SAUGET INDUSTRIAL CORRIDOR SITES, SAUGET, CAHOKIA, AND EAST ST. LOUIS, ILLINOIS
PREASSESSMENT SCREEN AND DETERMINATION

1.0 INTRODUCTION

This is the Preassessment Screen (PAS) and determination for the Sauget Industrial Corridor Sites (SIC Sites), and surrounding areas located in St. Clair County, Illinois. This document has been prepared by the Illinois Department of Natural Resources, the Illinois Environmental Protection Agency, the Missouri Department of Natural Resources, and the U.S. Department of Interior (DOI) who are Trustees for natural resources at the SIC Sites (collectively referred to hereinafter as "Trustees") in accordance with Natural Resources Damage Assessment (NRDA) procedures. 43 C.F.R. Part 11.

1.1 Authority

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq.*, the Oil Pollution Act of 1990 (OPA), 33 U.S.C. §2701 *et seq.*, and the Federal Water Pollution Control Act (CWA), as amended 33 U.S.C. §1251 *et seq.*, authorize the Federal Government, States, and Indian Tribes to recover damages for injuries to natural resources belonging to, managed by, appertaining to, or otherwise controlled by them.

In accordance with 42 U.S.C. §9607 (f)(2)(B) and the National Contingency Plan (NCP), 40 C.F.R. §300.600, the Director of the Illinois Environmental Protection Agency (IEPA) and the Director of the Illinois Department of Natural Resources (IDNR) have been designated the natural resource Trustees by the Governor of the State of Illinois; and the Director of the Missouri Department of Natural Resources (MDNR) has been designated the natural resource Trustee by the Governor of the State of Missouri. IEPA, IDNR and MDNR act on behalf of the public as Trustees for natural resources belonging to, managed by, appertaining to, or otherwise controlled by Illinois and Missouri, respectively.

Pursuant to Executive Order 12580, January 23, 1987, and the NCP, 40 CFR §300.600, the President has designated the Secretary of the Department of the Interior (DOI) to act on behalf of the public as Trustee for natural resources managed or otherwise controlled by DOI. The official authorized to act on behalf of the Secretary in this matter is the Regional Director for Region 3 of the U.S. Fish and Wildlife Service (USFWS).

1.2 Purpose

43 C.F.R. §11.23(a) requires the Trustees to complete a PAS and make a determination whether to proceed with a natural resource damage assessment before beginning any assessment efforts under 43 C.F.R. Part 11. The purpose of this PAS is to provide a rapid review of readily

available information on discharges or releases of hazardous substances and the potential resulting impacts on natural resources under the trusteeship of the IEPA, IDNR, MDNR, and DOI pursuant to Section 107(f) of CERCLA. This review is intended to ensure that there is a reasonable probability of making a successful natural resource damages claim before proceeding with a natural resource damage assessment.

The decision to proceed beyond the preassessment screen is based upon meeting the following criteria as set forth in 43 C.F.R. §11.23(e):

1. A release of a hazardous substance has occurred;

2 Natural resources for which the Trustees may assert trusteeship under CERCLA have been or are likely to have been adversely affected by the release;

3. The quantity and concentration of the released hazardous substance is sufficient to potentially cause injury to natural resources;

4. Data sufficient to pursue an assessment are readily available, or likely to be obtained at a reasonable cost; and

5. Response actions if any, carried out, or planned do not or will not sufficiently remedy the injury to natural resources without further action.

This document is the PAS that satisfies the requirements of 43 C.F.R. §Part 11 and is the determination by the Trustees to proceed with a natural resource damage assessment. Adherence to the methods set forth in these regulations is not mandatory and does not preclude the Trustees' use of alternate methods of assessing damages or arriving at a negotiated settlement with potentially responsible parties.

2.0 INFORMATION ON THE SITE AND ON THE RELEASE OF HAZARDOUS SUBSTANCES (43 C.F.R. §11.24(a))

2.1 Information on the Sites

This PAS addresses natural resources in the Sauget Industrial Corridor (Corridor) potentially injured by releases of hazardous substances at the SIC Sites (Figure 1). The SIC Sites are located within the Villages of Sauget, Cahokia, and East St. Louis, in St. Clair County, Illinois (Figure 2).

The Corridor encompasses an area on the Mississippi River floodplain in Illinois that includes the SIC Sites as well as the surrounding and down-gradient natural resources and landscape including ground water and the floodplains and downstream reaches of Dead Creek, Prairie du Pont Creek, Cahokia Chute, and the Mississippi River. Currently, the SIC Sites are comprised of various facilities, landfills, disposal areas, and other properties consisting of Sauget Area I,

Sauget Area II, W.G. Krummrich Plant, and the Clayton Chemical Site. Sauget Area I is proposed for listing on the USEPA National Priorities List (NPL) (47612 – 47618 Federal Register 66 178). Sauget Area I is located in Sauget and Cahokia and contains Sites identified as Dead Creek Segments A, B, C, D, E, and F (which includes Borrow Pit Lake), and Sites G, H, I, L, M, and N. Sauget Area II is also proposed for listing on the NPL (47612 – 47618 Federal Register 66 178). Sauget Area II is located in East St. Louis, Sauget, and Cahokia and contains Sites O, P, Q, R, and S, and a defined ground water "Plume Discharge Area" of the Mississippi River, adjacent to Site R. The W.G. Krummrich Plant, located in Sauget, is the subject of a Resource Conservation and Recovery Act (RCRA) enforcement action. The Clayton Chemical Site, or RRG/Clayton Chemical Company Site, also located in Sauget, is identified by the U.S. Environmental Protection Agency (USEPA) as an Eligible Response Site and is the subject of a CERCLA enforcement action.

As mentioned above, there are three streams and one river associated with the Corridor: Dead Creek, Prairie du Pont Creek, Cahokia Chute, and the Mississippi River. Dead Creek is entirely contained within Sauget Area 1, originating in the Village of Sauget and flowing approximately 3.5 miles before emptying into Prairie du Pont Creek, which then flows approximately 0.4 miles to its confluence with Cahokia Chute. Cahokia Chute is an historic chute on the Mississippi River that once flowed around Arsenal Island, but Arsenal Island is now partially accreted to the mainland along the upstream part of the chute. Cahokia Chute flows for approximately one mile from its confluence with Prairie du Pont Creek, before joining the main channel of the Mississippi River. The Mississippi River flows alongside and constitutes the western border of the Corridor and contains the ground water Plume Discharge Area (consisting of commingled contaminated ground water from Sauget Area I, Sauget Area II, the Krummrich Plant, and the Clayton Chemical site) identified as part of Sauget Area II (USEPA 1999, USEPA 2002).

Land use in the Corridor is predominantly urban and industrial and includes residential and agricultural areas. Natural habitats include the aforementioned river or streams and their associated bottomland wetlands, emergent and seasonal wetlands, forests, and grasslands typical of the alluvial soils and ridge and swale topography that dominated the floodplain historically. Two regionally prominent ecological features associated with the Corridor are the remnant wetlands of the historically expansive American Bottoms Wetlands complex that once occupied the local floodplain, and the Mississippi River (IDNR 1998).

The overall diverse ecology of the Corridor in association with, and including, the American Bottoms Wetlands and the Mississippi River, supports a high diversity of resident and migratory wildlife, including habitat supporting six species of Illinois endangered and threatened wetland/river associated birds and one of the largest wading bird rookeries in the state, within a five mile radius of the SIC Sites. In a broader view, within the 100-year floodplain and Mississippi River on the Illinois side from Madison County (just north of the Corridor) downstream to the confluence of the Ohio River, there are occurrences of 64 Illinois listed, including five federally listed, endangered or threatened species, 30 Illinois Natural Areas Inventory sites, which are state-registered high-quality natural communities, and four islands of the Middle Mississippi River National Wildlife Refuge. (See Appendix B, IDNR 2008, and USFWS 2009, for more details including a listing of Federal and State resources and sites). The Mississippi River flyway is one of the four major flyways used by migratory birds on the

North American continent as they migrate between their wintering ranges in the southern United States and Latin America and their breeding ranges in the northern United States, Canada and the Arctic. Millions of birds, including 40 percent of all North American waterfowl, and 60 percent of all North American bird species, use the Mississippi flyway to forage, rest and breed (McGuiness 2000, Wiener *et al.* 1998). An estimated 292 migratory bird species utilize the Upper Mississippi River (an area from the mouth of the Ohio River at Cairo, Illinois, to the beginning of the commercial shipping channel at Minneapolis, Minnesota), which includes the reach along the Corridor, during some part of their life cycle (Korschgen and Hill 1996).

Waterfowl use of the Mississippi River flyway provides significant economic benefits to the five states that border the Upper Mississippi River (Missouri, Illinois, Iowa, Minnesota, and Wisconsin) (IEc 1999). In those same states, bird watchers contributed about twice as much as the waterfowl hunting to the economy of these five states (IEc 1999).

The Upper Mississippi River supports a diverse fishery of about 143 species of indigenous fish within 29 families (IEc 1999, USGS 2007). The fishery includes a variety of recreational sport and commercial fish species. This big river system contains deep channels, which also support some ancient fish species including the paddlefish, and three sturgeon species all of which can grow to large sizes (USGS 1998). Some of the fish species live their whole life in a small area of the river while other species move around between locations or migrate over great distances along the length of the river to spawn. There are at least 12 Illinois and five Missouri State listed endangered or threatened fish species, one of which is also federally listed as endangered, found in the Upper Mississippi River (USGS 1998). Recreational fishing in the Upper Mississippi River provides significant economic benefits to the five bordering states (IEc 1999).

2.2 Time, Quantity, Duration and Frequency of Releases and Discharges

There is limited information available to fully quantify the timing, duration, and frequency of all releases and discharges of hazardous substances into the Corridor from the SIC Sites throughout the history of the individual Sites. Some of the hazardous substance releases described below are on-going. A review of available information documents the following releases of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), dioxins and furans, and metals from the SIC Sites is provided below:

Sauget Area I

Hazardous substances including VOCs, SVOCs, pesticides, PCBs, and metals from Sites G, H, I, and L were released to soil. Hazardous substances including VOCs, SVOCs, PCBs, and metals from Sites G and H have been released to ground water. Hazardous substances including VOCs and SVOCs from Site I were released to ground water. Hazardous substances including VOCs, SVOCs, and metals from Site L were released to ground water. Wastes located on the surface and/or in the subsurface of Site G, including VOCs, SVOCs, pesticides, PCBs, and metals, have spontaneously combusted and/or burned for long periods of time on several occasions and also leached and/or were released into Dead Creek Segment B and downstream creek segments. Wastes from Sites I and H including VOCs, SVOCs, pesticides, PCBs, and metals were released into Dead Creek Segment A and available downstream segments until Dead Creek Segment A

was remediated in 1990 (USEPA 1999). The release of hazardous substances including VOCs, SVOCs, pesticides, PCBs, and metals into Dead Creek from multiple sources over many years resulted in contamination of sediments and soils. In 2000, the USEPA determined releases from Dead Creek Segments B, C, D, E, F, and Site M into the sediments "constituted an imminent and substantial threat to public health and the environment" and required a removal action (USEPA 2001b). Wastes from Dead Creek Segment B have also migrated into Site M, which was hydrologically connected to Dead Creek through an eight-foot opening at the southwest portion of Site M. Site L wastes also migrated into Dead Creek and into Site M via this same connection. Hazardous substances from Site M were released to sediment and surface water (USEPA 1999). Ground water contamination originating under Sauget Area I was released to the Mississippi River (USEPA 2002, USEPA 2008a, GSI Environmental Inc. 2008).

Sauget Area II

Hazardous substances including VOCs, SVOCs, pesticides, PCBs, dioxins, and metals from Site O, Q, and R were released to soil. Hazardous substances including VOCs, SVOCs, pesticides, PCBs, and metals from Site O and Q were released to groundwater. Hazardous substances including VOCs and SVOCs from Site R were released to groundwater (USEPA 2002). Hazardous substances including VOCs, SVOCs, pesticides, PCBs, dioxins, and metals from Site R leached into the Mississippi River. The Site Q landfill was inundated from Mississippi River flood waters in at least 1973, 1993, and 2008, with each event resulting in varying degrees of scouring and erosion of contaminated landfill materials, containing VOCs, SVOCs, pesticides, PCBs, dioxins, and metals, into the River (IDPH No Date; USEPA 2000, Sandy Bron, pers. comm. 2008). Hazardous substances including VOCs, SVOCs, and metals from Site P were released to soil. Hazardous substances including VOCs, SVOCs, PCBs, and metals from Site S were released to soil (USEPA 2002). The IEPA documented an "observed release by chemical analysis" of VOCs, SVOCs, pesticides, PCBs, and metals, to the Mississippi River sediments from Sites Q, R, and P (IEPA 2001a). Ground water contamination originating under Sauget Area II was released to the Mississippi River (USEPA 2002, USEPA 2008a, GSI Environmental Inc. 2008).

W.G. Krummrich Plant

Hazardous substances including VOCs, SVOCs, pesticides, PCBs, and metals from the W.G. Krummrich Plant were released to soil and ground water. Hazardous substances including VOCs, SVOCs, pesticides, PCBs, dioxins, and furans from the W.G. Krummrich Plant were released to sediment and surface water. Ground water contamination originating under the W.G. Krummrich Plant was released to the Mississippi River (USEPA 2002, USEPA2007, USEPA 2008a, GSI Environmental Inc. 2008).

Clayton Chemical Site

Hazardous substances, including VOCs, SVOCs, pesticides and PCBs, from the Clayton Chemical site were released to soil and ground water. Ground water contamination originating under the Clayton Chemical Site was released to the Mississippi River (USEPA 2002, USEPA 2005, GSI Environmental Inc. 2008).

2.3 Hazardous Substances of Concern

Investigations associated with removal actions for the SIC Sites indicate that at least 54 types or categories of chemicals, including VOCs, SVOCs, pesticides, PCBs, dioxins and furans, and metals, designated under section 102 of CERCLA as hazardous substances (40 C.F.R. §302, Table 302.4), were released into the ground water, surface water, sediments, and soils of the Corridor. The primary hazardous substances of concern related to these media at the SIC Sites are identified in the *Sauget Industrial Corridor Sites, Site by Site Selected Media Contamination Table*, which is attached as Appendix C. Further remedial investigation studies currently planned or in progress may provide additional information on other hazardous substances that may have been released at the various Sites.

