Southwestern Illinois Flood Prevention District

401 Water Quality Certification

Responsiveness Summary Regarding

January 3, 2013 Public Hearing

Illinois Environmental Protection Agency
Office of Community Relations
March 4, 2013



Southwestern Illinois Flood Prevention District 401 Water Quality Certification---Responsiveness Summary

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March 4, 2013

Southwestern Illinois Flood Prevention District

401 Water Quality Certification IEPA Log Nos. C-0001-12, C-0002-12 and C-0003-12

Illinois EPA Decision

On March 4, 2013, the Illinois Environmental Protection Agency (Illinois EPA) issued the Southwestern Illinois Flood Prevention District a 401 Water Quality Certification for construction of levee relief structures.

The Illinois EPA made this determination in accordance with 35 Illinois Administrative Code (IAC) Subtitle C (*Water Pollution*), the Illinois Environmental Protection Act and the federal Clean Water Act. The 401 certification process is governed by the provisions of 35 IAC Part 395, *Procedures and Criteria for Certification of Applications for Federal Permits or Licenses for Discharges into Waters of the State*, which can be obtained online at http://www.ipcb.state.il.us/documents/dsweb/Get/Document-12064/

PRE HEARING PUBLIC OUTREACH

The 401 Water Quality Certification hearing notice was published in the *Belleville News Democrat* on December 1, 2012 and the *Collinsville Suburban Journal* on December 5, 12, and 19, 2012.

The hearing notice was mailed or e-mailed to:

- a) adjacent land owners;
- b) Madison, Monroe and St Clair county officials;
- c) municipal officials in: City of Alton, Wood River, Village of Hartford, Village of Roxana, Village of Cahokia as well as state and federal representatives;
- d) Corps of Engineers and the Illinois' Attorney General; and
- e) Illinois Chapter of the Sierra Club, Prairie Rivers Network and the Environmental Law and Policy Center.

The hearing notice was posted on the Illinois EPA website:

http://www.epa.state.il.us/public-notices/2012/sifpdc-prairie-dupont/hearing-notice.pdf http://www.epa.state.il.us/public-notices/2012/sifpdc-wood-river/hearing-notice.pdf http://www.epa.state.il.us/public-notices/2012/sifpdc-metro-east/hearing-notice.pdf

Hearing notices were posted at the Illinois EPA headquarters in Springfield.

January 3, 2013 PUBLIC HEARING

Hearing Officer Dean Studer opened the hearing January 3, 2013, at 6:30.m. at the Metro East Park & Recreation District, 104 United Drive, Collinsville, Illinois.

Illinois EPA Presentations:

Thad Faught, Facility Evaluation Unit Project Manager, provided a description of the project.

Comments and questions were received from the audience.

Hearing Officer Dean Studer closed the hearing at 8:06p.m. on January 3, 2013.

Illinois EPA personnel were available before, during and after the hearing to meet with elected officials, news media and concerned citizens.

Approximately 50 persons representing neighbors, local government, businesses, elected officials, environmental groups, interested citizens, and Southwestern IL Flood Prev. Dist. participated at and/or attended the hearing. A court reporter prepared a transcript of the public hearing which was posted on the Illinois EPA website. http://www.epa.state.il.us/public-notices/2012/sifpdc-metro-east/hearing-transcript.pdf The hearing record remained open through February 11, 2013.

Background of Southwestern Illinois Flood Prevention District 401 Water Quality Certification

The IEPA Bureau of Water has received three applications for Section 401 water quality certification for discharge into waters of the United States associated with a Section 404 permit application received by the United States Army Corps of Engineers. The address of the applicant is Southwestern Illinois Flood Prevention District Council, 104, United Drive, Collinsville, IL 62234.

Log No. C-0001-12 (COE appl. #2011-805): The Southwestern Illinois Flood Prevention District Council (Applicant) has applied for a 401 water quality certification (WQC) for permanent wetland impacts associated with proposed levee improvements to the Metro East Sanitary District (MESD) levee system. The MESD levee, in addition to the 9-mile long Chain of Rocks levee (federally owned), forms a single levee system that provides flood protection for the cities of East St. Louis, Granite City, and other municipalities adjacent to the Mississippi River between River Miles (RM) 175 and 195. The Cahokia Canal borders the northern part of system and Prairie du Pont Creek borders the southern part of the system. More details are available at http://www.epa.state.il.us/public-notices/2012/sifpdc-metro-east/index.pdf.

Log No. C-0002-12 (COE appl. #2011-806): The Applicant has applied for a 401 WQC for permanent stream and wetland impacts associated with proposed levee improvements to the Wood River (WR) levee system. The WR levee system is located in Madison County adjacent to the Mississippi River between River Miles (RM) 195 and 203 and consists of three separate standalone levees; the Upper, Lower, and East-West Forks Wood River Drainage and Levee Districts. The Upper Wood River District originates near the Intersection of Langdon and Front Streets (US Highway 67) in Alton, Illinois, and extends downstream to Wood River Creek (1,641 acres of Mississippi River floodplain protection). The Lower Wood River District originates at the West Fork of Wood River Creek near Powder Mill Road in East Alton, Illinois, and extends downstream to the mouth of the Cahokia Creek Diversion Channel at RM 195 (10,687 acres of Mississippi River floodplain protection). The East-West Forks portion of the District occurs on the north side of the East and West Forks of the Wood River (428 acres of Mississippi River floodplain protection). More details are available at http://www.epa.state.il.us/public-notices/2012/sifpdc-wood-river/index.pdf.

Log No. C-0003-12 (COE appl. #2011-808): The Applicant has applied for Section 401 WQC for permanent wetland impacts associated with proposed levee improvements to the Prairie du Pont and Fish Lake Drainage and Levee Districts. The northern portion of this levee system is in St. Clair County and is administered by the Prairie du Pont Sanitary and Levee District, while the southern portion of the levee is in Monroe County and is administered by the Fish Lake Drainage and Levee District. The project area is located east of the Mississippi River between River Miles 166 and 175, with the Cahokia Canal bordering the northern part of the system and Palmer Creek bisecting the levee where it joins the Mississippi River at RM 167.3. More details are available at http://www.epa.state.il.us/public-notices/2012/sifpdc-prairie-dupont/index.pdf.

