DOE/EA-0859

ENVIRONMENTAL ASSESSMENT

SEPARATE PROCESS WASTEWATERS, PART A: CONTAMINATED FLOW COLLECTION AND TREATMENT SYSTEM FOR THE KANSAS CITY PLANT

January 1995

U. S. Department of Energy

DISCLAIMER

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ABBREVIATIONS AND ACRONYMS

B97	Building 97
CFR	Code of Federal Regulations
cm	centimeter
COE	U.S. Army Corps of Engineers
CSS	combined sanitary sewer
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
EA	environmental assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
FONSI	Finding of No Significant Impact
FR	Federal Register
ft	foot
ft^2	square foot
ft^3	cubic foot
FWS	U.S. Fish and Wildlife Service
gal	gallon
h	hour
ha	hectare
H_2S	hydrogen sulfide
H_2O_2	hydrogen peroxide
in.	inch
IRS	Internal Revenue Service
IWPF	Industrial Waste Pretreatment Facility
KCMO	Kansas City, Missouri
KCP	Kansas City Plant
kg	kilogram
km	kilometer
L	liter
lb	pound
lbs	pounds
m^2	square meter
m^3	cubic meter
MDC	Missouri Department of Conservation
mg	milligram
min	minute
μg	microgram
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
OCS	organics collection system

OTB	Organics Treatment Building
PCB	polychlorinated biphenyl
PM-10	particulate matter less than or equal to 10 μm in diameter
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
Pub. L.	Public Law
RCRA	Resource Conservation and Recovery Act
s	second
SMSA	Standard Metropolitan Statistical Area
TCE	trichloroethene
T&E	threatened and endangered
TSCA	Toxic Substances Control Act
TTO	total toxic organics
UV/H_2O_2	ultraviolet radiation and oxidation by hydrogen peroxide
$UV/H_2O_2/O_3$	ultraviolet radiation and oxidation by hydrogen peroxide and ozone
UVO	ultraviolet radiation oxidation
USGS	U.S. Geological Survey
VOC	volatile organic compound
WMO	Waste Management Operations

SUMMARY

The U.S. Department of Energy (DOE) has prepared this Environmental Assessment (EA) to assist the agency in complying with the National Environmental Policy Act (NEPA) of 1969 as it applies to modification of ongoing groundwater treatment at DOE's Kansas City Plant (KCP), located about 19 km (12 miles) south of the central business district of Kansas City, Missouri. The KCP is currently owned by DOE and is operated by the Kansas City Division of AlliedSignal Inc. The plant manufactures nonnuclear components for nuclear weapons.

The purpose of and need for the DOE action is to treat identified toxic organic contaminated groundwater at the KCP to ensure that human health and the environment are protected and to comply with groundwater treatment requirements of the U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) 3008(h) Administrative Order on Consent and the discharge requirements of the Kansas City, Missouri, ordinances for the city sewer system.

Four source streams of toxic organic contaminated groundwater have been identified that require treatment prior to discharge to the city sewer system. The toxic organic contaminants of concern consist of volatile organic compounds (VOCs) in the groundwater and polychlorinated biphenyls (PCBs) predominantly associated with some soils near the Main Manufacturing Building. These four source streams are as follows: Source 1—VOC contaminated groundwater pumped from 14 operating wells and an interceptor trench, Source 2—VOC-contaminated groundwater from the recently constructed 001 Outfall collection system, Source 3—drainage from the Main Manufacturing Building footing tile drains consisting mostly of VOC-contaminated groundwater seepage with some associated PCB-contaminated oil, and Source 4—drainage from the West Boiler House footing tile drains consisting mostly of VOC-contaminated groundwater seepage.

The no-action alternative is to continue with the current combination of treatment and nontreatment of the four sources of identified toxic organic contaminated groundwater and to continue operation of the KCP groundwater treatment system in its current configuration at Building 97 (B97). Currently, Sources 1 and 2 and one of the 19 flow sources within Source 3 discharges are treated, while the remainder of Source 3 and 4 discharges are not treated prior to release to the city sewer system.

The DOE proposed action is to collect and treat all identified toxic organic contaminated groundwater prior to discharge to the city sewer system. The proposed action includes constructing an Organics Collection System and Organics Treatment Building, moving and expanding the existing groundwater treatment system, and operating the new groundwater treatment facility.

This EA considers the potential environmental impacts of the no-action and proposed action alternatives. Specifically, the EA assesses the environmental impacts of these alternatives on (1) air quality, (2) groundwater, (3) surface water, (3) ecological resources, (4) human health and safety, (5) socioeconomic resources, and (6) archaeological and historical resources. Waste minimization and pollution prevention are also addressed.

No potential impacts to groundwater, terrestrial ecological resources, endangered and threatened species, floodplains, wetlands, or historical and archaeological resources are anticipated from the no-action and proposed action alternatives. The assessment indicates that impacts on air quality, surface water quality, aquatic biota, and human health from drinking VOC-contaminated water from the Missouri River (to which the city sewer system discharges) are considered negligible under both alternatives. Volatilization of VOCs in the KCP CSS discharge and fugitive dust and fumes during construction are expected to have minimal impact on air quality. Socioeconomic impacts would be minor for both alternatives. Impacts of management of the carbon waste (associated with the groundwater treatment) are anticipated to be minimal under the no-action alternative and further reduced under the proposed action alternative. Because worker health and safety issues involve standard industrial hazards for which procedures are in place to minimize the associated risks, impacts are anticipated to be minimal for both alternatives.

There is little potential for either alternative to contribute to adverse cumulative impacts. Additional treatment of contaminated groundwater would reduce the amounts of VOCs and PCBs that move off the KCP site. Expanding the treatment of contaminated groundwater would not generate additional wastes but would in fact reduce the amount of solid and carbon filter waste requiring disposal at permitted off-site facilities. Treating all toxic organic contaminated groundwater complies with the EPA RCRA 3008(h) Administrative Order on Consent and the city sewer ordinances.

1. INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

The U.S. Department of Energy (DOE) has prepared this Environmental Assessment (EA) to assist the agency in complying with the National Environmental Policy Act (NEPA) of 1969 as it applies to the modification of ongoing groundwater treatment at DOE's Kansas City Plant (KCP). Currently groundwater treatment is being conducted in response to the requirements of the Resource Conservation and Recovery Act (RCRA), Pub. L. 94-580, as amended, and as defined in the Corrective Action RCRA 3008(h) Administrative Order on Consent entered into by DOE and the U.S. Environmental Protection Agency (EPA) on June 23, 1989 (EPA 1989).

The KCP is located approximately 19 km (12 miles) south of the center of Kansas City, Missouri, within the incorporated city limits (Fig. 1). The KCP is part of a larger area known as the Bannister Federal Complex, which covers approximately 120 ha (300 acres) and houses facilities used by other Federal agencies. The DOE facility covers about 55 ha (136 acres), which includes approximately 300,000 m^2 (3.2 million ft^2) of existing building space. The Main Manufacturing Building was constructed in 1942 by the Federal government and used by Pratt-Whitney to manufacture airplane engines during World War II. After the war, the KCP served as both a warehouse and a facility to house government operations.

Westinghouse built jet engines under contract with the U.S. Navy in part of the facility from 1948 to 1961. Bendix Corporation (now AlliedSignal Inc.) began producing electrical and mechanical weapons components for the Atomic Energy Commission in part of the Main Manufacturing Building (Fig. 2) in 1949 and expanded its use of the facilities after Westinghouse left.

DOE currently owns the KCP, which is operated by the Kansas City Division of AlliedSignal Inc. The KCP manufactures nonnuclear components for nuclear weapons. Operations include development of new technologies and materials, support of weapons design phases, and production of nonnuclear stockpile hardware. Activities include machining, plastic fabrication, plating, and electrical and mechanical assembly. The KCP does not handle any special nuclear materials or powerful chemical explosives normally associated with nuclear weapon systems. The recent reduction in the emphasis on nuclear weapon production in the United States has resulted in a decrease in the number of KCP associates from 7000 in 1989 to 4150 in 1993.

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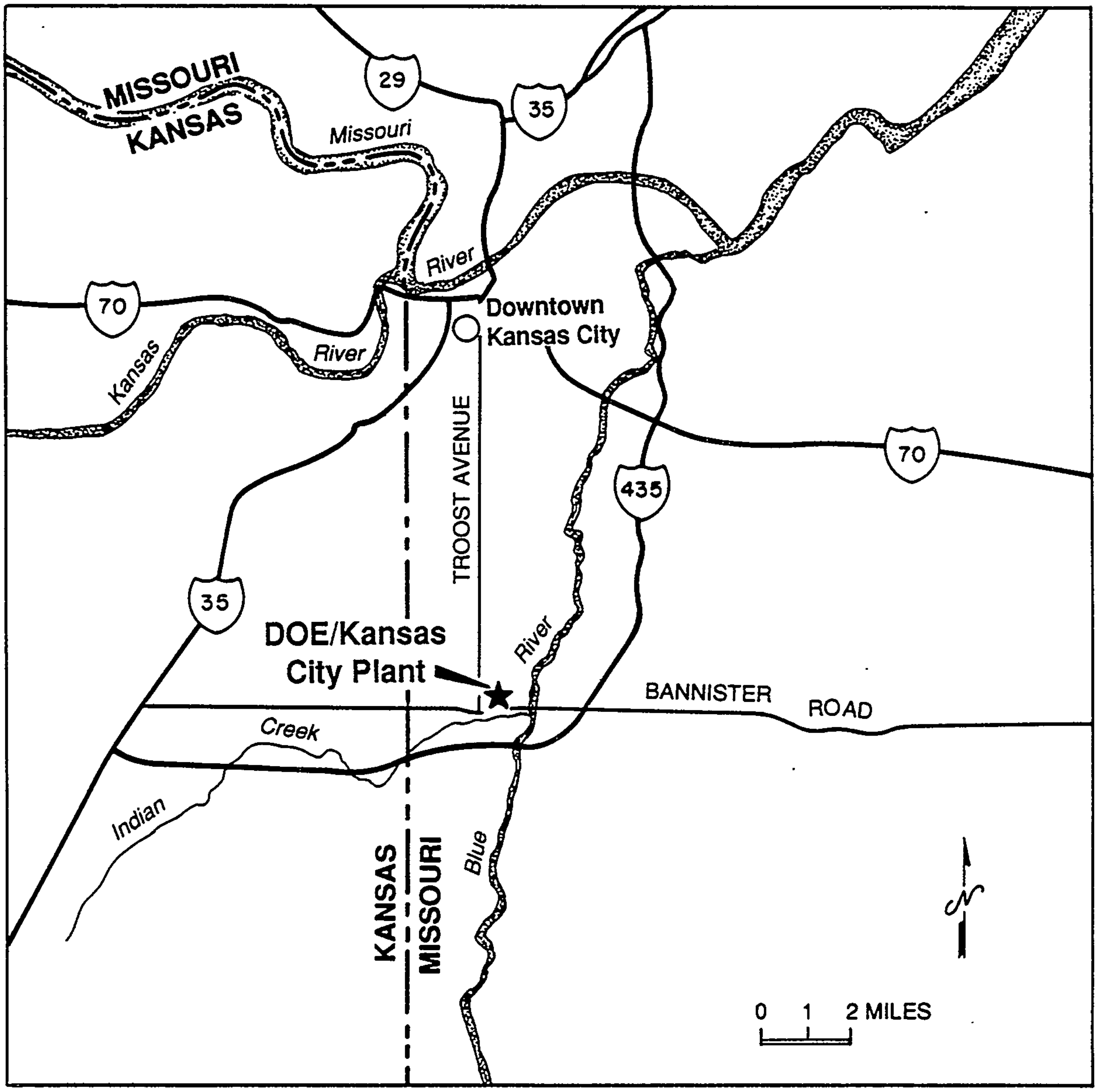

Fig. 1. Location of the U.S. Department of Energy's Kansas City Plant in Kansas City, Missouri.

