows:

a. a soil bentonite slurry cut off wall along the west, north and east side of the Indiana Harbor CDF;

b. a sheet pile cut off wall with sealed interlocks along the south side of the Indiana Harbor CDF;

c. an exterior impermeable clay dike that extends completely around the perimeter of the dredged sediment;

d. fourteen piezometers;

e. an interior dike separating the Indiana Harbor CDF into a 45 acre west cell and a 45 acre east cell (Attachment 2);

f. two decant structures;

g. a clay cover extending from the toe of the exterior dike to the perimeter of the ECI site;

h. perimeter drainage system;

i. a ground water extraction and gradient control system consisting of 96 extraction wells, 40 monitoring wells and 2 ultrasonic water level indicators (Attachment 3);

j. two lift stations;

k. four on-site and one off-site ambient air monitoring stations and four real time air monitoring stations (Attachment 5); and

l. support facilities which include (Attachment 2):

i. an administration building;

ii. a parking lot;

iii. a 1500 $ft^2$ garage;

iv. a crane pad which abuts the Lake George Branch of the IHC connected via an underdrain to a lift station;

v. a 20 x 48 foot vehicle decontamination pad connected via an underdrain to a lift station;

vi. a material storage pad;

vii. an 80 x 56 foot debris pad connected via an underdrain to a lift station;

viii. a waste water treatment plant pad with a temporary package plant; and

ix. a perimeter maintenance road located adjacent to the outside toe of the perimeter dike and several smaller maintenance access roads on the south side of the Indiana Harbor CDF.

16. The soil bentonite slurry cut off wall, constructed from 2002 to 2004, extends from the ground surface through the Calumet aquifer (Layer 2) to the underlying native clay (Layer 3). The length of the wall is approximately 8,634 lineal feet and the total wall depth varies but has a minimum of 33 feet. It is 2.5 feet wide and extends a minimum of three feet into the clay layer to ensure a complete hydraulic cutoff. The tested hydraulic conductivity of the cutoff wall meets the $1 \times 10^{-7}$ cm/s maximum requirement. During the construction of the wall, all obstructions (abandoned pipes, utilities, storage tanks) were removed with the exception of four deep obstructions.

17. The sheet pile cutoff wall, completed in 2009, is adjacent to the Lake George Branch of the IHC. The wall is constructed of hot rolled steel sheet pile with an impermeable interlock sealant, tie rods and an anchor wall system. Every other interlock is welded closed and the intermediate interlocks are sealed using a bentonite sealing system. The east and west ends of the steel sheet pile wall extend back into the slurry wall. The sheet pile wall is structurally supported laterally by buried tieback elements extending to a buried deadman anchor wall that runs parallel to the wall at an offset distance of 68 feet north of the canal wall centerline. The sheet pile cutoff wall extends a minimum of three feet into the underlying clay layer. It meets the $1 \times 10^{-7}$ cm/s maximum hydraulic conductivity requirement.

18. The exterior perimeter dike extends completely around the dredged sediment limits to contain the dredged sediment. It is constructed of low-permeability, compacted lean clay capped with a geotextile liner and two 12-inch layers of compacted, crushed slag aggregate to form an access road on the crest of the dike. The exterior side slopes (walls) of the dike are vegetated. The interior walls are covered with aggregate. It is 21.5 feet tall and 32 feet wide at the crest. The slope of the interior wall of the dike is 2H:1V (horizontal distance:vertical distance) and the slope of the exterior wall is 2.5H:1V (Stage I). The hydraulic conductivity of the dike is $1 \times 10^{-7}$ cm/s. USACE plans to increase the height of the dikes subsequent to the disposal of the 50 ppm and over sediment dredged from the IHC (Stage II).

19. Fourteen groundwater piezometers were installed to monitor groundwater levels as part of the dam safety program for the exterior dike. The piezometers were installed in 7 pairs, each pair consisting of a piezometer in the exterior dike crest and one beyond the exterior dike toe. The pairs are located at the four corners of the exterior dike, at the approximate mid-point of the east, west and south sides of the exterior dike (Attachment 4). Each piezometer has a pressure transducer and programmable data logger that collects data at a programmed frequency. Data are uploaded from each instrument to a portable computer on a monthly basis.

20. The longitudinal north-south interior dike separating Indiana Harbor CDF into east and west cells is 18.5 feet tall, 94 feet wide at the base and 20 feet wide at the crest with symmetrical side slopes of 2H:1V. The center dike has an inner core of crushed, compacted debris encapsulated by 15 feet of compacted clay along each side and five feet of compacted clay over the top debris lift. The debris core consists of concrete, stone and timber. No debris was buried in the "turnaround" or abutment areas where the interior and exterior dikes meet. Equipment for the interior dike is limited to 500 pounds per square foot (psf), a normal sized pickup truck or small piece of equipment.

21. The two decant structures may be used to move water from cells for distribution, sediment slurrying, or treatment. Currently, the water from the east and west cells is used in the slurry operations to hydraulically off-load and place sediment in Indiana Harbor CDF. The east decant structure is located at the south end of the east cell. The west decant structure is located at the south end of the center dike near the southeast corner of the west cell (Attachment 2).

22. The drainage system consists of ditches and box culverts located outside the slurry wall around the perimeter of the site to collect clean runoff. The ditches were constructed on top of the interim perimeter cap and do not contact the contaminated sediments. They have been designed to accommodate the runoff from a 25-year, 24-hour storm event after the site is capped. The ditches have a five foot bottom width, 2.5H:1V side slope and the ditch depth includes one foot of freeboard. At the south side cutoff wall, weirs allow drainage of the ditches into the canal. One drainage ditch runs along the western border of the site and discharges to the canal at the southwest corner. The other ditch runs east along the northern border of the site, then south along the eastern border to discharge at the southeast corner of the site.

23. The groundwater extraction and gradient control system is designed to achieve and maintain a two foot inward groundwater drawdown to prevent release of contaminants to the Calumet aquifer and the Lake George Branch of the IHC and to prevent groundwater flow away from the site. The system is comprised of 96 extraction wells, 40 monitoring wells and 2 ultrasonic water level indicators (Attachment 3). All the extraction and monitoring wells are screened within the Calumet aquifer. This system started extracting groundwater in 2010 and will operate in perpetuity.

24. The extraction wells are located around the inside perimeter of the slurry/sheet pile groundwater cutoff walls. These are 6-inch diameter vertical extraction wells with submersible pumps. The system has approximately 10,500 linear feet of 12-inch diameter ductile iron gravity collection header pipe, two 6-foot diameter precast concrete package lift stations with duplex pumps, 25 standard manholes on the 12-inch header pipe and approximately 1,475 linear feet of force main.

25. Sets of two monitoring wells measure the difference between the groundwater levels on either side of the slurry wall. For each set, one monitoring well is located on the CDF, or interior, side of the slurry wall and the other on the exterior side of the slurry wall. The wells contain an isolated diaphragm transducer that automatically measures the absolute pressure in the wells. The absolute pressures are adjusted for barometric pressure (read by a barometric pressure sensor in one of the control panel cabinets) and the results are then converted to water levels. On the canal side of the Indiana Harbor CDF, the gradient is computed across the south cutoff wall with respect to the water level in the canal which is measured by ultrasonic sensors.