The purpose of these improvements is to restore the level of protection such that the levee systems will be eligible for Federal Emergency Management Agency (FEMA) reaccreditation in accordance with 44 Code of Federal Regulations (CFR) 65.10 criteria, which requires protection from the 100-year flood. The improvements are required to control underseepage of groundwater and relieve excessive hydrostatic pressures beneath the levee system during flood conditions. In the absence of these control measures, high river levels would force groundwater to flow naturally as uncontrolled seepage throughout and along the landward side of the levee systems into low-lying areas such as wetlands, sloughs, and drainage channels. Uncontrolled seepage has the potential to infiltrate and erode permeable areas of the levees, create sandboils, and compromise the structural integrity of the levee systems.

Responses to Comments, Questions and Concerns

Comments, Questions and Concerns in regular text Agency responses in bold text

Antidegradation Assessment

1. The levee project has incomplete design information. The Project has changed important components, dropping some (such as gravity drains) and adding others. There is no certainty that there will be no impact to water quality before a final design is completed and approved by the Corp of Engineers. Why is the Agency proposing to certify this project now when the final design has not yet been determined and is it common practice for the Agency to do this?

The Applicant provided the Agency with the most up to date design plans at the time of application and has provided the Agency with updated design plans throughout the Agency's review process. The Antidegradation Assessment for each project was not submitted until the Applicant had provided the Agency with updated information on the specific streams and wetlands to be permanently impacted and the maximum linear feet or acreage of these impacts to each water body. The Applicant is only authorized to impact the streams and wetlands identified in each Antidegradation Assessment and is not authorized to impact a greater amount of stream linear footage or wetland acreage than specified in each Antidegradation Assessment. The Agency has reviewed the jurisdictional waters that are proposed to be impacted by the proposed project. Mitigation for those impacts has been proposed in the permit application and determined by the Agency to be adequate. The Applicant has stated that any design changes would only result in a decrease in the amount of stream and wetland impacts. For the above reasons, the Agency has determined that it has sufficient design information to make its determination regarding the certification application.

In regards to the groundwater relief structures selected for each location, the Agency was concerned with the amount of permanent impacts that a specific structure would impose on streams and wetlands. Other than installing cutoff walls, which would restrict groundwater movement, the Applicant's selection of one relief structure over another would have little impact on the amount of groundwater being conveyed, and would have no impact on the water quality of the groundwater being conveyed.

2. Can the Agency show that the concentration of pollutants such as iron, lead, copper, manganese and mercury being discharged into the Mississippi River-wetlands is similar to the concentration of pollutants already in the groundwater?

Groundwater throughout the project areas contains naturally occurring metals such as iron, lead, copper, manganese and mercury. concentrations of these metals are often found to be higher than associated surface waters given the interaction of groundwater with geological materials. Under Mississippi River low-flow conditions, groundwater throughout the project area flows towards the Mississippi River. During flood conditions, groundwater flows away from the River and surfaces through relief structures or, in the absence of relief structures, through low-lying areas via uncontrolled seepage. The presence or absence of relief structures does not modify the chemical makeup of groundwater in the project area, as pollutants are not being added as a result of these activities. It is expected that relief structure upwelling and subsequent pump station discharges would contain naturally occurring groundwater metals at concentrations that may be slightly higher than that of the streams and wetlands that would receive pump station discharges. However, the concentrations of these metals conveyed through relief structures is no different than the concentrations that would be found in uncontrolled upwelling that would occur in the absence of relief structures. Naturally occurring concentrations of metals in pump station discharges would not result in surface water quality standard violations once discharged. as pump station discharges are intermittent in nature and only occur during flood conditions when mixing with floodwaters would allow for attainment of standards.

3. Why is the Agency using data from 1984, in relation to groundwater protections and how can the Agency claim that this data is representative of current conditions?

The 1984 United States Geological Survey (USGS) report was provided in the application for the 401 water quality certification. The three project areas encompass 37 miles of the Mississippi River as well as the expansive floodplains contained within the levee system, and the groundwater quality throughout the entire levee system is provided in the report. collected several years ago, this data establishes a baseline of groundwater quality throughout the entire American Bottoms aguifer and provided data from areas that wouldn't otherwise be available given the size of the project area and the Applicant's focus on areas with perceived groundwater quality problems. In areas with legacy groundwater quality contamination, additional data was provided by the Applicant and was used in the evaluation of each project. More recent sampling conducted in sites of particular interest (e.g., Sauget and Hartford) found metals in concentrations comparable to the results published in the 1984 USGS report. One parameter that the Agency felt warranted further study was mercury, as the majority of data available was measured using older analytical methods which did not provide a low enough level of detection for use in comparison with the water quality standard. To alleviate concerns, the Agency collected its own mercury data using the low level mercury laboratory method (USEPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry) from wells near the Sauget Area 2 groundwater remediation site.

4. Upon reviewing the fact sheet, it appeared that the groundwater human health standard was exceeded for bis(2-ethylhexyl)phthalate. How does the Agency look at those test results and how does the Agency factor in dilution with the river water to make sure the water quality standards will not be exceeded?

First, the results of bis(2-ethylhexyl)phthalate sampling are questioned, as this substance is known to be a laboratory anomaly due to its presence in plastics that are often used in sampling equipment or laboratory equipment. Nonetheless, when reviewing the data for this substance it was found that one sample was measured above the detection limit and exceeded the human health criterion, but not the acute or chronic aquatic life criteria. When averaged with the other samples (no detections), the average bis(2ethylhexyl)phthalate concentration is 0.03 mg/L, whereas the human health Under flood conditions, groundwater potentially criterion is 0.002 mg/L. containing this substance would flow through relief structures and be collected by the East St. Louis pump station. Within the pump station it is expected that any bis(2-ethylhexyl)phthalate contamination, if present, would be diluted to a concentration much lower than that previously detected in the well, and once discharged to the Mississippi River mixing is expected to occur given the high flow of the Mississippi River during flood conditions.