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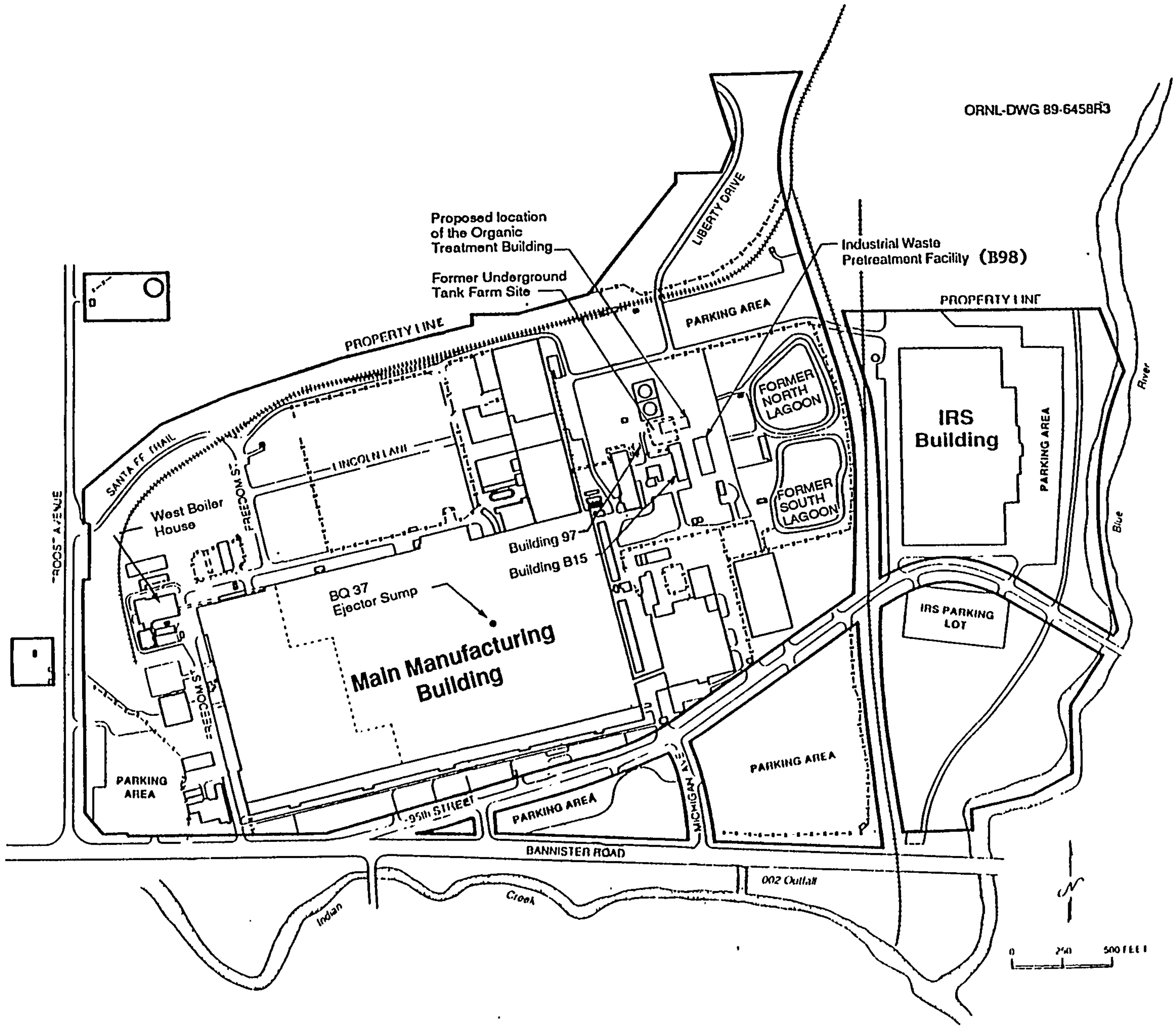

Fig. 2. Kansas City Plant site map.

As of February 1994, four source streams of toxic organic contaminated groundwater have been identified. The toxic organic contaminants of concern consist of volatile organic compounds (VOCs) in the groundwater and polychlorinated biphenyls (PCBs) predominantly associated with some soils near the Main Manufacturing Building (Fig. 2). These four streams (Fig. 3) include the following:

- Source 1—VOC-contaminated groundwater pumped from 13 operating wells and an interceptor trench. This groundwater is treated by the groundwater treatment system in Building 97 (Fig. 2), subsequently referred to in this document as the B97 system. This groundwater treatment system is an ultraviolet radiation and oxidation by hydrogen peroxide (UV/H_2O_2) system. The B97 system includes prefiltering, UV/H_2O_2 treatment, and a backup carbon system.
- Source 2—VOC-contaminated groundwater from the 001 Outfall collection system, which was completed in May 1993. This groundwater is being temporarily treated with carbon adsorption independent of other wastewater streams at Building 98, the Industrial Wastewater Pretreatment Facility (IWPF, Fig. 2). Treated water is discharged directly to the city sewer system. Source 2 groundwater will be routed to and treated at Building 97 in early 1994.
- Source 3—drainage from the Main Manufacturing Building footing tile drains consisting mainly of VOC-contaminated groundwater seepage with some associated PCB-contaminated oil. Within this collection system, only 1 of the 19 flow sources (i.e., the discharge from an ejector sump designated as BQ 37; Fig. 2) undergoes prefiltering and carbon adsorption treatment prior to discharge to the city sewer system.
- Source 4—drainage from the West Boiler House footing tile drains. This VOC-contaminated groundwater drainage is not being treated prior to discharge to the city sewer system (Fig. 2).

1.2 PURPOSE AND NEED FOR ACTION

The purpose of the DOE action is to treat toxic organic contaminated groundwater at the KCP to ensure that human health and the environment are protected. Four contaminated groundwater streams have been identified that currently discharge into the KCMO city sewer system (Sect. 1.1). Of these four streams, two are entirely treated (Sources 1 and 2), whereas only one flow of Source 3 and Source 4 flows are currently treated.

The need for the DOE action is to comply with groundwater treatment requirements of the RCRA 3008(h) Administrative Order on Consent, the KCMO permit requirements for discharge of treated groundwater, and the discharge requirements of the KCMO ordinances for the city sewer system. The RCRA 3008(h) Administrative Order on Consent requires that contaminated groundwater at the KCP be treated before being discharged off the site. The city sewer ordinances generally prohibit discharge from groundwater or industrial footing tile drainage sources. KCMO permits may, however, be granted for discharging effluents from water pretreatment facilities. Such is the case for the B97 system at the KCP.
Fig. 3

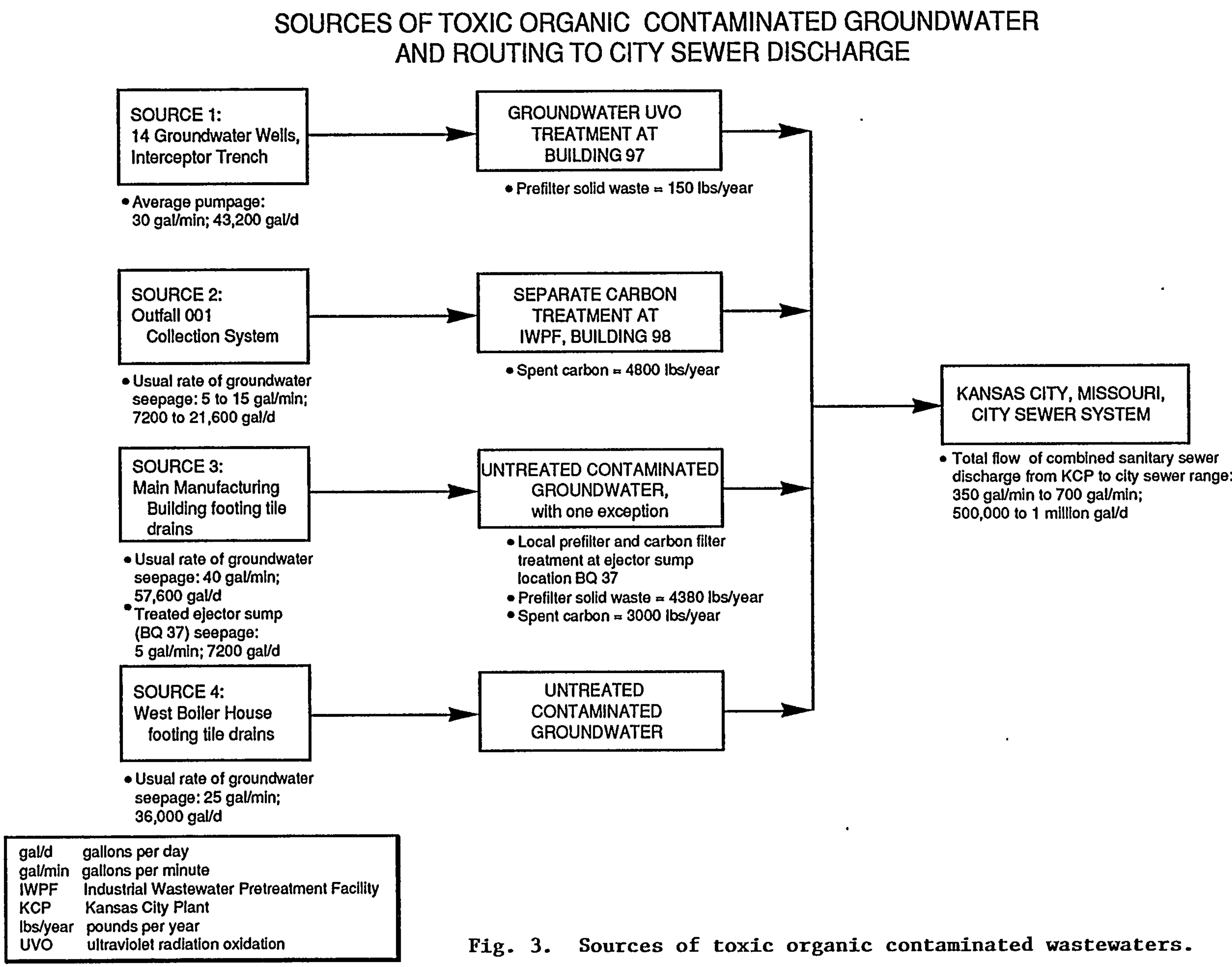

Fig. 3. Sources of toxic organic contaminated wastewaters.

Water quality standards for the combined sanitary sewer (CSS) discharges to the city sewer system must be met. Current discharges from the KCP are regulated under KCMO Permit No. 74 and by EPA Pretreatment Standards for the Metal-Finishing Category (40 CFR 433.17). In addition, the discharge of treated groundwater from Building 97 is regulated by a separate KCMO permit. Water quality standards that must be met relevant to this action include limits for chlorinated solvents and total toxic organics (TTO). Although PCBs are currently regulated only as a TTO constituent, upon final approval a proposed KCMO ordinance will establish a maximum daily PCB limitation. Current discharges into the sanitary sewer system include general plant sanitary wastewater, industrial process wastewater pretreated through the IWPF, and the four contaminated groundwater streams. All of the industrial process wastewater stream, Sources 1 and 2 of the four contaminated groundwater streams, and 1 of 19 flow sources within the Source 3 groundwater stream are treated prior to discharge to the city sewer system.

Two exceedances of current water quality discharge limits for TTO have been identified since January 1990. Because both VOCs and PCBs contribute to the TTO total, treatment of the contaminated groundwater streams identified in Fig. 3 would reduce the TTO discharged and help avoid future exceedances. Semiannual compliance monitoring indicated that in 1992 the PCB content of the KCP discharges to the city sewer system averaged 0.4 μg/L (0.4 ppb) of PCBs, which is within the newly proposed KCMO limits (AlliedSignal 1993a). It is anticipated, however, that if the PCB limit is applied on a daily rather than a monthly basis, as is being proposed by KCMO, the continued erosion of small amounts of PCB-contaminated soil into seeping groundwater might result in PCB peaks above the newly proposed limit (Dieckmann 1993).