26. There are 8 local control panels for the wells. A control system operates the extraction wells to maintain the minimum two-foot inward groundwater drawdown based on the water levels recorded in the monitoring wells. The control room is located in the administration building.

27. The clay cover around the exterior of the Indiana Harbor CDF consists of 1 foot of clay covered with 6 inches of topsoil. In some locations, the cover also includes a layer of clean fill in the cross section to achieve the proper surface grade. The cover extends from the toe of the exterior dike to the ECI site perimeter.

28. The Indiana Harbor CDF is a ponded facility. There is a layer of water over most of the dredged sediment to minimize particulate and volatile emissions. The height of the dikes is sufficient to maintain two feet of freeboard on the exterior dikes.

29. Since the Indiana Harbor CDF is a ponded facility secured by an exterior dike, it is listed as a dam in the National Inventory of Dams (NID) by the Indiana Department of Natural Resources under NID No. IN04071 and is managed in accordance with the USACE Headquarters Dam Safety Program.

30. The ECI site, or any portion of the Indiana Harbor CDF, is not within a 100-year floodplain.

31. Five ambient air monitoring stations operate during dredging and disposal. One air sampler is located at each mid-point of the exterior dike on all four sides plus a fifth unit is located due south at the East Chicago High School campus (Attachment 5). Samples are collected on a six-day sampling frequency during dredging activities. During

offloading of the IHC dredged sediment, there is a handheld photo ionization detector (PID) at the site dock face.

32. Four real time air monitor stations are located at each corner of the exterior dike of the Indiana Harbor CDF based on prevailing wind directions. The stations monitor particulates and naphthalene.

33. A 20 x 48-foot concrete pad is provided for vehicle decontamination. The wash water from the pad is collected in a trench drain connected to the groundwater gradient system via catch basin. It is transferred to a lift station and pumped with the groundwater into the east cell of the Indiana Harbor CDF.

34. The crane pad, which abuts the Lake George Branch of the IHC, and the debris pad have gravity drains to the gradient control system and the water from these pads are pumped with the groundwater into the east cell of the Indiana Harbor CDF.

35. The Indiana Harbor CDF has the following current permits:

    a. July 2012 Air registration permit 089-15320-00471; and

    b. July 2011, a five-year Section 402 National Pollutant Discharge Elimination System (NPDES) permit (IN0062511) issued to USACE by IDEM.

36. The Indiana Harbor CDF air permit registration application was submitted to IDEM in accordance with 326 IAC 6 and 326 IAC 2 on February 22, 2002. The air registration (089-15320-00471) was updated in July 2012 and details requirements regarding fugitive dust controls and opacity limits for sources at the Indiana Harbor CDF. The requirements are as follows:

    a. emissions of particulate matter (PM) or volatile organic compounds (VOC) must not exceed twenty-five (25) tons per year;

    b. emissions of a single hazardous air pollutant (HAP) must not exceed ten (10) tons per year;

    c. combined HAPs must not exceed twenty-five (25) tons per year;

    d. the average instantaneous opacity of fugitive particulate emissions for paved and unpaved roads and parking lots shall not exceed ten percent (10%);

    e. the opacity of fugitive particulate emissions from storage piles or exposed areas shall not exceed ten percent (10%) on a six (6) minute average; and

37. Water in the IHC CDF comes from site groundwater, precipitation, and sediment pore water. Water is pumped between the cells as needed to facilitate sediment placement and water management. When water from the cells is not being treated, it is stored in the CDF cells. Wastewater treatment and discharge will be consistent with the Clean Water Act and Indiana law. The primary pollutants of concern in the water to be treated are PCBs, polynuclear aromatic hydrocarbons (PAHs), ammonia, metals, total suspended solids (TSS), and oil and grease.

38. The dredged material disposal procedure at the Indiana Harbor CDF is a hydraulic placement operation that pumps a slurry of sediment and water from a barge to the disposal cell. Although the exact equipment and operations vary by season, typical operations and operational equipment consist of the following:

a. Use of a 230-ton crane, a crane to offload debris into the west cell, a tug boat, hopper barges, a 16 $yd^3$ environmental bucket, dredge booster pumps, double walled pipes and a moon pool with an oil boom;

b. hydraulic placement of PCB dredged sediment from the IHC dredging project into the Indiana Harbor CDF;

c. mixing the dredged sediment from the IHC dredging project with water from Indiana Harbor CDF;

d. pumping the sediment/water slurry from the barges docked along the south wall of the Indiana Harbor CDF through double-walled piping and into the east cell, at a variety of discharge points;

e. use of a crane, located on the west exterior dike, to place debris into the west cell of the Indiana Harbor CDF; and

f. recording the location of the TSCA level material.

39. A RCRA cap will be installed over the entire site when the Indiana Harbor CDF reaches capacity and closes.

40. The Indiana Harbor CDF has the following security measures:

a. restricted access to the site through the main gate located at the intersection of Riley Road and Indianapolis Boulevard which is an electronic slide gate with key card access, camera and intercom;

b. a locked secondary site gate from Indianapolis Boulevard located north of Riley road;

c. no access gates on the north and west side of the property;

d. an employee and visitor entry log;

e. an eight-foot-tall perimeter chain link fence, or equivalent perimeter barrier, with barbed wire outriggers angled outward along the top which extends the entire length of the north, west and east sides of the property;

f. high mast site lighting consisting of three 100-foot tall poles, each equipped with twelve 1000-watt high pressure sodium lamps and high-mast lowering system, on the south side of the Indiana Harbor CDF;

g. closed circuit television (CCTV) cameras with pan, tilt and zoom capability located near each of the three poles;

h. bistatic microwave link intrusion detection system to detect motion or intruders on the south end of the facility and activate the CCTV cameras; and

i. an administration building equipped with an intrusion detection alarm system and a fire/smoke detection system, both which contact 9-1-1 when triggered, and a security room for monitoring the CCTV cameras.

41. The current height of the exterior and interior dikes represents Stage I of the dike construction plan. The Indiana Harbor CDF has a Stage I capacity of 2.4 million cubic yards. When the height of the dikes in increased in in Stage II of the dike construction plan, the Indiana Harbor CDF will have a planned ultimate stage II capacity of 4.8 million cubic yards.

42. Performance monitoring for the Indiana Harbor CDF will extend through the period of active site operation and perpetual long-term care. The groundwater gradient system and the interior and exterior dikes will be monitored in accordance with the Dam Safety Program. The final cap will be monitored as part of the perpetual long-term care requirements.

## CONDITIONS OF APPROVAL

The following Conditions, including specified requirements and provisions necessary to ensure that disposal of the IHC dredged material does not present an unreasonable risk of injury to health or the environment from PCBs, are authorized pursuant to 40 C.F.R. § 761.61(c).

SCOPE OF WORK

43. USACE plans to dredge approximately 20,000 cubic yards of PCB impacted sediments from the IHC. This includes TSCA level material at or above 50 ppm and sediments below 50 ppm PCB. The estimated TSCA level material above 50 ppm PCB is approximately 3,700 cubic yards.

44. USACE may dispose of the TSCA level IHC dredged material in the east or west cell of the Indiana Harbor CDF. To contain the TSCA level material in the smallest area possible, USACE plans to dispose of the TSCA level material in the east cell of the Indiana Harbor CDF.