5. Averaging does not comport with the law and should not be allowed. In order to meet water quality standards, discharges from proposed relief wells in Sauget and Wood River are averaged (although IEPA denied the fact at the public hearing). Individual discharges may greatly exceed water quality standards and people could be exposed to contaminants brought to the surface in certain locations. Why didn't the Agency just require them to follow the standard reasonable potential to exceed water quality standards analysis or RPA? Why did you allow averaging and on what basis did you choose the values you did for non-detect samples?

In regards to the groundwater quality of relief wells near Sauget and Wood River, maximum concentrations of each parameter were listed in Tables 1 and 2 of the Applicant's October 25th, 2012 document to the Agency entitled "Response by Southwest Illinois Flood Protection District Council to IEPA Questions Conveyed on August 17, 2012", which was revised on November 15, 2012. The "Sample ID" columns of each table include maximum concentrations from each well, and an average of each parameter amongst wells is also provided. Maximum concentrations within each well were not overlooked, as the Applicant highlighted each exceedance of acute and not to be exceeded standards in bold. Average concentrations amongst wells were used to determine compliance with chronic and human health standards given the proximity of wells to one another and the determination that the average concentration amongst adiacent wells is more representative of relief well and

pump station discharges during flood conditions. Individual well data for naturally occurring metals was often found to exceed surface water quality standards, but groundwater samples collected under non-flood conditions are not representative of discharges of groundwater that would occur during flood conditions when groundwater is mixed with floodwater and stormwater runoff. Human health standards and criteria for substances contained in groundwater are expected to be met in the surface waters receiving underseepage.

A Reasonable Potential Analysis (RPA) on groundwater is not appropriate in this instance given that groundwater data is collected under non-flood conditions and is not representative of "effluent" from pump stations during flood conditions. Under flood conditions the groundwater would be combined with Mississippi River floodwater and stormwater runoff prior to being discharged from pump stations. Under a RPA analysis, maximum effluent concentrations would be used in determinations. However, the Agency used average concentrations for groundwater analyses because the average concentration is more representative of relief well discharges during flood conditions.

It is common for laboratory results to be reported as "non-detects". When a laboratory gives the result as less than the detection limit, the laboratory is unable to quantify the concentration. In instances where parameters were found to be below detection limits, the Agency chose to use one-half of the detection limit when computing average concentrations. The Agency has determined that this is the best method to prevent the mean from being biased high or low. This practice is consistent with United States Environmental Protection Agency (USEPA) guidance and is commonly used by the Agency in reviewing water quality data when very few results are found above the detection limit (http://www.epa.gov/reg3hwmd/risk/human/info/guide3.htm).

6. Metro East Sanitary District has two new relief wells in approximate stations 1133 and 1135. What evaluation has been made of the impact which the discharge from these wells will have on the water quality of the receiving marsh and creek? Does the groundwater monitoring well sample analytical data include all the organics and metals that were sampled in the area? Iron, manganese, mercury, zinc, benzo (a) pyrene, bis(2-ethylhexyl)phthalate, are all listed as exceeding water quality standards, is that correct?

The Agency reviewed all groundwater quality data provided by the Applicant. Included in their data was a specific evaluation of groundwater near stations 1133 and 1135, which was provided in Table 1 of the Applicant's October 25th, 2012 document to the Agency entitled "Response by Southwest Illinois Flood Protection District Council to IEPA Questions Conveyed on August 17, 2012", which was revised on November 15, 2012. Data summarized in Table 1 was collected from Corp of Engineers' well clusters WC-1, WC-2 and WC-3 which are immediately adjacent to "Site P", a site with known legacy groundwater

contamination due to volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). To the Agency's knowledge, all organics and metals sampled in wells near Site P were included in Table 1. A review of the groundwater data from these wells at depths between 50 and 100 feet below ground surface found that VOCs and SVOCs did not exceed acute or chronic water quality standards for these substances. Groundwater from this site contained iron, manganese, and zinc at concentrations in excess of water quality standards. However, groundwater metals are predominately in the dissolved state and become oxidized when brought to the surface, therefore dissolved surface water concentrations are often much lower than that found in groundwater. In regards to mercury, the analytical method used was not valid given that it did not detect at a concentration below the water quality standard. Given that the mercury concentration in groundwater from this area was unknown, the Agency collected its own mercury data using the low level mercury laboratory method (USEPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry) from wells near the Sauget Area 2 groundwater remediation site. Based on this data, the Agency concluded that relief well and pump station discharges from this site would not contain mercury in excess of the human health standard. Benzo(a)pyrene was not detected in any of the groundwater samples but, given that the detection level (0.000086 mg/L) was only slightly higher than the water quality criterion (0.000016 mg/L), the Agency concluded that relief well and pump stations discharges would not contain benzo(a)pyrene in excess of the water quality criterion. See Response #4 in regards to bis(2-ethylhexyl)phthalate, as well as the discussion regarding dilution of these parameters once discharged to the Mississippi River.

7. Can you explain why contaminated sites other than Wood River and Sauget weren't considered? Studies have shown that various contaminants were found in multiple locations and we feel that additional groundwater testing is needed.

The Applicant nor the Agency identified the Ameren Venice ash pond site and its associated groundwater as an area to be impacted by this project. A review of data from this site found that groundwater would meet surface water standards outside of the Groundwater Management Zone. The nearest site to be impacted (a relief well installation) is approximately one mile to the north of the Venice site, therefore groundwater contamination from the Venice site is not expected to be present in relief well discharges from the proposed project.

The Dynegy coal ash ponds in Wood River are near the project site. The site has an approved Groundwater Management Zone and groundwater has been monitored in locations directly adjacent to the locations proposed for blanket drain installation. Boron and manganese within the Groundwater Management Zone have been found to exceed groundwater standards and were also found to exceed the previous surface water quality standards for these substances

(1 mg/L). The blanket drains are constructed of rock, sand and geotextile on the existing ground surface to control erosion from underseepage. Blanket drains do not increase the flow of groundwater to the surface over existing conditions. Also, note that the boron and manganese surface water quality standards have since been updated by the Illinois Pollution Control Board and based on the new acute and chronic standards it is unlikely that groundwater flowing to the surface would contribute to surface water quality standard violations.