2.4 History of the Current and Past Use of the Sites Identified as the Source of the Release of Hazardous Substance and the Relevant Operations Occurring at or Near the Sites

A review of information in the regulatory agency files, enforcement records, and public materials documents the following current and past uses and relevant operations occurring at the SIC Sites:

Sauget Area I

Site G (5 acres) was used as a waste disposal area from 1952 to 1988 (Ecology and Environment, Inc. 1998, USEPA 1999). In 1995, the USEPA conducted a removal action at Site G. This removal action involved the excavation of PCBs, organics, metals, and dioxin-contaminated soils on and surrounding Site G, solidification of open oil pits on the Site, and covering part of the Site (including the excavated contaminated soils) with a clean soil cap approximately 18 to 24 inches thick. Approximately 60,000 cubic yards of additional contaminated wastes were consolidated into a landfill on site and covered with a soil cap. The now vegetated property is enclosed by a fence and is currently not in use (USEPA 1999, USEPA 2007).

Sites H (6 acres) and I (19 acres) are connected and were together known as part of the "Sauget-Monsanto Landfill", which was used as a waste disposal area from 1931 to 1957 and is currently inactive. There is a building and truck parking area currently located on Site I (Ecology and Environment, Inc. 1998, USEPA 1999). Sites H and I contain approximately 110,000 and 250,000 cubic yards of contaminated waste and fill material, respectively (USEPA 1999).

Site L (0.17 acres) is inactive and the former location of two surface impoundments used for the disposal of tanker truck wash water contaminated with hazardous substances during cleaning operations of hazardous waste haulers from 1971 to 1981 (Ecology and Environment, Inc. 1998, USEPA 1999). The impoundments were subsequently filled-in and the volume of contaminated fill material is not known (USEPA 1999).

Site M (1.35 acres) is inactive. It was a sand and gravel borrow pit in the mid to late 1940s and received overflows from Dead Creek Segment B. This pit contains approximately 3,600 cubic yards of contaminated sediments. Site M was part of a removal action for Dead Creek Segments B, C, D, E and F (see description for Dead Creek below). As part of this removal action, the pit

was filled and covered with 3 feet of soil (USEPA 1999).

Site N (4-5 acres) is inactive and originally developed as a sand and gravel borrow pit in the 1940s, which was later filled with concrete rubble, scrap wood, demolition debris, and industrial waste. The depth of the fill may be as much as 30 feet (USEPA 1999).

Dead Creek (3.5 stream miles) is an urban stream that began receiving hazardous wastes from industrial sewer drainage systems following a 1928 easement agreement between local property owners and representatives of local business, municipal and property interests, with the intent being to "improve the drainage in that District by improving Dead Creek so as to make it suitable for the disposal of wastewater, industrial waste, seepage and storm water" (USEPA 1999). As a result of this agreement, Dead Creek systematically received discharges from local businesses and the Village of Sauget. The creek served as a surcharge basin for the Village municipal sewer collection system and received direct wastewater discharges from local businesses. When the sewer system backed-up or overflowed, untreated wastes from industrial users discharged directly into Dead Creek Segment A (USEPA 1999). Dead Creek Segment B was hydrologically connected to Site M. Dead Creek Segment F is hydrologically connected to an approximately 70-acre lake and wetland named Borrow Pit Lake, which was constructed adjacent to Segment F when the Mississippi River flood control levee was constructed in the 1950s. Ongoing releases of hazardous substances into Dead Creek required dredging of Segment A multiple times over the years, with the last removal action occurring in 1990. The 1990 IEPA led action involved removing 27,500 tons of sediment and filling-in the segment so that it no longer functioned as part of the creek (Ecology and Environment, Inc. 1998, USEPA 1999). In 2002, Solutia, Inc., began removal of approximately 75,000 tons of sediment and soil from Dead Creek Segments B, C, D, E, a portion of F, and Site M, to comply with a Unilateral Administrative Order issued by the USEPA for a time critical removal action. The Order also included installation of a high-density polyethylene liner in Creek Segment B (USEPA 2001a).

Sauget Area II

Site O (20 acres) is inactive, and between 1965 and 1978 contained four former sludge dewatering lagoons associated with the Village of Sauget wastewater treatment plant. Currently, these lagoons are covered with at least two feet of clay and vegetated (USEPA 2002).

Site P (20 acres) is mostly inactive with a newly constructed building on a corner of the Site. The Site was permitted as a general waste disposal area from approximately 1973 to 1984, but was cited repeatedly for accepting unpermitted wastes (USEPA 2000).

Site Q (90 acres) contains a barge terminal facility and several other active business operations. Historically, parts of Site Q, known as the "Sauget Landfill" and the "Old Milam Landfill" were used for waste disposal between the 1950's and 1970's. In 1995, 1999 - 2000, the USEPA and its contractors performed two removal actions at Site Q. These removals included excavating exposed drums along the Mississippi shoreline at Site Q, and more than 3,200 drums and over 17,000 tons of contaminated soil (USEPA 2000, USEPA 2002).

Site R (about 35 acres) contains a landfill known as the "Sauget Toxic Dump", "Monsanto

Landfill", and the "River's Edge Landfill", which was used from 1957 to 1977 (USEPA 2000). In order to meet the conditions of the *2002 U.S. Environmental Protection Agency, Unilateral Administrative Order for Sauget Area 2 - Ground water Operable Unit*, three groundwater extraction wells have pumped ground water flowing under and onto Site R since July 2003, and an underground barrier wall was constructed around three sides (north, west, and south) of the site in 2004. The extracted groundwater is treated by the American Bottoms Regional Wastewater Treatment Facility (USEPA 2002). Recent investigation has documented that the contaminated ground water plume from the SIC Sites is not entirely captured by the underground barrier wall and a portion of the plume continues to reach and discharge into the Mississippi River (GSI Environmental Inc. 2008).

Site S (approximately 0.9 acres) is adjacent to the Clayton Chemical Site. It is believed that Site S was used as a disposal area for still bottom waste from at least 1973 to 1975 and may have been used as a drum disposal area as well (USEPA 2002).

W.G. Krummrich Plant

The Monsanto Company (approximately 168 acres) opened the Krummrich Plant in 1917, manufacturing industrial chemicals, chemical intermediates, agricultural intermediates, and rubber chemicals. In 1997, Solutia, Inc. took over operations of the Krummrich Plant. Today, the Krummrich Plant manufactures performance materials used primarily in the automotive, architectural, transportation, and industrial markets. The Krummrich Plant is an active facility currently under a RCRA corrective action to investigate and respond to contaminated ground water and contaminated soils (USEPA 2008a).

Clayton Chemical Site

Prior to 1961, the Clayton Chemical Site (7 acres) was used to repair and maintain railroad equipment. In 1961, the Clayton Chemical Company began recycling and recovering used solvents and waste oils on the parcel. In 1981, the Village of Sauget deeded the property to Clayton Chemical Company. In 1996, Clayton Chemical Company transferred its operations to the Resource Recovery Group. The Clayton Chemical Site is not currently operational and is under an Administrative Order on Consent and a Unilateral Administrative Order to conduct remedial activities (USEPA 2005, USEPA 2008b).

2.5 Potentially Responsible Parties

USEPA has identified numerous potentially responsible parties at areas within the SIC Sites. Appendix D is a compilation of lists of potentially responsible parties generated by USEPA that have been attached to publicly available documents. In compiling this list, the Trustees have not attempted to delete potentially responsible parties that may be defunct, insolvent, deceased or otherwise unavailable to contribute to the restoration of injured natural resources. This listing may not be exhaustive or current.

3.0 DAMAGES EXCLUDED FROM LIABILITY UNDER CERCLA OR THE CWA (43 C.F.R. § 11.24(b) AND (c))

43 CFR §11.24(b) requires that the Trustees determine whether the damages being considered are barred by specific defenses or exclusions from liability under CERCLA or CWA. The required determinations under Section 11.24(b) are as follows:

(i) whether damages resulting from the discharge or release were specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental impact statement or other comparable environmental analysis, that the decision to grant the permit or license authorizes such commitment of natural resources, and that the facility or project was otherwise operating within the terms of its permit or license, so long as, in the case of damages to an Indian tribe occurring pursuant to a Federal permit or license, the issuance of that permit or license was not inconsistent with the fiduciary duty of the United States with respect to such Indian tribe; or

(ii) whether the damages and the release of a hazardous substance from which such damages resulted have occurred wholly before the enactment of CERCLA; or

(iii) whether the damages resulted from the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 135-135k; or

(iv) whether the damages resulted from any other federally permitted release, as defined in section 101 (10) of CERCLA; or

(v) whether the damages resulting from the release or threatened release of recycled oil from a service station dealer described in section 107 (a)(3) or (4) of CERCLA if such recycled oil is not mixed with any other hazardous substance and is stored, treated, transported or otherwise managed in compliance with regulations or standards promulgated pursuant to section 3014 of the Solid Waste Disposal Act and other applicable authorities.

Under Section 11.24(c), the Trustees must determine whether the discharge meets one or more of the exclusions provided in Sections 311 (a)(2) or (b)(3) of the CWA. The Trustees have determined that none of the specific defenses or exclusions are known to apply.

4.0 PRELIMINARY IDENTIFICATION OF RESOURCES POTENTIALLY AT RISK (43 C.F.R. §11.25)

4.1 Preliminary Identification of Pathways

Exposure pathways that may transport hazardous substances released from the SIC Sites to natural resources of the Corridor are discussed below.

Surface Water/ Sediment Pathway:

Sauget Area I and a portion of Sauget Area II - Sauget Area I and the extreme southeast corner of Site Q (Sauget Area II) occupy the Cahokia Joachim #01714010106, 10-digit NRCS watershed with a total drainage area of 81,361 acres (127 square miles; IDNR 2008). Surface run-off and surface flow from these SIC Sites are generally toward Dead Creek, with drainage flowing over and through hazardous substance depositional areas such as several landfills, contaminated soils, and/or contaminated sediments before reaching Dead Creek (IEPA 2001a). In addition to overland drainage, Dead Creek began receiving direct discharges of hazardous wastes from industrial sewer drainage systems in about 1929 (USEPA 1999). This overland and stream corridor flow directly contaminates surface water and sediment, erodes contaminated media, and re-suspends contaminated sediments in the water column, which exposes upland soils, wetland and stream sediments, and surface water within the drainage area. Additionally, these releases to Dead Creek expose the sediments, floodplain soils, and surface waters of Dead Creek itself, and are transported downstream to the sediments, floodplain soils, and surface waters of Prairie du Pont Creek, Cahokia Chute, and the Mississippi River.

Sauget Area II, the Krummrich Plant, and the Clayton Chemical site - Sauget Area II (except for the extreme southeast corner of Site Q), the Krummrich Plant, and the Clayton Chemical site are contained within the Cahokia Joachim #01714010105, 10-digit NRCS watershed with a total drainage area of 57,583 acres (90 square miles; IDNR 2008). Surface run-off and surface flow from these SIC Sites historically flowed to the Mississippi River. In the 1950s a Mississippi River flood control levee was constructed that bisected the SIC Sites. Sauget Area II Site R and most of Site Q still drain to the Mississippi River and are subject to spring flooding from the river. The levee restricted overland flow between the Mississippi River and Sauget Area II Sites, O, P, and S, the Krummrich Plant, and the Clayton Chemical site; however, subsurface flow to the river still occurs via unsaturated and saturated zones under the levee (IEPA 2001b). This overland and subsurface flow directly contaminates surface water and sediment, erodes and transports contaminated media and re-suspends contaminated sediments in the water column, which exposes upland soils, wetland and stream sediments, and surface water within the drainage area. Additionally, these combined releases expose the sediments, floodplain soils, and surface waters of the immediate Mississippi River area and downstream reaches.

Ground Water Pathway:

The American Bottoms aquifer occupies approximately 175 square miles along the valley lowlands of the Mississippi River in the East St. Louis area and underlies the Corridor. It is an extensive alluvial aquifer consisting of predominantly permeable unconsolidated valley fill deposits that average about 120 feet thick. Recharge to the aquifer occurs via precipitation; subsurface flow from the bluffs that border the floodplain on the east; inflow from the buried valley channel of the Mississippi River; and, infiltration from the Mississippi River. During low stage Mississippi River conditions, groundwater in the aquifer flows from east to west and discharges to the Mississippi River. During flood stage on the Mississippi River, ground water flow reverses and Mississippi River water infiltrates the aquifer. Historically, from a combination of the ground water table being high enough and artesian flow, ground water expressed itself in seeps, springs, and wetlands across the landscape of the floodplain, resulting in the expansive American Bottoms Wetlands (Schicht 1965, USEPA 2002). Industry and public

withdrawals of ground water peaked in the 1950s and 1960s, significantly lowering the water table. Since that time, public supplies shifted to the Mississippi River and industry withdrawals declined greatly, so that water table levels have largely recovered (Wehrmann and Knapp 2006). With the exception of the area restricted by the presence of the underground barrier at Site R, there is currently free movement of ground water between the Mississippi River and the SIC Sites because the elevation of the ground water table and the river are frequently at the same height and during seasonal flooding the ground water table exceeds the height of the land surface (IEPA 2001b). This subsurface and artesian flow erodes subsurface contaminated media, directly exposes sediments and surface water, and re-suspends contaminated sediments in the water column, which in turn exposes down-gradient wetland and stream sediments and surface water within the Corridor. Additionally, these combined releases expose the sediments, floodplain soils, and surface waters of the immediate Mississippi River ground water discharge area and downstream reaches.

Soil Pathway:
The Corridor includes at least 395 acres of contaminated soil from across the SIC Sites. In addition to this acreage estimate there are some areas within the perimeter of the SIC Sites for which acreage has not been calculated, such as the floodplain soils associated with the 3.5 miles of Dead Creek or the 70 acres of Borrow Pit Lake (USEPA 1999, USEPA 2000, USEPA 2002). There are also areas within the Corridor that are adjacent to the SIC Sites where soil exposure by other pathways (such as surface water run-off) has been confirmed, but for which a full inventory and area calculation has not been completed. An example of such an area is an exposed agricultural field immediately south of Sauget Area I Site G where PCBs were detected in soybeans because of contaminated run-off flowing onto the field from Site G (IEPA 2001a). Contaminated soils serve as an exposure pathway for surface water through erosion and entrainment during run-off of storm water or from floodwater inundation. Contaminated soils also expose ground water via leaching.

Air Pathway:
The SIC Sites included air emissions of some of the same hazardous substances released along the other pathways. Hazardous substances emitted through stacks or fugitive dust are carried in the airshed by the prevailing winds. Some of these hazardous substances are deposited on to soils and surface waters in and outside of the Corridor. Over time, these hazardous substances may contaminate soils or aquatic sediments.

Direct Exposure Pathway:
Aquatic and terrestrial biota are exposed to hazardous substances by dermal/opercular absorption through direct contact with exposed surface water, sediments, or soil. Although biota, in general, do not have direct access to ground water, once the ground water has discharged to wetlands and the Mississippi River, aquatic and terrestrial biota are exposed to hazardous substances via the ground water pathway by dermal/opercular absorption. Terrestrial biota may be exposed to hazardous substances via the air pathway through inhalation or from dermal adsorption, uptake, direct ingestion, or uptake via the food chain of aerially deposited hazardous substances onto soils and surface waters.