45. USACE may use the less than 50 ppm PCB dredged sediment from the IHC dredging as a cover over the 50 ppm or greater PCB dredged sediment to mitigate PCB air emissions.

46. If USACE discovers more TSCA level sediment in the IHC, USACE must coordinate with EPA and IDEM prior to disposing of the sediment in the CDF.

WASTE PLACEMENT

47. Before placing TSCA level materials into the Indiana Harbor CDF, USACE must submit documentation to EPA and IDEM that shows a continuous 2-foot inward gradient has been achieved for all wells in the groundwater extraction system, and/or there has been an inward gradient for the last six months.

48. Before placing TSCA level materials into the Indiana Harbor CDF, USACE must submit written and photographic documentation to EPA and IDEM showing that USACE has repaired the erosion gullies and wave cut erosion on the interior face of the exterior dike. The repair to the exterior dike must be evaluated in accordance with the dam safety inspection program and the condition of the exterior dike shall not receive less than a "B" rating as described in Attachment 6 to this Approval (USACE Operational Condition Assessment Rating Scale and Definitions). This means the exterior dike is fully functional, there is no documented critical design flaw in the exterior dike in terms of structural or operational capacity or functionality, there is no documented or observed deficiencies and there is only indication of normal wear. "Normal wear" shall be defined by storm water erosion gullies that are no greater than twelve (12) inches wide and/or deep and wave-cut erosion that extends no more than six (6) inches into the face of the dike.

49. Each load of IHC dredged material received at the Indiana Harbor CDF must be recorded in a daily log such as a daily construction report, daily waste log, or other standardized format.

50. USACE must document and record the location of the TSCA level IHC dredged material placed in the Indiana Harbor CDF.

51. USACE shall ensure that vehicles that have come in contact with IHC dredged material are cleaned before leaving the Indiana Harbor CDF and entering the public road to prevent the spread of contamination.

52. If there is less than two feet of freeboard between ponded surface of the east cell and/or the west cell and exterior dike, USACE may not dispose of any material or water in the CDF until sufficient water has been removed to establish and maintain two feet of freeboard in each cell. A high-water level with less than two feet freeboard shall trigger all emergency notification processes.

53. If the elevation of the water in the interior monitoring wells reaches the elevation of the base of the clay cover, USACE may not dispose of any material or water in the Indiana Harbor CDF.

54. USACE must inspect all dredged material barges, off-loading equipment and pipelines daily for any leaks during disposal of the TSCA level material. Leaking equipment and pipelines must be contained immediately. Barges that leak PCB waste must be contained immediately and shall not leave the Indiana Harbor CDF until the leak is stopped.

INDIANA HARBOR CDF MONITORING

55. USACE must continue to maintain the Surveillance and Monitoring Plan for the Indiana Harbor CDF to detect potential conditions such as:

    a. seepage at the exterior dike slopes;

    b. seepage or sand boils at the toe of the exterior dike;

    c. changes in vegetation growth on the exterior dike slopes and dike crest;

    d. wind and/or water erosion (longitudinal cracks, gully and scarp development) at the dike crest, interior dike slopes and exterior dike slopes;

    e. cracking, bulging and slumping of the dikes;

    f. damage to the west side of the exterior dike where the crane is located;

g. water levels above maximum 2-foot freeboard operating limit; and

h. less than a 2-foot groundwater drawdown across slurry wall.

56. In accordance with the Surveillance and Monitoring Plan, USACE contractors or USACE general staff present on-site must perform routine surveillance and monitoring of the Indiana Harbor CDF. This includes direct observation of the Indiana Harbor CDF dikes, infrastructure and systems, and other site conditions during daily onsite work activities.

57. If USACE must repair the exterior dike to meet the "B" rating as described in Attachment 6 to this Approval (USACE Operational Condition Assessment Rating Scale and Definitions), these repairs must commence within 30 days of discovery. USACE must complete these repairs within 180 days of discovery. EPA and IDEM must receive written and photographic documentation of these repairs.

58. USACE must monitor the water levels in the east and west cells of the CDF daily during sediment and/or water placement. If there is no active sediment and/or water disposal in the CDF, USACE must monitor the water levels weekly and after any rainfall of 0.5 inches or greater to ensure that the 2-foot freeboard is maintained.

59. USACE must perform additional inspections if the Indiana Harbor CDF has been subject to unusually large storms, earthquakes, sabotage or other unusual events reported by operating personnel.

60. If the Indiana Harbor CDF is no longer regulated as a dam and, therefore, not subject to the USACE Dam Safety Program, USACE must perform annual inspections of the facility.

61. USACE, or its contractors, must be available to manage any emergency at the Indiana Harbor CDF on a 24-hour, 7 day a week frequency.

AIR MONITORING

62. USACE shall conduct air monitoring for PCBs and particulates during the dredging and disposal of IHC TSCA regulated materials and until a minimum of 2 feet of non-TSCA regulated sediment is placed above the regulated materials.

GRADIENT CONTROL SYSTEM MANAGEMENT

63. If any well and/or instrument of the gradient control system is not functioning, USACE shall take manual measurements of water levels until the well and/or instrument is repaired or replaced.

64. If the USACE is not able to achieve and maintain a two-foot inward groundwater drawdown differential at any monitoring well pair, USACE must continue to pump and extract the groundwater while any response or corrective action is in progress.

65. USACE must notify EPA and IDEM of the proposed location and installation schedule for additional and/or replacement groundwater extraction wells for the gradient control system at least two weeks prior to the installation of these wells.

GROUNDWATER COLLECTION, HANDLING AND DISPOSAL

66. Groundwater collected from the groundwater extraction wells of the gradient control system may be disposed of in the Indiana Harbor CDF provided the cell has a minimum two-foot freeboard between the surface of the water in the cell and the top of the exterior dikes.

67. USACE must treat any water removed from the Indiana Harbor CDF to the discharge standards specified in the NPDES section 402 permit (IN0062511) issued by IDEM for discharge to the Lake George Branch of the IHC or in accordance with any other water treatment permit issued by EPA, IDEM or the City of East Chicago that supersedes the NPDES section 402 permit.

GROUNDWATER MONITORING

68. USACE, with EPA and IDEM input, will determine if the groundwater sampling that occurred in 2017 suffices as the baseline groundwater monitoring sampling event at the Indiana Harbor CDF. Any additional groundwater sampling will be conducted before USACE disposes of the 50 ppm or greater PCB sediments in the Indiana Harbor CDF. The methods, reporting limits, analysis, timing, staffing, and funding of the event will be mutually agreeable to EPA, IDEM and USACE.

69. EPA and IDEM may require USACE to perform additional groundwater monitoring at the Indiana Harbor CDF, based on failure to maintain inward gradients at wells, or dike, slurry wall or sheet piling failure or indication of leakage.

ANALYSIS

70. The PCB levels in any soil or solid sample required by this Approval must be determined by using:

    a. appropriate procedures identified by SW-846 Method 3500B (or future EPA updates) for organic extraction and sample preparation;

    b. procedures identified by SW-846 Method 3600C (or future EPA updates) for sample extract cleanup, when necessary or appropriate;

    c. SW-846 Methods 8082 (as updated by EPA) for analytical measurement with results reported as total PCB, on a dry weight basis (103-105°C), calculated by comparison to Aroclor standards identified by SW-846 Methods 8082 when Aroclors are present; and

    d. identified Aroclors used for calculation of total PCB also are to be reported.