Railroads and coal storage/transfer facilities are present throughout the Wood River and Sauget areas and any point source discharges from these entities is regulated by a National Pollutant Discharge Elimination System (NPDES) permit. The Agency is unaware of any point source contamination from any of these entities. Transfer of coal occurring on-site at the Ameren Venice and Dynegy Wood River facilities is regulated under individual NPDES permits. Groundwater monitoring conducted at these two locations does not suggest that violations of surface water quality standards would occur through the conveyance of nearby groundwater through the proposed relief structures.

For locations where relief structures are proposed, the Applicant nor the Agency identified polychlorinated biphenyls (PCBs) as being parameters of concern. Testing for PCBs and organochlorines has been conducted throughout the American Bottoms aquifer and was included in the 1984 USGS report. Data within the 1984 USGS report found all PCBs and organochlorines to be below detection limits. Although PCB contamination was not a concern throughout the entire American Bottoms aquifer, the Applicant did provide PCB data for locations where legacy contamination may be of concern. Specifically, the Applicant provided PCB data for the W.G. Krummrich facility in Sauget area. However, these sampling results are not applicable, as the wells were screened at depths greater than 30 feet below the design base for the relief wells proposed for this project. Furthermore, the Applicant found that none of these sampling locations for PCB contamination at the W.G. Krummrich facility are in close proximity to proposed levee relief structures.

Table 2 of the Applicant's October 25th, 2012 document to the Agency entitled "Response by Southwest Illinois Flood Protection District Council to IEPA Questions Conveyed on August 17, 2012", which was revised on November 15, 2012, summarizes VOC and SVOC data collected in the Lower Wood River and Hartford area and concludes that no groundwater samples were found to exceed General Use water quality standards or criteria for the parameters sampled. Figure 2 of this report details the locations of where these samples were collected, and also denotes the close proximity of these locations to existing and proposed relief wells. It appears that one well may have been

located on the waterside of the levee centerline, but all other wells appear to be located on the landside of the levee centerline.

8. What is the level of metals present in groundwater in the American Bottom aquifer and how does it compare with results from sampling? It seems as if all heavy metals are said to be "naturally occurring," despite the association of some to Superfund and other industrial sites.

Based on a review of publications provided by the Applicant in an April 23, 2012 letter to the Agency, as well as additional groundwater monitoring data included in the Applicant's Section 404 Permit/401 Water Quality Certification Application, groundwater seepage from the project area may contain naturally occurring concentrations of metals which may approach or exceed surface water quality standards. It is also noted that some of these naturally occurring metals may be found at higher concentrations near Superfund and other industrial sites, likely due to anthropogenic activity. The distinction between naturally occurring concentrations versus concentrations resulting in part due to anthropogenic activity is difficult to make in locations that are outside of Superfund sites. As detailed in the 1984 USGS report, groundwater throughout the entire American Bottoms aquifer (not just Superfund sites) was found to have groundwater in excess of surface water quality standards for several parameters, with the majority of standard exceedances being attributed to iron and manganese. More recent sampling conducted in sites of particular interest (e.g., Sauget and Hartford) found metals in concentrations comparable to the results published in the 1984 USGS report.

9. The 1984 USGS dataset said there were nine detections of mercury out of 36 samples. Why does the Flood Prevention District Council (FPDC) refer to the detections of mercury as "only nine?" That seems like a high number of mercury detections. We are also concerned about high concentrations of cadmium. There are several Superfund sites and other industrial sites throughout the Bottom that had the potential to release cadmium into the soils and groundwater.

The Agency does not know why the Applicant stated "only nine" in reference to the amount of mercury detections. The Agency agrees with the commenter that nine detections out of 36 samples is a significant result, which is why, along with the current availability of better mercury analytical methods, additional mercury data was collected by the Agency using the low level mercury laboratory method (USEPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry) from wells near the Sauget Area 2 groundwater remediation site.

The Agency is unaware of specific Superfund sites where cadmium would be detected at concentrations significantly higher than the acute and chronic surface water quality standards. As summarized in the 1984 USGS report,

cadmium concentrations were consistent across the entire American Bottom aquifer, with the vast majority of samples reported below detection limits. Table 2 of the Applicant's October 25th, 2012 document to the Agency entitled "Response by Southwest Illinois Flood Protection District Council to IEPA Questions Conveyed on August 17, 2012", which was revised on November 15, 2012, summarizes cadmium concentrations throughout the Lower Wood River and Hartford area and concludes that average groundwater concentrations of cadmium do not exceed the cadmium surface water standards.

10. Since there is already migration of contaminants from toxic sites in Sauget into East St. Louis, how will the FPDC prevent further migration?

Groundwater in the vicinity of Sauget Area 2 "Site P" is known to contain VOCs and SVOCs from legacy contamination, and existing relief wells presently convey groundwater (which may contain trace amounts of these compounds) to the existing East St. Louis pump station. The current project proposes to install four additional relief wells in vicinity of Sauget Area 2 "Site P" at depths between 20 and 94 feet below ground surface. A review of groundwater sampling data from nearby wells at depths between 50 and 100 feet below ground surface found that the VOCs and SVOCs did not exceed acute and chronic criteria for these substances, but one sample was found to exceed the human health criterion for bis(2-ethylhexyl)phthalate (See Response 4). Based on this information, it is not believed that the proposed activities would exacerbate migration of groundwater contaminants. Applicant considered alternative methods of controlling seepage, such as cutoff walls to minimize transport of hyrdrocarbon-contaminated groundwater. The Applicant determined that installing relief wells in this area, rather than other more invasive relief structures, would minimize groundwater contamination to the greatest extent while still meeting the goals of the The Agency has determined that the Applicant's proposal is project. sufficient.

