DOE/EA-1947

DRAFT
ENVIRONMENTAL ASSESSMENT

FOR THE

TRANSFER OF THE KANSAS CITY PLANT, KANSAS CITY, MISSOURI

U.S. Department of Energy
National Nuclear Security Administration

February 2013

CONVERSION FACTORS

Metric to English			English to Metric		
Multiply	by	To get	Multiply	by	To get
Area					
Square kilometers	247.1	Acres	Acres	0.0040469	Square kilometers
Square kilometers	0.3861	Square miles	Square miles	2.59	Square kilometers
Square meters	10.764	Square feet	Square feet	0.092903	Square meters
Concentration					
Kilograms/sq. meter	0.16667	Tons/acre	Tons/acre	0.5999	Kilograms/sq. meter
Milligrams/liter	1[a]	Parts/million	Parts/million	1[a]	Milligrams/liter
Micrograms/liter	1[a]	Parts/billion	Parts/billion	1[a]	Micrograms/liter
Micrograms/cu. meter	1[a]	Parts/trillion	Parts/trillion	1[a]	Micrograms/cu. meter
Density					
Grams/cu. centimeter	62.428	Pounds/cu. ft.	Pounds/cu. ft.	0.016018	Grams/cu. centimeter
Grams/cu. meter	0.0000624	Pounds/cu. ft.	Pounds/cu. ft.	16,025.6	Grams/cu. meter
Length					
Centimeters	0.3937	Inches	Inches	2.54	Centimeters
Meters	3.2808	Feet	Feet	0.3048	Meters
Micrometers	0.00003937	Inches	Inches	25,400	Micrometers
Millimeters	0.03937	Inches	Inches	25.40	Millimeters
Kilometers	0.62137	Miles	Miles	1.6093	Kilometers
Temperature					
Absolute					
Degrees C + 17.78	1.8	Degrees F	Degrees F − 32	0.55556	Degrees C
Relative					
Degrees C	1.8	Degrees F	Degrees F	0.55556	Degrees C
Velocity/Rate					
Cu. meters/second	2,118.9	Cu. feet/minute	Cu. feet/minute	0.00047195	Cu. meters/second
Meters/second	2.237	Miles/hour	Miles/hour	0.44704	Meters/second
Volume					
Cubic meters	264.17	Gallons	Gallons	0.0037854	Cubic meters
Cubic meters	35.314	Cubic feet	Cubic feet	0.028317	Cubic meters
Cubic meters	1.3079	Cubic yards	Cubic yards	0.76456	Cubic meters
Cubic meters	0.0008107	Acre-feet	Acre-feet	1,233.49	Cubic meters
Liters	0.26418	Gallons	Gallons	3.78533	Liters
Liters	0.035316	Cubic feet	Cubic feet	28.316	Liters
Liters	0.001308	Cubic yards	Cubic yards	764.54	Liters
Weight/Mass					
Grams	0.035274	Ounces	Ounces	28.35	Grams
Kilograms	2.2046	Pounds	Pounds	0.45359	Kilograms
Kilograms	0.0011023	Tons (short)	Tons (short)	907.18	Kilograms
Metric tons	1.1023	Tons (short)	Tons (short)	0.90718	Metric tons
English to English					
Acre-feet	325,850.7	Gallons	Gallons	0.000003046	Acre-feet
Acres	43,560	Square feet	Square feet	0.000022957	Acres
Square miles	640	Acres	Acres	0.0015625	Square miles

a. This conversion factor is only valid for concentrations of contaminants (or other materials) in water.

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ACRONYMS AND ABBREVIATIONS

BFC	Bannister Federal Complex
CEQ	Council on Environmental Quality
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1976*
CFR	*Code of Federal Regulations*
CSR	*Code of State Regulations*
DCCR	Description of Current Conditions Report
DOE	U.S. Department of Energy (also called the Department)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FONSI	Finding of No Significant Impact
FR	*Federal Register*
HSWA	*Hazardous and Solid Waste Amendments of 1984*
GSA	General Services Administration
KCP	Kansas City Plant
MDNR	Missouri Department of Natural Resources
MHWMF	Missouri Hazardous Waste Management Facility
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act*, as amended
NHPA	*National Historic Preservation Act*
NNSA	National Nuclear Security Administration
NOA	Notice of Availability
PCBs	polychlorinated biphenyls
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 micrometers or less
RCRA	*Resource Conservation and Recovery Act of 1976*
SHPO	State Historic Preservation Office
SWMU	solid waste management unit
U.S.C.	*United States Code*

