

ATTACHMENT I

U.S. EPA RESPONSE TO COMMENTS

Overview

The Statement of Basis, containing the proposed remedy for the Solutia facility, was made available for public review and comment from August 24 through October 9, 2007.

This Response to Comments documents U.S. EPA's response to substantive public comments and their effects, if any, on the selection of the final remedy. All comments received by U.S. EPA were reviewed and are found in the Administrative Record. Substantive comments are presented and U.S. EPA's responses are provided below.

Community Involvement and Concerns

Comments received on the proposed remedy from the local community, Illinois EPA, and Solutia were considered and addressed in the final remedy. As a result, the proposed remedy was modified by U.S. EPA to: 1) address concerns regarding the integrity of the levee system to protect the area from flooding; 2) allow flexibility in the remedial technologies used to remediate contaminated soil at the Solutia W.G. Krummrich Plant; 3) reflect the work performed in the Solutia Tier III TACO Human Health Risk Assessment; and 4) ensure Illinois Water Quality Standards are met in the Mississippi River.

Response to Comments

The following narrative summarizes written and oral comments on the proposed remedy and U.S. EPA's response to each comment. Each comment is numbered and presented in italicized capital type. Comments were provided by:

- Mr. Timothy Szewczyk, Biologist, University of Notre Dame
- Ms. Kathy Andria, President, American Bottom Conservancy
- Mr. Robert Johnson, Johnson Consulting
- Illinois Environmental Protection Agency, (Rob Watson, Permit Section and Sandra Bron, Federal Site Remediation Section)
- Solutia Inc. (Craig Branchfield, Project Manager)

Timothy Szewczyk, University of Notre Dame, Comments

1. *THE PROPOSED CLEANUP OF POLYCHLORINATED BIPHENYLS (PCBs) IN SOIL IS INADEQUATE BECAUSE IT ALLOWS UNSAFE CONCENTRATIONS OF PCBs TO REMAIN IN PLACE.*

Solutia conducted a human health risk assessment and calculated that unacceptable potential risks and hazards from polychlorinated biphenyls (PCBs) are present in soil and groundwater down to 14-feet for the utility worker, construction worker, and redevelopment worker at the Former PCB Manufacturing Area. This “high-risk” area also appears to be the source area of PCB contamination found in groundwater migrating in the American Bottom aquifer. The calculated volume of soil in the “high-risk” area is approximately 12,500 cubic yards and contains 45,000 pounds of PCBs.

The final remedy requires this “high-risk” area be excavated immediately and contaminated media to be treated/disposed of off-site. After this initial remedial component to control the source of PCBs, Solutia must control the remaining risks to human health and the environment posed by PCBs in soil with concentrations greater than 1 part-per-million (ppm). For PCB concentrations in soil between 1 and 100 ppm, Solutia may propose to manage the waste in place subject to appropriate fencing, signs, capping, and occupancy requirements. For PCB concentrations in soil greater than 100 ppm, Solutia is required to excavate and treat/dispose of PCB-contaminated soil off-site and/or obtain U.S. EPA approval of risk-based disposal. These options do not allow for any unsafe concentrations of PCBs to remain in place.

2. *THE PROPOSED CLEANUP OF BENZENE IN GROUNDWATER IS INADEQUATE BECAUSE IT IS NOT BEING CLEANED UP AND MUNICIPAL ORDINANCES ARE NOT SUFFICIENT TO PROTECT THE LOCAL PEOPLE.*

Benzene is a known carcinogen and has a very low groundwater cleanup level of 0.005 ppm. The approach in the final remedy to cleanup benzene is three-fold. First, source areas of benzene contributing to groundwater contamination will be remediated using soil vapor extraction. Second, an assessment of the benzene discharge to the Mississippi River will be performed and the benzene will be required to be removed, treated, and/or contained if its discharge is found to be adversely impacting the Mississippi River environment or exceed Illinois water quality standards. Finally, as this work is being performed, potential exposures to benzene in groundwater will be eliminated through the use of municipal ordinances restricting groundwater use. Additionally, as the effectiveness of the remedy to achieve groundwater protection standards is monitored, alternative remedies such as enhanced bioremediation may be necessary to expedite the cleanup of groundwater and return the American Bottom aquifer to its maximum beneficial use.

3. *THE JUDITH LANE CONTAINMENT CELL SHOULD NOT BE USED FOR HAZARDOUS WASTE STORAGE SINCE IT IS LOCATED NEAR THE MISSISSIPPI RIVER IN A FLOODPLAIN. A FLOOD COULD CAUSE A BREACH IN THE CONTAINMENT CELL AND RELEASE THE STORED CHEMICALS.*

We reviewed the current flood insurance rate maps for St. Clair County effective November 5, 2003. The Judith Lane Containment Cell was constructed in Zones X and AH (Elevation 405). Zone X is defined as “Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.” Zone AH areas are special flood hazard areas inundated by 100-year flood and with a “flood depth of 1 to 3 feet (usually areas of ponding) and base flood elevations determined.”

There are no specific RCRA Hazardous Waste or TSCA PCB Disposal regulations that strictly prohibit land disposal on floodplains. RCRA and TSCA design requirements do provide for engineered flood protection to preserve the integrity of the landfill.

The Final Decision does not select a location for disposal of contaminated soil. A corrective measures design for the excavation and off-site treatment/disposal of contaminated soil must be submitted to U.S. EPA for review and approval. The off-site disposal of contaminated soil from the Solutia facility must comply with all local, state, and federal requirements.

4. THE JUDITH LANE CONTAINMENT CELL SHOULD NOT BE USED FOR HAZARDOUS WASTE STORAGE SINCE THE LEVEES PROTECTING THE AREA HAVE BEEN DECLARED STRUCTURALLY UNSOUND, LEAVING RESIDENTS POTENTIALLY VULNERABLE TO RELEASED TOXINS IN THE EVENT OF A FLOOD.

We are aware of “Mississippi River Levee Issues in Illinois” detailed in the East-West Gateway Council of Governments briefing for elected officials dated September 29, 2007. The Solutia facility and surrounding area are protected by the Metro East Sanitary District Levee. The Corps of Engineers conducted a risk analysis of design height and under-seepage problems and determined that the levee is not adequate and needs repair to be certified. The Federal Emergency Management Agency (FEMA) is in the process of revising flood risk maps for base flood levels (100-year flood) in the American Bottom given the risk of levee failure due to structural deficiencies.

The Judith Lane Containment Cell was constructed to dispose of contaminated sediment removed from Dead Creek. The cleanup was initiated in 2001 and approximately 50,000 cubic yards of contaminated sediment were placed in the landfill which is constructed above grade with a double liner and leachate collection system. A final cover to protect the integrity of the landfill, control runoff/runoff, and limit infiltration is still required. The design of the final cover must be approved and will address flood protection in the event that the levees do not protect the area from a 100-year flood.

The Final Decision does not select a location for disposal of contaminated soil. A corrective measures design for the excavation and off-site treatment/disposal of contaminated soil must be submitted to U.S. EPA for review and approval. The off-site disposal of contaminated soil from the Solutia facility must comply with all local, state, and federal requirements.