11.IEPA has not considered cumulative impacts of pumping from other projects. The Illinois Department of Transportation (IDOT) pumps the groundwater in areas near the river to keep the roads from flooding. Is there additional pumping by the Illinois Department of Natural Resources (IDNR) or industry or any of the levee districts in the area? The Mississippi River was at or above flood stage for several months in 2010. According to USEPA, toxic contaminants from Sauget—including mono- and dichlorobenzenes—have been drawn into the groundwater under East St. Louis due to heavy pumping. IEPA must consider the cumulative impacts to water quality from pumping and reassess the discharge at the East St. Louis pump station.

Four relief wells are proposed in the vicinity of Sauget Area 2 "Site P", an area that contains existing relief wells that are routed to the East St. Louis pump station. Underseepage from the proposed relief wells would also be routed to

the East St. Louis pump station. In regards to groundwater pumping by IDOT, and other entities, during flooding in 2010 and the concerns over chlorobenzene contamination, the Agency reviewed data from that time period that would have detected any migration into the proposed project area. This data was provided in Table 1 of the Applicant's October 25th, 2012 document to the Agency entitled "Response by Southwest Illinois Flood Protection District Council to IEPA Questions Conveyed on August 17, 2012", which was revised on November 15, 2012. The groundwater sampling data provided in Table 1 was collected at depths similar to the of the proposed relief wells and was sampled in 2010 and 2011. Therefore, any groundwater contamination resulting from groundwater pumping would have been present in data presented in Table 1. Chlorobenzene (which is mono-chlorobenzene) was not identified as a chemical of concern based on this data. Dichlorobenzenes (1,2-dichlorobenze, 1,3-dichlorobenzene, and 1,4-dichlorobenzene) were not analyzed in these samples. See response 6.

12. There could be impacts to drinking water quality. Pumping could cause highly toxic contaminants, some of which may not be screened for, to be discharged above the Illinois-American water intake at East St. Louis, where much of the Metro East gets its drinking water.

The Agency reviewed water quality data and determined that water quality standards would not be violated. See responses 2, 4, 5 and 6 above. Drinking water quality standards apply at the point of intake. The nearest relief structure proposed upstream of the East St. Louis water intake is a single relief well proposed approximately 2 miles upstream of the intake. This relief well will drain to the existing Venice pump station that discharges approximately 2 miles upstream of the East St. Louis intake. There are 2 new relief wells proposed approximately 3.5 miles north of the Granite City intake. However, these wells will drain to the existing CN&V pump station which discharges to the Chain of Rocks Canal and is not tributary to the Granite City intake.

13. In its August 7, 2012, letter to Sanjay Sofat, the FPDC stated that there is no impact to water quality during "typical" hydrologic conditions and river elevations. What is "typical?"

In this case, "typical" hydrologic conditions are non-flooding conditions when there will be no water flowing from the relief structures.

Mitigation Plans

14. Does the Illinois EPA get involved with the mitigation in terms of where the wetlands are and what kind of wetlands are being mitigated, or is this the Army Corp of Engineers function? The site chosen for wetland mitigation is quite different from the ones proposed in the Environmental Assessment for the 404. We understand the

site has neither hydric soil or hydrophytic plants, but is a site owned by a landfill company which will let water run off its landfill site from the bluff above in order to create a "wetland." There are other landfill "mitigation" sites in the floodplain that are essentially borrow pits (called lacustrine wetlands) to use as cover for garbage. There are many more suitable, actual wetland sites in the American Bottom that could have been preserved and kept from development. Does the Agency have a role in determining if this is a suitable site for mitigation? What is the Agency's role in wetland mitigation?

The Agency, as well as the Corps of Engineers, reviews the applicant's proposed mitigation plan to determine if it is adequate to replace aquatic functions lost due to the proposed impacts. The Agency's review includes the type of wetlands being replaced and their location. The mitigation site will be monitored for five years and must meet the criteria of a wetland (hydric soils, hydrophytic vegetation and hydrology to support hydrophytic vegetation) to be deemed acceptable mitigation. The applicant consulted with SCI Engineering and Mr. Jerry Berning, a former Natural Resources Conservation Service (NRCS) soil scientist, who evaluated the soils at the mitigation site and determined that they have the potential to be converted in to constructed wetlands. The mitigation plan performance standards state that after five growing seasons there shall be a 80 percent hydrophytic species composition and 80 percent relative cover of hydrophytic species. Wetland hydrology will be provided by precipitation, runoff from adjacent areas and supplemented by diversion of drainage into the wetland basin. The proposed mitigation plan was determined to be in compliance with Illinois Antidegradation regulations.

Stream Characterization

15. Can you explain what factors have led to the situation in which groundwater contamination in Sauget area Site R as described, is found below the depth of levee relief wells, given that the contamination originally came from the surface? Relief wells are too deep and will bring up contaminants that would not otherwise flow into the river or into wetlands. EPA recommended to the FPDC that wells be shallow so that they would not bring up contaminants that now lie on or not far above bedrock (via phone call and letter forwarded). AMEC's proposed wells are not shallow, but 63-94 feet deep. IEPA needs to determine the level of the river bed of the Mississippi River at all locations along the levees. According to engineers and a geologist we have consulted, relief wells should be no deeper than 30 feet. EPA states that the most toxic contaminants are indeed deeper down. This is especially troublesome in the Sauget area. If toxic waste sitting on bedrock were not pumped, would it find its way to the surface? What is the level of bedrock at various sites along the levee system?

It was not determined by the Agency that groundwater contamination was found below the depth of the relief wells at Site R. According to a June 2008

USEPA report entitled "First Five-Year Review Report, Sauget Area 2 Superfund Site, Sauget, Illinois" there are three distinct vertical stratification layers of total VOCs and total SVOCs concentrations at site R with concentrations decreasing with depth. The Agency also reviewed groundwater data that corroborates this information (i.e. shallower wells had higher concentrations of parameters while deeper wells had lower amounts). The proposed relief wells will be screened at a depth of 63 to 94 feet which corresponds with the deepest stratification layer. The level of bedrock along the project ranges from 100 to 170 feet below the ground surface according to the U.S. Army Corps of Engineers January 2012 Environmental Assessment and geological cross sections provided by the applicant in their October 19, The applicant provided water quality information representative of the water at the depth of the water that will be discharged through relief structures. The Agency reviewed this data and determined that water quality standards would be met. See responses 2, 4, 5 and 6 above.