UNDERSTANDING SCIENTIFIC NOTATION

NNSA has used scientific notation in this EA to express numbers that are so large or so small that they can be difficult to read or write. Scientific notation is based on the use of positive and negative powers of 10. The number written in scientific notation is expressed as the product of a number between 1 and 10 and a positive or negative power of 10. Examples include the following:

Positive powers of 10	Negative powers of 10
$10^1 = 10 \times 1 = 10$	$10^{-1} = 1/10 = 0.1$
$10^2 = 10 \times 10 = 100$	$10^{-2} = 1/100 = 0.01$
and so on, therefore,	and so on, therefore,
$10^6 = 1{,}000{,}000$ (or 1 million)	$10^{-6} = 0.000001$ (or 1 in 1 million)

Probability is expressed as a number between 0 and 1 (0 to 100 percent likelihood of the occurrence of an event). The notation 3×10^{-6} can be read 0.000003, which means that there are 3 chances in 1 million that the associated result (for example, a fatal cancer) will occur in the period covered by the analysis.

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1. INTRODUCTION, PURPOSE AND NEED FOR ACTION

The National Nuclear Security Administration (NNSA) is preparing this Environmental Assessment (EA) to evaluate the potential environmental impacts of transferring the Kansas City Plant (KCP) to one or more entities for a use that is different from its current use. Transfer includes sale or lease of the property in whole or in part. This EA has been prepared in accordance with the *National Environmental Policy Act* (42 U.S.C. §§ 4321 *et seq*.; NEPA), the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500 to 1508), and the U.S. Department of Energy's (DOE's) NEPA implementing regulations (10 CFR Part 1021). These regulations require that NNSA consider the potential environmental impacts of its proposed action and the reasonable alternatives before making a decision about whether to transfer the KCP property. NNSA has prepared this EA to:

- Describe the purpose and need for this proposed action;
- Describe the proposed action and the no-action alternative;
- Describe the affected environment;
- Assess the potential direct and indirect environmental impacts of the proposed action and the no-action alternative; and
- Assess the cumulative impacts of the proposed action with past, present, and other reasonably foreseeable actions.

This EA will provide NNSA with the information needed to make an informed decision about the transfer of the KCP property, which is on the Bannister Federal Complex (BFC) located within the city limits of Kansas City, Missouri.

1.1 Purpose and Need for Agency Action

The purpose and need for agency action is to reduce NNSA's operational footprint and reduce operational and maintenance costs in an environmentally safe and fiscally responsible manner. The proposed action is to transfer the KCP, in whole or in part, to one or more entities for a use that is different from its current use. NNSA believes the transfer of this property would benefit NNSA and the local economic area.

1.2 Background

The NNSA, which was established in March 2000 as a semi-autonomous agency of the DOE, is the Federal agency responsible for maintaining and enhancing the safety, security, reliability, and performance of the U.S. nuclear weapons stockpile. KCP manufactures or procures a wide array of sophisticated nonnuclear mechanical, electronic, and engineered material components for national defense systems. These components comprise about 85 percent of the components of a nuclear weapon. While the current KCP facility has served its mission well, it has become inefficient, and the costs to maintain and reconfigure it would be excessive in relation to the costs of the primary production mission (GSA and NNSA 2008).

KCP, located at the BFC, is within the city limits of Kansas City, Missouri, about 8 miles south of the city center (see Figures 1-1 and 1-2). The approximately 300-acre BFC is a compact, highly developed site owned by NNSA and the General Services Administration (GSA). NNSA owns the portion of the BFC known as KCP, consisting of about 122 acres and 38 buildings. GSA owns the remainder of the site, consisting of about 175 acres and 14 buildings. Major highways (Interstate Highway 435 [I-435] and I-49/U.S. Highway 71) and auxiliary and smaller secondary streets provide access. There are no residences or agricultural activities or farmlands on the BFC. There is a daycare facility located on GSA property. The adjoining properties to KCP and the BFC are mostly residential with isolated commercial tracts,

except along the eastern and northern sides, which have been designated for public and recreational uses. The site is currently zoned for manufacturing (Chapter 88, Section 88-140 of the Code of Ordinances of Kansas City, Missouri).[1]