Kathy Andria, American Bottom Conservancy, Comments

1. THE PUBLIC WAS NOT ADEQUATELY NOTIFIED OF THE PUBLIC MEETING.

U.S. EPA undertook an extensive public notification process to solicit public comments on the proposed remedy at the Solutia W.G. Krummrich Plant. Initially, on July 19, 2007, letters were sent out to federal, state, county, and village government officials, Illinois EPA, Solutia, and the Cahokia Public Library providing the proposed remedy and advance notification that a 45-day public comment period and public meeting would be held in August and September. This was followed with a public notice on August 13, 2007, to the same parties providing the date and location of the public meeting. The public notice was posted on the bulletin board at the entrance to the Sauget Village Hall.

On Thursday, August 23, 2007, a large display ad was taken out in the Belleville News-Democrat providing public notice of the meeting and comment period. On Monday and Tuesday, August 27 and 28, 2007, five radio ads were played on local radio station WMVN-FM 101.1 announcing the public meeting and comment period.

We believe that the public was adequately notified in a manner that exceeds regulatory requirements. However, to further strengthen our public participation process in the future, we will use existing mailing lists (such as from nearby CERCLA sites) where necessary to identify interested community members and seek to determine whether the media used for notification are widely used by local community members.

2. LEVEES ARE VULNERABLE IN THE AREA AND ANY EXCAVATED SOIL SHOULD BE REMOVED FROM THE FLOODPLAIN.

We are aware of “Mississippi River Levee Issues in Illinois” detailed in the East-West Gateway Council of Governments briefing for elected officials dated September 29, 2007. The Solutia facility and surrounding area are protected by the Metro East Sanitary District Levee. The Corps of Engineers conducted a risk analysis of design height and under-seepage problems and determined that the levee is not adequate and needs repair to be certified. FEMA is in the process of revising flood risk maps for base flood levels (100-year flood) in the American Bottom given the risk of levee failure due to structural deficiencies.

The Judith Lane Containment Cell was constructed to dispose of contaminated sediment removed from Dead Creek. The cleanup was initiated in 2001 and approximately 50,000 cubic yards of contaminated sediment were placed in the landfill which is constructed above grade with a double liner and leachate collection system. A final cover to protect the integrity of the landfill, control runoff/runoff, and limit infiltration is still required. The design of the final cover must be approved and will address flood protection in the event that the levees do not protect the area from a 100-year flood.

The Final Decision does not select a location for disposal of contaminated soil. A corrective measures design for the excavation and off-site treatment/disposal of contaminated soil must be

submitted to U.S. EPA for review and approval. The off-site disposal of contaminated soil from the Solutia facility must comply with all local, state, and federal requirements.

3. *THE LEVEL OF CLEANUP OF PCBs BASED ON THE AMOUNT OF SPACE IN THE JUDITH LANE CONTAINMENT CELL IS CONTRARY TO RCRA REQUIREMENTS.*

The level of cleanup of PCBs is not based on the amount of space available in the Judith Lane Containment Cell and is consistent with RCRA requirements. Solutia conducted a human health risk assessment and calculated that unacceptable potential risks and hazards from PCBs are present in soil and groundwater down to 14-feet for the utility worker, construction worker, and redevelopment worker at the Former PCB Manufacturing Area. This “high-risk” area also appears to be the source area of PCB contamination found in groundwater migrating in the American Bottom aquifer. The calculated volume of soil in the “high risk” area is approximately 12,500 yd³ and contains 45,000 pounds of PCBs.

The Final Decision does not select a location for disposal of contaminated soil. A corrective measures design for the excavation and off-site treatment/disposal of PCB-contaminated soil must be submitted to U.S. EPA for review and approval. The off-site disposal of contaminated soil from the Solutia facility must comply with all local, state, and federal requirements.

4. *THE CLEANUP AREA SHOULD BE CONSIDERED AN ENVIRONMENTAL JUSTICE AREA AND TREATED IN ACCORDANCE WITH EXECUTIVE ORDER 12898.*

Executive Order 12898 (Feb. 11, 1994) provides in Section 1-101 (Agency Responsibilities) that, to the greatest extent practicable and permitted by law, each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its program, policies, and activities on minority populations and low-income populations in the United States.

The Executive Order does not provide any new legal authorities to take action, but instead directs federal agencies (including U.S. EPA) how to exercise their discretion under existing authorities. In a Memorandum dated November 4, 2005, the U.S. EPA Administrator stated that, in recognizing that minority and/or low income communities frequently may be exposed disproportionately to environmental harms and risks, U.S. EPA works to protect these and other burdened communities from adverse human health and environmental effects of its programs, consistent with existing environmental and civil rights laws, and their implementing regulations, as well as Executive Order 12898.

U.S. EPA guidance and policy on environmental justice do not define “environmental justice areas.” Region 5 does seek to identify areas of potential environmental justice concern as a way of focusing attention on areas or cases where there is a potential for disproportionately high and adverse human health or environmental effects. We believe that all of the people potentially affected by the remedy at the Solutia facility should be protected from such effects, and measures to ensure that this is the case are reflected in the remedy and this Response to Comments. For example, excavated waste would be properly treated/disposed at an off-site facility.

Robert Johnson, Johnson Consulting, Comments

1. *THE RIVER HAS BEEN EFFECTIVELY SET AS THE POINT OF COMPLIANCE WHICH IS INCONSISTENT WITH 40 C.F.R. § 264.95 WHICH SETS THE POINT OF COMPLIANCE AT THE HYDRAULICALLY DOWNGRADIENT LIMIT OF THE WASTE MANAGEMENT AREA.*

We do not agree that the point of compliance is set at the river. The point of compliance represents the locations where groundwater cleanup levels will be achieved. For corrective action at the Solutia facility, the groundwater point of compliance has been defined as throughout the area where the groundwater is contaminated above cleanup levels. U.S. EPA typically refers to this point of compliance as the “throughout-the-plume” point of compliance. In this case, the long-term cleanup goal is to meet the groundwater cleanup levels from the source areas at the Solutia facility all the way to the river.

2. *COMMENTS FROM OWNERS AND OPERATORS OF FACILITIES DOWNGRADIENT OF SOLUTIA AND ABOVE THE GROUNDWATER CONTAMINANT PLUME SHOULD BE CONSIDERED BEFORE U.S. EPA APPROVES A FINAL REMEDY.*

U.S. EPA undertook an extensive public notification process to solicit public comments on the proposed remedy at the Solutia W.G. Krummrich Plant. Initially, on July 19, 2007, letters were sent out to federal, state, county, and village government officials, Illinois EPA, Solutia, and the Cahokia Public Library providing the proposed remedy and advance notification that a 45-day public comment period and public meeting would be held in August and September. This was followed with a public notice on August 13, 2007, to the same parties providing the date and location of the public meeting. The public notice was posted on the bulletin board at the entrance to the Sauget Village Hall.

On Thursday, August 23, 2007, a large display ad was taken out in the Belleville News-Democrat providing public notice of the meeting and comment period. On Monday and Tuesday, August 27 and 28, 2007, five radio ads were played on local radio station WMVN-FM 101.1 announcing the public meeting and comment period.