Food Chain Pathway:
Exposure via the food chain pathway occurs when hazardous substances accumulate in the tissues of prey organisms and consumed by predators. The food chain exposure pathway is important because several of the hazardous substances released from the SIC Sites, such as PCBs, dioxins, some pesticides and metals are persistent in the environment and bioaccumulate in biota. Also, because of the presence of both aquatic and terrestrial habitat across the Corridor, the food chain pathway is expected to affect a greater diversity of biota. The exposure pathway begins with sediment, soils, surface water, waste, and air exposing lower trophic-level organisms such as algae, plants, and invertebrates to bioaccumulating chemicals via direct contact and ingestion. Middle order organisms such as bottom-dwelling fish, amphibians, reptiles, and insectivorous birds and mammals may be exposed to these chemicals through direct contact with contaminated media, but also through consumption of lower order organisms. The higher trophic-level organisms, such as predator fish, raptors and piscivorous birds, and carnivorous mammals may likewise then be exposed to these chemicals via direct contact with contaminated media and consumption of prey organisms.

4.2 Exposed Areas and Exposed Water Estimates

Based on currently available information, hazardous substances released from the SIC Sites have exposed surface water resources, ground water resources, geologic resources (soils), and biological resources. The exposed areas for these natural resources are discussed below.

Surface Water (Includes Sediment and Associated Floodplain Soils):
The amount of exposed surface water in the Corridor streams varies seasonally according to flow. The maximum flow for the Mississippi River in St. Louis, Missouri, for the year 2006, was 303,000 cubic feet per second (CFS), the minimum flow was 63,000 CFS, and the average flow was 123,000 CFS (USGS 2006). Sediments, surface water and soils in the associated floodplain of the approximately 14-acres Plume Discharge Area of the Mississippi River have been exposed (USEPA 2002). In addition, a reach of the Mississippi River shoreline on the upstream side of the Plume Discharge Area has been exposed (USEPA 2007). Data collected by the USEPA indicate that areas of the Mississippi River downstream of the SIC Sites Plume Discharge Area contain elevated concentrations of hazardous substances associated with the SIC Sites (USEPA 2006). Down-gradient areas in the Mississippi River and its floodplain, where the hazardous substances releases described above have likely spread through pathways such as instream flow of the Mississippi River, have been exposed.

About 3.5 miles of Dead Creek surface water and associated sediments, and floodplain soils are exposed, including over 11 miles of wetland frontage represented along the length of Dead Creek Segments A-F and the area of Borrow Pit Lake (USEPA 1999). Down-gradient areas of Dead Creek including Prairie du Pont Creek, Cahokia Chute, Mississippi River, and their floodplains, where the hazardous substances described above have likely spread through pathways such as flow within and out of Dead Creek, have been exposed.

Geologic Resources (Soils):
Soils of the approximately 395 acres that constitute the footprint of the SIC Sites have been exposed (USEPA 1999, USEPA 2002, USEPA 2008a, USEPA 2008b). Several hazardous substances associated with the SIC Sites have been documented in soils and subsurface soils down-gradient and off-site of the SIC Sites (IEPA 2001a).

Ground Water Resources:
There is a commingled contaminated ground water plume that extends to the Mississippi River from areas underlying Sauget Area I, Sauget Area II, the Krummrich Plant, and the Clayton Chemical Site (USEPA 2002, USEPA 2008a, USEPA 2008b, GSI Environmental Inc. 2008). The contaminated ground water plume is estimated at approximately 1,000 acres (GSI Environmental Inc. 2008). As discussed earlier (see Ground Water Pathway description in Section 4.1), there is movement of ground water between the contaminated aquifer, wetlands, and the Mississippi River. Down-gradient areas in the Mississippi River and its floodplain, where the hazardous substances releases described above have likely spread through pathways such as in stream flow of the Mississippi River, have been exposed.

Biological Resources:
Migratory and resident biological resources (including fish, birds, mammals, amphibians, reptiles, and invertebrates) use the exposed areas described above for parts of their life cycles, including breeding, nesting, foraging, and loafing. Resident and migratory aquatic biota of Dead Creek, Prairie du Pont Creek, Cahokia Chute, the Mississippi River, and wetlands have been exposed via contaminated surface water, sediments, ground water (through surface water interface), and the food chain. Resident and migratory terrestrial biota utilizing the wildlife habitats have been exposed via contaminated surface water, sediments, ground water (through surface water interface), soils, and the food chain. Additionally, areas outside of the Corridor may be exposed to hazardous substances from the SIC Sites via biologic pathways, such as by visits to off-site habitats from migratory birds and fish that have been exposed within the Corridor. Biological resources from areas outside of the SIC Sites may be exposed as individual organisms forage or use the natural resources at the SIC Sites.

4.3 Estimates of Concentrations

Data from multiple USEPA remedial and removal action investigations and Administrative Orders for the SIC Sites detail the concentrations of VOCs, SVOCs, pesticides, PCBs, dioxins, furans, and metals into the environment. The chemical data from these references are summarized in the *Sauget Industrial Corridor Sites, Site-by-Site Contamination Table* (Appendix C).

The data summary contained in Appendix C indicates that the exposed surface water resources contain hazardous substances in excess of water quality standards established by Section 304(a) of the CWA and Section 302.208 of Title 35 of the Illinois Administrative Code. The data summary contained in Appendix C indicates that the exposed ground water resources contain hazardous substances in excess of water quality criteria established by Section 620.410 of Title

35 of the Illinois Administrative Code. Pursuant to the natural resource damage regulations, an exceedance of water quality criteria is defined as an injury [43 C.F.R. § 11.62(b)(iii)]. Pursuant to the natural resource damage regulations, exposure to hazardous substances that affects viability is, by definition, an injury.

As explained above, contaminated sediments were removed from Dead Creek Segment A and then backfilled. A series of other removal actions addressing contaminated sediments occurred in Dead Creek Segments B through F ;the Borrow Pit Lake; Site G; and Site Q. A slurry wall was constructed at Site R to stop discharges from the landfill into the Mississippi River. These actions were based on, in part, the finding that the concentrations of the hazardous substances in the sediments, soils, and waters presented a risk to human health, welfare, or the environment (USEPA 2001b, USEPA 2002).

4.4 Potentially Affected Resources and Services

Surface Water Resources:
The surface waters of Dead Creek, Prairie du Pont Creek, Cahokia Chute, and portions of the Mississippi River are potentially affected resources as well as the sediments of Dead Creek and portions of the Mississippi River. The surface waters and sediments of the American Bottoms Wetlands situated in and around the SIC Sites are potentially affected resources.

These surface water resources provide a variety of services including production of aquatic life; production of food resources for aquatic life and wildlife; nutrient recycling; sediment traps; and flood storage. Aquatic dependent migratory birds and resident mammals use these surface water resources for breeding, nesting, foraging, and loafing habitat as do state and federally listed endangered and threatened species. The environmental condition and functions of these surface water resources are essential to the long-term survival, reproduction, and conservation of these protected species.

Many of these surface water resources provide primary and secondary contact recreation such as boating; consumptive and non-consumptive outdoor recreation including fishing, hunting, trapping, and wildlife viewing. The surface water resources also provide use, option, and bequest values related to all of the services mentioned above, and nonuse values including existence values, related to all of the services mentioned above.

Geologic Resources (Soils):
The soils of the Mississippi River floodplain in the American Bottoms are potentially affected resources. The floodplain soils provide a variety of services including microbial process for nutrient recycling, energy transfer in the food chain, and production of plants and invertebrates, which serve as food resources for wildlife. These soils provide substrate for the development of floodplain trees and other wetland vegetation.

Migratory birds and resident mammals depend on these geologic resources for breeding, nesting, foraging and loafing habitat as do state and federally listed endangered and threatened species.

The environmental condition and functions of these geologic resources are essential to the long-term survival, reproduction, and conservation of these protected species. The geologic resources also provide use, option, and bequest values related to all of the services mentioned above; and, nonuse values including existence values, related to all of the services mentioned above.

Ground Water Resources:
Portions of ground water of the approximately 175-square mile American Bottoms aquifer are potentially affected resources. The ground water provides a variety of ecological services in addition to the human use services. The ecological services include storage and maintenance of water levels or moist soil for floodplain wetlands. The ground water resources also provide use, option and bequest values related to all of the services mentioned above, and nonuse values including existence values, related to all of the services mentioned above.

Biological Resources:
The biological resources that occupy the habitats created by the surface water resources and floodplain soil resources in the Corridor are potentially affected resources. The biological resources include invertebrates, plants, amphibians, reptiles, fish, birds, and mammals. Some of the species of these biological resources include State and federally protected migratory birds and listed endangered and threatened species. Some of these species spend their entire life cycle in the Corridor while many more species in great numbers migrate through the Corridor.

The biological resources provide for recreation such as photography, wildlife viewing, and bird watching; and consumptive and non-consumptive outdoor recreation including hunting, trapping, and fishing of non-protected species. The biological resources also provide use, option, and bequest values related to all of the services mentioned above, and nonuse values including existence values, related to all of the services mentioned above.

In 1985, the Missouri Department of Health and Human Services (DHSS) issued a fish consumption advisory for shovelnose sturgeon in the Mississippi River due to elevated chlordane levels. In 1987, catfish, buffalo, carp, river carpsuckers, drum, and sturgeon eggs where added to the consumption advisory. Fish upstream from St. Louis were found not to be contaminated with chlordane, and thus, not included in this advisory. A 1988 study resulted in the DHSS downgrading many advisories. Fish consumption advisories remained relatively unchanged until 1992. From 1992 until 2000, a statewide "do not eat" advisory was issued for sturgeon due to chlordane and PCB contamination due to the migratory patterns of sturgeon. In 2001, the advisory for catfish, carp, buffalo, drum, suckers, and paddlefish was removed, and few changes were made to the advisory until 2004. In 2004, a statewide consumption advisory for sturgeon and sturgeon eggs was issued. A statewide "do not consume" advisory was issued for sensitive populations (i.e., children and nursing or pregnant women) for largemouth bass greater than 12 inches due to mercury. In 2006, the statewide advisory was revised and focused on the Missouri and Mississippi Rivers, with the contaminants of concern being chlordane, PCBs, and mercury. In 2007, carp greater than 21 inches were added to the advisory (Frances Klahr, pers. comm. 2007).

5.0 PRELIMINARY DETERMINATION REGARDING PREASSESSMENT SCREEN CRITERIA

In accordance with 43 C.F.R. §11.23(e) the Trustees have determined that the following criteria have been met.

Criteria #1: A discharge of oil or a release of hazardous substance has occurred.

Releases of hazardous substances have occurred and will continue to occur at the SIC Sites. Refer to Section 2 above.

Criteria #2: Natural resources for which the Trustees may assert trusteeship under CERCLA have been or are likely to have been adversely affected by the release.

Natural resources of the Corridor for which Trustees may assert trusteeship under CERCLA have been or are likely to be adversely affected by releases at the SIC Sites. Refer to Section 4 above.

Criteria #3: The quantity and concentration of the released hazardous substances is sufficient to potentially cause injury to those natural resources.

The quantity or concentration of the released hazardous substances are sufficient to potentially cause injury to the Trust resources of the Corridor. Refer to Section 4 above.

Criteria #4: Data sufficient to pursue an assessment are readily available or are likely to be obtained at a reasonable cost.

Data for the Corridor sufficient to pursue an assessment are readily available or are likely to be obtainable at a reasonable cost. There are data available from previous remedial investigations and response actions that will be valuable in conducting a natural resource damage assessment. These investigations and actions continue and additional valuable data are expected from these actions. Additional studies and data collection efforts will be needed to further define the severity of the injuries and quantify the damages as a result of the releases of hazardous substances from the SIC Sites. Appropriate and accepted scientific and economic methodologies will be used to conduct additional studies and data collection efforts. Given the magnitude of the potential damages, the costs of the additional scientific and economic studies contemplated are reasonable.

Criteria #5: Response actions carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action.

Interim measures to control identified releases of hazardous substances have been undertaken or are underway at several locations on the SIC Sites. However, the known response actions and approved plans fail to adequately address the injury.

6.0 CONCLUSION

The Trustees hereby determine that an assessment is warranted in accordance with the Federal Regulation at 43 C.F.R. §11.23(e). The Trustees further determine that current information indicates that there is a reasonable probability of making a successful natural resource damage assessment claim pursuant to Sections 107 of CERCLA and §311 of the CWA. The information provided and conclusions made in this PAS shall be used to direct further investigations and assessments and is not intended to preclude consideration of other resources later found to be affected or other parties found to be responsible for the releases.

Literature Cited

Bron, Sandy. 2008. Personal communication via email dated 06/24/08. Illinois Environmental Protection Agency. Springfield, Illinois.

Crosby, Tim. 2007. Saving the Sturgeon: What will it take to prevent a population crash in the Middle Mississippi River? Perspectives: Southern Illinois University Carbondale (Spring 2007). Reprinted at http://www.siu.edu/~perspect/07_sp/sturgeon.html (accessed March 13, 2009

Ecology and Environment, Inc. 1998. Sauget Area 1 and 2 Sites, St. Clair County, Illinois. Volumes 1 (Area 1) and 2 (Area 2) Data Tables/Maps. Ecology and Environment. Chicago, Illinois.

Geraghty and Miller, Inc. 1993. Data collected by Monsanto pursuant to the Consent Order in People v. Monsanto 82-CH-192, February 1993.

GSI Environmental Inc. 2008. Regional Groundwater Flow and Contaminant Transport Model, American Bottoms Aquifer. GIS Environmental Inc. Houston, TX.

Illinois Department of Natural Resources (IDNR). 1998. Sinkhole Plain Area Assessment, Volume 3: Living Resources. Critical Trends Assessment Program, Illinois Department of Natural Resources. Springfield, Illinois.

IDNR. 2008. Wetland Impact Review Tool, electronic biotic database; queried March, 2008. Illinois Department of Natural Resources. Springfield, Illinois.

IEc. 1999. Economic Profile of the Upper Mississippi River Region. Prepared for: Division of Economics, U.S. Fish and Wildlife Service. Prepared by: Robert Black, Bruce McKenney, Alane O'Connor, Erin Gray,and Robert Unsworth of Industrial Economics, Inc. 2067 Massachusetts Avenue, Cambridge, Massachusetts 02140.

Illinois Department of Public Health (IDPH). No Date. Public Health Assessment, Sauget Area 2 Landfill Sites P, Q, and R, Sauget, St. Clair County, Illinois. EPA Facility ID # ILD000672329. IDPH under cooperative agreement with the Agency for Toxic Substances and Disease Registry.

Illinois Environmental Protection Agency (IEPA). 2000. Trip Report for Solutia / W.G. Krummrich Plant, Sauget, Illinois. IEPA, Bureau of Land, Federal Site Remediation Seciton, Site Assessment Unit. Springfield, IL

IEPA. 2001a. Hazard Ranking System Documentation Record, Sauget Area 2, EPA ID No. ILD000605790. Illinois Environmental Protection Agency. Springfield, Illinois.