16. Can you please explain why an NPDES permit is not required where the relief wells will be discharging? Our concern is that there will be additional contaminants released without first being monitored. Since contaminants and contaminated soil can be brought up by relief wells and pumping, adding pollution to the receiving water or wetland, how can IEPA consider that merely a transfer of water? addition to putting additional contaminants into the river, the contaminants will flow into wetlands as well, with the potential for contaminated soil to drop out into the wetlands and ditches. Contaminated water discharged from pumps onto the river side of the levee will not always fall into the river. There are many areas where there is a lot of land used by the public in between the levee and the river before the river reaches the levees. Therefore, there would be no opportunity for a "mixing zone," should the Agency rightfully determine that the project needs an NPDES permit. Clearly, industrial operations have caused the pollutants in most of the project area. EPA and geologists indicate that contaminants deep in the aguifer would not and may never reach the outfall point in the receiving water. background concentration of the pollutant in the receiving water is not similar to the intake water and there has been no demonstration of that. The facility does indeed contribute additional mass in the form of contaminated soil and pollutants and does increase the pollutant concentration.

The Clean Water Act (CWA) prohibits anybody from discharging pollutants through a point source into a water of the United States unless they have a National Pollutant Discharge Elimination System (NPDES) permit. 33 USC 1342. Water transfers, however, are not subject to regulation under the NPDES program. 40 CFR 122.3(i). Water transfers are defined as

- 1. an activity that conveys or connects waters of the United States
- 2. without subjecting the transferred water to intervening industrial, municipal, or commercial use. 73 Fed. Reg. 33704

Typically, water transfers route water through tunnels, channels, and/or natural stream water features, and either pump or passively direct it for uses such as providing public water, irrigation, power generation, <u>flood control</u>, and environmental restoration. 73 Fed. Reg. 33698 (emphasis added).

According to the information provided by the applicant, the Mississippi River (River) is hydraulically connected to the adjoining alluvial aguifer system that comprises the American Bottoms. When the River is not at flood state, adjoining groundwater within the American Bottoms alluvial aguifer and surface water runoff naturally discharges to the River. This is a normal hydrologic process, unaffected by human activity. When the River elevation rises, hydrogeologic conditions change, and the River charges the adjoining aguifer and groundwater flow direction and gradients are reversed. In the presence of the existing levee, the same groundwater - hydraulically connected to a rising River - moves upwards toward the ground surface. This groundwater will move under, and sometimes through the levee as uncontrolled seepage and/or through sand boils, discharging to low areas such as sloughs, ponds and lakes, and drainage channels. This discharge of flood-induced groundwater to the surface has occurred throughout time, even in the absence of levee relief structures. This uncontrolled groundwater seepage flows as surface water back to the River.

Under the above described basic hydrologic conditions, the levee improvement project will not affect or change quality of water already discharging to the River. The groundwater (including all the groundwater constituents) discharges to the River now, has done so in the past, and will continue to reach the River with or without the implementation of the proposed levee project.

Naturally occurring metals (e.g. iron, manganese) are widespread throughout the American Bottoms aguifer and a distinction between areas with metal concentrations of natural or unnatural origin is difficult to distinguish (see Response 8). However, contaminants of anthropogenic origin such as those previously identified at Superfund sites are easily distinguishable. The Agency reviewed analytical data from Superfund areas with known groundwater contamination of anthropogenic origin and determined that the only location that possessed groundwater of potential concern was that of the Sauget area. Groundwater that is passively conveyed from relief structures in this area would be discharged to the East St. Louis pump station and would be discharged directly into the Mississippi River. Given the low concentrations of VOCs and SVOCs detected in well sampling from this area, and the large watershed area of the East St. Louis pump station, the Agency has determined discharges from this pump station will meet water quality standards. However, in the unexpected event that concentrations of these pollutants in pump station discharges are above

standards/criteria, mixing within the Mississippi River would ensure compliance with these standards.

17. What is the FPDC's determination of the 100-year flood and the flood level elevations and flood frequency at which the levees are expected to fail? What is the 5-year flood occurrence?

The applicant provided the following elevations for the 100 year flood.

100-Year Return Period River Elevations

Segment	River Mile	Return Period	Elevation (NAVD 88)
Northern End of Wood River Levee	203.86	100-Year (1.00%)	436.0
Southern End of Wood River Northern End of MESD Levee	195.55	100-Year (1.00%)	434.0
St. Louis Gage	179.6	100-Year (1.00%)	426.0
Southern End of MESD Levee Northern End of Prairie DuPont/Fish Lake Levee	175.8	100-Year (1.00%)	423.4
Southern End of Prairie DuPont/Fish Lake Levee	166.4	100-Year (1.00%)	418.1

The applicant did not determine the flood level or flood frequency at which the existing levees are expected to fail. The applicant stated that their specific objective was to meet FEMA criteria to protect from a 100-year flood event and analysis of the flood elevations or flood frequency when the existing levees would fail has not been done and "it is simply not relevant or necessary to meet the objective." The 5-year flood occurrence occurs when the Mississippi River elevation reaches 415.7 feet on the St. Louis gage.

ADDITONAL CONCERNS

18. American Bottom Conservancy (ABC) was harmed in its inability to view the record under a Freedom of Information Act (FOIA) Request. By not allowing ABC to view the record before the hearing, IEPA denied ABC the ability to fully question Agency personnel on the record as to information contained in the record and to use that

information in preparing comments. We have also determined upon preparing comments that information we received through a FOIA request to the FPDC was incomplete.

For your convenience, a brief summary of the Agency's Freedom of Information Act process is outlined below.

If requested records are 400 pages, or less, in length, the pages will be copied and mailed to the requestor. However, if the records are more than 400 pages in length, the requestor will be notified and advised of options for viewing or copying the files. Those options include:

- 1. Scheduling an on-site review of the records at Illinois EPA Headquarters in Springfield or
- 2. Hiring of a service by the requestor to copy the files.

Requestors will also be given the opportunity to narrow the scope of their request so that it includes less than 400 pages of material.