No comments were received from facilities downgradient of Solutia regarding the proposed remedy for Solutia. The Final Decision responds to all substantive comments received from the public.

3. *THE FINAL REMEDY SHOULD HAVE A SPECIFIC SCHEDULE OF REQUIREMENTS AND RESPONSE ACTIONS THAT NEED TO BE MET TO COMPLETE ALL CORRECTIVE ACTION IN A REASONABLE PERIOD OF TIME. THERE IS NO ASSURANCE THAT CORRECTIVE ACTION WILL BE COMPLETED WITHIN THE EXTRAORDINARY PERIOD OF 40 YEARS.*

Attachment IV of the Final Decision provides a specific implementation schedule for the final remedy, including alternative remedies. Construction components will be completed within one

to three years of the Final Decision and O&M will remain over a 40-year period. Due to the complexity and extent of contamination in the local area, we can not assure that the remedy will be complete in 40 years. The actual time to meet groundwater cleanup levels will be better understood as source controls are completed and monitoring data is used to calibrate predictive models.

4. U.S. EPA SHOULD COORDINATE CORRECTIVE ACTION WITH THE VILLAGE OF SAUGET AND DISCUSS THE TIMEFRAME FOR COMPLETING CORRECTIVE ACTION.

The proposed remedy was directly provided to the Villages of Sauget and Cahokia, and discussed with the Village of Sauget. No formal comments were received. The Final Decision and Response to Comments will be provided to the Villages of Sauget and Cahokia.

Illinois Environmental Protection Agency Comments

1. HAZARDOUS WASTE MOVED TO THE JUDITH LANE CONTAINMENT CELL OVER PUBLIC HIGHWAYS REQUIRES A MANIFEST PURSUANT TO RCRA REGULATIONS.

We have reviewed available Federal Registers, and U.S. EPA policy and guidance regarding the use of the area of contamination (AOC) concept during RCRA cleanups. If waste is moved within and consolidated in an AOC, a manifest pursuant to RCRA regulations would not be required. However we agree that off-site disposal of waste, such as at the Judith Lane Containment Cell, would require a manifest pursuant to RCRA regulations since public roadways would be used.

2. THE AREA OF CONTAMINATION (AOC) POLICY APPLIES TO MANAGEMENT OF RCRA WASTE ON-SITE. THE AOC IS IMPROPERLY DEFINED SINCE IT EXTENDS TO THE JUDITH LANE CONTAINMENT CELL OFF-SITE, DOWN TWO PUBLIC HIGHWAYS, AND ONTO A NONCONTIGUOUS SITE WITH A DIFFERENT OWNER.

We have reviewed available Federal Registers, and U.S. EPA policy and guidance regarding the use of an AOC during RCRA cleanups. As long as contamination in soil and sediment is continuous from an on-site source area, the AOC policy allows for waste within the AOC to be moved around and consolidated. However the consolidation of wastes within the AOC, even if it extends off-site, would need to be on-site at the facility subject to corrective action. While the Judith Lane Containment Cell may be a property owned by Solutia and located in an AOC where contamination has escaped off-site from the Solutia W.G. Krummrich Plant via Dead Creek, it is not located on-site in the AOC. We agree that PCB wastes at the Solutia W.G. Krummrich Plant can not be managed at the Judith Lane Containment Cell using the AOC policy.

3. THE SELECTION OF MONITORED NATURAL ATTENUATION (MNA) AS THE PROPOSED REMEDY FOR GROUNDWATER PRECLUDES THE REMEDY SELECTION PROCESS FOR GROUNDWATER FOR THE SAUGET AREA 1 AND 2 SITES SINCE THE PLUMES COMMINGLE. U.S. EPA SHOULD DEFER ITS DECISION REGARDING GROUNDWATER AT THE SOLUTIA W.G. KRUMMRICH PLANT.

Groundwater contamination at and from the Solutia facility is addressed in the final remedy through source controls, the GMCS at Site R, MNA, institutional controls, and, if necessary, alternative remedies (e.g., enhanced bioremediation). U.S. EPA does not believe the groundwater remedy at the Solutia W.G. Krummrich plant precludes the remedy selection process for groundwater at the Sauget Area 1 and 2 Sites. First, only a small portion of the Solutia plume commingles with the groundwater plumes from the Sauget Area 1 and 2 Sites. This small portion is from source areas at the Former Chlorobenzene and Benzene Storage Area. The majority of the Solutia plume is distinct and discharges to the Mississippi River north of the GMCS at Site R. The selected final remedy requires Solutia to remediate this plume if the discharge is found to exceed applicable Illinois water quality standards.

Second, site conditions are unique at the Solutia W.G. Krummrich plant. Unlike Sauget Area 1

and 2 Sites, landfills at Solutia are not a major source of contamination. Groundwater contamination at Solutia originates from surface and subsurface leaks and spills of product. Also, finer surficial sediments are more likely to be in place at Solutia and would retain more contaminant mass unlike the Sauget Area 1 and 2 Sites where landfills were excavated deep into the more coarse sediments.

The American Bottom aquifer is monitored for MNA processes using parameters such as DO, ORP, Fe II, alkalinity, CO₂, chlorides, methane, sulfate, and TOC. The aquifer is moderately anaerobic and probably in the iron-reducing range. Bench-scale tests for enhanced aerobic bioremediation of groundwater were evaluated by Solutia. The data was shared with the CERCLA program since it could have application at the Sauget Area 1 Sites. Ultimately, U.S. EPA concluded in the *Technology Selection Report* (January 15, 2007) that MNA with source controls is most appropriate at this time for the Solutia facility. However, if MNA can not be demonstrated to effectively remove contaminant mass within a reasonable timeframe, or is ineffective in protecting the Mississippi River, alternative remedies to address the Solutia plume discharging to the Mississippi River north of the GMCS at Site R would be required.

4. THE PORTION OF THE SOLUTIA CONTAMINANT PLUME NORTH OF THE SITE R BARRIER WALL IS NOT PROPERLY ADDRESSED. THE DISCHARGE OF CONTAMINATED GROUNDWATER TO THE MISSISSIPPI RIVER MUST COMPLY WITH APPLICABLE ILLINOIS ADMINISTRATIVE CODE.

In consideration of this comment, the final remedy requires Solutia to assess the discharge north of Site R, including: 1) an estimate of the mass discharge; 2) an analysis of mass dynamics (i.e., increasing, decreasing, or stable); 3) an evaluation of the discharge for compliance with 35 Ill. Adm. Code, Part 302 Water Quality Standards; and 4) an evaluation of whether the discharge is adversely impacting surface water, sediment, and/or ecological receptors. If necessary, Solutia would be required to initiate a remedy to meet water quality standards and/or protect the river environment.

5. ILLINOIS TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (TACO) ALLOWS FOR ELIMINATION OF THE GROUNDWATER INGESTION EXPOSURE ROUTE AND THEREFORE THE NEED TO DEVELOP REMEDIATION OBJECTIVES FOR GROUNDWATER.