1.3 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This EA evaluates the potential environmental impacts of the no-action and proposed action alternatives. Under the no-action alternative, identified toxic organic contaminated groundwater from the four sources would be discharged as they are now, with or without treatment, and the B97 system at the KCP would continue to operate as currently configured. Impacts from the B97 system and the existing groundwater discharges are assessed.

The proposed action includes the relocation of the B97 system equipment, the expansion of treatment capacity and the collection system, and the treatment of contaminated groundwater before discharge to the city sewer system. The EA considers the environmental impacts of construction and operation of the proposed wastewater treatment and collection system and the impacts of treated discharged water. Resource areas for which impacts are assessed include (1) air quality, (2) groundwater, (3) surface water, (4) ecological resources, (5) human health and safety, (6) socioeconomic resources, and (7) archaeological and historical resources. Waste minimization and pollution prevention are also addressed.

This EA has been prepared in compliance with NEPA, the Council on Environmental Quality Regulations for Implementing Procedural Provisions of NEPA (40 CFR 1500-1508), and DOE's NEPA Implementing Procedures (10 CFR 1021). The DOE Albuquerque Field Office issued a NEPA categorical exclusion in February 1992 for the replacement of the ultraviolet radiation and oxidation with ozone ($UV/H_2O_2/O_3$) groundwater treatment system with an ultraviolet radiation and oxidation by hydrogen peroxide (UV/H_2O_2) treatment system, the existing B97 system.

Consultations with the Missouri Department of Natural Resources, the U.S. Fish and Wildlife Service (FWS), and the Missouri Department of Conservation (MDC) have been conducted to comply with the Endangered Species Act and the Fish and Wildlife Coordination Act (Appendix A). The State Historic Preservation Office has been consulted in compliance with the National Historic Preservation Act.

DOE published a Floodplain Involvement Notification in the *Federal Register* on May 28, 1992, (57 FR 22467) as required by "Compliance with Floodplain/Wetlands Environmental Review Requirements" (10 CFR 1022). The analysis in this EA includes the floodplain assessment pursuant to 10 CFR 1022.12.

DOE will use this EA to determine whether to issue a Finding of No Significant Impact (FONSI) or to prepare an Environmental Impact Statement (EIS). DOE's determination will be based on consideration of whether the proposed actions would significantly affect the quality of the human environment.

2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This section discusses the no-action alternative and the proposed action alternative. The no-action alternative is to continue discharging from the four sources of identified toxic organic contaminated groundwater (Fig. 3) with the level of treatment or nontreatment as of February 1994. The discussion of no-action (Sect. 2.1) includes background on groundwater treatment at the KCP as well as a more detailed description of the current status of the four identified sources of toxic organic contaminated groundwater.

The proposed action is to collect and treat toxic organic contaminated groundwater prior to discharge to the KCMO city sewer system. Under the proposed action the B97 system equipment would be relocated, and the treatment capacity of the system would be expanded. The proposed action (Sect. 2.2) more specifically includes modifying and adding to the Organics Collection System (OCS) and the construction of the Organic Treatment Building (OTB), moving and expanding the B97 system, and operating the new groundwater treatment facility.

A brief description of alternative site and groundwater treatment technology considerations is presented in Sect. 2.3. This description identifies the criteria used to select the site and technology for the proposed action. Section 2.4 summarizes the potential environmental impacts for the no-action and the proposed action alternatives in a comparative way.

2.1 NO-ACTION ALTERNATIVE

Under the no-action alternative, current levels of groundwater treatment and nontreatment would continue. Figure 3 depicts the four sources of contaminated groundwater (Sect. 1.1) and their current flow rates and treatment status. The first source (Source 1) of contaminated groundwater is collected as part of the ERP groundwater interception and treatment system. The present groundwater interception system consists of 13 operating interceptor wells and one interceptor trench. These wells and the trench are installed in the alluvial aquifer in an attempt to remove VOC contamination on-site and prevent off-site contaminant migration into two adjacent streams, Indian Creek and the Blue River, that border the KCP to the east and south, respectively. For several years, intercepted groundwater from Source 1 (Sect. 1.1) was treated with an advanced oxidation process technology that used high-intensity ultraviolet (UV) radiation with ozone and hydrogen peroxide to degrade VOCs to weak acids, carbon dioxide, and water. In July 1993 this treatment system was replaced with a second generation advanced-oxidation-technology system using only hydrogen peroxide and even higher intensity UV/H_2O_2. The current system has one unit with a capacity of 380 L/min (100 gal/min) along with an identical backup unit. The treatability ranges for each UV/H_2O_2 unit are up to 30 ppm for VOCs. The system is anticipated to treat up to 1 ppm of PCBs based on the manufacturers specifications. The new KCP UV/H_2O_2 system has achieved removal efficiencies of 99.8 to 99.9% on VOC influent levels of 18.5 to 27.5 mg/L (ppm) at full capacity (AlliedSignal 1993b).

The B97 system, which is housed in Building 97, consists of two temporary enclosures (Fig. 4). The enclosure housing equipment for the UV/H_2O_2 system is 5.8 m × 4.6 m (19 ft × 15 ft.) The enclosure used to store chemicals (hydrogen peroxide, sodium hydroxide, and concentrated sulfuric acid) in three 1136-L (300-gal) tanks for the treatment process is 6.1 m × 4.6 m (20 ft × 15 ft). Building 97 is completely filled with two UVO treatment units and chemical storage tanks and has no room for additional equipment (Fig. 5).

Construction of a new 001 Outfall collection system (Source 2), completed in May 1993, created a need to treat an additional 19–57 L/min (5–15 gal/min) of VOC-contaminated groundwater. The new collection system was designed to intercept the contaminated groundwater before reaching the 001 Outfall. Previously, contaminated groundwater seepage had resulted in exceedances of the National Pollutant Discharge Elimination System discharge permit regulating discharges to streams. The 1992 average pumpage of 98 L/min (26 gal/min) from Source 1 along with the new Source 2 flows exceeded the capacity of the previous UV/H_2O_2/O_3 system, which was 125-L/min (33-gal/min). As a temporary measure, Source 2 flow is currently (February 1994) being treated with carbon adsorption as a separate wastewater stream at the IWPF, but it is scheduled to be routed to and treated at the B97 system in 1994.

The major source of VOC and PCB contaminants in the city sewer system is from groundwater seepage into the footing tile drain system at the Main Manufacturing Building (Source 3) and the West Boiler House (Source 4). An evaluation of the storm, sanitary, and industrial wastewater streams (AlliedSignal 1989) identified 33 separate flows at the Main Manufacturing Building contributing to the Source 3 groundwater. The seepage rates for the Source 3 and 4 groundwater are 163 and 95 L/min (43 and 25 gal/min), respectively. The combined average seepage and pumpage rates for the four sources of contaminated groundwater equal 484 L/min (128 gal/min).

Under the no-action alternative, groundwater from the Main Manufacturing Building footing tile drains and associated sumps would continue to be discharged untreated (with one exception) into the city sanitary sewer system by way of existing KCP piping. The one exception is the contaminated groundwater collected at the ejector sump BQ 37, which is treated with a local prefilter and carbon filter system to remove PCBs (Fig. 3).

Fig. 4. Photograph of the exterior of Building 97, Kansas City Plant groundwater treatment facility.

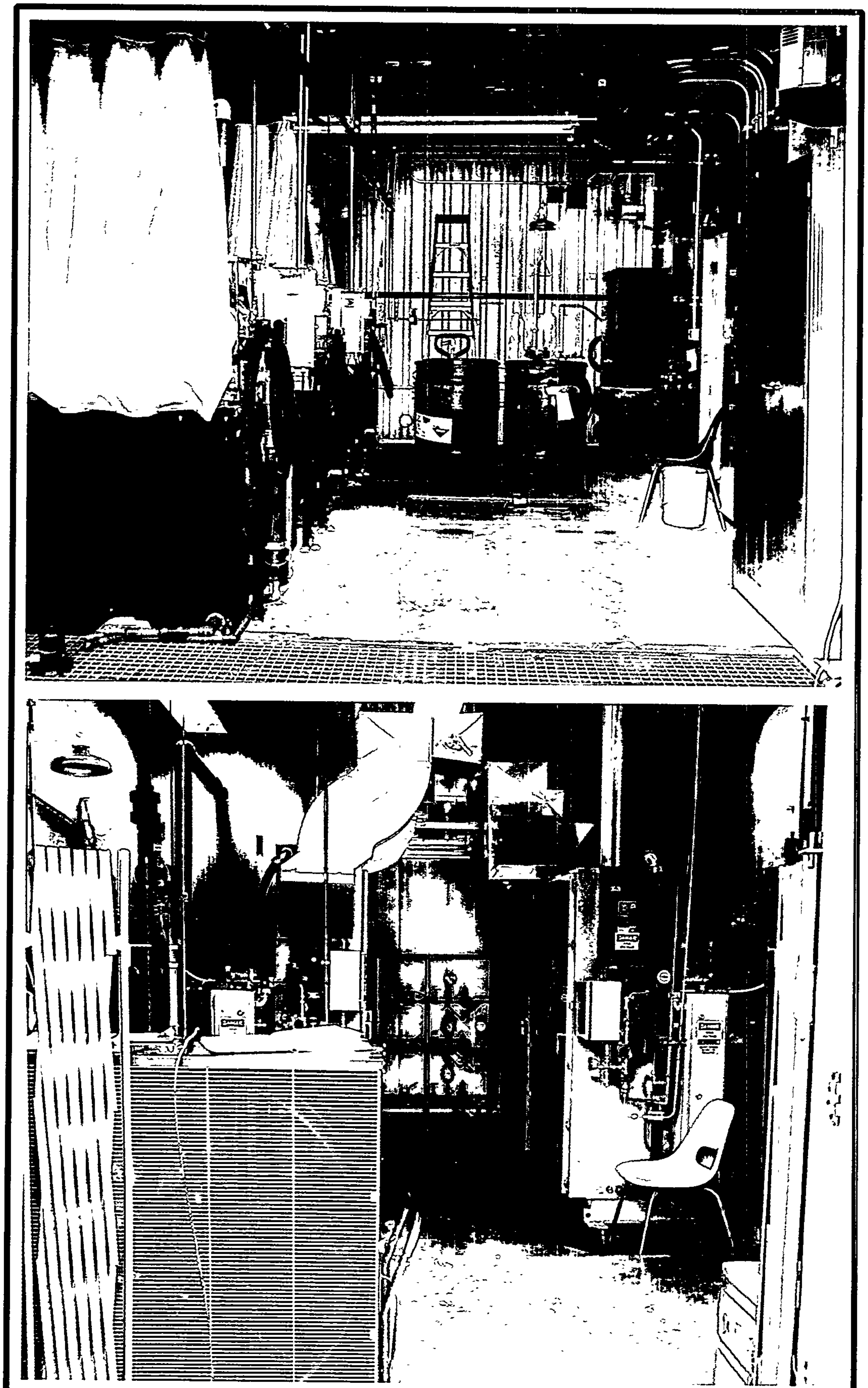

Fig. 5. Photographs of the interior of Building 97, Kansas City Plant groundwater treatment facility.

2.2 PROPOSED ACTION ALTERNATIVE

The proposed action is to collect and treat toxic organic contaminated groundwater prior to discharge to the city sewer system. The proposed action includes relocating the B97 system equipment and expanding the treatment capacity. The proposed action involves adding to a collection piping network, modification of existing plant sumps, construction of an OTB to house this equipment, acquisition and installation of one additional UV/H_2O_2 treatment unit and a hydrogen peroxide storage tank, and relocation of the current treatment system and tanks in Building 97 to the OTB. The proposed OTB groundwater treatment system is subsequently referred to in this document as the OTB system. The proposed action would eliminate the local carbon treatment system currently used at one footing tile ejector sump (BQ 37 in the Main Manufacturing Building) and would eliminate the need for future local treatment at other locations within the OCS because all of the Sources 3 and 4 groundwater would be treated at the proposed OTB. Figure 6 depicts the four sources of contaminated groundwater, their flow rates, the status of treatment for each, and contributions to the CSS discharge under the proposed action alternative.