IEPA. 2001b. Hazard Ranking System Documentation Record, Sauget Area 1, EPA ID No. ILD980792006. Illinois Environmental Protection Agency. Springfield, Illinois.

Klahr, Frances. 2007. Personal communication via email dated December 2007. Missouri Department of Natural Resources. Columbia, Missouri.

Korschgen, C. and L. Hill. 1996. The Great River Flyway: The Management Strategy for Migratory Birds on the Upper Mississippi River. Produced through a cooperative effort of the National Biological Service, Upper Mississippi Science Center, LaCrosse, Wisconsin;, Environmental Management Technical Center, Onalaska, Wisconsin; and the U.S. Fish and Wildlife Service, Region 3, Fort Snelling, MN.

McGuiness, D. 2000. A River That Works and a Working River: A Strategy for the Natural Resources of the Upper Mississippi River System. Upper Mississippi River Conservation Committee, Rock Island, IL

Schicht. R. 1965. Ground-water Development in East St. Louis Area, Illinois. Illinois State Water Survey. Urbana, Illinois.

USEPA. 1976. PCBs in the United States: Industrial Use and Environmental Distribution, Task 1, Final Report. USEPA Office of Toxic Substances. Washington, D.C.

USEPA. 1999. Administrative Order by Consent – Sauget Area 1 Site, Sauget and Cahokia, IL. USEPA. Chicago, Illinois.

USEPA. 2000. Administrative Order by Consent for Sauget Area 2 Site, St. Clair County, Illinois. USEPA. Chicago, Illinois.

USEPA. 2001a. Amended Administrative Order for segments of Dead Creek and Site M, Sauget Area 1, Sauget and Cahokia, Illinois. USEPA. Chicago, Illinois.

USEPA. 2001b. Action Memorandum – Determination of Threat to Public Health, Welfare, or the Environment at the Sauget Area 1 Dead Creek Superfund Site in Sauget and Cahokia, St. Clair County, Illinois. USEPA. Chicago, Illinois.

USEPA. 2002. Unilateral Administrative Order for Sauget Area 2 Site – Groundwater Operable Unit, Sauget, Illinois. USEPA. Chicago, Illinois.

USEPA. 2005. Administrative Settlement Agreement and Order on Consent for Removal Action for the RRG/Clayton Chemical Soils Site. USEPA. Chicago, Illinois.

USEPA. 2006. Mississippi River Sediment Study (River Mile 189.5 to 166) Solutia WG Krummrich Facility. USEPA. Chicago, Illinois.

USEPA. 2007. Krummrich Plant Ground Water Chemistry Data Tables and Plume Isopleths Maps. USEPA. Chicago, Illinois.

USEPA. 2008d. National Priorities List Fact Sheet, Region 5 Superfund, Sauget Area 1, St. Clair County, Illinois. Updated: December 2008. Available at http://www.epa.gov/region5superfund/npl/illinois/ILD980792006.htm (accessed March 13, 2009).

USEPA. 2008a. Final Decision and Response to Comments for Solutia Inc., Sauget, Illinois. USEPA. Chicago, IL.

USEPA. 2008b. Unilateral Administrative Order for Performance of Work by Non-cooperating Tier 1 Potentially Responsible Parties at RRG/Clayton Chemical Company Superfund Site, 1 Mobil Avenue, Sauget, IL. USEPA. Chicago, Illinois.

USFWS, 2009. Illinois County List of Endangered Species-by Species. www.fws.gov/midwest/Engangered/lists/illinois-spp.html (accessed March 16 2009)

United States Geological Survey (USGS). 1999. Ecological status and trends of the Upper Mississippi River System 1998: A report of the Long Term Resource Monitoring Program. USGS, Upper Midwest Environmental Sciences Center, LaCrosse, Wisconsin. LTRMP 99-T001.

USGS. 2006. Water Data Report 2006: 07010000 Mississippi River at St. Louis, MO. Website accessible – (http://wdr.water.usgs.gov/adrgmap/index.html).

USGS. 1997. Fish Passage through Dams on the Upper Mississippi River. Available at http://www.umesc.usgs.gov/aquatic/fish/jwlosinski_5003255.html (accessed March 13, 2009).

Wehrmann, H.A. and H.V. Knapp. 2006. Prioritizing Illinois Aquifers and Watersheds for Water Supply Planning. Illinois State Water Survey. Champaign, Illinois.

Wiener, J.G., C.R. Fremling, C.E. Korschgen, K.P. Kenow, E.M. Kirsch, S.J. Rogers, Y. Yin, and J.S. Sauer. 1998. Mississippi River. Pages 351-384 in M.J. Mac, P.A. Opler, C.E. Puckett Haeker, & P.D. Doran, editors. Status and Trends of the Nation's Biological Resources, Vol. 1. U.S. Geological Survey Reston, VA

Approval Signature:

Douglas P. Scott

Douglas P. Scott
Director, Illinois Environmental Protection Agency

May 6, 2009
Date

Approval Signature:

Marc Miller
Acting Director, Illinois Department of Natural Resources

28 April 2009
Date

APPROVED FOR EXECUTION
Date: 4·21·09
Legal Counsel: SYankandi

Approval Signature:

Mark N. Templeton
Director, Missouri Department of Natural Resources

4/28/09
Date

Approval Signature

Charles M. Wooley
Acting Regional Director

4/17/09
Date

Tom Melius
Regional Director, U.S. Fish and Wildlife Service, Region 3
Authorized Official for Department of the Interior

for

Appendix A. Site Maps

Figure 1

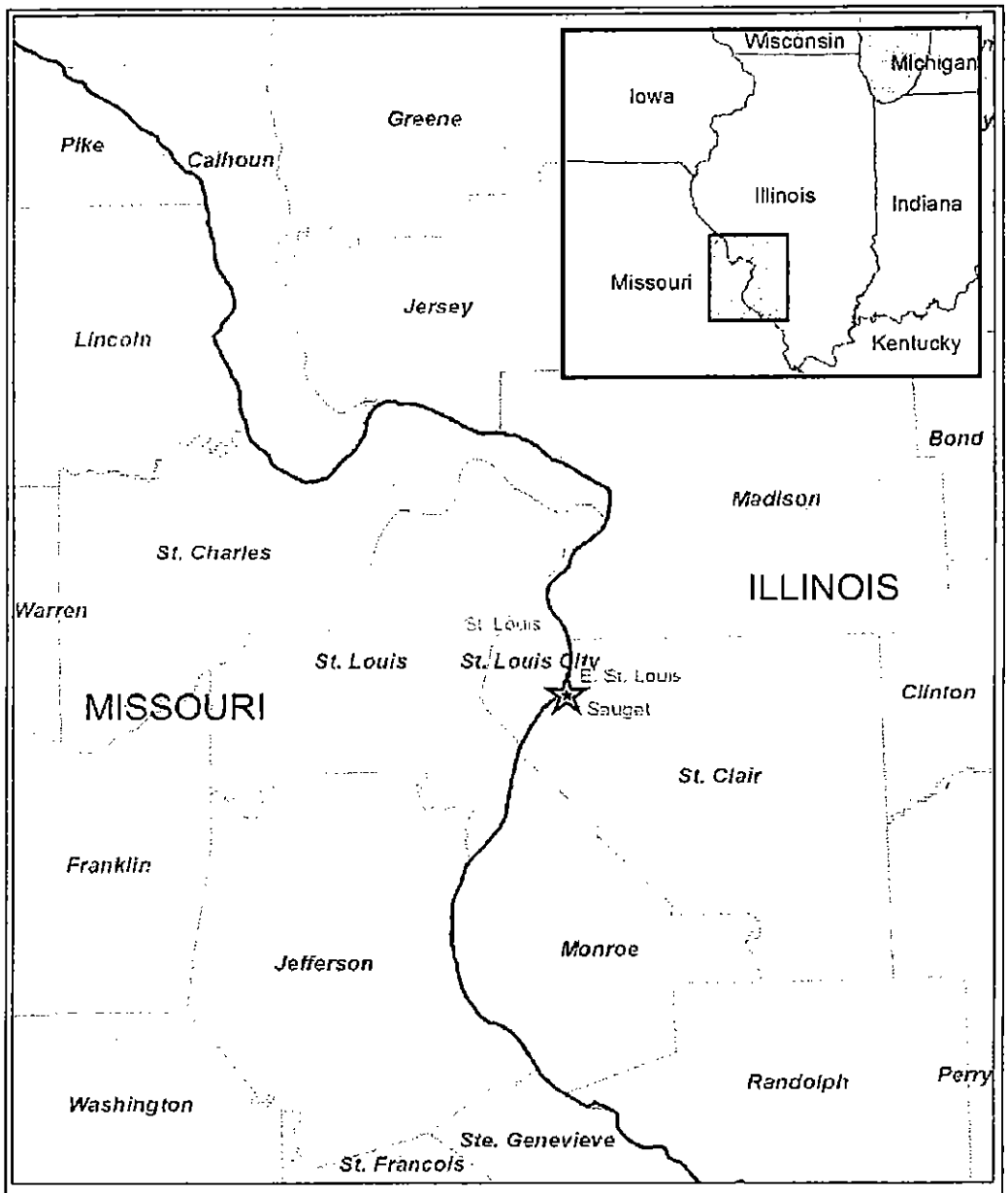

Figure 1. Sauget location map showing counties around St. Louis, MO and East St. Louis, IL area.

0 5 10 20 Miles

Map prepared by the Illinois DNR March 2009

Figure 2

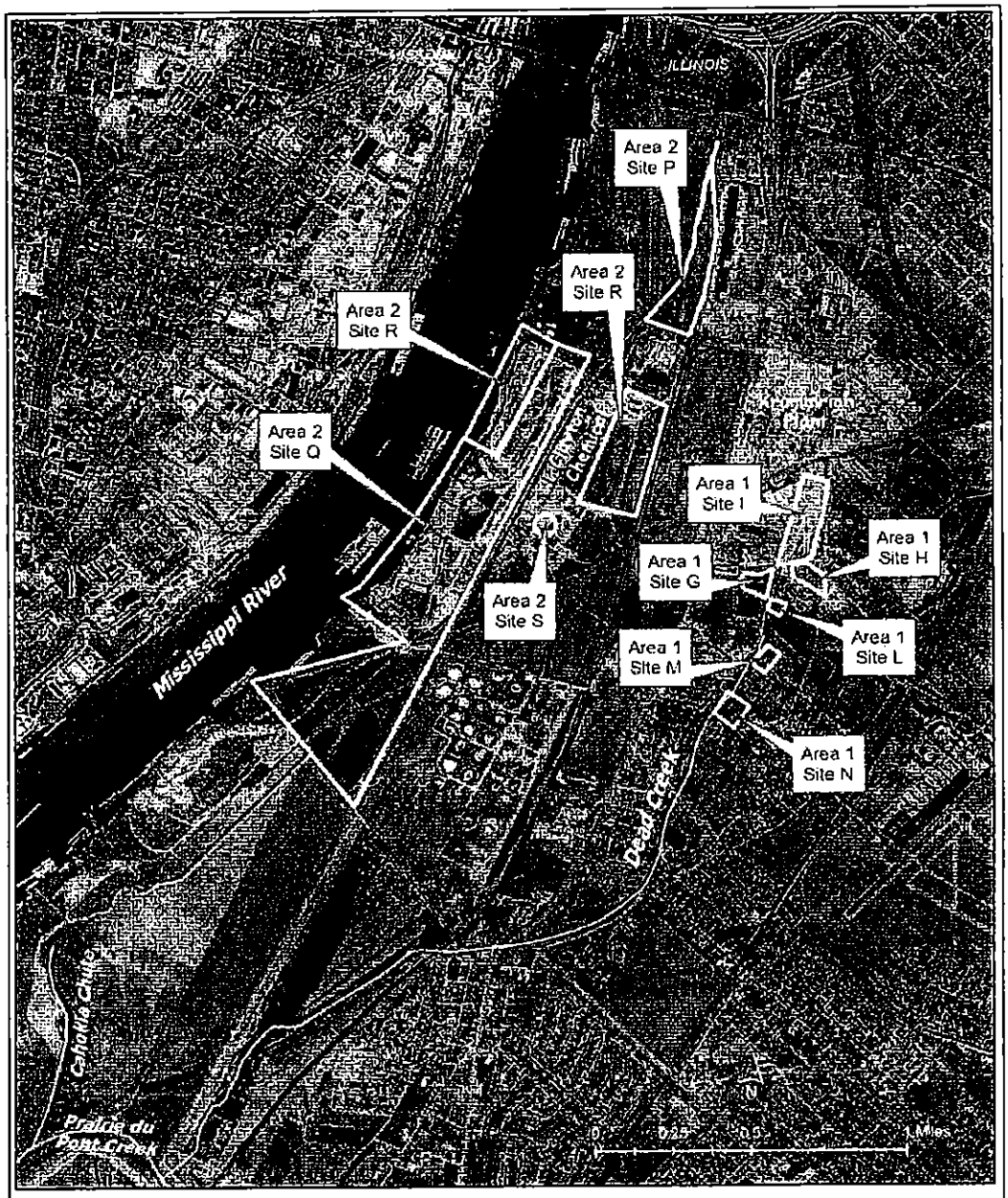

Figure 2. Map of CERCLA hazardous waste sites that are considered as operable units for the Sauget Area Sites, IL.

Map prepared by the Illinois DNR
Imagery; 2005 DOQ
March 2009

Appendix B.

Table B-1. Endangered and Threatened Species occurrences in the 100-year floodplain and Mississippi River adjacent to Madison, St. Clair, Monroe, Randolph, Jackson, Union, and Alexander Counties, Illinois.