In the corrective action program, it is U.S. EPA's goal to return groundwater to its maximum beneficial use within a reasonable timeframe. Our long-term goal is for the American Bottom aquifer to meet cleanup levels for Class I groundwater in Illinois found in TACO.

6. GROUNDWATER MODELING SHOULD BE USED TO PREDICT TIME-TO-CLEAN AND AS A DECISION-MAKING TOOL TO DETERMINE THE APPROPRIATENESS OF MNA AS A GROUNDWATER REMEDY.

Solutia did model the time to achieve the groundwater cleanup level of 100 ppb for monochlorobenzene (MCB). MCB from the Former Chlorobenzene Process Area remains a significant source contributing to area-wide groundwater contamination. Appendix 10 of the

Solutia CMS Report provides the “time to clean” estimates for MCB under three scenarios: 1) in situ bioremediation; 2) pump and treat; and 3) in situ DNAPL treatment. Respective times to meet the groundwater cleanup level for MCB are 670, 194, and 257 years (order of magnitude estimates). It is apparent that source controls are necessary to expedite the cleanup of groundwater.

For MCB, the final remedy requires the use of in situ thermal desorption and soil vapor extraction technologies to treat source areas. A long-term groundwater monitoring program will be used to monitor the effectiveness of source controls to help remediate groundwater contamination. At other RCRA corrective action facilities, U.S. EPA has used statistical trend analyses (e.g., Mann-Kendall) to monitor the effectiveness of the remedy and to determine if groundwater concentrations are decreasing. This monitoring data can also be used to calibrate the groundwater model to ultimately predict when groundwater cleanup levels may be achieved.

7. THE CERCLA SECTION 121 EXEMPTION FROM PERMIT REQUIREMENTS DOES NOT APPLY TO SOLUTIA'S PROPOSAL TO DISPOSE OF PCB-CONTAMINATED SOIL AT THE JUDITH LANE CONTAINMENT CELL.

We agree that the exemption found in Section 121 of CERCLA applies to on-site CERCLA activities. The off-site disposal of contaminated soil from the Solutia facility must comply with all local, state, and federal requirements.

Solutia Comments

1. THE STATEMENT OF BASIS DOES NOT CONSIDER THE RESULTS OF THE SOLUTIA 2007 TACO TIER III HUMAN HEALTH RISK ASSESSMENT (HHRA). CONSISTENT WITH THE HHRA, ONLY PARCEL 8 EXCEEDS RISK BASED LEVELS FOR LEAD IN SURFACE SOIL AND A CAP AND COVER SYSTEM WITH INSTITUTIONAL CONTROLS SHOULD BE CONSIDERED IN THE FINAL REMEDY.

We agree that the mean concentration of lead in soil exceeded the soil remediation objective only in Parcel 8 (sample locations S0715, S0717, and S0720). However, there are other nearby soil locations with similarly high lead concentrations that appear to be an extension of the lead contamination found in Parcel 8. They are sample locations S0707 and S0716 on the border of Parcel 7 and 8 just to the east with a mean lead concentration of 1,450 ppm in surface soil. In Parcel 2 just to the west, sample location S0610 has a lead concentration of 830 ppm in surface soil. Lead levels exceeding cleanup levels may extend from Parcel 8 to Parcel 2 as evident by a lead concentration of 880 ppm at S0703 (sampled only at 5-7-feet). The mean concentration of these 7 sample locations in Parcels 2, 7, and 8 is 1,545 ppm.

Since the exceedance of risk based levels for lead appears to be across a large contiguous area encompassing Parcels 2, 7, and 8, it is appropriate to address the whole area in the final remedy. We agree that capping and institutional controls may be considered but limitations would be placed on redevelopment of Parcels 2, 7, and 8. The final remedy reflects this discussion.

2. THE STATEMENT OF BASIS DOES NOT CONSIDER THE RESULTS OF THE SOLUTIA 2007 TACO TIER III HUMAN HEALTH RISK ASSESSMENT (HHRA). CONSISTENT WITH THE HHRA, ONLY ONE LOCATION (SOIL BORING B-74) IN THE CENTRAL PLANT PROCESS AREA POSED A RISK BASED ON CHLORO BENZENE CONCENTRATIONS.

Data from nine B-series soil borings generated during RCRA closure activities were used in the HHRA for the Central Plant Process Area (Parcel 10). However, there are 17 additional B-series soil borings where data was not used (i.e., B-28 to B-40, B-42, B-43, B-45, and B-75). Most of those soil borings show high concentrations of MCB, and to a lesser extent, dichlorobenzenes. It is unclear why this data was not used in the HHRA. Locations other than B-74 may pose a risk.

Distinct from any questions regarding an accurate assessment of risk to human health, MCB concentrations in soil at depth are significant enough at sample locations B-77, B-74, B-73, B-28, B-29, B-30, B-33, B-36, B-38, B-39, B-40, and B-45 to indicate a source of groundwater contamination at the North Tank Farm and Former Steamer Overhead Tank located at the north end of Parcel 10. There were also significant concentrations of benzene and MCB exceeding their respective OSHA PEL in soil vapor just to the north at sample location SVP-14. In addition, benzene concentrations at depth at sample locations B-75 and B-76 also indicate a possible source area of groundwater contamination. Further, high concentrations of other VOCs such as vinyl chloride, ethylbenzene, xylenes, and trichlorofluoromethane are present at sample location B-64 at the Former Steamer Overhead Tank.

Since the exceedance of soil cleanup levels to protect groundwater appears to be across a large area within Parcel 10, it is appropriate to address this area in the final remedy. The final remedy reflects this discussion and provides for the use of SVE technology in unsaturated soil at the Central Plant Process Area.

3. THE STATEMENT OF BASIS DOES NOT CONSIDER THE RESULTS OF THE SOLUTIA 2007 TACO TIER III HUMAN HEALTH RISK ASSESSMENT (HHRA). CONSISTENT WITH THE HHRA, ONLY DICHLOROMETHANE IN BUILDING CCB AND CHLOROBENZENE IN BUILDING BBG POSE A POTENTIALLY UNACCEPTABLE RISK FROM INHALATION IN INDOOR AIR. HOWEVER, IT WAS DETERMINED THAT THESE CONSTITUENTS WERE NOT ASSOCIATED WITH VAPOR INTRUSION AND THEREFORE, INDOOR AIR MONITORING AND AN INSTITUTIONAL CONTROL TO REQUIRE HVAC IS UNWARRANTED.

The HHRA and Solutia CMS Report present and discuss indoor air and soil vapor data obtained during two sampling episodes in 2003. The data generally shows site-related constituents such as MCB, benzene, 1,2- and 1,4-dichlorobenzene, and tetrachloroethene are present in soil vapor at the plant, and that MCB and benzene are found in indoor air, along with dichloromethane. However, the potential risks associated with MCB in indoor air are attributable to ambient air (e.g., from the active MCB Process Area). The potential risks from dichloromethane are not associated with vapor intrusion since dichloromethane was not detected in any soil vapor.