All construction activities for the proposed action would be scheduled to begin within 12 to 18 months after completion of the NEPA documentation and would occur either within existing buildings or in areas heavily disturbed by previous industrial uses. The OTB would be located on the site of the former Underground Tank Farm (Fig. 2). When the Underground Tank Farm was remediated in 1987, excavation to a depth of 4.6 m (15 ft) removed contaminated soils and equipment from the site. The excavation site was then refilled with clean clay fill. As part of the proposed action, two sections of underground piping would be installed, including piping from Building 97 to the OTB, and from Building 15 to the IWPF. Overhead piping on racks would be installed to connect the IWPF to the OTB (Fig. 2). The areas that would be disturbed by construction activities are covered by asphalt and concrete or fill material or have been previously disturbed by industrial uses. Small patches of grass are the only vegetation in areas affected by the proposed action.

The proposed action consists of three main components: expand and construct the OCS, relocate and expand the groundwater treatment system, and construct the OTB and operate the OTB system. These components are discussed in the following sections.

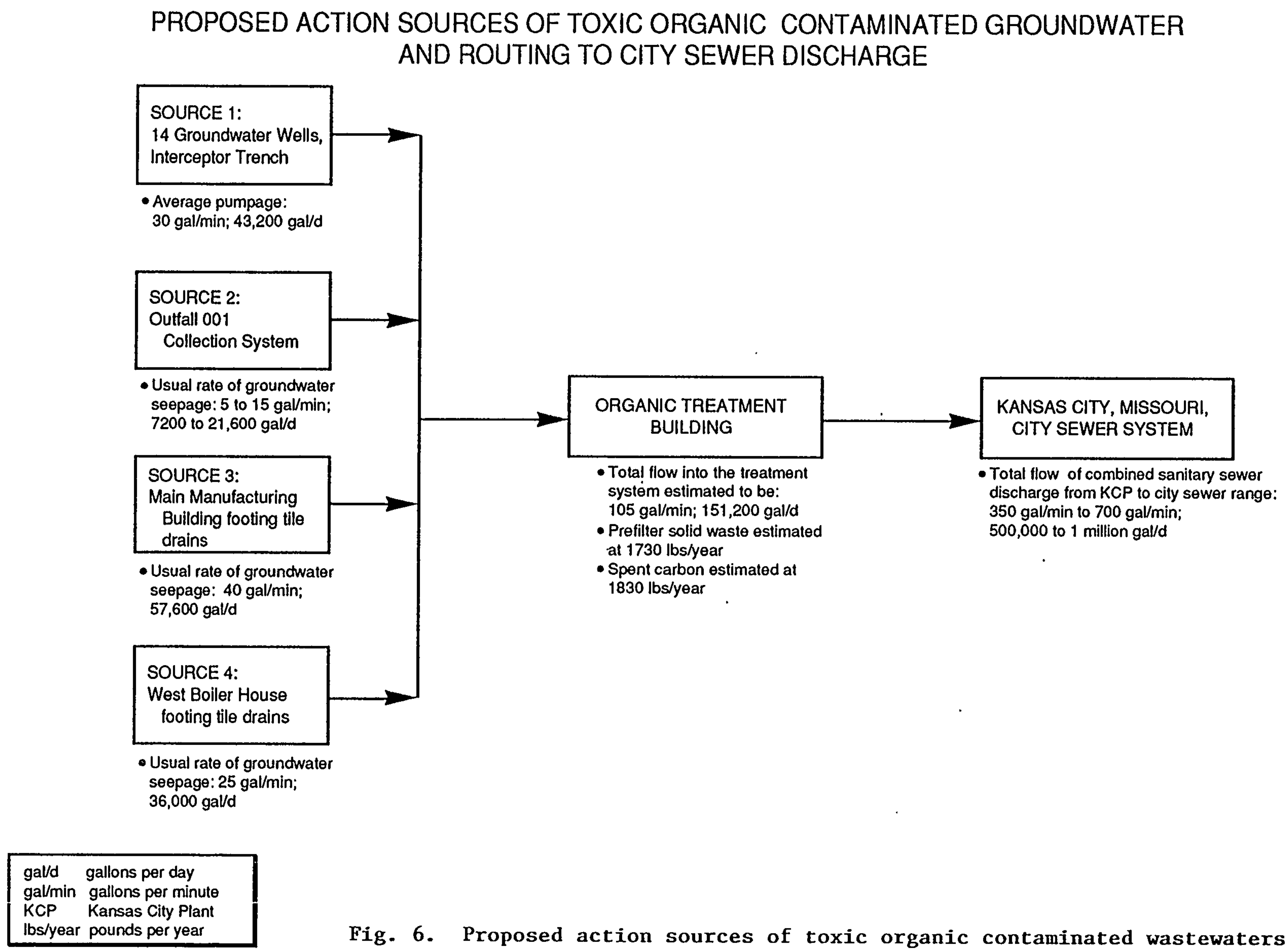

Fig. 6. Proposed action sources of toxic organic contaminated wastewaters.

2.2.1 Organics Collection System

Constructing OCS sumps would involve modifying and adding to a collection system for groundwater from Sources 3 and 4. Under the proposed action, the OCS sumps would be constructed in one of two ways. In the first case, the existing sump would be modified with a partition to separate the sanitary flow from the footing tile drains flow. In the second case, new sumps would be installed in the vicinity of the sanitary sump. Once the sumps were modified or installed, flow from the footing tile drains would be diverted to them. The contaminated flows from the individual sumps would be routed through a common header (located in the Main Manufacturing Building basement) to a single collection sump. From this collection sump, the wastewater would then be routed by the industrial waste overhead piping rack to the existing tanks at the IWPF for flow equalization and subsequently pumped to the nearby OTB for treatment (Fig. 2). The new piping that would be installed on the existing industrial waste overhead piping rack would be made of single-wall stainless steel pipe with leak detection and heat tracing capabilities.

2.2.2 Groundwater Treatment System Transfer

The proposed action would require relocating the B97 system from Building 97 to the new OTB. Approximately 30 m (100 ft) of transfer pipe would be laid below grade from Building 97 to the new OTB. A collection tank and secondary lift pumps in the OTB would transfer the groundwater to the equalization tanks in the IWPF. This equipment includes two UV/H_2O_2 units with a capacity of 380 L/min (100 gal/min) and three 1136-L (300-gal) day tanks with aboveground secondary containment and associated metering and transfer pumps. The three tanks store the hydrogen peroxide that oxidizes, and thereby destroys, the toxic organics; the concentrated sulfuric acid that is used to acidify the water to a pH range of 3 to 5 in order to optimize the treatment; and the 50% sodium hydroxide that is used to bring the pH level back to a more neutral range after treatment. There are plans to use the Building 97 area for equipment storage for building and grounds maintenance.

2.2.3 Organics Treatment Building and Treatment Capacity Expansion

The proposed OTB would house equipment needed to treat toxic organic contaminated groundwater prior to discharging these flows to the city sewer system. The OTB would be a metal building that would be 6.1 m (20 ft) high and contain about 750 m^2 (8050 ft^2) of floor space. The building site would include two driveways and sidewalks leading to the entrances. An additional covered walkway would exist between the OTB and the northwest door of the IWPF. A truck parking area would be on the north side of the building. Floor trenches would separate process areas and collect spills. The trenches would drain to a common sump in which pumps would transfer collected water to the beginning of the treatment process. Concrete coatings, impervious to chemicals used in each containment area, would be applied to the floor. The building office, restroom, and janitorial closet would be constructed on 15-cm (6-in.) pads for elevation above spill areas. Skid mounting of process equipment would provide elevation above spill areas.

Flow entering the OTB would initially be pumped through a cartridge prefilter system that would remove solids to increase treatment efficiency within the UVO units. After being filtered, the water would pass through a UV/H_2O_2 treatment unit. Several design alternatives exist for the UVO technology application. Three design alternatives among a number currently being considered are as follows: (1) three UV/H_2O_2 units, each with a capacity of 380 L/min (100 gal/min) piped in parallel at the OTB, so that any combination of the UVO units could be operated simultaneously; (2) two UV/H_2O_2 units, each with a capacity of 380 L/min (100 gal/min) piped in parallel at the OTB, with potentially greater reliance on a carbon adsorption backup system; (3) expanding treatment capacity of the two existing 380 L/min (100 gal/min) UV/H_2O_2 units to two 570 L/min (150 gal/min) UV/H_2O_2 units. If the equipment configuration in the final design of the OTB system represents a significant change from the proposed action, DOE will prepare supplemental NEPA documentation.

All four identified sources of toxic organic contaminated groundwater have a combined seepage and pumpage rate of 484 L/min (128 gal/min). Treatment for all four groundwater sources would require UV/H_2O_2 unit(s) operation with at least that capacity. The final design will be configured to accommodate seasonal fluctuations in footing tile drain flows and future needs. Although UV/H_2O_2 unit maintenance procedures involve relatively frequent UV bulb replacements, operation and maintenance of the groundwater treatment system could proceed without interruption with a multiple UV/H_2O_2 unit configuration. In the event of emergency shutdown of the UVO units, an activated carbon bed backup system would be available because the groundwater seepage from Sources 2, 3, and 4 cannot be stopped and accumulates currently at the rate of 406,960 L/day (89,520 gal/day).

A new transfer pump and collection tank system [18,925 L (5000 gal)] would be required to pump the slightly acidic treated effluent to Tank 3A at the IWPF where it would be combined with slightly basic IWPF effluent for pH adjustments to meet discharge limits for the city sewer system. A new bulk 20,820-L (5500-gal) storage tank for hydrogen peroxide would also be installed at the OTB. This prefabricated tank with secondary containment would be vented through a filtering unit. Exterior piping would allow direct bulk loading from a tanker truck from outside the building. Of the three 1136-L (300-gal) tanks in the B97 system, two tanks would be used for hydrogen peroxide feed and one tank for concentrated sulfuric acid feed.

2.3 OTHER ALTERNATIVES CONSIDERED

This section describes the site and technology alternatives that were considered in defining the proposed project.

2.3.1 Site Selection

A feasibility study was conducted to analyze the costs and compare the benefits and disadvantages of seven alternatives. These alternatives represented combinations of four different building sites for the Sources 3 and 4 treatment facility and either moving the B97 system or leaving it at its current location. All four sites were to the east of the north section of the Main Manufacturing Building, either at the B97 system site or north, northwest or as an extension of Building 98 (the IWPF site). The alternative that combined the B97 system with the Sources 3 and 4 treatment facility at a site northwest of the IWPF site (Fig. 2) was selected as the preferred alternative location because it would (1) provide the lowest cost configuration which combined the B97 system with Sources 3 and 4 treatment equipment, (2) be the least disruptive of plant production and utility services, (3) allow for improved arrangement and clearances for the treatment equipment, and (4) provide the best opportunity for future addition to the building and/or equipment. The feasibility study was incorporated in the Title I Design Summary Report (AlliedSignal 1991).

2.3.2 Technology Selection

A study was completed in 1989 that assessed the feasibility of treating VOC- and PCB-contaminated wastewater sources (AlliedSignal 1989). The technologies considered for the primary treatment technology were air stripping, carbon adsorption, and UVO, which is the current treatment technology at the KCP.

All air stripping methods identified and evaluated were determined to be unsuitable for this application (AlliedSignal 1989) because the technology could not adequately treat PCBs. Carbon adsorption treatment uses an activated carbon bed where the organic contaminants from the wastewater are adsorbed onto carbon particles as they flow through the bed. Trial runs using activated carbon with West Boiler House (Source 4) contaminated groundwater indicated that the carbon did retain the VOCs and PCBs. In carbon adsorption, however, the contaminant is transferred to the carbon and not destroyed. The disposal of this spent carbon, given that the spent carbon analysis shows VOC and PCB concentrations, would require use of the RCRA/TSCA waste treatment method(s) as applied to the original sources of the VOC and PCB contaminants. Currently, the only treatment method for RCRA/TSCA waste is incineration. Because of the problems associated with the disposal of the spent carbon, and the DOE policy of minimizing the transfer of contaminants from one medium to another (Sect. 3.9), carbon adsorption treatment, as a primary treatment technology, also was determined to be unsuitable.