American Bottom Conservancy (ABC) was notified on July 12, 2012 and August 24, 2012 of the large volume of records responsive to the request. ABC was asked to contact Agency staff within 30 days to establish the option for reviewing or copying files.

Agency records indicate no response was received from ABC during this time frame establishing the option for reviewing the files.

Upon request of ABC and as a courtesy, Illinois EPA granted a one week extension to the public comment period for written comments following the informational public hearing held January 3, 2013.

19. There is a site in Madison known to have radioactive material. Was there any testing done for that?

Testing for radiologic materials was conducted in buildings at the site known as the Madison Site. The buildings were cleaned of radiologic materials, primarily dust within the buildings, under the Formerly Utilized Sites Remedial Action Program by the U.S. Army Corps of Engineers. This site is greater than ½ mile away from the levee and proposed relief structures. The Corps of Engineers' January 2012 Environmental Assessment for the Southwest Levee project did not mention any radiological sites that impact or are impacted by this project.

20. Why were so many of the recommendations from EPA ignored?

USEPA recommendations relevant to the 401 water quality certification were considered by the Agency. Groundwater data and project information was

reviewed to determine the need for a NPDES permit. See response 16. The applicant submitted updated plans for the proposed structures, the impacts of the installation of these structures to specific water bodies and a complete mitigation plan for the proposed impacts. The Agency found this information sufficient to make its decision regarding the 401 water quality certification application.

21.Can you please explain why this project failed to consider certification under Environmental Justice (EJ) Guidelines? Many of the people who will be affected by this project and the decisions made by agencies are low income and minority. There was no enhanced outreach and little notice to the public about possible impacts to people, the environment and water quality. People do subsistence fishing in the river and canals and walk in areas that will be impacted by the discharge of contaminants. And while we appreciate the one-week extension of the public comment deadline, it hardly comports with EJ consideration, nor does it even measure with how other extension requests have been handled.

Since its formation in 2009, the FPDC has also made efforts to directly engage all stakeholder groups. This has been done through media coverage and meeting directly with groups representing affected stakeholders, such as civic groups, chambers of commerce, elected officials groups, industry associations, city councils and others. FPDC conducted approximately forty-five formal presentations, information sessions and other events from 2009-2012. In addition, members of the FPDC's Board of Directors serve as liaisons to area communities. Alvin Parks, the Mayor of East St. Louis, is a member of the Board and is a consistent voice for low income and minorities in the community.

The Levee Issues Alliance (LIA) was formed specifically to address the outreach needs of this particular project. The LIA was responsible for extensive community outreach activities that began in 2008 and continue today to provide information and build awareness of the efforts to enhance the levee system with the affected communities. These activities were developed to help residents, community leaders, local elected officials, businesses, and the faith-based institutions in the communities affected both by FEMA actions to de-accredit the area's levee systems, and by the local efforts to address this problem to become more informed and to clarify the outcome and impacts of such actions.

Special effort has been made to seek the engagement of those groups who are most directly and significantly affected by the project – the people living in the American Bottoms. The impacts on low income and minority populations could be particularly severe without levee system improvements. The addition of more levee structures would not degrade water quality or introduce contaminates into the Mississippi River that would not be present in the absence of the project. The levee improvement project would however, avoid

the catastrophic water quality impacts that would result from levee failure. Even in the absence of flooding, the economic and financial consequences will be severe. It is very likely that flood insurance will not be affordable for many low and moderate income property owners, and failure to buy flood insurance could result in foreclosure. Renters will be affected as well, since landlords will simply pass on the increased costs.

To help inform the community and coordinate with key opinion leaders and elected officials, LIA developed and used phone calls and email lists, community fliers, and petitions for relief. Media coverage has consisted of numerous news stories in the *Belleville News- Democrat, St. Louis Post-Dispatch, Alton Telegraph, Suburban Journals* and other local newspapers. FPDC's representatives have also made multiple appearances on local overthe-air television news shows and cable television features.

The following describes LIA's outreach activities to build awareness and engage the area's communities about the FEMA actions and the levee improvement project.

- 1. Community Meetings were conducted starting in 2008 in the following communities: East St. Louis, Centreville/Alorton/Washington Park, Sauget, Cahokia, Dupo/East, Carondelet, Granite City, Venice/Madison, Belleville, Columbia, and Collinsville.
- 2. In 2009-2010, city halls in East St. Louis, Centreville (also served Alorton & Washington Park residents), Cahokia, Dupo (served for East Carondelet residents), and Granite City were provided the Community Fliers and Petitions for residents who were not able to attend the above listed annual community meetings, but wanted to be informed and also wanted to sign the community petitions.
- 3. Coordination with the faith-based community was done with the help of the Metro East Baptist Ministers Coalition. Rev Crockett, Rev. Dr. Rouse, and Rev. Adams organized two minister's meetings on January 11, 2010 with 70 ministers representing principally African-American congregations in the affected area.
- 4. Business Groups such as the Archview Economic Development Group were engaged on a regular basis. Annual meetings were conducted from 2008-2012 to inform businesses operating in the local underserved communities about levee progress updates and FEMA/Corps of Engineer challenges. The last meeting was held at Veolia Environmental Services in Sept, 2012 with over 100 people in attendance.

Both the Levee Issues Alliance and FPDC maintain websites¹ for the purpose of providing timely information to the public about the project.

Similarly, the Illinois EPA is committed to engaging in outreach activities regarding the Environmental Justice Policy. Prior to submission of the 401 certification application, the Illinois EPA met with various community leaders to discuss the SW Illinois Levee Improvement Project and the potential impacts to the local communities. On August 5, 2010, Illinois EPA met at the Metro East Park District in Collinsville, Illinois.

On October 18, 2012, in response to local concerns and given that mercury concentrations in groundwater from the project area were unknown; the Agency took samples and collected mercury data. Based on data collected, the Agency concluded relief well and pump station discharges would not contain mercury in excess of the human health standards. See Responses 6 and 9.

To address concerns of public drinking water quality standards, the Agency reviewed water quality data and determined water quality standards would not be violated. See Responses 2, 5, 6 and 12.