We agree with Solutia's assessment and would further state that any potential risks associated with MCB in ambient air have been eliminated since active production of MCB at the plant has ceased. However, concentrations of some contaminants in soil vapor are significant enough to raise concerns during construction, redevelopment, and remediation activities. For example:

- Concentrations of MCB, benzene, and 1,2- and 1,4-dichlorobenzene at sample locations SVP-10 and SVP-14 are highly variable between the two sampling episodes. A risk analysis of indoor air at SVP-10 shows that risk is at the threshold of 1E-05. It is possible that higher values may be present at certain times of the year and would present a risk to workers in a building constructed at this location.
- Concentrations of MCB, benzene, and 1,2- and 1,4-dichlorobenzene are in the ppm range at sample locations SVP-10 and SVP-14, and concentrations of benzene and 1,4-dichlorobenzene exceed OSHA PELs. SVP-14 is located in an area proposed for redevelopment. It is possible that construction and/or redevelopment workers would be exposed to unacceptable concentrations of these compounds.
- Buildings BK and BBG are designated as shared Solutia service/utility available to redevelopment interests and indoor air monitoring has not been performed since 2003.

Given the above concerns, we believe that some work is necessary in the final remedy to address indoor air and soil vapor, including: 1) controls on excavations at and in the vicinity of SVP-10 and SVP-14 to protect the health of workers; 2) SVE remediation in the vicinity of SVP-14 and ISTD remediation in the vicinity of SVP-10 to address source areas of MCB, benzene, and 1,2-

and 1,4-dichlorobenzene; and 3) ambient air, indoor air, and soil vapor monitoring during ISTD and SVE remediation activities to ensure that workers are not at risk. The final remedy reflects this discussion.

4. *THERE ARE CONSTITUENTS IN SOIL THAT MAY EXCEED SCREENING LEVELS BUT DO NOT POSE AN UNACCEPTABLE RISK BASED ON THE HHRA. SOLUTIA RECOMMENDS THAT THE PROPOSED REMEDY TO CHARACTERIZE AND REMEDIATE UNSATURATED SOILS WITHIN THE CENTRAL PLANT PROCESS AREA USING SVE AND/OR EXCAVATION BE ELIMINATED AND THAT DICHLOROBENZENES BE ELIMINATED FROM THE PROPOSED REMEDY AT THE FORMER CHLOROBENZENE PROCESS AREA.*

Soil screening levels in the Statement of Basis are provided for both protection of workers and protection of groundwater. In addition to risk to workers, the final remedy must also be protective of groundwater and begin the process of returning groundwater to its maximum beneficial use. Solutia must control or eliminate the sources of groundwater contamination as necessary to protect human health and the environment.

Soil and groundwater cleanup goals are necessary to help return usable groundwater to its maximum beneficial use wherever practicable and within a timeframe that is reasonable. Groundwater cleanup levels for the Solutia facility are mainly derived from maximum contaminant levels developed under the Safe Drinking Water Act and groundwater remediation objectives found at IEPA TACO. Attaining groundwater cleanup levels will prevent adverse affects to human health and the environment, and protect the integrity of the nation's groundwater resources (U.S. EPA, OSWER, *Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action*. September 2001. EPA/530/R-01/015).

The final remedy requires Solutia to further characterize the extent and concentrations of MCB, benzene, and other volatile organic compounds within the Central Plant Process Area at specific locations where these contaminants are likely contributing to groundwater contamination (also see response to Comment #2). If certain areas are not deemed to be significantly contributing to groundwater contamination and do not pose an unacceptable risk to workers, a remedy using SVE and/or excavation would not be necessary.

We do not agree that dichlorobenzenes be eliminated from the remedy. Data from the *First Quarter 2007, Plume Stability Monitoring Program* report shows total dichlorobenzenes in the DHU beneath the Former Chlorobenzene Process Area at a concentration of 32.2 ppm and at 4.1 ppm downgradient, well above the groundwater cleanup level of 0.6 ppm. Also, dichlorobenzenes are a primary constituent in DNAPL recovered beneath the Solutia facility at the Former Chlorobenzene Process Area.

5. *PROVIDE THE SOURCE OF THE SOIL REMEDIATION OBJECTIVES IN THE STATEMENT OF BASIS FOR 2- AND 4-NITROCHLOROBENZENE, AND FOR 2-HEXANONE.*

2- and 4-nitrochlorobenzene, also known as o- and p-nitrochlorobenzene (or

chloronitrobenzene), are listed in the Region 9 PRGs 2004 Table as non-carcinogens (see <http://www.epa.gov/region09/waste/sfund/prg/files/04prgtable.pdf>). The preliminary remediation goal for the direct contact exposure pathway for industrial soil for o-chloronitrobenzene is 4.5 ppm and is 37 ppm for p-chloronitrobenzene which are consistent with the soil remediation objectives listed in the table in the Statement of Basis.

Soil remediation objectives for 2-hexanone do not exist in the most recent IEPA references (35 Ill. Adm. Code, Part 742 Tiered Approach to Corrective Action Objectives, amended and effective 2/23/07; and Table B: Soil Remediation Objectives for Industrial/Commercial Properties, Non-TACO Chemicals, 5/1/07, IEPA Toxicity Assessment Unit) and U.S. EPA reference (Region 9 PRGs 2004 Table). If necessary, soil remediation objectives for 2-hexanone could be developed.

6. THE SOIL REMEDIATION OBJECTIVE FOR PCBs SHOULD BE FOR LOW OCCUPANCY AREAS WHICH IS 25 PPM (NOT 10 PPM).

IEPA TACO states that federal TSCA regulations found at 40 C.F.R Part 761 contain applicable requirements and methodology for the development of PCB remediation objectives. If the soil remediation objective (cleanup levels) for bulk PCB remediation waste is based on a self-implementing cleanup, then a cleanup based on occupancy areas may be used. For cleanups in low occupancy areas, Solutia would be required to place land use restrictions on the property deed that limit the amount of hours workers could spend in the area. This could limit redevelopment of the property.

The cleanup level for bulk PCB remediation waste with no conditions is 1 ppm. For high occupancy areas, soil PCB concentrations greater than 1 and less than 10 ppm require an appropriate cap. For low occupancy areas, the cleanup level for bulk PCB remediation waste is 25 ppm. For soil PCB concentrations greater than 25 and less than 50 ppm, appropriate fencing and signs are required. For soil PCB concentrations greater than 25 and less than 100 ppm, an appropriate cap is required.

7. THE SOIL REMEDIATION OBJECTIVE FOR LEAD SHOULD BE 700 PPM BASED ON THE MOST RECENT REVISION OF 35 ILLINOIS ADM. CODE 742.

We agree that the value provided corresponds to the most recent regulations (see <http://www.ipcb.state.il.us/documents/dsweb/Get/Document-38408/>) effective February 23, 2007. The lowest value for ingestion and inhalation exposure routes for the industrial/commercial worker or construction worker is 700 ppm. The final remedy uses 700 ppm for the soil remediation objective for lead.