Scientific Name	Common Name	County							Mississippi River	100 year Floodplain	IL	Fed
		Md	StC	Mo	Ra	Ja	Un	Al	Occurrences	Occurrences	Status	Status
Fish												
1. Acipenser fulvescens	Lake Sturgeon	X							X		E	
2. Ammocrypta clarum	Western Sand Darter	X			X	X			X		E	
3. Erimystax x-punctatus	Gravel Chub			X					X		T	
4. Fundulus dispar	Starhead Topminnow						X		X		T	
5. Hybognathus hayi	Cypress Minnow							X	X		E	
6. Lepomis miniatus	Redspotted Sunfish						X		X		T	
7. Lepomis symmetricus	Bantam Sunfish						X	X	X		T	
8. Macrhybopsis gelida	Sturgeon Chub					X			X		E	
9. Notropis boops	Bigeye Shiner					X	X	X	X		E	
10. Scaphirhynchus albus	Pallid Sturgeon	X	X[1]	X[1]	X[1]	X[1]	X	X[1]	X		E	E
Amphibians												
11. Gastrophryne carolinensis	Eastern Narrowmouth Toad			X	X	X				X	T	
12. Hyla avivoca	Bird-voiced Treefrog						X			X	T	
13. Pseudacris streckeri	Illinois Chorus Frog			X				X		X	T	
Reptiles												
14. Crotalus horridus	Timber Rattlesnake			X	X	X				X	T	
15. Elaphe emoryi	Great Plains Ratsnake			X						X	E	
16. Nerodia cyclopion	Mississippi Green Watersnake						X			X	T	
17. Pseudemys concinna	River Cooter							X		X	E	
18. Tantilla gracilis	Flathead Snake						X			X	T	
Birds												
19. Egretta caerulea	Little Blue Heron	X	X					X		X	E	
20. Egretta thula	Snowy Egret		X							X	E	
21. Falco peregrinus	Peregrine Falcon	X								X	T	
22. Gallinula chloropus	Common Moorhen	X	X	X			X			X	T	
23. Haliaeetus leucocephalus	Bald Eagle		X	X	X		X	X	X	X	T	
24. Ictinia mississippiensis	Mississippi Kite			X	X		X	X	X	X	E	
25. Ixobrychus exilis	Least Bittern	X					X			X	T	
26. Lanius ludovicianus	Loggerhead Shrike			X		X	X			X	T	
27. Limnothylis swainsonii	Swanson's Warbler							X		X	E	
28. Nycticorax violacea	Yellow-crowned Night Heron		X							X	E	
29. Nycticorax nycticorax	Black-crowned Night Heron	X	X							X	T	
30. Sterna antillarum	Least Tern	X	X	X	X	X	X	X		X	E	E
31. Tyto alba	Barn Owl						X			X	E	
32. Xanthocephalus xanthocephalus	Yellow-headed Blackbird	X								X	E	

Madison (Md), St. Clair (StC), Monroe (Mo), Randolph (Ra), Jackson (Ja), Union (un), and Alexander (Al) Counties, Illinois (05/08; IDNR WIRT database. USFWS 2009 or other sources as cited).

Table B-1 Continued. Endangered and Threatened Species occurrences, in the 100-year floodplain and Mississippi River adjacent to Madison, St.

Table B-1 Continued. Endangered and Threatened Species occurrences, in the 100-year floodplain and Mississippi River adjacent to Madison, St. Clair, Monroe, Randolph, Jackson, Union, and Alexander Counties, Illinois.

Scientific Name	Common Name	County							Mississippi River	100 year Floodplain	IL	Fed
									Occurrences	Occurrences	Status	Status
Mammals		Md	StC	Mo	Ra	Ja	Un	Al				
33 Corynorhinus rafinesqui	Rafinesque's Big-eared Bat							X		X	E	
34 Myotis austroriparius	Southeastern Myotis							X		X	E	
35 Myotis grisescens	Gray Bat			X		X		X		X	E	E
36 Myotis sodalis	Indiana Bat	X	X	X	X	X	X	X		X	E	E
37 Neotoma floridana	Eastern Wood Rat					X	X			X	E	
38 Ochrotomys nuttalli	Golden Mouse						X			X	T	
39. Oryzomys palustris	Rice Rat					X	X	X		X	T	
Invertebrates												
40. Caecidotea lesliei	Isopod		X							X	E	
41 Oronectes lancifer	Shrimp Crayfish							X		X	E	
42 Oronectes placidus	Bigclaw Crayfish					X				X	E	
Plants												
43 Berberis canadensis	Allegheny Barberry					X				X	E	
44 Boltonia decurrens	Decurrent False Aster	X	X							X	T	T
45 Carex decomposita	Cypress-knee Sedge						X			X	E	
46 Carex intumescens	Swollen Sedge							X		X	T	
47 Carex Oxylepis	Sharp-scaled sedge							X		X	T	
48 Carya aquatica	Water Hickory							X		X	T	
49 Clematis occidentalis	Blue Jasmine							X		X	E	
50 Cynosciadium digitatum	Cynosciadium					X				X	E	
51 Dalea foliosa	Leafy prairie clover	X								X	E	E
52 Eryngium prostratum	Eryngo							X		X	E	
53 Glyceria arkansas	Arkansas Mannagrass					X	X	X		X	E	
54 Heteranthera reniformis	Mud Plantian							X		X	E	
55. Hexalectris spicata	Crested Coralfoot Orchid					X				X	E	
56 Hydrocotyle ranunculoides	Water-pennywort						X			X	E	
57. Hydrolea uniflora	One-flowered Hydrolea					X	X			X	T	
58. Isotria medeoloides	Small whorled pogonia				X					X	T	T
59 Lonicera flava	Yellow Honeysuckle					X				X	E	
60. Melothria pendula	Squirting Cucumber					X		X		X	T	
61. Penstemon tubaeflorus	Tube Beard Tongue							X		X	E	
62 Platanthaera leucophaea	Eastern prairie fringed orchid	X	X							X	E	T
63 Quercus phellos	Willow Oak						X	X		X	T	
64 Quercus texana	Nuttall's Oak							X		X	E	
65 Styrax Americana	Storax							X		X	T	
66 Torreyochloa pallida	Grass						X			X	E	
67 Urtica chamaedryoides	Nettle						X	X		X	T	

Madison (Md), St. Clair (StC), Monroe (Mo), Randolph (Ra), Jackson (Ja), Union (un), and Alexander (Al) Counties, Illinois (05/08; IDNR WIRT database, USFWS 2009 or other sources as cited).

Table B-2. Illinois Natural Area Inventory (INAI) Sites and USFWS Lands in the 100-year floodplain and Mississippi River adjacent to Madison, St. Clair, Monroe, Randolph, Jackson, Union, and Alexander Counties, Illinois (05/08; from IDNR WIRT database and other sources).

County	Site Name	Significant Feature	Mississippi River	100-year Floodplain
Madison	Olin Tract Nature Preserve, INAI	Alkaline High Prairie Timber Rattlesnake		X & adjacent
	Oblate Father's Woods Nature Preserve, INAI	Natural Community		X
	Mississippi Sanctuary Nature Preserve INAI	Natural Community	X	X
	Eagle Park Marsh INAI	Common Moorhen Yellow-headed blackbird Least Bittern		X
St. Clair	Alorton Heron Rookery, INAI	Rookery Little Blue Heron Snowy Egret Yellow-crowned night-heron Black-crowned night-heron		X
	Columbia Quarry – Sugar Loaf Prairie, Land and Water Reserve, INAI	Alkaline High Prairie Alkaline Glade Isopod		X & adjacent
Monroe	Fults Hill Prairie – Kidd Lake Marsh State Natural Area, INAI	Common Moorhen Loggerhead Shrike Eastern Narrowmouth Toad Timber Rattlesnake Flathead Snake Great Plains Ratsnake Coachwhip		X
	Middle Mississippi River National Wildlife Refuge – Meissner Island	78 acres	X	
Randolph	Mississippi Muds Landing INAI	Western Sand Darter	X	
	Reilly Lake Area INAI	Mississippi Kite		X
	Turkey Bluffs State Fish and Wildlife Area, Chester South Geological Area INAI	Geologic Feature		X & adjacent
	Middle Mississippi River National Wildlife Refuge – Beaver Island	245 acres	X	
Jefferson County, MO	Middle Mississippi River National Wildlife Refuge – Harlow Island	1,225 acres	X	
Jackson	Lovet's Pond NP, INAI	Pond		X
	Mississippi River, Grand Tower INAI	Bigeye Shiner Sturgeon Chub Bigclaw Crayfish Western Sand Darter Eastern Narrowmouth Toad	X	X
	Middle Mississippi River National Wildlife Refuge –Wilkenson Island	2,532 acres	X	
	Fountain Bluff Geological Area INAI	Geologic Feature		X
	Fountain Bluff North INAI	Forest Block > 500 acres Eastern Wood Rat Crested Coralroot Orchid Timber Rattlesnake Allegheny Barberry Yellow Honeysuckle		X

Table B-2 Continued. Illinois Natural Area Inventory (INAI) Sites and USFWS Lands in the 100-year floodplain and Mississippi River adjacent to Madison, St. Clair, Monroe, Randolph, Jackson, Union, and Alexander Counties, Illinois (05/08; from IDNR WIRT database and other sources).

County	Site Name	Significant Feature	Mississippi River	100 year Floodplain
Union	LaRue-Pine Hills NP, INAI	Terrestrial Cave Community Aquatic Cave Community Spring Community Shrub Swamp Limestone Glade Pond Flathead Snake Redspotted Sunfish Squirting Cucumber		X
Union (continued)	Union County SFWA, INAI	Golden Mouse Rice Rat Indiana Bat Bald Eagle Mississippi Kite Least Bittern		X
	Clear Creek Swamp INAI (& Alexander Co)	Forest Block > 500 acres Rookery Bantam Sunfish Alligator Snapping Turtle Mississippi Kite		X
	Devil's Island INAI (& Alexander Co)	Forest Block > 500 acres Mississippi Kite Bigeye Shiner	X	X
Alexander	Clear Creek Swamp INAI (& Union Co)	Forest Block > 500 acres Rookery Bantam Sunfish Alligator Snapping Turtle Mississippi Kite		X
	Devil's Island INAI (& Union Co)	Forest Block > 500 acres Mississippi Kite Bigeye Shiner Netile	X	X
	Inahgeh Wetlands INAI	Rookery Little Blue Heron		X
	Burnham Island INAI	Mississippi Kite Bald Eagle	X	
	Bumgard Island INAI	Mississippi Kite Least Tern Bald Eagle	X	X
	Horseshoe Lake State Conservation Area, INAI	Swainson's Warbler Nuttall's Oak Bald Eagle Shrimp Crayfish		X
	Horseshoe Lake NP, INAI	Willow Oak Nuttall's Oak Water Pennywort Bald Eagle Swainson's Warbler Mississippi Kite Rice Rat		X

Table B-2 Continued. Illinois Natural Area Inventory (INAI) Sites and USFWS Lands in the 100-year floodplain and Mississippi River adjacent to Madison, St. Clair, Monroe, Randolph, Jackson, Union, and Alexander Counties, Illinois (05/08; from IDNR WIRT database and other sources).

County	Site Name	Significant Feature	Mississippi River	100 year Floodplain
	Horseshoe Forest INAI	Rich Forest Swamp, Gulf Coast Plain Flooded Forest Swainson's Warbler Bald Eagle Nuttall's Oak Rice Rat		X
	Lake Creek INAI	Storax Rice Rat Indiana Bat Swainson's Warbler Bald Eagle River Cooter Bantam Sunfish Shrimp Crayfish		X
Alexander (continued)	Horseshoe Lake South INAI	Swainson's Warbler Bald Eagle Squirting Cucumber Blue Jasmine Swollen Sedge		X
	Unity Area INAI	Blue Jasmine Squirting Cucumber Sharp-scaled Sedge Willow Oak Bald Eagle Swainson's Warbler		X
	Brown's Bar INAI	Least Tern	X	X

Appendix C. Hazardous Substances

Sauget Area 1 Site, Sauget and Cahokia, Illinois, Site by Site Selected Media Contamination Levels