71. The PCB levels in any water sample any water samples obtained from this facility must be determined by using:

    a. appropriate procedures identified by SW-846 Method 3500 (or future EPA updates) for organic extraction and sample preparation;

    b. procedures identified by SW-846 Method 3600C (or future EPA updates) for sample extract cleanup, when necessary or appropriate; and

    c. SW-846 Methods 8082 (as updated by EPA) for analytical measurement.

72. The results of analyses of water samples must be reported as total PCB calculated by comparison to Aroclor standards identified by EPA Test Method SW-846 Method 8082. Identified Aroclors used for calculation of total PCBs are also to be reported.

73. Upon request, USACE must provide EPA and IDEM with split sample material for any sampling conducted by USACE.

RECORDKEEPING

74. USACE must prepare and maintain annual records on the disposition of PCB waste at the Indiana Harbor CDF. The annual records for the Indiana Harbor CDF shall include:

    a. USACE daily dredge records for the TSCA sediments which lists the GPS disposal coordinates, the Indiana Harbor CDF disposal cell and the depth of disposal in the cell; and

b. all records of inspections and reports required by the USACE Dam Safety Program and cleanups at the Indiana Harbor CDF relative to the IHC dredged material for the calendar year.

75. USACE shall prepare, by July 1 for the previous calendar year, an annual document log that includes:

a. the name, address, phone number, and EPA identification number of the holder of the TSCA Approval, and the calendar year of the log;

b. USACE daily dredge reports;

c. the quantity of PCB waste disposed of expressed in cubic yards of waste and estimated kilograms of PCB waste;

d. the first date the PCB waste was removed from service for disposal; and

e. the date the PCB waste was placed in the Indiana Harbor CDF.

f. the quantity of water extracted from the gradient control system and disposed of in the Indiana Harbor CDF; and

g. the quantity and PCB concentration of the water removed from the Indiana Harbor CDF for discharge under an NPDES permit or any other water treatment permit issued by EPA, IDEM or the City of East Chicago.

76. USACE must maintain the annual records and annual document logs for at least twenty (20) years after the Indiana Harbor CDF is no longer used for the disposal of IHC dredged material. The required documents must be kept at one central location and must be available for inspection by authorized representatives of EPA and IDEM.

77. USACE shall collect and maintain for at least twenty (20) years after the Indiana Harbor CDF is no longer used for the disposal of IHC dredged material, the following:

a. all water analyses obtained under this Approval and the applicable TSCA regulations;

b. all operations records, including the burial coordinates of wastes, obtained under this Approval and the applicable TSCA regulations;

c. all documents, correspondence and data provided by USACE to State and local governmental agencies pertaining to disposal of IHC dredged material at the Indiana Harbor CDF;

d. all documents, correspondence and data provided by federal, State and local governmental agencies to USACE pertaining to disposal of IHC dredged material at the Indiana Harbor CDF; and

e. all applications and related correspondence sent from USACE to governmental agencies regarding specified permits for the Indiana Harbor CDF.

78. USACE shall offer all records described in Conditions 75 through 78 to EPA and IDEM before destruction.

79. USACE must submit to EPA an annual report by July 15 of each year for the previous calendar year and must include data for the previous calendar year. For each respective year, the annual report must contain a summary of the written annual disposal log records and annual records, and the following additional information:

a. sample site locations for groundwater, air, surface water, sediment and soil samples must be posted/plotted on maps and cross sections;

b. graphical plot of groundwater elevation at monitoring wells;

c. a graphical time plot of all analytical data produced from the ponded water in Indiana Harbor CDF;

d. a summary of the final quantity and PCB concentration of water treated onsite for discharge consistent with NPDES reporting;

e. a summary of the number of cubic yards and estimated kilograms of PCB waste disposed of in the calendar year; and

f. any additional information as may be required by the Director of the Land and Chemicals Division (or successor Division), U.S. EPA, Region 5.

80. USACE must provide to EPA and IDEM a cleanup report, within 30 days of completing a cleanup action, in response to a spill or release at the Indiana Harbor CDF that requires notice under Condition 82 of this approval.

NOTICE

81. USACE must notify EPA, IDEM and the ECWMD within 24 hours if any of the following occur:

a. evidence of piping or muddy water boils on or near the dike;

b. failure of the exterior and/or interior dikes;

c. seepage or breach of the exterior dike;

d. breach of the interior dike;

e. release of water from the underdrains, the lift stations, the discharge pipes or the gradient control system;

f. release of sediment and/or untreated water to the Lake George Branch of the IHC or the area between the Lake George Branch of the IHC and the Indiana Harbor CDF;

g. significant damage to, or changes, in structures, foundations, water levels, groundwater conditions and adjacent terrain;

h. failure of the gradient control system;

i. the freeboard in either cell is less than two feet;

j. contamination of the drainage ditches;

k. air monitors are out of service for five days; or

l. exceedance of the ambient air registry limits and the limits for the real time air monitoring limits.

82. If there is a spill or release of anything from the Indiana Harbor CDF which poses a threat to health or the environment, the event must be reported immediately to the EPA designated Project Manager. In addition, USACE must abide by all other applicable federal, State, and local notification and reporting requirements regarding such an incident.

83. For the required notification, USACE must contact the EPA designated Project Manager. Required written correspondence may be sent to:

Land and Chemicals Division (or successor Division) Director
U.S. Environmental Protection Agency
77 W. Jackson Blvd.
Chicago, Illinois 60604

OPERATIONAL MODIFICATIONS

84. The following events shall subject USACE to immediate corrective actions, including possible work stoppage, drainage control, emergency berm construction, soil reinforcement, dike repair, well repair and/or replacement, and possible closure of the CDF.

a. Indications of distress, damage or slope failure (as defined in Condition 56 of the "Indiana Harbor CDF Monitoring" section) of the interior slope of the exterior dike;

b. indications of distress, damage or slope failure to the exterior slope of the exterior dike;

c. fluid and/or sediment escape from the Indiana Harbor CDF;

d. inability to achieve and maintain a two-foot inward groundwater drawdown differential at any monitoring well pair;

e. elevation of the water in the interior monitoring wells reaches the elevation of the base of the clay cover;

f. elevation of the water in the dike crest piezometers reaches the ground surface elevation of the exterior dike; or

g. elevation of the water in the dike toe piezometers reaches the top of the fill along the toe of the exterior dike.

85. If USACE no longer wishes to operate the Indiana Harbor CDF as a ponded facility, USACE must submit an application to EPA for a modification to this Approval.

86. If USACE decides to send the water extracted from the gradient control system to the East Chicago WWTP, USACE must notify EPA and IDEM.

STAGE II EXTERIOR DIKE CONSTRUCTION

87. USACE must submit the following documentation to EPA and IDEM for the Stage II Dike Construction:

a. a minimum of 45 days prior to start of solicitation, 100% plans and specifications including earthfill testing and other quality control requirements and a slope-stability analysis for the Indiana Harbor CDF with the additional exterior dike height and that addresses the potential additional problems associated with partially filled CDF;

b. after award of the construction contract but at least 30 days before construction starts, a Construction Quality Control Plan that is sufficient to ensure adequate construction procedures, compaction and oversight; and

c. after construction is complete, a construction documentation report.