8. THE SOIL REMEDIATION OBJECTIVE FOR VINYL CHLORIDE WAS NOT ADJUSTED TO A CANCER RISK OF 1E-5 AND SHOULD BE 11 PPM.

The lowest value for vinyl chloride for the ingestion and inhalation exposure routes is 1.1 ppm for the industrial/commercial worker and construction worker. The basis of the value for the industrial/commercial worker is a 10^{-6} cancer risk while the basis for the construction worker is a

target hazard quotient of 1. Therefore, for the construction worker, the soil remediation objective for vinyl chloride can not be adjusted for a cancer risk of 10^{-5} . The soil remediation objective for vinyl chloride remains at 1.1 ppm.

9. RECENT UPDATES TO THE ILLINOIS TACO TABLES SHOW THAT SOIL REMEDIATION OBJECTIVES FOR 1,2-DIBROMOETHANE SHOULD BE 1.2 PPM AND 0.39 PPM FOR CIS/TRANS 1,3-DICHLOROPROPENE.

We agree that the values provided correspond to the most recent regulations (see <http://www.ipcb.state.il.us/documents/dsweb/Get/Document-38408/>) effective February 23, 2007. The calculated value of 0.39 ppm for cis/trans 1,3-dichloropropene is based on a hazard quotient of 1. The calculated value for 1,2-dibromoethane corresponds to a cancer risk of 10^{-6} . Therefore, the soil remediation objective for 1,2-dibromoethane adjusted to reflect a cancer risk of 10^{-5} is 12 ppm.

10. MANY OF THE AREAS PROPOSED FOR REMEDIATION DUE TO PCB CONTAMINATION MEET THE DEFINITION OF LOW OCCUPANCY FOUND AT 40 C.F.R. § 761.3 WHICH WOULD ALLOW ALTERNATIVE CLEANUP LEVELS BASED ON THE SELF-IMPLEMENTING CLEANUP STANDARDS FOUND AT 40 C.F.R. § 761.61(a). IN ADDITION, 40 C.F.R § 761.61(c) ALLOWS THE USE OF RISK-BASED REMEDIATION STANDARDS. SOLUTIA RECOMMENDS THAT THE PROPOSED REMEDY FOR PCBs CONSIST OF A CAP FOR PCB CONCENTRATIONS IN SOIL GREATER THAN 25 PPM BUT LESS THAN 100 PPM (EXCLUDING THE AREA AT THE FORMER PCB MANUFACTURING AREA REQUIRING EXCAVATION).

Historical and RFI data show that the following sample locations outside of the Former PCB Manufacturing Area have significant concentrations of PCBs in soil.

Former PCB Warehouse: B-26 (2-4') = 9,200 ppm
B-60 (0-2') = 47.5 ppm
B-63 (4-12') = 494 ppm

North Tank Farm: B-39 (4-6') = 34.3 ppm

Former Spent Carbon Tank: B-67 (10-12') = 170 ppm
B-70 (6-8') = 40 ppm
B-71 (6-8') = 230 ppm

Former Chlorobenzene Process Area: S0710 (13-15') = 29.1 ppm

South RR Tracks: S0715 (6-8') = 33 ppm

Former Chlorobenzene and Benzene Storage Area: S0607 (1-3') = 66 ppm
S0608 (1-3') = 39 ppm
S0609 (1-3') = 1,090 ppm

CT -1 (0-2') = 52 ppm

PCB concentrations in soil at the Former PCB Warehouse, Former Spent Carbon Tank, and an area at the Former Chlorobenzene and Benzene Storage Area are significant enough to preclude the use of self-implementing cleanup levels that allow for fencing, signs, and caps in low occupancy areas (also see response to Comment #6). At the North Tank Farm, Former Chlorobenzene Process Area, South RR Tracks, and some areas at the Former Chlorobenzene and Benzene Storage Area, an appropriate cap may be installed for low occupancy areas. Based on the cover type provided in Figure 1-2 of the Solutia comment letter, an asphalt or concrete cover occurs at the North Tank Farm and Former Chlorobenzene Process Area. The South RR Tracks and areas at the Former Chlorobenzene and Benzene Storage Area are covered with gravel.

The final remedy provides for appropriate capping of areas of PCB-contaminated soil located outside of the Former PCB Manufacturing Area (see discussion in response to comment #6).

11. THE FEASIBILITY OF IMPLEMENTING ISTD TECHNOLOGY AT THE FORMER CHLOROBENZENE PROCESS AREA SHOULD BE DEFINED BASED ON U.S. EPA PERFORMANCE AND EVALUATION/BALANCING CRITERIA.

We disagree with the need to re-evaluate ISTD. The feasibility of implementing ISTD and other technologies at the Former Chlorobenzene Process Area was already evaluated in U.S. EPA's *Technology Selection Report* (1/15/07, Appendix C). The evaluation concluded that ISTD was the most feasible technology to remediate MCB and dichlorobenzenes in the unsaturated soil and the SHU. The reasons include: 1) the success of bench-scale tests with mass removal greater than 99.9%; 2) positive results of a field pilot test for MCB at another facility; 3) the short timeframe needed to achieve mass removal; 4) the ability to treat soil above and below the water table; 5) tetrachloroethene and other chlorinated ethenes would also be treated; 6) the ability to perform in situ and a minimum of waste requiring off-site treatment; and 7) costs are comparable to other technologies.

12. SOLUTIA RECOMMENDS THAT A FIELD PILOT TEST BE CONDUCTED FOR SVE PRIOR TO FULL-SCALE IMPLEMENTATION AT THE FORMER CHLOROBENZENE AND BENZENE STORAGE AREA, AND THE CENTRAL PLANT PROCESS AREA. THE FEASIBILITY OF IMPLEMENTING SVE TECHNOLOGY SHOULD ALSO BE DEFINED BASED ON U.S. EPA PERFORMANCE AND EVALUATION/BALANCING CRITERIA.

The feasibility of implementing SVE at the Former Chlorobenzene and Benzene Storage Area, and Central Plant Process Area was evaluated in U.S. EPA's *Technology Selection Report* (1/15/07). The evaluation concluded that SVE was the most feasible technology to remediate MCB and benzene in unsaturated soil. The reasons include: 1) MCB and benzene are amenable to recovery by SVE; 2) SVE is a proven technology; and 3) SVE has relatively low costs, quick implementation, and rapid mass removal. As recommended in the *Technology Selection Report*, we agree that a field pilot test should be conducted to establish design parameters such as radius of influence and maximum achievable vacuum. The final remedy provides for a field pilot test.

13. SOLUTIA BELIEVES THAT THE EXISTING MONITORING SYSTEM FOR THE PCB PLUME IS ADEQUATE AND RECOMMENDS THAT THE REQUIREMENT TO DESIGN AND INSTALL A GROUNDWATER MONITORING SYSTEM FOR THE PCB PLUME BE ELIMINATED FROM THE FINAL REMEDY.

Much work has been performed by Solutia to understand the extent of PCB contamination at and from the Former PCB Manufacturing Area. However, we believe that data gaps regarding the extent of groundwater contamination exist as discussed below.