The UV/H_2O_2 treatment technology uses high-intensity UV radiation and hydrogen peroxide oxidation to degrade organic contaminants, especially VOCs, to weak acids, carbon dioxide, and water. Criteria used for selecting the UV/H_2O_2 technology focused on destroying the contaminants rather than transferring them to another medium (i.e., to air or another solid). Because the UV/H_2O_2 system is a closed system, none of the VOCs are released into the air prior to degradation. In procuring the UV/H_2O_2 system, the acceptance tests were required to ensure that specified effluent destruction levels were met (Sect. 2.1) (Heacock 1993).

2.4 COMPARISON OF ALTERNATIVES

This section summarizes the potential impacts for the no-action and proposed action alternatives. An assessment of each alternative is presented in Sect. 3. Potential impacts are assessed for air quality, groundwater, surface water, ecological resources, human health and safety, waste management and pollution prevention, socioeconomics, and historical and archaeological resources. Table 1 summarizes in a comparative form the analysis of potential impacts that could occur for the two alternatives.

There is little potential for either the no-action or proposed action alternative to contribute to adverse cumulative impacts. Additional treatment of contaminated groundwater would reduce the amount of VOCs and PCBs that would be transported off the KCP site. Expanding the treatment of contaminated groundwater would not generate additional wastes but in fact would reduce the amount of solid and carbon filter waste requiring incineration at permitted off-site facilities.

Table 1. Summary of impacts for the no-action and proposed action alternatives

No-action	Proposed
Air Quality	
The B97 system is a closed system, and no impacts to air quality are anticipated; venting of the hydrogen peroxide storage tank would have minimal air quality impacts; volatilization of the chlorinated solvents in the KCP CSS discharge en route to the KCMO city sewer treatment facility (27 kg; 50.5 lbs) is expected to have minimal impact on air quality.	The proposed groundwater treatment system would be closed, and no impact on air quality would be anticipated; volatilization of the chlorinated solvents in the KCP CSS discharge would be reduced in comparison to the no-action alternative and would be expected to have minimal impact on air quality; fugitive dust and exhaust fumes during construction of the proposed facility would be temporary and controlled with routine practices and would have minimal impact on air quality.
Groundwater	
The amount of groundwater pumpage and seepage under the no-action alternative would be the same as currently occurs; future changes in groundwater pumping are uncertain but would not occur unless contaminant transport were kept within established limits. The four sources of contaminated groundwater would continue to be treated, or not treated, as is currently done, and would be discharged to the city sewer system.	No impacts on groundwater would be anticipated from construction because excavation for the project would be at depths above the water table. The four sources of contaminated groundwater would all be treated prior to discharge to the city sewer system.
Surface Water	
Under existing groundwater treatment, multiple conditions ameliorate the chlorinated solvents (VOCs) in the KCP CSS discharge. Polychlorinated biphenyls (PCBs) are generally below the 0.1 μg/L (ppb) detection limit during the monthly monitoring at the city sewer treatment facility. Therefore, negligible impacts are anticipated from VOCs and PCBs in CSS discharges to surface waters.	Erosion during construction would be controlled with routine practices, and no impacts on surface water quality would be anticipated. Discharge to the city sewer system would have improved water quality from the reduced VOCs and PCBs; the improved quality of water is anticipated to have a slight beneficial impact.

Table 1. (cont.)

Aquatic Ecological Resources	
Negligible impacts are anticipated on the Missouri River aquatic biota from VOCs and PCBs in the CSS discharge.	Construction is not anticipated to impact the aquatic ecological resources of the Blue River or Indian Creek. Reduction of VOCs and PCBs in the CSS discharge would further reduce the negligible impacts on aquatic biota in the Missouri River.
Terrestrial Ecological Resources	
No impacts are anticipated.	The proposed facility would be built and operated on a highly industrialized site, and no impacts are anticipated.
Endangered and Threatened Species	
Consultation on federal- or state-listed species or their critical habitat at the KCP site indicates that no impacts to these species are likely to occur.	Same as the no-action alternative.
Floodplains	
No known impacts.	Construction and operation of the proposed treatment facility and associated activities are not anticipated to affect the floodplain.
Wetlands	
No protected wetlands are present in the KCP area of concern, and therefore no impacts on wetlands are anticipated.	Same as the no-action alternative.
Human Health and Safety	
Potential impacts on worker health and safety for the B97 system involve typical industrial hazards; procedures are in place to minimize the associated risks; the risk from human ingestion of KCP CSS contaminants in drinking water is considered to be negligible.	Because the proposed action does not pose any unique worker health or safety issues over the existing system, impacts would be minimal; potential worker exposure to sodium hydroxide would be eliminated in the proposed action; any potential risks of human consumption of KCP CSS contaminants from drinking water would be less than the negligible risks under the no-action alternative.

Table 1. (cont.)

Pollution Prevention, Waste Minimization, and Waste Management	
Two prefiltering and three carbon filtering systems currently generate about 5860 kg (12,900 lbs) of solid and carbon waste per year; existing procedures to ensure proper disposal result in minimal impact.	One prefiltering and one carbon filtering system would generate about 1620 kg (3560 lbs) of solid and carbon waste per year that would be less than one third of the amount generated under the no-action alternative; no unique wastes would be produced under the proposed action, and impacts are anticipated to be negligible.
Socioeconomics	
Impacts on population, employment, income, land use, transportation, and public perception would continue to be minor.	The subcontractor construction work force would increase by about 40 workers for two years; operation of the proposed treatment facility would not require additional workers beyond those already operating the current facility; therefore, socioeconomic impacts would be minor.
Historical and Archaeological Resources	
No historical or archaeological resources are known to be present at KCP, and therefore no impacts are anticipated.	Same as the no-action alternative.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section discusses the affected environment and environmental consequences of the no-action and proposed action alternatives. Potential environmental consequences are assessed for air quality, groundwater, surface water, ecological resources, human health and safety, socioeconomics, historical and archaeological resources, and waste management and pollution prevention. Within each resource area, the discussion of the affected environment is followed by an assessment of the environmental consequences of the no-action and proposed action alternatives.

3.1 AIR QUALITY

3.1.1 Affected Environment

The climate of the Kansas City region is essentially continental; the area is located at midlatitudes and at long distances from major bodies of water (Gale Research 1985). Existing air quality at the KCP is very good. The KCP is in the Kansas City Air Quality Control Region, which is in attainment for all criteria pollutants (Moll 1992). Air monitoring data collected at the KCP show that ambient concentration levels for all criteria pollutants are well below the National Ambient Air Quality Standards. The criteria pollutants are particulate matter less than 10 microns in diameter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead.

3.1.2 Environmental Consequences

No Action. Air quality impacts from the no-action alternative are expected to be minimal. There are no air emissions associated with the B97 system (Source 1). Release of VOCs from spent activated carbon filters is minimal. There are air emissions associated with the chlorinated solvents that volatilize from the CSS discharge en route to the city sewer treatment facility. In 1992 the CSS discharge from the KCP released a total estimated quantity of 27.0 kg (59.5 lbs) of VOCs (chlorinated solvents) into the city sewer system (AlliedSignal 1993a), which is an average VOC concentration of 0.036 mg/L (ppm) in the discharge. Therefore, the air impacts associated with the vaporization of VOCs are expected to be minimal.

Proposed Action. Air quality impacts from the proposed action are expected to be minimal. Potential impacts could arise from fugitive dust emissions released during soil excavation for the OTB and during underground piping construction. These emissions would be temporary and would consist primarily of airborne particulate matter (i.e., fugitive dust). Ambient air monitoring is conducted at air sampling stations positioned in a triangular configuration at three locations within the perimeter of the KCP and would record any increases in levels of particulates. The soils in the sump areas were analyzed for PCBs and RCRA contaminants. Because no contaminants were found, these soils are characterized as nonhazardous construction debris, and no airborne contaminant exposure is anticipated (Heacock 1993).

The exhaust from construction equipment and workers' vehicles would also contribute to emissions, but they would be minor and temporary because of the limited scale of the proposed project, which is estimated to involve 40 additional workers over a 2-year period (Sect. 3.10). No airborne releases would occur from the operation of the OTB system because the system is closed. There are, however, air emissions associated with the hydrogen peroxide storage tank used for the OTB system. The venting of this storage tank is designed to ensure protection of workers on site and therefore has minimal impact on air quality (see Sect. 3.8).

Chlorinated solvent air emissions that presently volatilize en route to the city sewer treatment facility would be reduced because Sources 3 and 4 would be treated in the OTB. The KCP UV/H_2O_2 treatment system has proven to be 99.8 to 99.9% effective in VOC destruction for Source 1 groundwater. Assuming a conservative 90% VOC destruction efficiency, the discharge of chlorinated solvents (VOCs) into the city sewer system would be expected to drop from 27.0 kg/year (59.5 lbs/year) to less than 3 kg/year (6.6 lbs/year). This reduction in chlorinated solvent air emissions would further reduce these minimal impacts. Release of VOCs from spent activated carbon filters would be further minimized as the estimated carbon waste associated with the proposed action is 70% less than under the no-action alternative. Contaminant destruction of waste filters from the OTB would be at least 99.9999% effective at an off-site RCRA-TSCA waste incinerator. Section 3.9 discusses the waste management of contaminated filters. A very slight reduction in the chlorinated solvent air emissions that presently volatilize en route to the city sewer treatment facility would also occur.

3.2 GROUNDWATER

3.2.1 Affected Environment

The KCP is located on Quaternary age alluvium (i.e., unconsolidated stream deposits) of the Blue River and Indian Creek. These deposits, which locally include as much as 6.1 m (20 ft) of construction fill, are about 13.7 m (45 ft) thick (Kearl et al. 1984) and increase in thickness to the north on the Blue River near its confluence with the Missouri River. The alluvial deposits overlie Paleozoic bedrock. Two permeable zones exist within the alluvial aquifer system. Because these zones produce less than 7.6 L/min (2 gal/min), they are considered to be a marginal groundwater resource. The lower zone consists of a sand and gravel layer at the base of the alluvium just above the underlying bedrock. The upper zone is a silty sand layer about midway between the base of the alluvium and the ground surface. A less permeable silty clay layer separates these two zones.

The alluvial aquifer is not a source of drinking water near the KCP. DOE (1986) conducted a review of all available publications and contacted ten federal and state agencies concerning water uses in and adjacent to Jackson County, Missouri. This search revealed no public or private water supply wells within 6.4 km (4 miles) of the KCP.

Three contaminated groundwater plumes have been identified within the KCP boundary: the Northeast Area plume the trichloroethene (TCE) Still Area, and the Underground Tank Farm. The potentiometric surface suggests that slightly contaminated groundwater from the Northeast Area may be reaching the Blue River, whereas the remaining plumes are contained by a pump and treat system and building footing tile drains within the KCP site. The interceptor trench, constructed across the Northeast Area plume near the Blue River, helps contain this plume within the KCP site.

3.2.2 Environmental Consequences

No Action. The no-action alternative assumes that contaminated groundwater would continue to be treated or not treated and discharged to the CSS as is currently the case in February 1994. A flow diagram of this process is provided in Fig. 3. Assessment of impacts of the groundwater pump and treatment system operation are a part of the ERP and are being assessed in a separate NEPA document (draft EA for the KCP Environmental Restoration Program).

Proposed Action. That portion of the KCP designated for the construction of the OTB is in the former Underground Tank Farm area. Tanks and piping associated with the tank farm were excavated to a depth of approximately 4.6 m (15 ft) in 1987 and 1988, and the area was backfilled with clean silty clay. Excavations for the OTB and associated underground piping would be performed within the Underground Tank Farm backfilled area and adjacent areas, which occupy a localized groundwater depression. Quarterly groundwater elevation data in the immediate vicinity of the former Underground Tank Farm indicate that depths to the water table range from approximately 2.4 m (8 ft) to as much as 5.2 m (17 ft). In accordance with the Modifications for Land-Use Restrictions for the Underground Tank Farm issued by the Missouri Department of Natural Resources (Appendix B), soil excavation will not exceed depths greater than 3 m (10 ft) below ground surface and/or within 0.6 m (2 ft) of contaminated soils. Construction depth will be generally 1.2–1.5 m (4–5 ft) and will not exceed a 1.8-m (6-ft) maximum depth (Dieckmann 1993). Proposed construction and operation of this facility would not hamper the treatment of contaminated groundwater that is below this facility.