SAFETY AND HEALTH REQUIREMENTS

88. Cleanups of PCB spills at the Indiana Harbor CDF must be completed in accordance with applicable state and TSCA PCB regulations and applicable safety and health requirements and regulations.

89. USACE employees and contractors must be equipped with the appropriate training and personal protective equipment for handling the IHC dredged material in accordance with TSCA and OSHA.

90. USACE must keep the Emergency Action Plan updated with appropriate procedures and contacts.

91. The Indiana Harbor CDF must remain secured to restrict public access at all times.

INSPECTION

92. EPA reserves the right of its employees and authorized representatives to perform inspections, review records, and take samples at the Indiana Harbor CDF at any reasonable time.

93. USACE will allow EPA and IDEM, and their authorized representatives, access to the Indiana Harbor CDF for any inspections, records review and sampling events conducted by EPA and/or IDEM.

CLOSURE AND POST-CLOSURE

94. USACE must submit a Closure application and a Post-Closure application to EPA and IDEM at least one year prior to closure of the Indiana Harbor CDF.

95. USACE must perform the following during final closure of the Indiana Harbor CDF:

a. consolidate and compact the materials in the Indiana Harbor CDF before placing the final cover to ensure it is strong enough to support the cover;

b. install a final cover that will meet the requirements of state and RCRA hazardous waste as well as state and TSCA PCB regulations for the entire site, including the CDF, that provides adequate protection to meet risk requirements, conceptually including the following (from bottom up to the surface):

i. 3-feet of compacted soil material (e.g. clay) with a hydraulic conductivity of no more than 1 x 10-7 cm/sec;

ii. a 60 mil HDPE geomembrane;

iii. a granular drainage layer at least 2.5 feet thick with a hydraulic conductivity of 1 x 10-2 cm/sec or more or a thicker granular layer if the frost line is more than 3 feet deep; and

iv. a vegetative layer of at least 6 inches of topsoil and grass.

96. Upon closure, USACE must remediate the Indiana Harbor CDF property (outside the CDF cells but within the fence-line of the CDF) contaminated by PCBs in excess of 25 ppm and 10 $\mu g/100\ cm^2$ in accordance with the PCB regulations at 40 C.F.R. § 761.61(a). The 25 ppm cleanup standard is permissible as long as the property is classified as a low occupancy area. This means that occupancy for any individual not wearing dermal and respiratory protection cannot exceed 335 hours per calendar year (an average of 6.7 hours per week). If the Indiana Harbor CDF can no longer be classified as a low occupancy area, USACE must remediate the Indiana Harbor CDF to a risk-based standard under 40 C.F.R. §§ 761.61(a)(4)(i)(A) or 761.61(c).

97. After final closure of the Indiana Harbor CDF, USACE must perform post-closure monitoring and maintenance in perpetuity.

TRANSFER OF RESPONSIBILITY OR OWNERSHIP

98. USACE must notify EPA and IDEM of any modification to the August 7, 2000 Project Cooperation Agreement between the Department of the Army and the East Chicago Waterway Management District for Construction of a Confined Dredged of Excavated Material Disposal Facility at the Indiana Harbor and Canal East Chicago Indiana which involves the transfer of responsibility or ownership of the Indiana Harbor CDF.

99. This notification must be in writing and must occur prior to the transfer of responsibility or ownership.

MODIFICATIONS

100. Any major modification of this Approval requires the written approval of the Director of the Land and Chemicals Division (or successor Division), EPA, Region 5. If there is any question as to whether a change in operations at the Indiana Harbor CDF, or any other

proposed modification, is a major or minor modification, such question should be submitted to the EPA designated Project Manager. In such cases, EPA will determine whether a proposed change is major or minor. No oral modifications shall be granted.

101. Any minor modification of this Approval requires written approval of the Chief, RRB Branch, Land and Chemicals Division (or successor Branch and Division), EPA, Region 5. No oral modifications shall be granted.

TSCA SEDIMENT DISPOSAL AUTHORIZATION

102. USACE'S authorization to place 50 ppm or greater PCB IHC dredged material in the Indiana Harbor CDF will expire upon placement of the material described in Conditions 44 through 47 of this Approval.

SUSPENSION AND TERMINATION OF PCB DISPOSAL AUTHORIZATION

103. USACE's failure to comply with any provision of this Approval, the TSCA, the PCB regulations at 40 C.F.R. Part 761, or any other applicable federal, State or local requirement may constitute a sufficient basis for suspension or termination of USACE's authorization to dispose of IHC TSCA regulated dredged material in the Indiana Harbor CDF.

104. USACE's PCB disposal authorization may also be terminated if the Director of the Land and Chemicals Division (or successor Division), EPA, Region 5 determines that the Indiana Harbor CDF poses an unreasonable risk of injury to health or the environment.

105. The Director of the Land and Chemicals Division (or successor Division), EPA, Region 5 may reinstate USACE's authorization to dispose of IHC TSCA regulated dredged material in the Indiana Harbor CDF or remove any disposal restrictions, if it is determined that any unsafe practices have been eliminated and unsafe conditions have been changed.

SEVERABILITY

106. All terms and conditions of this Approval are severable. If any provision of this Approval or any application of any provision, is changed, amended or held invalid, the remaining terms and conditions will still be valid and not affected thereby.

RESERVATIONS

107. Nothing in this Approval relieves USACE from the duty to comply with all applicable federal and State laws and regulations, including, but not limited to CERCLA, RCRA, TSCA, and the regulations promulgated under those statutes.

108. Violation of the Approval, TSCA or the PCB regulations may subject USACE to civil or criminal enforcement action and associated penalties.

109. EPA reserves the right to impose additional Conditions of Approval if EPA finds such conditions are necessary to ensure that operation of the Indiana Harbor CDF does not present an unreasonable risk of injury to health or the environment from PCBs, or if EPA issues new regulations or standards for risk-based disposal of PCBs.

110. EPA may require the removal of some or all of the PCBs disposed of in the Indiana Harbor CDF if EPA finds such actions are necessary to ensure that the Indiana Harbor CDF does not present an unreasonable risk of injury to health or the environment from PCBs.

111. USACE are responsible for the actions of its agents, assigns, employees, and contractors regarding compliance with this Approval and all federal, State and local regulations applicable to operation of the Indiana Harbor CDF, including, but not limited to, emergency notification and reporting requirements.

## APPROVAL

In accordance with 40 C.F.R. § 761.61(c) and the Findings above, EPA has determined that USACE's Application is consistent with TSCA, and that the Indiana Harbor CDF, when operated in compliance with the Conditions of Approval, does not present an unreasonable risk of injury to health or the environment from PCBs. Provided that the Conditions of Approval described above are met, USACE's March 24, 2014 Application for Approval is granted.