Data in the *First Quarter 2007, PCB Mobility and Migration Phase III Investigation* report is provided for filtered and unfiltered groundwater samples taken at four monitoring wells screened in the SHU, and four monitoring wells screened in the MHU (see Table 1 of report). As provided in Table 1 of the *First Quarter 2007, Plume Stability Monitoring Program* report, one of the monitoring wells (PSMW-2) is actually screened deeper in the DHU (350 feet NAVD – Bedrock). Additional DHU wells PSMW-3 and PSMW-4 are located further downgradient (400 and 1600-feet) of PSMW-2 and the Former PCB Manufacturing Area.

The groundwater cleanup level for PCBs is 0.5 ppb. In the SHU, this cleanup level is exceeded within the contaminated area and PCB DNAPL is present. The cleanup level is also exceeded in one of the three wells immediately downgradient. In the MHU, the cleanup level is exceeded in two of the three wells immediately downgradient of the contaminated area. In the DHU, although the cleanup level is not exceeded beneath the contaminated area, it is exceeded in wells PSMW-3 located 400-feet and PSMW-4 located 1600-feet downgradient of the Former PCB Manufacturing Area. This data shows that the full extent of PCB contamination in groundwater exceeding the cleanup level has not been adequately defined in the SHU, MHU, and DHU downgradient of the Former PCB Manufacturing Area. The final remedy requires Solutia to undertake a groundwater quality assessment program capable of determining the full extent of PCBs in groundwater as necessary to determine if the plume is stable. The program should continue to monitor the 10 wells described above on a quarterly basis and include additional wells to adequately identify and monitor the plume boundary. If the assessment program demonstrates that the PCB plume is not stable, Solutia must remove, treat, and/or contain the contaminated groundwater to stabilize the plume.

14. MERCURY HAS NOT BEEN DETECTED IN GROUNDWATER AT THE FORMER CHLOR-ALKALI PRODUCTION AREA. THEREFORE, THE SOIL REMEDIATION OBJECTIVE FOR MERCURY SHOULD BE BASED ON DIRECT EXPOSURE TO THE INDUSTRIAL AND CONSTRUCTION WORKER.

Historical data from groundwater monitoring wells GM-12A, B, and C, and GM-14 are provided (all were non-detect for mercury and less than the groundwater protection standard of 0.002 mg/l) to support Solutia's conclusion that mercury is not detected in groundwater in the Former Chlor-Alkali Production Area. The location of mercury-contaminated soil is restricted to a 50-foot diameter circular area of soil immediately in front of and west of Building CCH. None of the wells cited or wells monitored under the Plume Stability Monitoring program are located immediately downgradient of the identified contaminated area and would not be capable of adequately monitoring for releases to groundwater. Wells GM-12A, B, and C are located

approximately 450-feet upgradient and well GM-14 approximately 900-feet downgradient of the mercury-contaminated soil area.

The final remedy allows Solutia the option to install monitoring wells in the SHU immediately downgradient of the contaminated area to determine whether mercury has been released to groundwater. The soil remediation objective to be met in the final remedy is dependent on Solutia's demonstration of the presence or absence of mercury in groundwater. In the alternative, Solutia may elect to meet the soil remediation objective protective of groundwater (which is also dependent on soil pH). A Construction Completion Report is due within one year of the Final Decision that certifies that the appropriate soil remediation objective was attained.

15. SOLUTIA DOES NOT HAVE THE AUTHORITY TO ENSURE COMPLIANCE OF MUNICIPAL GROUNDWATER ORDINANCES AS STATED IN THE PROPOSED REMEDY. SOLUTIA CAN AND WILL WORK WITH MUNICIPAL AUTHORITIES TO PUBLICIZE GROUNDWATER USE RESTRICTIONS IMPOSED BY THE MUNICIPAL ORDINANCES.

The final remedy addresses this comment. Solutia is required to report on an annual basis that municipal ordinances to restrict groundwater use and protect human health remain in place, and publicize the groundwater use restrictions to the local community.

16. SOLUTIA RECOMMENDS THAT U.S.EPA MODIFY THE STATEMENT OF BASIS TO INDICATE THAT DNAPL WAS FOUND 20 TO 25-FEET (NOT 60-FEET) BELOW GROUND SURFACE AT THE FORMER PCB MANUFACTURING AREA.

We do not agree with the recommended change. The *Phase I PCB Mobility and Migration Investigation* Tech Memo describes how temporary wells were installed at 20, 30, 40, 50, and 60-feet at four locations in the Former PCB Manufacturing Area. The wells were purged for up to four hours to stabilize water quality parameters and turbidity. DNAPL was observed in wells at 20, 30, and 50-feet. The Tech Memo concludes that PCB concentrations in groundwater at a depth of 50-feet were related to the presence of PCB-containing DNAPL.

At 69-feet beneath the Former PCB Manufacturing Area, no evidence of DNAPL has been found in permanent monitoring well PSMW-2. However, 400-feet downgradient at permanent well PSMW-3, PCB concentrations are currently at 64 ppb at a depth of 66-feet. At this location, there are higher concentrations of the more chlorinated PCBs such as tri-, tetra-, penta-, hexa-, hepta-, and octachlorobiphenyl. Normally PCBs in groundwater are enriched in the less chlorinated mono- and dichlorobiphenyls since the more chlorinated PCBs remain adsorbed to soil. At PSMW-3, the concentrations of tri- to octachlorobiphenyl are greater than 10% of their water solubilities, indicating the possible presence of DNAPL. For hexa- and heptachlorobiphenyl, groundwater concentrations actually exceed their water solubilities.

Based on the Solutia Tech Memo and groundwater monitoring data, we believe that PCBs may be migrating as DNAPL at depths of 50-feet and greater, and that an appropriate groundwater quality assessment program must be undertaken (also see response to Comment #13).

17. SOLUTIA RECOMMENDS THAT U.S. EPA MODIFY THE STATEMENT OF BASIS TO INDICATE THAT PCBs HAVE MIGRATED IN GROUNDWATER AT LEAST 400-FEET (NOT 1600-FEET) WEST OF THE FORMER PCB MANUFACTURING AREA.

We do not agree with the recommended change (see response to Comment #13). In February 2007, well PSMW-4, located 1600-feet downgradient of the Former PCB Manufacturing Area, had 0.52 ppb of PCBs detected in the DHU. The groundwater cleanup level for PCBs is 0.5 ppb.

18. PROVIDE THE SOURCE OF GROUNDWATER CLEANUP LEVELS IN THE STATEMENT OF BASIS FOR 1,3-DICHLOROBENZENE, AND 2- AND 4-NITROCHLOROBENZENE.

A groundwater cleanup level for 1,3-dichlorobenzene does not exist in the most recent IEPA references (35 Ill. Adm. Code, Part 742 Tiered Approach to Corrective Action Objectives, amended and effective 2/23/07; and Groundwater Remediation Objectives for Chemicals Not Listed in TACO, 5/1/07, IEPA Toxicity Assessment Unit). U.S. EPA does reference a concentration of 1,3-dichlorobenzene in tap water at 180 ppb (Region 9 PRGs 2004 Table) based on the combined inhalation/ingestion pathway for a target hazard quotient of 1. The groundwater cleanup level for 1,3-dichlorobenzene is modified from 6.3 to 180 ppb.