3.3 SURFACE WATER

3.3.1 Affected Environment

The Blue River flows along and is contiguous with the eastern boundary of the Bannister Federal Complex (Fig. 2) and empties into the Missouri River approximately 37 km (23 miles) north of the KCP (DOE 1977). Indian Creek, which flows in an easterly direction near the southern boundary of the complex, discharges into the Blue River near the southeastern corner of the plant. The U.S. Geological Survey (USGS) gaging station, located immediately downstream of the Indian Creek and Blue River confluence, records mean discharge as 4 m^3/s (141 ft^3/s) and low flow as 0.3 m^3/s (10 ft^3/s) (USGS 1988). The city sewer treatment facility, which treats the KCP CSS wastewater, discharges treated effluent into the Missouri River. The Missouri River has a flow rate about 250 times greater than that of the Blue River.

3.3.2 Environmental Consequences

No Action. Currently, the KCP is in full compliance with the city sewer ordinances for chlorinated solvents and PCBs. Groundwater that is presently discharged to the city sewer system from the KCP is allowed by the existing (January 1994; Heacock 1994a) pretreatment standards (40 CFR 433.17) and KCMO ordinances to have TTO compound concentrations of 0.19 mg/L (ppm) and VOC concentrations of 0.16 mg/L (ppm). Semiannual compliance monitoring indicated that in 1992 the CSS discharge from the KCP released an estimated 27.0 kg (59.5 lbs) of chlorinated solvents (VOCs) and less than 1 kg (2.2 lbs) of PCBs into the city sewer system (AlliedSignal 1993a). The city sewer piping represents a situation similar to that of an open stream channel, only somewhat more enclosed, for many of the processes that ameliorate VOCs. These ameliorating conditions for VOCs include the dilution factor by other discharges to the city sewer system (ranging from 60:1 to 240:1; Battiest 1993), microbial degradation, and volatilization (the half-life for TCE, a major component of VOCs, is less than 30 minutes in surface water). The PCB discharge, which according to 1992 semiannual compliance monitoring averaged 0.4 μg/L (ppb), is also diluted by the same factor range (60:1 to 240:1). Generally, PCB levels are below the detection limit of 0.1 ppb during the monthly influent or effluent monitoring at the city sewer treatment facility (Battiest 1993). For these reasons, negligible impacts on the surface water are anticipated from the VOCs and PCBs of the KCP discharge into the city sewer system under the no-action alternative.

KCMO has proposed a maximum daily PCB limit of 1.0 μg/L (ppb) for the KCMO sewer use ordinances. Upon finalization of this newly proposed limit, the KCP would probably occasionally violate the proposed PCB discharge limit under the no-action alternative.

Proposed Action. Under the proposed action, the OTB system would be constructed within the KCP boundaries on previously disturbed land. Standard practices would be implemented during construction of the OTB and associated facilities to minimize erosion and runoff and to control any construction spills that could affect water quality in Indian Creek or the Blue River. The construction site is approximately 690 m (2260 ft) from both the Blue River and Indian Creek.

The KCP UV/H_2O_2 treatment system has proven to be 99.8 to 99.9% effective in the destruction of VOCs at KCP and is able to destroy PCBs at influent concentrations of less than 1.0 ppm, according to manufacturer's specifications. An activated carbon bed backup system is part of the proposed action design (Sect. 2.2) and could serve to polish treated groundwater if required. Operation of the proposed collection and treatment system would improve the quality of wastewater discharged to the city sewer system and ultimately to the Missouri River. The OTB system would also enable the KCP to comply with the terms of the proposed KCMO ordinance [a maximum daily PCB limit of 1.0 μg/L (ppb)] and EPA pretreatment requirements by reducing the concentrations of TTO. Overall, slightly beneficial impacts would be anticipated from improved quality of water discharged to the city sewer system.

3.4 AQUATIC ECOLOGICAL RESOURCES

3.4.1 Affected Environment

The most recent fish censuses for the Blue River were conducted by MDC in 1988 and 1989 (Jeffries 1992). The 1988–89 data indicate that the river supports approximately 29 species of fish. These include gar, shad, carp, minnows, suckers, catfish, bass, sunfish, and perch. Fish populations sampled along the Blue River consisted of species known to be moderately to highly pollution tolerant (Karr 1981). Blue River and Indian Creek are used for recreational fishing, although the Missouri Department of Health maintains an advisory recommendation that no channel catfish or carp caught anywhere in the Blue River in Missouri be eaten because of contamination with the insecticide chlordane.

3.4.2 Environmental Consequences

No Action. For the reasons discussed in Sect. 3.3, negligible impacts to the Missouri River biota are expected from the minimal contaminants in the KCP CSS discharge, which is subsequently diluted and treated in the city sewer system and released to and further diluted by the Missouri River. The EPA criterion to protect aquatic life from PCBs is set at 2.0 μg/L (or ppb) for acute exposure and 0.014 μg/L (or ppb) as a 24-hour average (EPA 1980). Generally, PCB levels are below the detection limit of 0.1 μg/L (ppb) during the monthly influent or effluent monitoring at the city sewer treatment facility (Battiest 1993). A weighted mean PCB concentration in the Missouri River from the KCMO city sewer system and the Blue River inflow (calculated as 7.4×10^{-6} μg/L in Chidambariah et al. 1989) indicates an estimated PCB level over a thousandfold less than the EPA 24-hour exposure limit. For these reasons, negligible impacts on the aquatic biota are anticipated from the VOCs and PCBs of the KCP discharge into the Missouri River under the no-action alternative.

Proposed Action. Construction of the proposed collection and treatment system would not further impact the surface water hydrology of Indian Creek or Blue River and, therefore, would not affect aquatic ecological resources. The groundwater seepage from the footing tile drains would be discharged to the city sewer system after treatment (Sect. 3.3). Under the proposed action, the OTB groundwater flows would be treated before being discharged to the city sewer system. This would result in a greater TTO removal under the proposed action (i.e., concentrations of VOCs and PCBs would be reduced from present levels; see Sect. 3.3), and the quality of water subsequently discharged from the KCP to the city sewer system would improve (Sect. 3.2). The result would be a further reduction in the already negligible impacts on biota in the Missouri River.

3.5 TERRESTRIAL ECOLOGICAL RESOURCES

3.5.1 Affected Environment

The KCP site is largely covered with structures and pavement. There are relatively small areas of lawn and a few trees.

3.5.2 Environmental Consequences

No Action. There are no known impacts to terrestrial ecological resources from the no-action alternative.

Proposed Action. The proposed project would be located entirely within existing buildings or on areas heavily disturbed by previous industrial uses (Sect. 2.2). The OTB would be on the site of the former Underground Tank Farm, which was removed and covered with a 4.6-m (15-ft) clay cap. Short sections of underground pipe would be laid between Building 97 and the OTB, Building B15, and the IWPF at a depth of 1.2–1.5 m (4–5 ft) (Fig. 2). These areas are presently covered by asphalt, concrete, or fill material. Vegetation is limited to small patches of grass, and no wildlife habitat is present in the areas that would be disturbed. Therefore, no impacts on terrestrial ecological resources from the proposed action alternative are anticipated.

3.6 ENDANGERED AND THREATENED SPECIES

To comply with Sect. 7 of the Endangered Species Act of 1973 (Pub. L. 93-205, as amended) and the Fish and Wildlife Coordination Act (Pub. L. 85-624 as amended), the FWS and the MDC were contacted for information on threatened and endangered (T&E) species that may be present in the area potentially affected by the proposed project (Appendix A). The FWS identified the bald eagle as being present in the general area. However, bald eagles are not expected to be present at the KCP because the site is not close to a large water body where eagles congregate, and no critical habitat for bald eagles exists within the KCP complex. The proposed action and the no-action alternatives are not expected to affect T&E species or designated critical habitat listed by the FWS or the state because no T&E species are known to be present on the KCP site and the project site does not support any vegetation or wildlife habitat.

3.7 FLOODPLAINS AND WETLANDS

The entire Federal complex, including the KCP and the proposed OTB, lies within a 100-year floodplain (Heacock 1990). Levees protect the KCP from inundation during floods that have an expected recurrence interval of once in approximately 100 years. Funding to increase flood protection has been included in the *Environmental Restoration and Waste Management Five-Year Plan*. This floodplain control project was assessed in an EA prepared by the U.S. Army Corps of Engineers (COE) and adopted by the Department (DOE/EA 0509). This floodplain control project is about 73% complete as of February 1994 (Heacock 1994b).

Floodwall project completion is anticipated in 1994 (Heacock 1993). Flood protection will then be increased to include floods that have an approximate recurrence interval of 500 years. Once the floodwall project is completed, the OTB and associated OCS would be effectively protected from flooding events up to a 500-year interval.

The U.S. Army Corps of Engineers (COE), which has regulatory authority for protection of wetlands, conducted a site inspection at the Bannister Federal Complex on January 11, 1989 (COE 1990). The results of this survey indicated that remedial action sites (including the site of the former Underground Tank Farm on which the OTB would be built) are not protected wetlands. Because no protected wetlands are present in the area of disturbance, no impacts to such wetlands from the proposed project are expected. No wetland permits or other compliance requirements for protection of wetlands would be needed.

3.8 HUMAN HEALTH AND SAFETY

3.8.1 Routine Operations

No Action. The draft KCP Site Safety Assessment, pending DOE approval as of February 1994, addresses existing KCP hazards and their controls . This safety assessment concludes that most of the hazards associated with the B97 system are similar to those already encountered at the KCP and that these operations involve hazards of the type and magnitude routinely encountered in industry and are generally accepted by the public (Heacock 1994b). In the B97 system, the major safety hazards are associated with the potential contact of workers with hazardous chemicals. The current UV/H_2O_2 system uses sulfuric acid and sodium hydroxide for pH adjustments before and after the oxidation process. Concentrated sulfuric acid, 50% sodium hydroxide liquid, and 50% hydrogen peroxide are each stored in three 1136-L (300-gal) tanks in Building 97. Separate secondary containment is provided for each tank. Building containment is also provided. Separate spill alarms are present for each containment area. A potential also exists for workers to come into contact with PCBs and other organically contaminated (organic solvents) wastewater, filters, and carbon waste.

Hydrogen peroxide can be a fire and explosion hazard because of its oxidizing capability. Hydrogen peroxide (at 50% by weight) is a moderately unstable oxidizer as defined by the National Fire Protection Association. This means it may moderately increase the burning rate or may cause spontaneous ignition of the combustible materials that it contacts. Therefore, care must be taken to avoid contamination or contact with combustible materials. Exposure to hydrogen peroxide vapor is irritating to the eyes, nose, and throat. Inhalation of vapor or mist may cause extreme irritation and inflammation of the nose and throat. Skin contact with the liquid for a short period of time will cause a temporary whitening or bleaching of the skin. If splashes are not removed, erythema (abnormal redness of the skin) may occur. Splashes of the liquid in the eyes could cause severe damage, including ulceration of the cornea (Proctor 1992). Hydrogen peroxide gradually decomposes at room temperature, giving off harmless oxygen and water.

Exposure to sodium hydroxide can irritate the eyes, respiratory system, skin, and lungs, and the chemical is also corrosive to body tissues (Sittig 1985). Direct contact can cause skin and eye burns, and inhalation of the dust or concentrated mist can cause damage to the upper respiratory tract and to lung tissue (Lewis 1992).