Site G Contamination	Site H Contamination	Site I Contamination	Site L Contamination	Site M Contamination
VOCs	**VOCs**	**VOCs**	**VOCs**	**VOCs**
Benzene (Soil- 45,349 ppb) (GW- 4,100 ppb)	Benzene (Soil- 61,290 ppb) (GW-4,300 ppb)	1,1,1-trichloroethane (Soil-1,692 ppb)	Chloroform (Soil- 20,253 ppb) (GW-730 ppb)	2-butanone (Soil- 14,000 ppb)
Tetrachloroethene (Soil-58,571 ppb) (GW-420ppb)	Tetrachloroethene (5,645 ppb)	Trichloroethene (Soil- 3,810 ppb) (GW- 279 ppb)	Benzene (Soil- 4,177 ppb) (GW- 150 ppb)	Chlorobenzene (Soil- 10 ppb) (GW-33 ppb)
Chlorobenzene (Soil-538,462 ppb)	Toluene (Soil- 76,450 ppb) (GW- 7,300 ppb)	Benzene (Soil- 24,130 ppb) (GW-1,400 ppb)	Toluene (Soil- 26,582 ppb)	Ethylbenzene (Soil- 0.82 ppb)
Total xylenes (Soil-41,538 ppb)	Chlorobenzene (451,613 ppb)	Tetrachloroethene (Soil-5,265 ppb) (GW- 470 ppb)	**SVOCs**	Chloroform (GW- 27 ppb)
Toluene (GW- 7,300 ppb)	Ethyl-benzene (12,788 ppb)	Toluene (Soil- 77,910 ppb) (GW- 740 ppb)	2-chlorophenol (Soil- 2,152 ppb) (GW- 130 ppb)	Toluene (GW- 19 ppb)
Ethyl benzene (GW- 840ppb)	Total xylenes (23,630 ppb)	Chlorobenzene (Soil- 126,900 ppb) (GW- 3,100 ppb)	Pentachlorophenol (Soil-58,228 ppb)	**SVOCs**
Trans-1,2 dichloroethene (GW-200ppb)	Chloroform (GW- 3,000 ppb)	Ethyl benzene (Soil- 15,070 ppb)	Di-n-butyl phthalate (Soil- 2,784 ppb)	1,4-dichlorobenzene (Soil- 40 ppm)
1,2-dichloroethane (GW- 480ppb)	**SVOCs**	Vinyl chloride (GW- 790ppb)	Phenol (GW- 150 ppb)	1,2-dichlorobenzene (Soil- 26 ppm)
Trichloroethene (GW- 800ppb)	1,4-dichlorobenzene (Soil-30,645,161 ppb)	Total xylenes (Soil- 19,180 ppb)	4-methyl phenol (GW- 75 ppb)	1,2,4-trichlorobenzene (Soil- 14 ppm)
Chloroform (Soil-11,628 ppb)	1,2-dichlorobenzene (Soil-19,354,839 ppb)	**SVOCs**	2-nitrophenol (GW- 41 ppb)	Pyrene (Soil- 27 ppm)
SVOCs	1,2,4-trichlorobenzene (Soil-7,580,645 ppb)	1,3-dichlorobenzene (Soil- 70,140 ppb)	4-chloroaniline (GW- 60 ppb)	Fluoranthene (Soil- 21 ppm)
Phenol (Soil-177,800 ppb)	4-nitroaniline (Soil-1,834,000 ppb)	1,4-dichlorobenzene (Soil- 1,837,000 ppb)	2-chlorophenol (130ppb)	Chrysene (Soil- 12 ppm)
2,4,6-trichlorophenol (Soil-49,530 ppb) (GW-350 ppb)	Phenanthrene (Soil-2,114,000 ppb)	1,2-dichlorobenzene (Soil- 324,000 ppb)	**PCBs and Pesticides**	Benzo(b)fluoranthene (Soil- 15 ppm)
Pentachlorophenol (Soil-4,769,231ppb)	Fluoranthene (Soil-1,330,000 ppb)	Naphthalene (Soil- 514,500 ppb)	Total PCBs (Soil- 500 ppm)	Phenol (GW 28 ppb)
1,2,4- trichlorobenzene (GW-1,900ppb)	Phenol (GW-950 ppb)	Hexachlorobenzene (Soil- 1,270,000 ppb)		2-chlorophenol (GW-14 ppb)
4-chloroaniline (GW- 15.00 ppb)	Pentachlorophenol (GW-650 ppb)	Phenol (GW- 1,800 ppb)	**Metals**	2,4-dimethyl phenol (GW- 13 ppb)
Naphthalene (Soil-5,428,571 ppb) (GW-21,000 ppb)	**PCBs and Pesticides**	Bis(2-chloroethoxy) methane (GW- 2,900 ppb)	Antimony (Soil- 32 ppm)	2,4-dichlorophenol (GW- 150 ppb)
PCBs and Pesticides	Arochlor 1260 (Soil-18,000,000 ppb) (GW-52 ppb)	1,2,4-trichlorobenzene (GW- 2,700 ppb)	Arsenic (Soil- 172 ppm) (GW- 14,000 ppb)	Pentachlorophenol (GW- 120 ppb)
Arochlor 1248 (Soil-174,419 ppb)	4,4-DDE (780 ppb)	4-chloroaniline (GW- 9,600 ppb)	Nickel (Soil- 2,392 ppm)	**PCBs and Pesticides**
Arochlor 1260 (Soil-5,300,000 ppb) (GW- 890 ppb)	4,4-DDD (431 ppb)	Pentachlorophenol (GW- 2,400 ppb)	Cadmium (32 ppb)	Total PBCs (Soil- 1,100 ppm) (GW-0.0044 ppb)
4,4-DDE (Soil-135,385 ppb)	4,4-DDT (923 ppb)	**PCBs and Pesticides**	Zinc (2,210 ppb)	Dieldrin (GW- 0.18 ppb)
Dioxins and Furans	**Metals**	Arochlor 1260 (Soil- 342,900 ppb)		Endosulfan II (GW- 0.06 ppb)
Dioxin (Soil-44,974 ppb)	Arsenic (Soil-388 ppm) (GW-8,490ppm)	4,4-DDD (Soil- 29,694 ppb)		4,4-DDT (GW- 0.24 ppb)
Metals	Cadmium (Soil-294 ppm)	4,4-DDT (Soil- 4,305 ppb)		2,4-D (GW- 47 ppb)
Arsenic (Soil-123 ppm) (GW- 170 ppb)	Copper (Soil-2,444 ppm) (GW- 2,410 ppm)	**Metals**		2,4,5-TP (Silvex) (GW- 3.4 ppb)
Barium (Soil- 45,949 ppm)	Lead (Soil- 4,500 ppm)	Beryllium (Soil- 1,530 ppm)		**Metals**
Copper (Soil- 2,215 ppm)	Manganese (Soil- 36,543 ppm)	Copper (Soil- 630 ppm)		Antimony (Soil- 41.2 ppm)
Lead (Soil- 3,123 ppm)	Mercury (Soil- 3.9 ppm)	Lead (Soil- 23,333 ppm)		Barium (Soil- 9,060 ppm)
Mercury (Soil-34.3 ppm) (GW-2.1 ppb)	Nickel (Soil- 15,097 ppm)(GW-17,200 ppm)	Zinc (Soil- 6,329 ppm)		Cadmium (Soil- 47.2 ppm)
Nickel (Soil- 399 ppm) (GW- 349 ppb)	Silver (Soil- 44 ppm)	Cyanide (Soil- 3,183 ppm)		Copper (Soil- 21,000 ppm)
Zinc (Soil- 4,257 ppm) (GW-1,910ppb)	Zinc (Soil- 39,516 ppm)			Nickel (Soil- 2,490 ppm)
Cyanide (GW- 350ppb)	Cyanide (GW-480ppm)			Silver (Soil- 26 ppm)
				Zinc (Soil- 31,600 ppm)
				Lead (Soil- 1,910 ppm)
				Arsenic (Soil- 94 ppm)
				Cyanide (Soil- 1.3 ppm)

Sauget Area I Site, Sauget and Cahokia, Illinois, Site by Site Selected Media Contamination Levels

Site N Contamination	Site CS-A Contamination	Site CS-B Contamination	Site CS-C Contamination	Site CS-D Contamination
SVOCs	**VOCs**	**VOCs**	**VOCs and SVOCs**	**VOCs and SVOCs**
Phenanthrene (Soil- 434 ppb)	1,2-dichloroethene (15,000 ppb)	Benzene (Sediment- 87 ppb)	Fluoranthene (Sediment- 4,600 ppb)	4-methyl-2-pentanone (Sediment-1,200 ppb)
Fluoranthene (Soil- 684 ppb)	Trichlomethene (Soil &Sediment- 100,000 ppb)	Toluene (Sediment- 810 ppb) (SW- 20 ppb)	Pyrene (Sediment- 4,500 ppb)	Benzo(b)fluoranthene (Sediment-500 ppb)
Pyrene (Soil- 553 ppb)	Tetrachloroethene (Soil &Sediment- 11,000 ppb)	Chlorobenzene (Sediment- 5,200 ppb) (SW- 33 ppb)	Benzo(a)anthracene (Sediment- 3,300 ppb)	Indeno(1,2,3-cd)pyrene (Sediment-310 ppb)
	Chlorobenzene (Soil &Sediment- 31,000 ppb)	Ethyl benzene (Sediment- 3,600 ppb)	Chrysene (Sediment- 4,400 ppb)	Dibenzo(a,h)anthracene (Sediment-360ppb)
Metals	Ethyl benzene (Soil &Sediment- 80,000 ppb)	Trichlorobenzene (Sediment- 3,700 ppm)	Benzo(b)fluoranthrene (Sediment- 7,500 ppb)	**PCBs**
Mercury (Soil- 9 ppm)	Xylene (Soil &Sediment- 500,000 ppb)	Dichlorobenzene (Sediment- 12,000 ppm)	Benzo(a)pyrene (Sediment- 4,500 ppb)	Total PCBs (Sediment- 12,000 ppb)
	SVOCs	Chloronitrobenzene (Sediment- 240 ppm)	Indeno(1,2,3-cd)pyrene (Sediment- 4,300ppb)	**Metals**
	1,3-dichlorobenzene (Soil &Sediment- 17,000 ppb)	Xylene (Sediment- 540 ppm)	Benzo(g,h,i)perylene (Sediment- 1,500 ppb)	Cadmium (Sediment- 42 ppm)
	4-chloroaniline (Soil &Sediment- 17,000 ppb)	Chloroform (SW- 27 ppb)	Dibenzo(a,h)anthracene (Sediment- 4,000ppb)	Copper (Sediment- 1,630 ppm)
	Acetophenone (Soil &Sediment- 24,000 ppb)	1,1-dichloroethene (SW- 3 ppb)	4-methyl-2-pentanone (Sediment- 1,200 ppb)	Lead (Sediment- 480 ppm)
	1,2,4,5-tetrachlorobenzene (Soil &Sediment- 28,000 ppb)	**SVOCs**	**PCBs**	Mercury (Sediment- 1 ppm)
	Pentachlorobenzene (Soil &Sediment- 37,000 ppb)	1,4-dichlorobenzene (Sediment- 220,000 ppb)	Total PCBs (Sediment- 27,500 ppb)	Zinc (Sediment- 6,590 ppm)
	Phenanthrene (Soil &Sediment- 14,000 ppb)	1,2-dichlorobenzene (Sediment- 17,000 ppb)	**Metals**	Cadmium (SW- 8.1 ppb)
	Pyrene (Soil &Sediment- 10,000 ppb)	Phenanthrene (Sediment- 15,000 ppb)	Copper (Sediment- 17,200 ppm)	Lead (SW- 89 ppb)
	PCBs	Fluoranthene (Sediment- 11,000 ppb)	Lead (Sediment- 1,300 ppm)	Nickel (SW- 189 ppb)
	Total PCBs (Soil &Sediment- 3,145,000 ppb)	Pyrene (Sediment- 13,000 ppb)	Nickel (Sediment- 2,300 ppm)	
	Metals	Phenol (SW- 28 ppb)	Zinc (Sediment- 21,000 ppm)	
	Arsenic (Soil &Sediment- 194 ppm)	2-chlorophenol (SW- 14 ppb)	Mercury (Sediment- 2.81 ppm)	
	Cadmium (Soil &Sediment- 532 ppm)	4-methyl phenol (SW- 35 ppb)	Lead (SW- 710 ppb)	
	Copper (Soil &Sediment- 91,800 ppm)	2,4-dichlorophenol (SW- 150 ppb)	Mercury (SW- 1.9 ppb)	
	Mercury (Soil &Sediment- 124 ppm)	Naphthalene (SW- 8 ppb)	Nickel (SW- 83 ppb)	
	Nickel (Soil &Sediment- 6,940 ppm)	3-nitroaniline (SW- 9 ppb)		
	Lead (Soil &Sediment- 32,400 ppm)	Pentachlorophenol (SW- 120 ppb)		
	Antimony (Soil &Sediment- 356 ppm)	**PCBs**		
	Selenium (Soil &Sediment- 41.6 ppm)	Total PCBs (Sediment- 10,000 ppm)		
	Zinc (Soil &Sediment- 26,800 ppm)	Arochlor 1260 (SW- 44 ppb)		
		Dieldrin (SW- 0.18 ppb)		
		4,4-DDT (SW- 0.24 ppb)		
		2,4-D (SW- 47 ppb)		
		Silvex (SW- 3.4 ppb)		
		Metals		
		Arsenic (Sediment- 6,000 ppm) (SW- 31 ppb)		
		Cadmium (Sediment- 400 ppm) (SW 25 ppb)		
		Copper (Sediment- 44,800 ppm) (SW 17,900 ppb)		
		Lead (Sediment- 24,000 ppm) (SW 1,300 ppb)		
		Mercury (Sediment- 30 ppm) (SW 8 6ppb)		
		Nickel (Sediment- 3,500 ppm) (SW 1,500 ppb)		
		Silver (Sediment- 100 ppm)		
		Zinc (Sediment- 71,000 ppm) (SW 10,300 ppb)		
		Aluminum (SW- 9,080 ppb)		
		Barium (SW- 7,130 ppb)		

Sauget Area 1 and Area 2 Site, Sauget and Cahokia, Illinois, Site by Site Selected Media Contamination Levels

Site CS-E Contamination	Site CS-F Contamination	Site O Contamination	Site P Contamination
VOCs and SVOCs	**VOCs and SVOCs**	**VOCs**	**VOCs**
Chlorobenzene (Sediment- 120 ppb)	Toluene (Sediment- 29 ppb)	1,1,1-trichloroethane (Soil- 1,410 ppb)	Toluene (Soil- 413 ppb)
Pyrene (Sediment- 5,300 ppb)	4-methyl phenol (Sediment- 1,100 ppb)	Benzene (Soil- 30,769 ppb) (GW- 190,000 ppb)	Total xylenes (Soil- 450 ppb)
Benzo(b)fluoranthene (Soil- 2,400 ppb)	Fluoranthene (Sediment- 310 ppb)	4-methyl-2-pentanone (Soil- 7,692 ppb) (GW- 38,000 ppb)	**SVOCs**
Chrysene (Sediment- 2,800 ppb)	Pyrene (Sediment- 340 ppb)	Toluene (Soil- 29,487 ppb) (GW- 15,000 ppb)	Phenol (Soil- 3,875 J ppb)
PCBs	**PCBs and Pesticides**	Chlorobenzene (Soil- 58,974 ppb) (GW- 180,000 E ppb)	1,4-dichlorobenzene (Soil- 8,875 J ppb)
Total, PCBs (Sediment- 59,926 ppb)	Total PCBs (Sediment- 5,348 ppb)	Ethylbenzene (Soil- 166,667 E ppb)	1,2-dichlorobenzene (Soil- 3,625 J ppb)
Metals	4,4-DDE (Sediment- 97 ppb)	Total xylenes (Soil- 615,385 E ppb)	di-n-butyl phthalate (Soil- 16,250 J ppb)
Cadmium (Sediment- 23.1 ppm)	Endrin (Sediment- 66 ppb)	Methylene chloride (GW- 52,000 ppb)	**Metals**
Copper (Sediment- 8,540 ppm)	Endosulfan II (Sediment- 203 ppb)	Trans-1,2-dichloroethene (GW- 14,000 ppb)	Lead (Soil- 526 ppm)
Lead (Sediment- 1,270 ppm)	Methoxychlor (Sediment- 8 ppb)	2-butanone (GW- 62,000 ppb)	Mercury (Soil- 3.9 ppm)
Mercury (Sediment- 1.53 ppm)	**Dioxins and Furans**	Trichloroethene (GW- 83,000 ppb)	Cyanide (Soil- 15 ppm)
Nickel (Sediment- 2,130 ppm)	Total Dioxins (Sediment- 211 ppt)	Tetrachloroethene (GW- 10,000 ppb)	
Zinc (Sediment- 9,970 ppm)	**Metals**	1,1,2,2-tetrachloroethane (GW- 12,000 ppb)	
	Arsenic (Sediment- 276 ppm)	**SVOCs**	
	Lead (Sediment- 199 ppm)	1,4-dichlorobenzene (Soil- 112,821 ppb)(GW- 15,000 E ppb)	
	Mercury (Sediment- 0.55 ppm)	1,2-dichlorobenzene (Soil- 606,000 ppb) (GW- 11,000 E ppb)	
	Cadmium (Sediment- 23.5 ppm)	1,2,4-trichlorophenol (Soil- 26,923 ppb)	
	Copper (Sediment- 520 ppm)	Naphthalene (Soil- 34,615 ppb)	
	Nickel (Sediment- 772 ppm)	2-methylnapthalene (Soil- 160,256 ppn)	
	Zinc (Sediment- 4,520 ppm)	n-nitrosodiphenylamine (Soil- 50,000 J ppb)	
		pentachlorophenol (Soil- 1,620,000 ppb)	
		phenanthrene (Soil- 230,000 ppb)	
		fluoranthene (Soil- 74,000 ppb)	
		pyrene (Soil- 282,051 ppb)	
		butyl benzyl phthalate (Soil- 3,846,154 E ppb)	
		benzo(a)anthracene (Soil- 121,795 ppb)	
		1,2,4-trichlorobenzene (Soil- 65,300 ppb)	
		Chrysene (Soil- 282,051 ppb)	
		Acenaphthene (-)	
		Phenol (GW- 1,100 ppb)	
		4-methylphenol (GW- 1,100 ppb)	
		4-chloroaniline (GW- 780 ppb)	
		PCBs and Pesticides	
		Aroclor-1232 (Soil- 30,366 ppb)	
		Aroclor-1242 (Soil- 1,871,795 ppb)	
		Dioxins and Furans	
		Tetrachlorodibenzo-p-dioxin (Soil- 170 ng/g)	
		Metals	
		Cadmium (Soil- 31 ppm) (GW- 11ppb)	
		Copper (Soil- 341 ppb)	
		Mercury (Soil- 6.3 ppm)	
		Nickel (Soil- 136 ppm)	
		Zinc (Soil- 1,398 ppm)	
		Arsenic (GW- 133 ppb)	
		Lead (GW- 6,350 ppb)	