Groundwater cleanup levels for 2- and 4-nitrochlorobenzene (also known as o- and p-chloronitrobenzene) do not exist in the most recent IEPA references (35 Ill. Adm. Code, Part 742 Tiered Approach to Corrective Action Objectives, amended and effective 2/23/07; and Groundwater Remediation Objectives for Chemicals Not Listed in TACO, 5/1/07, IEPA Toxicity Assessment Unit). U.S. EPA does reference a concentration of o- and p-nitrochlorobenzene in tap water at 0.15 and 1.2 ppb (Region 9 PRGs 2004 Table) based on the combined inhalation/ingestion pathway for a target hazard quotient of 1. This is the groundwater cleanup level cited in the Statement of Basis.

Based on Solutia's groundwater quality results for May 2007, we note that other groundwater contaminants not listed in the Statement of Basis are present at or downgradient of the Solutia facility and exceed their respective cleanup level. They are 4-aminobiphenyl (0.0003 ppb based on PRG for benzidine), 2-methylnaphthalene (28 ppb), aniline (23 ppb), 1,4-dioxane (1 ppb), vinyl chloride (2 ppb), and tetrachloroethene (5 ppb). The long-term groundwater cleanup levels for these contaminants would also have to be met in order to achieve the ultimate goal of returning contaminated groundwater to its maximum beneficial use.

19. THE CONSTITUENTS 2-CHLOROPHENOL, 2,4,6-TRICHLOROPHENOL, PENTACHLOROPHENOL, AND TETRACHLOROETHYLENE WERE NOT DETECTED AT THE SOLUTIA FACILITY AND NOT EVALUATED IN THE HHRA. THESE CONSTITUENTS SHOULD NOT BE LISTED AS GROUNDWATER AND SOIL CONTAMINANTS IN THE STATEMENT OF BASIS WITH CORRESPONDING CLEANUP LEVELS AND REMEDIATION OBJECTIVES.

We disagree with this comment. RFI data shows that all four constituents have been detected at the Solutia facility. All four constituents are found on-site at the Former Chlorobenzene Process Area (sample locations S1207, S1210, S1211, and S1212). Concentrations are significant

enough to exceed soil cleanup levels to protect groundwater and pentachlorophenol also exceeds its soil remediation objective at sample location S1211. Further, 2-chlorophenol has migrated in groundwater and is at concentrations near or above its groundwater cleanup level in the SHU, MHU, and DHU at nested well locations GM-4, GM-6, GM-17, and MW-7 on Lot F.

Tetrachloroethylene was detected in soil vapor at the Former Chlorobenzene Process Area, and Former Chlorobenzene and Benzene Storage Area. Tetrachloroethylene also exceeds its soil cleanup level to protect groundwater at the Former Chlor-Alkali Production Area (location S1002) and Central Plant Process Area (location S0512). Significant concentrations of pentachlorophenol are also present at the Former Chlorobenzene and Benzene Storage Area (sample locations S0602, S0606, and S0608) and exceed the soil cleanup level to protect groundwater. At the Route 3 Drum Site landfill, 2,4,6-trichlorophenol and pentachlorophenol are present in the SHU greater than the groundwater cleanup level immediately downgradient of the landfill.

20. SOME OF THE SOIL CLEANUP LEVELS FOR PROTECTING GROUNDWATER ARE INCORRECT IN THE STATEMENT OF BASIS AND SHOULD BE MODIFIED. THE CLEANUP LEVELS FOR 2,4,6-TRICHLOROPHENOL, 3,3-DICHLOROBENZIDINE, AND CIS/TRANS-1,3-DICHLOROPROPENE SHOULD BE BASED ON A CANCER RISK LEVEL OF 1E-5 (NOT 1E-6). THE SOIL CLEANUP LEVEL FOR PHENOL SHOULD BE 100 PPM BASED ON THE MOST RECENT REVISION OF 35 ILLINOIS ADM. CODE 742.

We do not believe that soil cleanup levels for protecting groundwater should be modified since the soil cleanup levels are derived to meet the groundwater remediation objectives found at 35 Ill. Adm. Code, Section 742. Appendix B. Table E. However, for these three compounds, TACO allows for the acceptable detection limit (ADL) to be used if it is greater than the specified remediation objective. If necessary in the final remedy, the soil remediation objective for 2,4,6-trichlorophenol, 3,3-dichlorobenzidine, and cis/trans-1,3-dichloropropene should be consistent with the current ADL.

Based on the 35 Ill. Adm. Code, Part 742 Tiered Approach to Corrective Action Objectives (amended and effective 2/23/07), we agree that the soil cleanup level for phenol should be 100 ppm.

21. PROVIDE THE SOURCE OF THE SOIL CLEANUP LEVEL IN THE STATEMENT OF BASIS FOR 2-HEXANONE. ALSO, MANY OF THE SOIL CLEANUP LEVELS ARE pH DEPENDENT AND MAY BE DIFFERENT IF THE ASSUMED SOIL pH IS NOT 6.8.

A soil cleanup level to protect groundwater for 2-hexanone does not exist in the most recent IEPA references (35 Ill. Adm. Code, Part 742 Tiered Approach to Corrective Action Objectives, amended and effective 2/23/07; and Table B: Soil Remediation Objectives for Industrial/Commercial Properties, Non-TACO Chemicals, 5/1/07, IEPA Toxicity Assessment Unit) and U.S. EPA reference (Region 9 PRGs 2004 Table). If necessary, a soil cleanup level for 2-hexanone would have to be developed.

We agree that soil cleanup levels to protect groundwater for chlorinated phenols, lead, and

mercury are dependent on soil pH (see Table C: pH Specific Soil Remediation Objectives for Inorganics and Ionizing Organics for the Soil Component of the Groundwater Ingestion Route, amended and effective 2/23/07). For lead, the soil cleanup level is 107 ppm for a soil pH from 6.25 to 8.74. For mercury, the soil cleanup level varies from 0.89 to 8.0 ppm for a soil pH from 6.25 to 8.24. For 2-chlorophenol, the soil cleanup level is 3.9 ppm for a soil pH from 6.25 to 7.24, and 3.6 ppm for a soil pH from 7.25 to 7.74. For 2,4,6-trichlorophenol, the soil cleanup level varies from 0.20 to 0.07 ppm for a soil pH from 6.25 to 8.24. For pentachlorophenol, the soil cleanup level is 0.02 ppm for a soil pH from 6.9 to 9.0, 0.03 ppm for a soil pH from 6.65 to 6.89, and 0.04 ppm for a soil pH from 6.25 to 6.64.

Soil pH in the American Bottom is likely slightly acidic to neutral which was the basis for assuming a soil pH of 6.8. However, since the upper 10-feet of soil at the Solutia facility is heavily disturbed and may consist of fill, area-specific soil pH should be obtained as appropriate to more accurately obtain the soil cleanup levels to protect groundwater for chlorinated phenols, lead, and mercury. This is especially important in areas where the contaminants extend deep into the subsurface soil and are present in significant concentrations near the water table. The water table at the Solutia facility has been shown to fluctuate between 10 and 20-feet below the land surface.