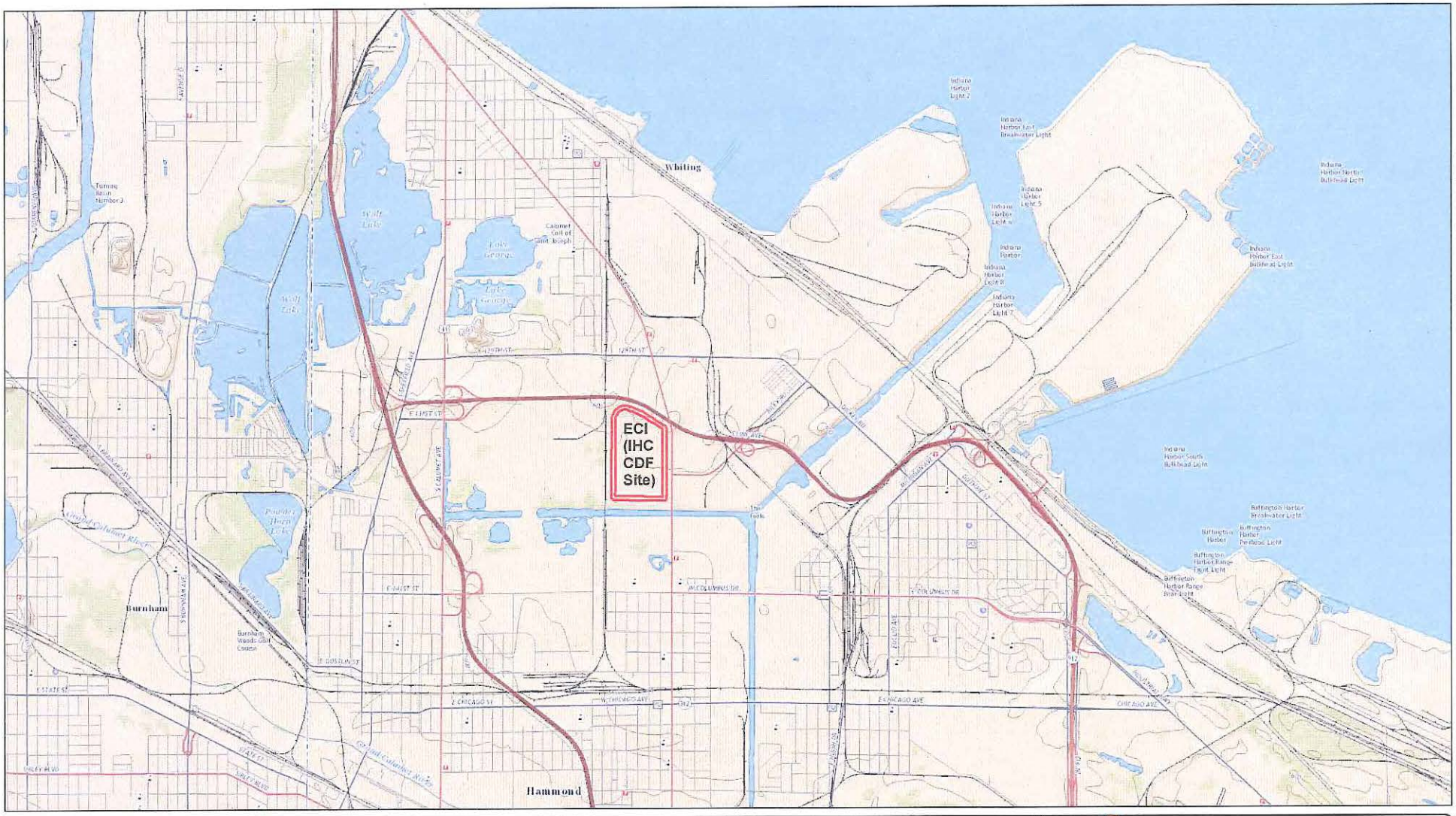
USACE is authorized to dispose of the 50 ppm or greater PCB contaminated IHC dredged material in the Indiana Harbor CDF.

Michael D. Harris for T.H. Date: 12/19/2018

Tinka G. Hyde, Director
Land and Chemicals Division
United States Environmental Protection Agency
Region 5

# Attachment 1

**Indiana Harbor CDF**
**Topographic Map of Project Area**

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Of Engineers ®
Chicago District