Sauget Area 1 Site, Sauget and Cahokia, Illinois, Site by Site Selected Media Contamination Levels

Site Q (Dog Leg) Contamination	Site R VOC Contamination	Site R SVOC Soil Contamination	Site R PCB & Pesticide Soil Contamination	Site R Metal Soil Contamination
VOCs	Methylene chloride (Soil- 27,000 J ppb)			Arsenic (147 ppm)
1,4-dichlorobenzene (Soil-1,200,000 ppb)	Acetone (Soil- 500,000 ppb)	Phenol (5,800,000 D ppb)	Beta-BHC (7,600 JN ppb)	Barium (331 ppm)
Bis(2-ethylhexyl)phthalate (Soil-1,100,000 ppb)	1,1-dichloroethene (Soil- 290 J ppb)	Phenol (GW-33,000 ppb)	Delta-BHC (330 J ppb)	Beryllium (3.1 ppm)
Di-n-butyl phthalate (Soil- 900,000 ppb)	1,2-dichloroethene (Soil- 59,000 J ppb)	Bis(2-chloroethyl)ether (31 J ppb)	Heptachlor epoxide (600 DJ ppb)	Cadmium (7 ppm)
Chlorobenzene (Soil-100,000 ppb) (GW- 6,700 J ppb)	Chloroform (Soil- 38,000 J ppb)	2-chlorophenol (6,900,000 D ppb)	Endosulfan I (3,000 JN ppb)	Calcium (31,100 ppm)
Ethylbenzene (Soil-790,000 ppb)	1,2-dichloroethane (Soil- 220,000 ppb)	1,3-dichlorobenzene (8,000 J ppb)	4,4'-DDE (22,000 J ppb)	Chromium (41 ppm)
Toluene (Soil- 2,400,000 ppb) (GW-1,600 J ppb)	2-butanone (Soil- 10,000 J ppb)	1,4-dichlorobenzene (800,000 ppb)	Endrin (4,600 J ppb)	Cobalt (83.2 ppm)
4-methyl-2-pentanone (Soil- 250,000ppb) (GW- 2,700 J ppb)	1,1,1-trichloroethane (Soil- 190 J ppb)	1,2-dichlorobenzene (2,100,000 ppb)	Endosulfan II (45,000 DJ ppb)	Copper (320 ppm)
O-xylene (Soil- 2,300,000 ppb)	Bromodichloroethane (Soil- 350 J ppb)	2-Methylphenol (o-cresol) (54,000 J ppb)	4,4'-DDD (720 ppb)	Lead (64.7 ppm)
1,2-dichloroethane (GW- 3,000 ppb)	Trichloroethene (Soil- 750,000 ppb)	4-methylphenol (p-cresol) (640,000 ppb)	4,4'-DDT (52,000 ppb)	Magnesium (7,050 ppm)
Benzene (GW- 2,000 J ppb)	Dibromochlorethane (Soil- 300 J ppb)	Nitrobenzene (650,000 ppb)	Endrin ketone (99,000 JN ppb)	Mercury (43 ppm)
2-hexanone (GW- 3,500 J ppb)	Benzene (Soil- 210,000 ppb)(GW-9980ppb)	2,4-dimethylphenol (150,000 J ppb)	Endrin aldehyde (29,000 DJ ppb)	Nickel (69.3 ppm)
SVOCs	4-methyl-2-pentanone (Soil- 2,800,000 ppb)	2,4-dichlorophenol (16,000,000 D ppb)	Alpha-Chlordane (1,700 DJ ppb)	Potassium (2,530 ppm)
Phenol (GW- 190,000 E ppb)	Tetrachlorethene (Soil- 90,000 ppb)	1,2,4-trichlorobenzene (1,800,000 ppb)	Gamma-chlordane (3,500 J ppb)	Selenium (4.2 J ppm)
2-chlorophenol (GW- 33,000 E ppb)	Toluene (Soil- 3,800,000 ppb)(GW-1400ppb)	Naphthalene (800,000 ppb)	Aroclor-1248 (4,800,000 J ppb)	Sodium (16,600 ppm)
4-methylphenol (GW- 23,000 E ppb)	Chlorobenzene (Soil-2,400,000 D ppb) (GW- 60,200ppb)	4-chloroaniline (Soil- 2,000,000 J ppb)	Aroclor-1254 (1,100,000 J ppb)	Vanadium (645 ppm)
2,4-dimethylphenol (GW- 2,800 ppb)	Ethylbenzene (Soil- 970,000 ppb)	4-chloroaniline (GW-56,900 ppb)	Aroclor-1260 (100,000 ppb)	Zinc (2,620 ppm)
2,4-dichlorophenol (GW- 14,000 E ppb)	Xylenes (Soil- 4,100,000 ppb)	2-methylnapthalene (20 J ppb)		Cyanide (0.33 ppm)
4-chloroaniline (GW- 15,000 E ppb)	1,2-dichlorbenzene (GW-1,570 ppb)	2,4,6-trichlorophenol (3,900,000 D ppb)		
2,4,6-trichlorophenol (GW- 6,000 ppb)		2,4,5-trichlorophenol (1,600,000 ppb)		
2-nitroaniline (GW- 2,000 ppb)		2-nitroaniline (1,000,000 J ppb)		
Acenaphthylene (GW- 3,900 ppb)		4-nitroaniline (8,300,000 D ppb)		
Pentachlorophenol (GW- 35,000 E ppb)		Dimethylphthalate (14,000 J ppb)		
PCBs and Pesticides		Diethylphthalate (350 J ppb)		
Aroclor-1254 (Soil- 360,000 ppb)		N-nitrosodiphenylamine (10,000 J ppb)		
Aroclor-1248 (Soil- 70,000 ppb)		Pentachlorophenol (790,000 EJ ppb)		
Aroclor-1260 (Soil- 16,000,000 ppb)		Carbazole (0.3 J ppb)		
Dioxins and Furans		Di-n-butylphthalate (20 J ppb)		
2,3,7,8-TCDD (Soil- 3.31 ppb)		Butylbenzylphthalate (39,000 J ppb)		
Metals		Chrysene (360 D ppb)		
Antimony (Soil- 17,900 N ppm)		Bis(2-ethylhexyl)phthalate (960,000 ppb)		
Arsenic (Soil- 216 NS ppb) (GW-100ppb)		Di-n-octylphthalate (8,800 J ppb)		
Cadmium (Soil- 152,000 ppm)		Aniline (Soil- 1,100,000 ppb)		
Chromium (Soil- 3,650 ppm)		Aniline (GW-440,000 ppb)		
Copper (Soil- 1,630 ppm)		2-chloroaniline (Soil- 4,900,000 ppb)		
Lead (Soil- 195,000 ppm)		2-chloroaniline (GW-195,000 ppb)		
Mercury (Soil- 4.9 ppm)		3-chloroaniline (Soil- 190,000 J ppb)		
Nickel Soil- (371 N ppm)		3-chloroaniline (GW-52,400 ppb)		
Selenium (Soil- 59.9 ppm)		4-chlorophenol (GW-300 ppb)		
Silver (Soil- 30.2 N ppm)				
Thallium (Soil- 0.89 B ppm)				
Zinc (Soil- 9,520 ppm)				
Cyanide (GW-1560ppb)				

Sauget Area 1 Site and Krummrich Plant, Sauget Illinois, Site by Site Selected Media Contamination Levels

Sauget Area 2 Site S Soil Contamination	W.G. Krummrich Facility VOC Contamination	W.G. Krummrich Facility SVOC Contamination	W.G. Krummrich Facility PCB's & Pesticides Contamination
VOCs	Vinyl chloride (Soil- 10 J ppb) (GW-350ppb)	SVOCs	Alpha-BHC (Soil- 26 P ppb)(GW-0.16 ppb)
1,1,1-trichloroethane (12,000 ppb)	Acetone (Soil- 61 J ppb)(GW-22000ppb)	p-isopropyltoluene (Soil- 400 EJ ppb)	Beta-BHC (Soil- 1,400 DP ppb)(GW- 0.6 PE ppb)
4-methyl-2-pentanone (93,000 ppb)	Methylene chloride (Soil- 4 J ppb)(GW-680ppb)	n-butylbenzene (Soil- 190 EJ ppb)	Delta-BHC (Soil- 120 P ppb)
Toluene (990,000 ppb)	Carbon disulfide (Soil- 23 ppb)	Hexachlorobutadiene (Soil- 10 J ppb)	Gamma-BHC (Lindane) (Soil- 46 P ppb)(GW- 0.12 P ppb)
Ethylbenzene (450,000 ppb)	1,1-dichloroethene (Soil- 10 ppb)	1,2,3-trichlorobenzene (Soil- 17,000 D ppb)	Heptachlor (Soil- 59 P ppb)(GW- 3.1 P ppb)
Total xylenes (620,000 ppb)	2-butanone (Soil- 390 J ppb)	Phenol (Soil- 7,200 ppb)(GW-1,100,000ppb)	Aldrin (Soil- 230 P ppb)
SVOCs	Cis-1,2-dichloroethene (Soil- 27 ppb)	1,3-dichlorobenzene (Soil- 16,000 D ppb)(GW-150D) ppb)	Heptachlor epoxide (Soil- 150 P ppb)
Naphthalene (200,000 ppb)	Chloroform (Soil- 5 J ppb)	1,4-dichlorobenzene (Soil- 290,000 D ppb)(GW-1600 D ppb)	Endosulfan I (Soil- 270 P ppb)
di-n-butyl phthalate (1,500,000 J ppb)	Benzene (Soil- 2,000,000 D ppb)(GW-1,600,000ppb)	1,2-dichlorobenzene (Soil- 850,000 D ppb)(GW- n/a)	Dieldrin (Soil- 600 P ppb) (GW- 0.95 P ppb)
din-n-octyl phthalate (310,000 ppb)	Trichloroethene (Soil- 7 ppb)	Nitrobenzene (Soil- 280 J ppb)(GW-14,000ppb)	4,4'-DDE (Soil- 430 P ppb) (GW-1.2 DP ppb)
butyl benzyl phthalate (490,000 J ppb)	4-methyl-2-pentanone (Soil- 33 J ppb)(3100ppb)	2,4-dichlorophenol (Soil- 1,600 J ppb)(GW-340,000ppb)	Endrin (Soil- 430 P ppb) (GW- 20ppb)
bis(2-ethylhexyl)phthalate (20,000,000 J ppb)	Toluene (Soil- 16,000 D ppb)(GW-71,000ppb)	1,2,4-trichlorobenzene (Soil- 53,000 D ppb)(GW-1400ppb)	Endosulfan II (Soil- 590 P ppb) (GW- 0.69 ppb)
PCBs and Pesticides	Tetrachloroethene (Soil- 22 ppb)	Napthalene (Soil- 1,600 J ppb)(GW-86,000ppb)	4,4'-DDD (Soil- 230 P ppb) (GW-1.1 JP ppb)
Aroclor-1248 (85,000 pc ppb)	Chlorobenzene (Soil- 28,000 D ppb)(GW-350,000ppb)	4-chloroaniline (Soil- 84,000 D ppb)(GW-25,000ppb)	Endosulfan sulfate (Soil- 74 P ppb) (GW- 0.11 P ppb)
Aroclor-1254 (69,000 c ppb)	Ethylbenzene (Soil- 6,700 D ppb)(GW-29,000ppb)	2-methylnapthalene (Soil- 600 J ppb)	4,4'-DDT (Soil- 5,500 E ppb)(GW- 0.48ppb)
Aroclor-1260 (41,000 pc ppb)	Xylene (Soil- 2,800 D ppb)(GW-150,000ppb)	2,4,6-trichlorophenol (Soil- 15,000 D ppb)(GW- 2,700ppb)	Methoxychlor (Soil- 410 P ppb)(GW- 52ppb)
Metals	Isopropylbenzene (Soil- 1,800 EJ ppb)	2,4,5-trichlorophenol (Soil- 740 J ppb)	Endrin ketone (Soil- 74 P ppb)(GW-15 P ppb)
Copper (139 ppm)	Bromobenzene (Soil- 47 ppb)	Acenapthene (Soil- 120 J ppb)	Endrin aldehyde (Soil- 410 P ppb) (GW- 0.34 P ppb)
Lead (392 ppb)	n-propylbenzene (Soil- 2,700 D ppb)	Dibenzofuran (Soil- 3,500 J ppb)	Alpha-chlordane (Soil- 190 P ppb) (GW- 1.5 JP ppb)
Mercury (3.5 ppm)	2-chlorotoluene (Soil- 30,000 D ppb)	Flourene (Soil- 470 J ppb)	Gamma-chlordane (Soil- 350 D ppb) (GW- 0.098 ppb)
Zinc (327 ppm)	4-chlorotoluene (Soil- 13,000 D ppb)	Hexachlorobenzene (Soil- 690 J ppb)	Aroclor-1254 (Soil- 22,000 P ppb)
	Tert-butylbenzene (Soil- 64,000 D ppb)	Pentachlorophenol (Soil- 46,000 D ppb)(GW-18,000ppb)	Aroclor-1260 (Soil- 22,000 P ppb)
	1,2,4-trimethylbenzene (Soil- 1,500 D ppb)	Phenanthrene (Soil- 1,600 J ppb)	
	Sec-butylbenzene (Soil- 2,700 D ppb)	Anthracene (Soil- 450 J ppb)	
	1,2-Dichloroethene (GW-420 ppb)	di-n-butylphthalate (Soil- 210 J ppb)	
	1,2-Dichloroethane (GW-14,000 ppb)	Flouranthene (Soil- 1,500 J ppb)	
	1,1,1-Trichloroethane (GW-560 ppb)	Pyrene (Soil- 1,300 J ppb)	
		Benzo(a)anthracene (Soil- 650 J ppb)	
		Chrysene (Soil- 900 J ppb)	
		Benzo(b)flouranthene (Soil- 480 J ppb)	
		Benzo(k)flouranthene (Soil- 360 J ppb)	
		Benzo(a)pyrene (Soil- 430 J ppb)	
		Indeno(1,2,3-cd)pyrine (Soil- 270 J ppb)	
		Dibenz(a,h)anthracene (Soil- 130 J ppb)	
		Benzo(g,h,i)perylene (Soil- 330 J ppb)	
		2-chlorophenol (GW- 540,000 ppb)	
		Aniline (GW- 62,000 ppb)	
		Dichlorobenzenes (GW- 23,000,000 ppb)	
		Methylphenols (GW- 280,000 ppb)	
		2-nitroaniline (GW- 1,100 ppb)	