Sulfuric acid, if inhaled as a mist or vapor, causes nose and throat irritation, cough, and/or chemical burns to the respiratory tract. Skin or eye contact causes severe chemical burns, and if much of the skin is involved, exposure is accompanied by shock, collapse, and symptoms similar to those seen in severe burns. Chronic inhalation of the mist or vapor may cause bronchitis, impairment of lung function, and permanent lung damage (Chemtrics 1993).

PCBs have toxic effects on the skin and the liver. Upon systemic intoxication, nausea, vomiting, loss of weight, jaundice, edema, and abdominal pain can result. If the liver damage has been severe, an individual could pass into a coma and die (Lewis 1993). Organic solvents can affect the central nervous system to cause narcosis and death. Chlorinated hydrocarbons (such as the solvents at the KCP) also may have toxic effects on the liver (Klaassen, Andur, and Doull 1986).

Guidance to avoid or minimize exposure to these chemicals is formalized in Waste Management Operations (WMO) procedures. For example, WMO 324 (AlliedSignal 1993c) assigns responsibility and gives instructions for daily and special operations for Building 97. This WMO procedure also specifies related procedures that must be followed to ensure that operation of the facility complies with applicable regulations and to ensure worker health and safety. These procedures identify personal protective equipment (PPE) that must be worn during normal operations. This includes safety glasses with side shields and gloves to be worn when samples are taken or waste is handled. When transferring new and spent chemicals, workers are required to wear the following PPE: (1) rubber boots, (2) rubber gloves, (3) polyvinyl chloride raincoat, (4) goggles, and (5) face shield. Extra PPE can be worn, but it is not required. If fumes are present, a self-contained breathing apparatus is used instead of goggles and a face shield.

To avoid a possible explosion hazard, the hydrogen peroxide tank is vented to the atmosphere. This is standard practice for hydrogen peroxide storage (Lowther 1989). Hydrogen peroxide gradually decomposes in the atmosphere to harmless oxygen and water. Venting allows the release of these decomposition products, thus avoiding the buildup of pressure inside the tank that could cause an explosion. The hydrogen peroxide itself is not expected to escape during venting; therefore, toxic chemical exposures associated with venting the hydrogen peroxide tank are not of concern.

A potential exposure pathway for off-site individuals is contaminated drinking water. The CSS, which contains wastewater contaminated with VOCs and PCBs, discharges to the KCMO sewer system, which in turn discharges to the Missouri River. The Missouri River is a source of drinking water. Human ingestion of VOC-contaminated water is considered negligible for two reasons: (1) the VOCs [discharged from the KCP at about 0.036 mg/L (ppm) of chlorinated solvents (Sect. 3.3)] would mostly volatilize out of the water, and (2) if the VOCs remained in the water, they would be highly diluted by the Missouri River.

PCB discharges from the KCP to the city sewer system are at concentrations of about 0.4 ppb (Sect. 3.3). The lifetime cancer risk associated with exposure to 0.4 μg/L (ppb) of PCBs is approximately 8.8×10^{-5}. This risk estimate is calculated using EPA's cancer incidence slope factor of 7.7 $(mg/kg/day)^{-1}$ (from the Integrated Risk Information System Database) and assumes that the exposed individual weighs 70 kg (154 lbs) and consumes 2 L/day (0.5 gal/day) of the contaminated water over a lifetime. Because this risk estimate is based on the

PCB concentration discharged directly to the city sewer system from the KCP (and not what is eventually discharged to the Missouri River), and because of the other conservative assumptions of lifetime water intake, it is a highly conservative bounding risk estimate. The dilution factor for the concentration of PCBs expected to reach the Missouri River can be calculated from effluent and river flow rates. The flow from KCP to the treatment plant, which contains the 0.4 ppb of PCBs, is 0.029 m^3/s. This would be diluted in the effluent flow rate of 3.94 m^3/s out of the treatment plant and further diluted by the 1008 m^3/s average flow of the Missouri River. Therefore the dilution factor of the initial flow is $[0.029/(3.94*1008)] = 7.3 \times 10^{-6}$. Applying this factor to the cancer risk estimate calculated above, the risk due to PCBs (from KCP) in the Missouri River would be 6.4×10^{-10}. Therefore, public health impacts from consuming contaminated drinking water are considered negligible. Other exposure pathways from contaminated Missouri River water (e.g., fish consumption, dermal absorption) are also assumed to have negligible risks. In a 1989 risk assessment (Chidambariah et al. 1989), KCP PCB discharges to the city sewer system were found to result in *de minimis* public health risks.

Proposed Action. The proposed action would not pose any unique worker health or safety issues. Project construction would involve approximately 40 workers over a 2-year period (Dieckmann 1993). An analysis of soil samples from the proposed OCS construction sites found no RCRA contaminants (see Sect. 3.1). The proposed action would involve moving the three 1136-L (300-gal) chemical storage tanks from Building 97 to the proposed OTB and the installation of an additional 20,820-L (5500-gal) double-walled tank for hydrogen peroxide. Construction related to the three main components of the proposed action would require no unusual procedures.

Operation of the proposed OTB system poses no new worker health and safety issues over the B97 system. The OTB system limits exposure to the trace quantities of VOCs and PCBs because it is a closed system. Worker protection procedures for the existing system could be modified to allow for safe operation of the proposed facility. In the proposed OTB, the three 1136-L (300-gal) chemical storage tanks would be used to store only hydrogen peroxide or sulfuric acid. No sodium hydroxide would be used in the proposed system since the treated, acidified groundwater would be used to neutralize basic wastewater treated in the IWPF. This change would eliminate potential worker exposure to sodium hydroxide at the proposed OTB and reduce or eliminate the potential exposure to an acid at the IWPF.

The hydrogen peroxide tanks would be vented to the atmosphere to avoid pressure buildup. Venting of hydrogen peroxide would be similar to existing procedures, and therefore the activity poses no new worker health issues.

Negligible effects on public health would be expected from the proposed action because groundwater would be treated prior to discharge, and the PCB and VOC contaminant levels would be lower than those for the no-action alternative. Therefore, any potential drinking water risks, which were minor under the no-action alternative, would be reduced further under the proposed action.

3.8.2 Accidents

No Action. Currently, the groundwater treatment facilities are diked to prevent any minor leaks of groundwater or hazardous chemicals from entering the environment. Workers using proper PPE could readily clean up minor leaks and spills.

The major accident potential associated with groundwater treatment is the spill of hazardous chemicals (concentrated sulfuric acid, 50% sodium hydroxide, and 50% hydrogen peroxide) used to treat the contaminated groundwater. Building 97 houses the largest in-use inventory of hydrogen peroxide at the KCP. These chemicals are stored in three 1136-L (300-gal) tanks inside Building 97. Each of these tanks sits on a grate over a containment tank that could contain the volume of the storage tanks in the event of rupture. Procedures to ensure accurate and timely response from emergency situations and to prevent environmental impacts are provided in AlliedSignal WMO procedures [e.g., WMO 316 (Emergency Egress, Critical Operational Conditions, and Shutdowns of Building 97 Groundwater); Allied Signal 1993d]. These procedures address such events as fire/explosion, tornado, flood, earthquake, and evacuation of the KCP. These procedures have been established to prevent injury to workers. WMO 316 requires that workers wear proper PPE during cleanup and disposal of all wastewater and chemical spills (see no-action routine operations). In addition to standard PPE, a self-contained breathing apparatus must be worn if fumes are present.

Proposed Action. Impacts from accidents involving minor spills or potentially large spills of sulfuric acid and hydrogen peroxide would essentially be the same in the proposed treatment facility as they are for the existing facility. The proposed 20,820-L (5500-gal) hydrogen peroxide storage tank would be double-walled. The outer wall of this tank is intended to prevent the release of hydrogen peroxide to the environment should the inner wall rupture. Furthermore, risks associated with the use of sodium hydroxide would be eliminated since this chemical would not be used in the OTB system. The use of acidified groundwater from the OTB system to neutralize basic wastewater at the IWPF should reduce or eliminate acid use at the IWPF. This reduced use of acid at the IWPF could lower the risk of accidents at that facility and respond to a DOE request to reduce acid use.

3.9 POLLUTION PREVENTION, WASTE MINIMIZATION, AND WASTE MANAGEMENT

3.9.1 Background

The Pollution Prevention Act of 1990 established a national policy for the prevention or reduction of pollution at the source wherever feasible; recycling of resources where possible; treatment of pollution that cannot be prevented or recycled; and disposal of pollution as the last resort. In response to this law, DOE's 1992 Policy on Waste Minimization and Pollution Prevention was implemented. This policy includes provisions for "cost-effective waste minimization and pollution prevention in all of the Department's activities" (DOE 1992). The KCP is committed to these pollution prevention requirements.

Current waste management operations for construction projects at the KCP require a waste management plan to be incorporated into the construction documents to facilitate proper disposal of wastes generated during construction projects. This waste management plan includes waste characterization information gained from sampling and analysis and proper management techniques. Sampling and analysis is conducted as necessary to comply with applicable regulatory requirements. In 1992 the KCP disposed of approximately 442 metric tons (452 tons) of RCRA waste, 7.8 metric tons (8 tons) of PCB/RCRA waste, 7.8 metric tons (8 tons) of RCRA/TSCA waste, 85 metric tons (87 tons) of RCRA contaminated soil, and 565 metric tons (578 tons) of TSCA waste for off-site disposal (Heacock 1993).

3.9.2 Environmental Consequences

No Action. The only waste by-products currently associated with the no-action alternative are two prefilter systems and three carbon filtering systems. As defined in Sect. 1.1 and Fig. 3, Source 1 groundwater treatment in Building 97 currently uses a UV/H_2O_2 system as a primary treatment technology, an influent sock prefilter system and a carbon backup system for unusual emergencies. The filters generate about 70 kg/year (150 lbs/year) of solid wastes. Source 2 groundwater seepage is already being treated with a carbon adsorption system that generates 2180 kg/year (4800 lbs/year) of carbon waste. Source 3 groundwater has local treatment at one site that generates about 3350 kg/year (7380 lbs/year) of solid and carbon waste (59% solid wastes and 41% carbon wastes). These two prefilter systems and three carbon filter systems together generate about 5860 kg/year (12,900 lbs/year) of solid and carbon waste (Dieckmann 1993). There would continue to be minimal impact to the environment or to the current KCP waste operations from the proper disposal of wastes generated during operation of the existing groundwater treatment system (Sect. 2.3.2; Sect. 3.9.1). These prefilter and filter wastes represent on an annual basis less than 0.6 percent of the total KCP RCRA, TSCA, RCRA/TSCA wastes disposed of in 1992 (Heacock 1993).

Proposed Action. No unique wastes would be produced from construction and operation of the proposed OTB and OCS that are not already being handled and stored at the KCP. As described in Sect. 3.2, excavations for the OTB and associated underground piping would be performed largely within the former tank farm backfilled area. The top 4.6 m (15 ft) of soils in this area consist of native silty clays that were clean backfill. Soils outside the former tank farm area that may be excavated consist of silty and sandy clays. Because areas outside the former tank farm may be excavated, all soils would be characterized for possible contamination before they are appropriately managed. Similarly, soils to be excavated during sump modification or replacements have been analyzed and found to be free of RCRA contaminants (see Sect. 3.1). As currently planned, the modification of the collection system piping in the Main Manufacturing Building sump area would generate the following demolition type wastes: 154 metric tons (170 tons) of soil, 181 metric tons (200 tons) of concrete from the dismantling of the sumps, and 9 metric tons (10 tons) of debris (i.e., piping, pumps). The soil in the sump areas could be disposed of in a local sanitary landfill. The concrete would also be managed as nonhazardous construction debris. The piping debris and pumps would be rinsed and managed as scrap metal or construction debris (Heacock 1993). Construction of this project is not expected to generate any hazardous wastes, other than epoxy/paint-type debris. This type of waste is characterized as a RCRA hazardous waste and is currently shipped off the site for incineration at APTUS, Inc., Coffeyville, Kansas, located approximately 240 km (150 miles) from the KCP.