**Legend**

Indiana Harbor
CDF

1 inch = 3,009 feet

0 700 1,400 2,800 4,200 5,600

Feet

N
W E
S

**Indiana Harbor CDF**
**Topographic Map**
**of Project Area**

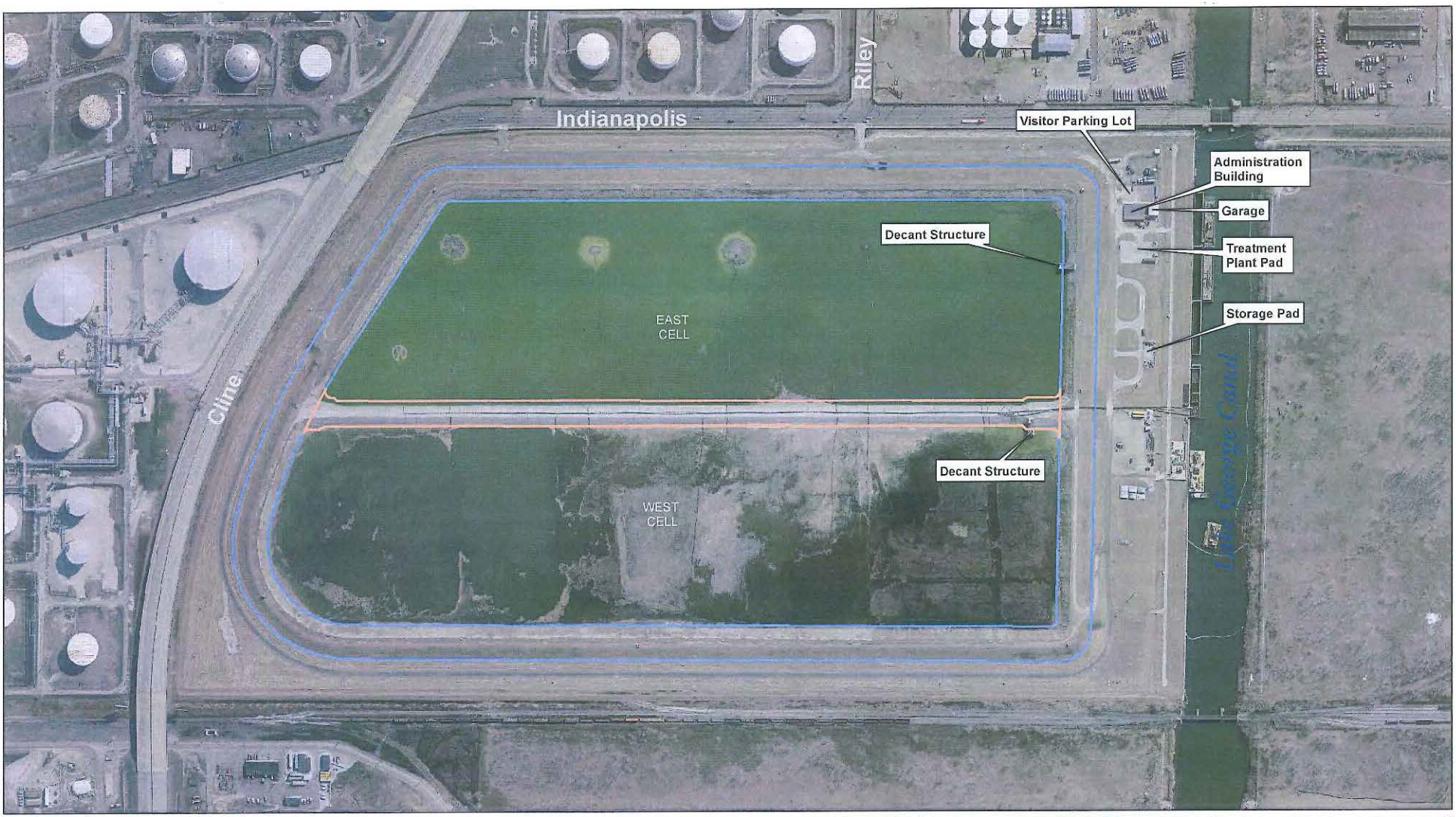
October, 2016

**Figure 2**

Chicago District, U.S. Army Corps of Engineers

# Attachment 2

**Indiana Harbor CDF**
**IHC CDF Site Plan**




U.S. Army Corps
Of Engineers ®
Chicago District

**Legend**

Exterior Dike  Interior Dike

1 inch = 333 feet

0 85 170 340 510 680

Feet

N W E S

**Indiana Harbor CDF**
**IHC CDF Site Plan**

October, 2016

**Figure 1**

Chicago District, U.S. Army Corps of Engineers

# Attachment 3

**Indiana Harbor CDF**
**Gradient Control System Extraction**
**And Monitoring Wells at IHC CDF**


## Legend

- Extraction Well
- Monitoring Well
- Exterior Dike
- Interior Dike

1 inch = 300 feet

0 75 150 300 450 600

Feet

N W E S

U.S. Army Corps Of Engineers ®
Chicago District

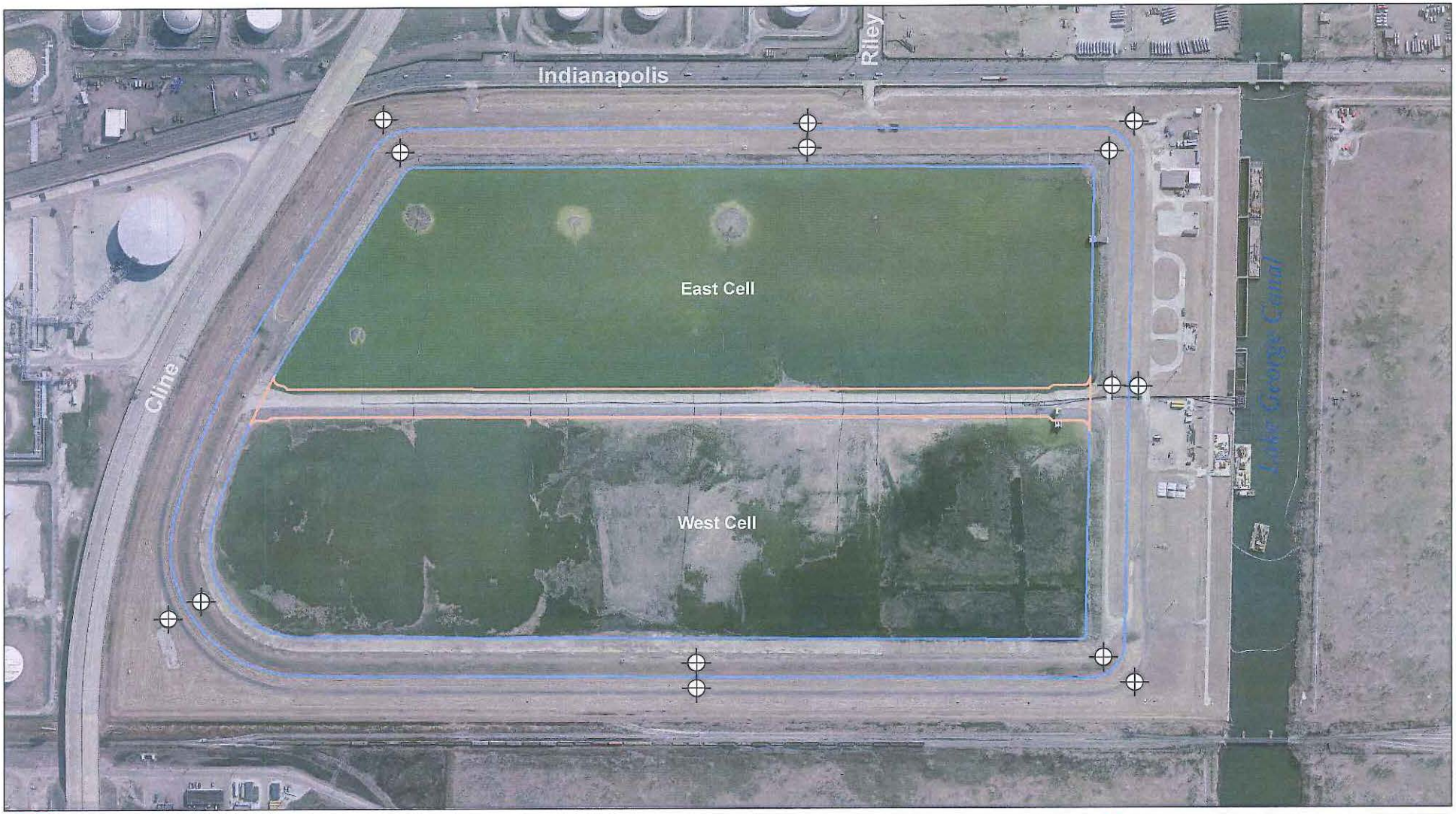
**Indiana Harbor CDF**
**Gradient Control System Extraction and Monitoring Wells at IHC CDF**
Chicago District, U.S. Army Corps of Engineers