Krummrich Plant, Sauget Illinois, Site by Site Selected Media Contamination Levels

W.G. Krummrich Facility Metals Contamination	W.G. Krummrich Mississippi River Plume Discharge VOC & SVOC Contamination	W.G. Krummrich Mississippi River Plume Discharge PCB, Pesticide, Dioxin and Furan Contamination
Arsenic (Soil- 12.4 ppm)(GW- 73.1ppb)	**VOCs**	**PCB's and Pesticides**
Barium (Soil- 249 ppm)(GW- 1610ppb)	1,2-dichloroethane (Sediment- 250 ppb)(SW- 0.775ppb)	2,4-D (Sediment- 2,300 ppb)
Cadmium (Soil- 7.5 ppm) (GW- 44.1ppb)	2-butanone (Sediment- 91 ppb)	2-(2,4-dichlomphenoxy) prupionic acid Dichloroprop (Sediment- 1,100 ppb)(SW-1.85ppb)
Calcium (Soil- 74,200 ppm)	4-Methyl-2-pentanone (Sediment- 150 ppb)(SW-2.2ppb)	MCPP[2-(4-chloro-2-methylphenoxy)-propanoic acid] (Sediment- 160,000 ppb)
Chromium (Soil- 36.9 ppm)(GW- 94.6ppb)	Acetone (Sediment- 3,000 ppb)	Pentachlorophenol (Sediment- 45 ppb)
		Pentachlorophenol at pH 7.8 (SW- 0.87 ppb)
Copper (Soil- 305 ppm)(GW- 341ppb)	Benzene (Sediment- 460 ppb)(SW-1.8ppb)	4,4'-DDD (Sediment- 1.6 ppb)
		2,4,5-TP Silvex (SW- 0.14 ppb)
		Dicamba (SW- 0.11 ppb)
Lead (Soil- 567 ppm) (GW- 149ppb)	Carbon disulfide (Sediment- 3.3 ppb)	**Dioxins and Furans**
Magnesium (Soil- 6,770 ppm)(GW- 167,000ppb)	Chlorobenzene (Sediment- 7,200 ppb)(SW- 24ppb)	1,2,3,4,6,7,8,9-OCDD (Sediment- 911 ppq)(SW- 169ppq)
Manganese (Soil- 388 ppm)(GW- 110,000)	Chloroethane (Sediment- 1.9 ppb)	1,2,3,4,6,7,8,9-OCDF (Sediment- 74.0 ppq)(SW-5.2ppq)
Mercury (Soil- 0.96 ppm)(GW- 1.5ppb)	Chloroform (Sediment- 9.7 ppb)	1,2,3,4,6,7,8-HpCDD (Sediment- 70.8 ppq)(SW- 7ppq)
Nickel (Soil- 311 ppm)(GW-264ppb)	Cis-1,2-dichloroethene (Sediment- 5.8 ppb)	1,2,3,4,6,7,8-HpCDF (Sediment- 10.4 ppq)
Potassium (Soil- 3,050 ppm)	Ethylbenzene (Sediment- 82 ppb)(SW- 0.38ppb)	1,2,3,4,7,8,9-HpCDF (Sediment- 0.79 ppq)
Vanadium (Soil- 66.8 ppm)(GW- 173ppb)	M&p-xylene (Sediment- 630 ppb)	1,2,3,4,7,8-HxCDF (Sediment- 0.62 ppq)(SW- 2.2ppq)
Zinc (Soil- 1,260 ppm)(GW- 3190ppb)	Methylene chloride (Dichloromethane) (Sediment- 17 ppb)	1,2,3,6,7,8-HxCDD (Sediment- 1.2 ppq)
Aluminum (GW- 76,700 ppb)	Tetrachloroehtene (Sediment- 24 ppb)	1,2,3,6,7,8-HxCDF (Sediment- 0.38 ppq)
Beryllium (GW- 7 ppb)	Toluene (Sediment- 7,800 ppb)(SW- 1.7ppb)	1,2,3,7,8-PeCDF (Sediment- 0.48 ppq)
Cobalt (GW- 113 ppb)	Trans-1,2-Dichloroethene (Sediment- 0.91 ppb)	2,3,4,6,7,8-HxCDF (Sediment- 0.195 ppq)
Selenium (GW- 9.2 ppb)	Trichloroethene (Sediment- 42 ppb)(SW- 0.3ppb)	2,3,4,7,8-PeCDF (Sediment- 0.18 ppq)
Sodium (GW- 1,570,000 ppb)	Vinyl chloride (Sediment- 4 ppb)	2,3,7,8-TCDF (Sediment- 0.8 ppq)
Cyanide (GW- 23.5 ppb)	Total xylenes (Sediment- 710 ppb)(SW- 2.7ppb)	Dioxin, Total HpCDD (Sediment- 146 ppq)(SW- 12.9ppq)
	SVOCs	Dioxin, Total HpCDF (Sediment- 54.2 ppq)
	1,2-dichlorobenzene (Sediment- 110 ppb)(SW- 13.25ppb)	Dioxin, Total HxCDD (Sediment- 11.7 ppq)
	1,4-dichlorobenzene (Sediment- 81.5 ppb)	Dioxin, Total HxCDF (Sediment- 10.1 ppq)(SW- 2.2ppq)
	2,4,6-trichlorophenol (Sediment- 470 ppb)(SW- 8ppb)	Dioxin, Total PeCDD (Sediment- 0.25 ppq)
	2,4-dichlorophenol (Sediment- 1,000 ppb)(SW- 31ppb)	Dioxin, Total PeCDF (Sediment- 2.7 ppq)
	2,4-dimethylphenol (Sediment- 80 ppb)(SW- 3.7 ppb)	Dioxin, Total TCDD (Sediment- 42.8 ppq)
	2,4-dinitrotoluene (Sediment- 750 ppb)	Dioxin, Total TCDF (Sediment- 1.4 ppq)
	2-chlorophenol (Sediment- 360 ppb)(SW- 20ppb)	
	2-nitroaniline (Sediment- 76 ppb)	
	3-methyl phenol/4-methyl phenol (Sediment- 800 ppb)(SW- 11ppb)	
	4-bromophenylphenyl ether (Sediment- 96.5 ppb)	
	4-chloroaniline (Sediment- 4,800 ppb)(SW-45ppb)	
	Napthalene (Sediment- 190 ppb)(	
	Phenol (Sediment- 5,600 ppb)(SW- 16ppb)	
	1,2,4-trichlorobenzene (SW- 1.525 ppb)	
	bis(2-ethylhexyl)phthalate (SW- 2.2 ppb)	
	Di-n-butyl phthalate (SW- 0.34 ppb)	
	Nitrobenzene (SW- 0.93 ppb)	

Clayton Chemical Site, Sauget Illinois, Site by Site Selected Media Contamination Levels

Clayton Chemical Facility Soil VOC Contamination	Clayton Chemical Facility Soil SVOC Contamination	Clayton Chemical Facility Soil PCB & Pesticide Contamination
Acetone (0.89 ppm)	Anthracene (3.5 ppm)	Aroclor 1242 (2,400 ppm)
Benzene (3.7 ppm)	di-n-butyl phthalate (100 ppm)	Aroclor 1254 (680 ppm)
Benzo(g,h,i)perylene (0.63 ppm)	flouranthene (7 ppm)	Aroclor 1260 (34 ppm)
2-Butanone (0.047 ppm)	Pyrene (37 ppm)	
Chlorobenzene (27,000 ppm)	butyl benzyl phthalate (2.2 ppm)	
Chloroform (4 ppm)	benzo(a)anthracene (7.6 ppm)	
1,2-Dichlorobenzene (60,000 ppm)	Chrysene (13 ppm)	
1,4-Dichlorobenzene (83,000 ppm)	Bis(2-ethylhexyl)phthalate (310 ppm)	
Cis-1,2-Dichlorethene (11 ppm)	Benzo(b)fluoranthene (2.6 ppm)	
Ethylbenzene (18 ppm)	Benzo(k)fluoranthene (1.4 ppm)	
Isopropylbenzene (2.2 ppm)	Benzo(a)pyrene (2.5 ppm)	
Methylene chloride (0.032 ppm)	Indeno(1,2,3-cd)pyrene (0.79 ppm)	
Styrene (0.35 ppm)	Dibenz(a,h)anthracene (0.11 ppm)	
1,1,2,2-Tetrachlorethane (60 ppm)	Acenapthene (0.91 ppm)	
Tetrachloroethene (44,000 ppm)	Dibenzofuran (0.48 ppm)	
Toluene (47 ppm)	Flourene (0.83 ppm)	
1,2,4-Trichlorobenzene (120 ppm)	Phenanthrene (14 ppm)	
1,1,1-Trichlorethane (57 ppm)	Napthalene (32 ppm)	
1,1,2-Trichlorethane (16 ppm)	2-methylnapthalene (3.6 ppm)	
Trichloroethene (110 ppm)	1,1'-biphenyl (1.4 ppm)	
Xylene (65 ppm)	Isophorone (48 ppm)	

Notes:
Reference for Sauget Area I = USEPA. 1999. Sauget Area 1 Site, Sauget and Cahokia, Illinois; Administrative Order by Consent. USEPA Chicago, Illinois .
References for Sauget Area II = USEPA. 2000. Administrative Order by Consent for Sauget Area 2 Site, St. Clair County, Illinois. USEPA Chicago, Illinois; USEPA. 2002. Unilateral Administrative Order for Remedial Design and Interim Remedial Action. USEPA. Chicago, Illinois; and, Data collected by Monsanto pursuant to the Consent Order in People v. Monsanto 82-CH-192, *in* Geraghty and Miller, Inc., February 1993.
References for Krummrich Plant = USEPA. 2002. Unilateral Administrative Order for Remedial Design and Interim Remedial Action; USEPA. 1999. Documentation of Environmental Indicator Determination. RCRA Corrective Action. Environmental Indicator (EI) RCRIS code (CA750, Migration of Contaminated Groundwater Under Control, Solutia, Inc. USEPA Chicago, IL; and, IEPA. 2000. Trip Report for Solutia / W.G. Krummrich Plant, Sauget, Illinois. IEPA, Bureau of Land, Federal Site Remediation Section, Site Assessment Unit. Springfield, IL.
Reference for Clayton Chemical Site = USEPA 2008b. Unilateral Administrative Order for Performance of Work by Non-cooperating Tier 1 Potentially Responsible Parties at RRG/Clayton Chemical Company Superfund Site, 1 Mobil Avenue, Sauget, IL. USEPA. Chicago, Illinois.

Unless otherwise indicated;
J = estimated value
D = concentration determined at a secondary dilution factor.
E = exceeded the instrument calibration range.
N = presumptive evidence of the compound present.
P = indicates a pesticide/aroclor target analyte when there is greater than 25% difference for the detected concentrations between the two columns, the lower of the two results is reported.
GW = Ground Water
SW = Surface Water
No Data = No contamination data listed in the Administrative Order by Consent.

Appendix D. Potentially Responsible Parties

Potentially Responsible Parties

NOTE: Inclusion on or exclusion from this list does not constitute a final determination by the Trustees concerning the liability of any party for natural resource damages or payment of past assessment costs.

A-1 Oil Corporation
Aalco Wrecking & Supply Co.
Abco Trash Service & Equipment Company
Afton Chemical Corporation
Allied Waste Management/BFI Waste Systems of North America, Inc.
Alton & Southern Railroad
American Zinc Company
A. O. Smith Corporation
Barry Weinmiller Companies, Inc.
Barry Weinmiller Steel Fabrication
BASF Corporation
Big River Zinc Corporation
Bi-State Transit Co.
Bi-State Parks Airport
Bi-State Development Agency
Bliss Waste Oil
Russell Bliss
Blue Tee Corp.
Browning-Ferris Industries of St. Louis, Inc.
C&E Hauling
Village of Cahokia
Cahokia Trust Properties
Cargill Inc.
Century Electric
Century Foundry
Cerro Copper Products Company
Chemical Waste Management
Clayton Chemical Corp. (Division of Emerald Environmental LLC)
Con-Agra, Inc.
Corkery Fuel Company
Crown Cork & Seal Co., Inc.
Dennis Chemical Company, Inc.
Disposal Services Co.
Dotson Disposal "All" Service
The Dow Chemical Company
Eagle Marine Industries, Inc. (f/k/a Notre Dame Fleeting and Towing, Inc.)
Edgemont Construction
Edwin Cooper, Inc.
Eight & Trendy Metal Company

Empire Chemical, Inc., Midwest Rubber Reclaiming Division
Ethyl Corporation (f/k/a Edwin Cooper Corporation)
Ethyl Petroleum Additives, Inc.
Evans Brothers
ExxonMobil Oil Corp.
Flint Group Incorporated, f/k/a Flint Inc Corporation
Fru-Con Construction Corporation
Fruen-Colnon Corporation
Genex
The Glidden Company (formerly U.S. Paint)
Gold Fields Corporation
Gulf-Mobil & Ohio Railroad
H.H. Hall Construction Company, Inc.
Hilltop Hauling
Huffmeier Brothers
Illinois Department of Transportation
Inmont Corporation
Keeley Paving and Construction Co.
Kerr-McGee Chemical Corp.
Lead and Smelting Company
Mallinckrodt Inc.
Manor Chemical
Merck & Co, Inc.
Metro Construction Equipment Inc.
Metro East Sanitary District
Monsanto Chemical Co.
Moto, Inc.
National Vendors
Norfolk Southern Corp.
Olin Corporation
Onyx Environmental Services
Patgood, Inc.
Peavey Company
Pharmacia Corporation
Phelps Dodge Corporation (f/k/a or successor to Cyprus Amax Minerals Company and Amax Zinc, Inc.)
Phillips Pipeline Company
Pillsbury Company
The Proctor & Gamble Company
The Proctor & Gamble Manufacturing Company
River Port Terminal and Fleeting Company
Prarie Dupont Levee & Sanitary District
Roger's Cartage Co.
Ruan Transport Corporation
St. Louis Grain Company
Sauget & Co. (formerly Industrial Salvage & Disposal Company)

Sauget Sanitary Development and Research Assn.
Village of Sauget
Estate of Paul Sauget
Service America Corporation
Solutia, Inc.
Southern Railway System
Sterling Steel Foundry Inc. of St. Louis Steel Castings Inc.
Superior Equipment Co., Inc.
Union Carbide Corporation (for AmChem Products, Inc.)
Union Electric Company (d/b/a Ameren UE)
U.S. Paint Corporation
Harold Waggoner
Wiese Planning & Engineering, Inc.
Harold W. Wiese