Other factors incorporated in the proposed action to prevent pollution or minimize waste during the OTB system operation are related to air emissions and waste by-products. The bid specifications for the groundwater treatment units prohibited air emissions of VOCs resulting from the treatment process. The only waste by-products associated with the system would result from a prefiltering system and a backup filtering system. The use of these two filter systems represents an estimated 4240-kg/year (9340-lbs/year) reduction in solid and carbon waste for the proposed action over the no-action alternative. Final disposal of the prefilters and spent carbon from the OTB system will be determined after characterization of the actual waste generated. The final disposal is contingent upon final acceptance of the waste at the disposal site. There would be minor impact to the environment and to the KCP waste operations from the proper disposal of wastes that would be generated during construction and operation of the OTB.

3.10 SOCIOECONOMICS

3.10.1 Affected Environment

The KCP is within the corporate limits of Kansas City in Jackson County, Missouri. The eight counties that make up the Kansas City Standard Metropolitan Statistical Area (SMSA) had a total 1990 population of 1,511,707 (DOC 1990). There is a greater proportion of employment in the manufacturing sector in the area of the KCP than in the Kansas City SMSA. The Federal complex in which the KCP is located is zoned for heavy industry. The property adjoining the plant is zoned for residential use. In 1980, 70% of the households in the vicinity of the KCP were of lower or lower-middle income as opposed to 49% for the SMSA (MARC 1988).

3.10.2 Environmental Consequences

No Action. Potential socioeconomic concerns include effects on population, employment, income, land use, transportation, and public perception. Under the no-action alternative, these effects would continue to be minor. A subcontractor currently operates the Building 97 groundwater treatment facility.

Proposed Action. Under the proposed action alternative, the subcontractor work force would increase by about 40 workers for 2 years for the construction of the OTB and piping activities. The present total KCP work force is 4150. The proposed project budget is approximately $1.7 million, which is less than 0.2% of KCP's yearly budget. As a result, socioeconomic impacts of the proposed action would be minor. The proposed facility would be operated by the subcontractor currently operating the Building 97 groundwater treatment facility.

3.11 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

No historical or archaeological resources have been identified within the KCP boundaries (Appendix A). Most of the construction would occur on a site that has already been excavated to a depth of 4.6 m (15 ft) to remove contaminated soil (the excavation pit has been refilled with local clay backfill) and in areas already disturbed by industrial uses. Therefore, no archaeological resources are expected to be affected by the proposed action or no-action alternatives.

4. REFERENCES

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Heacock, B. D. 1994b. Letter dated February 4, 1994, Environmental and Health Protection, AlliedSignal Inc., Kansas City Division, Kansas City, Missouri, to R. B. Reed, Section Head, Energy Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee, providing clarification and information for revision of the December 1993 working draft of the KCP Separate Process Wastewaters Environmental Assessment.

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5. LIST OF AGENCIES CONSULTED

The following agencies were consulted during preparation of this EA:

- The Department of the Army
  Kansas City District, Corps of Engineers
  700 Federal Building
  Kansas City, Missouri 64106-2896

- Missouri Department of Conservation
  P.O. Box 180
  Jefferson City, Missouri 65102-0180

- Missouri State Historic Preservation Office
  Historic Preservation Program
  P.O. Box 176
  Jefferson City, Missouri 65102

- U.S. Fish and Wildlife Service
  Columbia Field Office (ES)
  608 E. Cherry Street, Room 207
  Columbia, Missouri 64102

APPENDIX A

CONSULTATION AND CORRESPONDENCE
WITH STATE AND FEDERAL AGENCIES

JOHN ASHCROFT
Governor

G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Division of Energy
Division of Environmental Quality
Division of Geology and Land Survey
Division of Management Services
Divisionof Parks, Recreation, and Historic Preservation

DIVISION OF PARKS, RECREATION, AND HISTORIC PRESERVATION
P.O. Box 176
Jefferson City, MO 65102
314-751-2479

March 27, 1991

Ms. Darlene Lasley
Project Management Associate
Oak Ridge Natural Laboratory
Martin Marietta Energy Systems, Inc.
P.O. Box 2008
Oak Ridge, Tennessee 37831

RE: Proposed Wastewater and Groundwater Treatment Facility Project (DOE), General Services Administration Complex, Bannister Road and Troost Avenue, Kansas City, Missouri

Dear Ms. Lasley:

In response to your letter concerning the above referenced project, the Historic Preservation Program has reviewed the information provided and has determined that no known archeological or historical properties are located within the proposed project area. Therefore, it is the opinion of this office that a cultural resource assessment would not be warranted, and we have no objections to the initiation of project activities.

However, if the currently defined project area or scope of project related activities is changed or revised, the Missouri Historic Preservation Program must be notified and appropriate information relevant to such changes or revisions be provided for further review and comment, in order to ascertain the need for additional investigations.

If I can be of further assistance, please write or call 314/751-7860.

Sincerely,

HISTORIC PRESERVATION PROGRAM

Michael S. Weichman
Senior Archaeologist

/mc

United States Department of the Interior
Fish and Wildlife Service
Fish and Wildlife Enhancement
Columbia Field Office
608 East Cherry Street
Columbia, Missouri 65201

TAKE PRIDE IN AMERICA

In Reply Refer to:
FWS/AFWE-CMFO

APR 1 1 1991

Robert M. Reed, Ph.D.
Environmental Sciences Division
Oak Ridge National Laboratory
P.O. Box 2008
Oak Ridge, Tennessee 37831-6036

Dear Dr. Reed:

This responds to your letter, dated March 9, 1991, requesting the comments of the U.S. Fish and Wildlife Service (Service) on the Department of Energy's (DOE) proposed construction and operation of a groundwater collection and treatment facility at the Kansas City Plant, adjacent to the Blue River and Indian Creek in Jackson County, Missouri.

These comments are provided as technical assistance and predevelopment consultation and do not constitute a Service report under authority of the Fish and Wildlife Coordination Act (Coordination Act) (16 U.S.C. 661 et seq.) on any required Federal environmental review or permit or license application.

The Service has responsibility, under a number of authorities, for conservation and management of fish and wildlife resources. Chief among the Federal statutes with which our office deals are the Coordination Act, Endangered Species Act, and the National Environmental Policy Act. The Coordination Act requires that fish and wildlife resources be given equal consideration in the planning, implementation, and operation of Federal and federally funded, permitted, or licensed water resource developments.

Section 7 of the Endangered Species Act outlines procedures for interagency consultations on the effects of Federal actions on federally-listed threatened and endangered species. The Service participates in scoping and review of actions significantly affecting the quality of the environment under authority of the National Environmental Policy Act. In addition to these statutes, the Service has authority under several other legislative, regulatory, and executive mandates to promote conservation of fish and wildlife resources for the benefit of the public.

In Missouri, the Service has special concerns for migratory birds (in particular waterfowl), federally-listed endangered and threatened species, and other important fish and wildlife resources. We also are concerned about impacts to Federal and State wildlife refuges and management areas and other public lands, as well as to other areas that support sensitive habitats. Habitats frequently associated with important fish and wildlife resources are wetlands, streams, and riparian (streamside) woodlands. Special attention is given to proposed developments that include modification of wetlands, stream alteration, or contamination of important habitats. The Service recommends ways to avoid, minimize, rectify, reduce, or compensate for damaging impacts to important fish and wildlife resources and habitats that may be attributed to land and water resource development proposals.

The following recommendations are designed to minimize potential detrimental impacts within the project area:

1. In accordance with Section 7(c) of the Endangered Species Act, we have determined that the following federally-listed species may occur in the project area. No designated critical habitat occurs in the project area.

Species	Federal Status[1]	Status in Missouri	Habitat
Bald Eagle (*Haliaeetus leucocephalus*)	E	Migrant, winter resident, rare breeder along some of the major rivers in the state	Large lakes & rivers

The nature of the subject project indicates that habitat for the species listed above likely would not be adversely affected. If, however, the Environmental Protection Agency determines that the project may affect listed species, formal or informal consultation should be requested with this office. Likewise, should plans for this proposed project be modified, or new information indicate that listed species may be affected, consultation should be reinitiated with this office.

Please contact the Missouri Department of Conservation (P.O. Box 180, Jefferson City, Missouri 65101) concerning State-listed endangered and threatened species.

2. The proposed project does not appear to impact Federal fish and wildlife management facilities. Please contact the Missouri Department of Conservation concerning State facilities.

3. Construction and operational activities should avoid wetlands, streams, and riparian zones to the maximum extent possible. If impact to these areas is unavoidable, a permit may be required from the U.S. Army Corps

[1] E- Endangered, T- Threatened, PE- Proposed for listing as Endangered, PT- Proposed for listing as Threatened, DCH- Designated Critical Habitat

of Engineers and/or the Missouri Department of Natural Resources. If a Federal permit is required, the Service would review the application and provide recommendations. According to available information, wetlands, floodplain and riparian zones appear to occur adjacent to the Blue River and Indian Creek within the project area. We recommend that you contact the Corps' Kansas City District Office (816/426-3201) to determine the need for a dredge and fill permit.

Based upon the submitted information, we have no objection to this proposal as currently planned, provided that our recommendations are followed. However, should the plans be modified, we recommend that you reinitiate coordination with this office.

We appreciate the opportunity to provide comments. Should you have further questions, please contact Mr. Jim Hazelman of our staff at the address above, or by telephone at 314/876-1911 or FTS 276-1911.

Sincerely,

Rick L Hansen

[redacted]
Jerry J. Brabander
Field Supervisor

cc: MDC; Jefferson City, MO (Attn: Dan Dickneite)
MDC; Jefferson City, MO (Attn: Dennis Figg)
MDNR; Jefferson City, MO (Attn: Charles Stiefermann)
EPA; Kansas City, KS (Attn: Kathy Mulder)

JTH:jh:1747/JADOEKCP.WST

MISSOURI DEPARTMENT OF CONSERVATION

MAILING ADDRESS
P.O. Box 180
Jefferson City, Missouri 65102-0180

STREET LOCATION
2901 West Truman Boulevard
Jefferson City, Missouri

Telephone: 314/751-4115
JERRY J. PRESLEY, Director

April 2, 1991

Mr. Robert M. Reed
Environmental Assessment Group
Oak Ridge National Laboratory
P. O. Box 2008
Oak Ridge, Tennessee 37831-6036

Re: U. S. Department of Energy
Collection and Treatment Plant
Kansas City, MO

Dear Mr. Reed:

Thank you for your letter of March 9, 1991 regarding threatened and endangered species within the proposed project area.

Department staff examined map and computer files for federal and state threatened and endangered species and determined that no sensitive species or communities are known to occur on the immediate site or surrounding area. The lack of records, however, does not mean that such species or communities do not exist on this tract of land. Only an on-site inspection could verify their absence or existence.

Thank you for the opportunity to review and comment.

Sincerely,

Dan F. Dickneite

DAN F. DICKNEITE
PLANNING DIVISION CHIEF

APPENDIX B

MODIFICATION FOR LAND-USE RESTRICTIONS
UNDERGROUND TANK FARM

APPENDIX B
MODIFICATION FOR LAND-USE RESTRICTIONS UNDERGROUND TANK FARM

The Waste Management Program, upon review of Department of Energy's request for alternate land-use restrictions for the land area identified as the "underground tank farm area" per the DOE document dated October 28, 1988, modifies the land-use restrictions contained in the approved underground tank farm closure/postclosure plan as follows:

DOE may use the "underground tank farm" area for the following activities: paved roadways; paved parking areas; paved storage lots; utility poles; underground utilities to include telephone, fire main, drainage structures and other underground appurtenances necessary to support this facility; fence and fence posts; and foundations for above-ground structures. Use of this area for the above listed usages is conditioned upon:

1. None of the aforementioned activities disturbing soil at depths greater than 3 m (10 ft) below ground surface and/or within 0.6 m (2 ft) of contaminated soils.

2. Remediation activities not being disrupted by any of the aforementioned land-use activities.

3. Backfilled soils are to achieve the same permeabilities as the in situ soils that they are replacing.

This modification of land-use restrictions is to be incorporated in the notices required by 10 CSR 25-7.265(2)(G).

G. Tracy Mehan, III, Director
Department of Natural Resources

______________________________ Date____________________