To ensure ground water contamination is minimized to the greatest extent, the project proposes and the Agency approves the installation of four additional relief wells in the Sauget Area 2 "Site P." A review of groundwater sampling data from nearby wells with similar depths found that VOCs and SVOCs did not exceed acute and chronic criteria for these substances. See Response 10

On November 29, 2012, Illinois EPA posted on the Illinois EPA webpage a Public Notice/Fact Sheet. The Notice was also published in the *Belleville News Democrat* on December 1, 2012 and in the *Collinsville Suburban Journal* on December 5, 12 and 19, 2012. In addition to information regarding the public hearing to be held on January 3, 2013, this notice provided: 1) Details of the three Section 401 certifications sought by the applicant, 2) Name and address of discharger, 3) Discharger Location, 4) Name of Receiving Water, 5) Project Description, and 6) Fact Sheet for the Antidegradation Assessment.

On January 3, 2013, Illinois EPA held an informational public hearing at the Metro East Park and Recreational District in Collinsville, Illinois. The purpose of the hearing was to provide an opportunity for the public to present information to the Agency regarding review of the Section 401 water quality certification application associated with the three levee stabilization and enhancement projects submitted by the FPDC. Several members of the local and surrounding communities were present. The Agency accepted comments as well as provided answers regarding the Section 401 water quality

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¹ Levee Issue Alliance website: http://www.stlmetroeastlevees.org/; Flood Prevention District website: http://www.floodpreventiondistrict.org.

certification application. Illinois EPA accepted written comments through February 11, 2013. Upon request, Illinois EPA granted a one week extension to the public comment period for written comments.

On February 28, 2013, the Illinois EPA received additional written comments from the American Bottom Conservancy. Although these comments were received outside the comment period and the Agency is under no obligation to consider and respond, the Agency conducted a review ensuring all relevant issues raised were addressed.

22. In the same letter, the FPDC states that establishing continuing monitoring requirements will be meaningless, since there is no practical capability to affect the flow or quality of water discharging to or present in the Mississippi River during a flood. Don't relief wells and pumps go into action when the river reaches "flood stage," which is quite a bit below what is perceived as a "flood?"

See response 24 below. The applicant determined that levee relief structures will not begin passively conveying underseepage onto the ground surface until the Mississippi River reaches an elevation of 410.7 feet on the St. Louis gage. Flood stage at the St. Louis gage is considered 409.94 feet.

23. Doesn't the statement that relief wells are "tributary to" a pumping station mean that the discharges flow along a ditch?

This statement means that water flows from the relief wells to the pumping station.

24. At what river elevation will the groundwater relief structures be expected to start discharging groundwater? What is the surface elevation of the overflow from the groundwater relief structures?

The applicant has stated that they have no plans to perform analyses to determine the river elevations at which the groundwater relief structures will begin discharging. The applicant did determine that, in general, levee relief structures will not begin passively conveying underseepage onto the ground surface until the Mississippi River reaches an elevation of 410.7 feet on the St. Louis gage. The applicant provided data for Wood River Stations 38+30 to 581+114 indicating surface elevations of the overflow from the groundwater relief structures ranged from 408 to 426 feet.

25. As we stated at the public hearing, the FPDC used 2010 statistics, even though in 2011 the river was at or above flood stage for several months and 2012 at historic lows. How would using 2011 and 2012 statistics have affected the assumptions for the project?

The Agency has determined that using 20 years of data prior to 2011 is adequate for developing Chart 26-A submitted by the applicant October 25, 2012. Additional consideration of two years of data, especially when one year is high and the other is low, will not significantly change the long-term mean determined with 20 years of data. Therefore, the 2011 and 2012 data will not significantly change the mean river stage determined using 20 years of data.

26. The FPDC's assumptions and calculations may be based on outdated 24-hour rainfall data from 1989.

The Agency's final determination of compliance with water quality standards was not based on the 1989 data for the 24-hour rainfall event at a 2-month recurrence interval. For detailed discussion on the Agency's determination of compliance with applicable water quality standards, please see responses 2, 4, 5 and 6.

Acronyms and Initials

401 WQC 401 Water Quality Certification

ABC American Bottom Conservancy

CFR Code of Federal Regulations

COE United States Army Corps of Engineers

CWA Clean Water Act

EJ Environmental Justice

EPA Environmental Protection Agency

FEMA Federal Emergency Management Agency

FOIA Freedom of Information Act

FPDC Flood Protection District Council

IAC Illinois Administrative Code

IDNR Illinois Department of Natural Resources

IDOT Illinois Department of Transportation

IEPA Illinois Environmental Protection Agency

LIA The Levee Issues Alliance

MESD Metro East Sanitary District

NPDES National Pollutant Discharge Elimination System

NRCS Natural Resources Conservation Service

PCBs Polychlorinated Biphenyls

RM River Miles

RPA Reasonable Potential Analysis

Section 401 Section 401 of the Federal Clean Water Act

SVOC Semi-volatile Organic Compound

USEPA United States Environmental Protection Agency

USGS United States Geological Survey

VOC Volatile Organic Compound

WR Wood River

DISTRIBUTION OF RESPONSIVENESS SUMMARY

An announcement, that the 401 water quality certification decision and accompanying responsiveness summary is available on the Agency website, was mailed to all who registered at the hearing and to all who sent in written comments. Printed copies of this responsiveness summary are available from Dean Studer, Illinois Office of Community Relations, 217-558-8280, email: Dean.Studer@illinois.gov

WHO CAN ANSWER YOUR QUESTIONS

Illinois EPA 401 Water Quality Certification:

Illinois EPA Technical Decisions:	Thad Faught	217-782-3362
Antidegradation Assessment	Brian Koch	217-558-2012
Mitigation Plans	Brian Koch	217-558-2012
Legal Questions	Sara Terranova	217-782-5544
Public hearing of January 3, 2013	Dean Studer	217-558-8280

The public hearing notice, the hearing transcript, and the responsiveness summary are available on the Illinois EPA website: http://www.epa.state.il.us/public-notices/2012/sec-401-notices.html