October, 2016

**Figure 3**

# Attachment 4

**Indiana Harbor CDF**
**Dike Piezometer Locations**




U.S. Army Corps
Of Engineers ®
Chicago District

**Legend**

Piezometers | Exterior Dike | Interior Dike

1 inch = 300 feet

0 75 150 300 450 600

Feet

N W E S

**Indiana Harbor CDF**
**Dike Piezometer Locations**

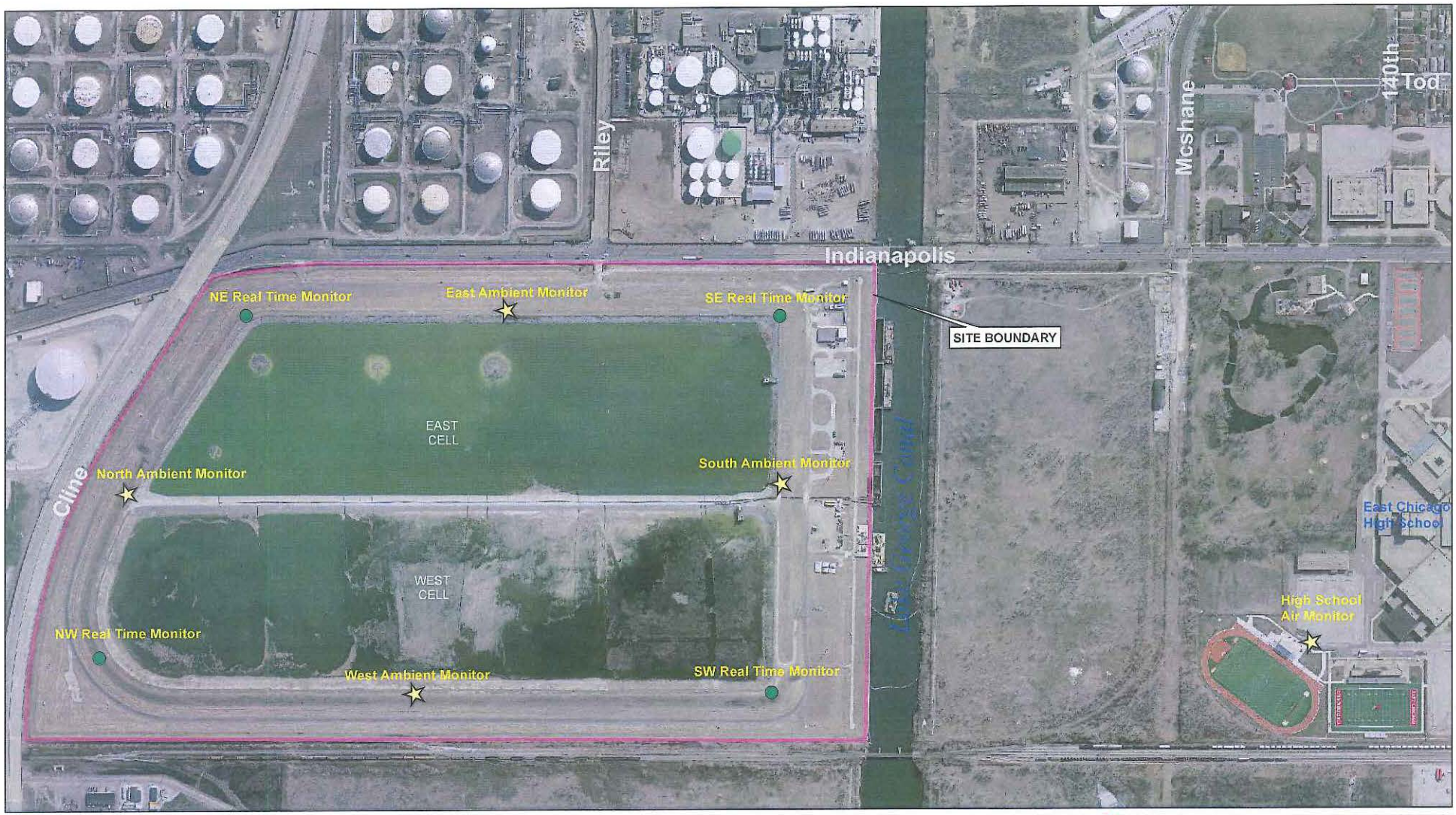
October, 2016

**Figure 4**

Chicago District, U.S. Army Corps of Engineers

# Attachment 5

**Indiana Harbor CDF**
**Air Monitoring Facilities**

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Chicago District

**Indiana Harbor CDF**
**Air Monitoring Facilities**

October, 2016

**Figure 5**

Chicago District, U.S. Army Corps of Engineers

# Attachment 6

**Engineering Regulation (ER) 1110-2-1156,**
**31 March 2014**
**Operational Condition Assessment Rating**

Engineering Regulation (ER) 1110-2-1156, 31 March 2014
Operational Condition Assessment Rating

Table AD-1.1 - Operational Condition Assessment Rating Scale and Definitions

| Condition Rating | Definitions |
|---|---|
| A (Excellent) | 1) Component is fully functional,<br>2) No documented critical design flaw in terms of structural/operational capacity or functionality,<br>3) No documented or observed deficiencies by definition,<br>5) No indication of wear. |
| B<br>(Good) | 1) Component is fully functional,<br>2) No documented critical design flaw in terms of structural/operational capacity or functionality,<br>3) Documentation, testimonies and/or observations concluded that a deficiency by definition exists,<br>4) A clear mode of failure cannot be confirmed,<br>5) The components performance is not affected by the deficiency,<br>6) The feature mission requirement(s) (i.e. flood control, water quality, water supply, etc.) are not affected by the deficiency,<br>7) Normal operating procedures and routine maintenance requirements are not affected by the deficiency,<br>8) Safety of personnel and end users are not affected by the deficiency,<br>9) There is indication of normal wear as documented, reported or observed. |
| C<br>(Poor) | 1) Component is fully functional,<br>2) A critical design flaw potentially exist in terms of structural/operational capacity or functionality, but must be further substantiated by owning District,<br>3) Documentation, testimonies and/or observations conclude that a deficiency by definition exists,<br>4) Documentation, testimonies, and/or observation can confirm a progressing degradation of the components condition,<br>5) A clear mode of failure cannot be confirmed,<br>6) The components performance is not presently affected by the deficiency, but is likely due to the substantiated progress in degradation,<br>7) The feature mission requirement(s) (i.e. flood control, water quality, water supply, etc.) are not presently affected by the deficiency, but likely due to the substantiated progress in degradation, |

Table AD-1.1 - Operational Condition Assessment Rating Scale and Definitions (Continued)

| Condition Rating | Definitions |
|---|---|
| C (Poor) (Continued) | 8) Normal operating procedures and routine maintenance requirement are not presently affected by the deficiency, but likely due to the substantiated progress in degradation,<br>9) Safety of personnel and end users not presently affected by the deficiency. |
| D (Inadequate) | 1) Component is functional,<br>2) Documentation, testimonies and/or observations conclude that a deficiency by definition exists,<br>3) Documentation, testimonies, and/or observation can confirm that the deficiency is significant by any of the following criteria:<br>a. A clear mode of failure exists,<br>b. The components performance is presently affected,<br>c. Feature mission requirement(s) (i.e. flood control, water quality, water supply, etc.) are presently affected,<br>d. Normal operating procedures are presently affected,<br>e. Routine maintenance requirements are presently affected,<br>4) A recent unsatisfactory performance or failure of service due to the deficiency cannot be confirmed by documentation or testimonies,<br>5) It is not likely that an imminent failure of the component will occur,<br>6) A critical life safety concern to personnel or end users does not exist. |
| F (Failed) | Failing: 1) Component is functional, 2) Documentation, testimonies and/or observations conclude that a deficiency by definition exists, 3) Documentation, testimonies, and/or observation can confirm that the deficiency is significant by any of the following criteria: a. A clear mode of failure exists, b. The components performance is presently affected, c. Feature mission requirement(s) (i.e. flood control, water quality, water supply, etc.) are presently affected, d. Normal operating procedures are presently affected, e. Routine maintenance requirements are presently affected, 4) In addition to the affect the deficiency has on performance and operation, a recent unsatisfactory performance or failure of service due to the deficiency can be confirmed by documentation or testimonies, 5) In addition to the affect the deficiency has on performance and operation, it is likely that an imminent failure of the component will occur, 6) In addition to the affect the deficiency has on performance and operation, a critical life safety concern to personnel or end users exists. |
| | Failed: Component is presently out of service or not functional. |

Reference: Operational Condition Assessment Process for Flood Risk Management Projects, Guidelines and Instruction Manual, Version 1.1, March 2012 Page 3-8.