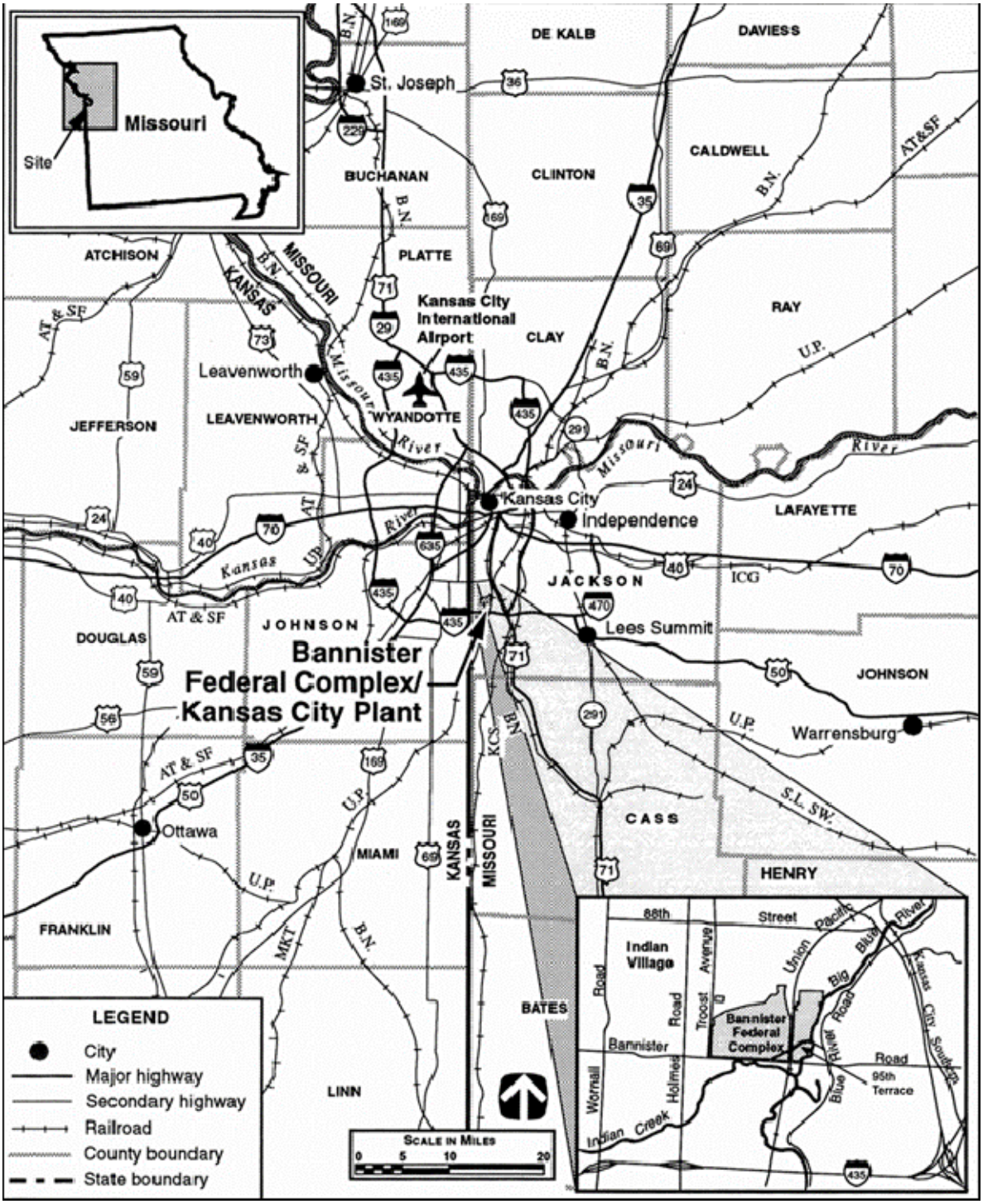

Figure 1-1. Location of the KCP (Source: GSA and NNSA 2008)

1. Prior to January 2011, when the City adopted a new zoning code, the BFC was zoned M-2b, "Heavy Industry." In 2011, as required by City Code 88-25-06, the zoning for the BFC per the zoning map was designated M3-5, "Manufacturing 3-5."

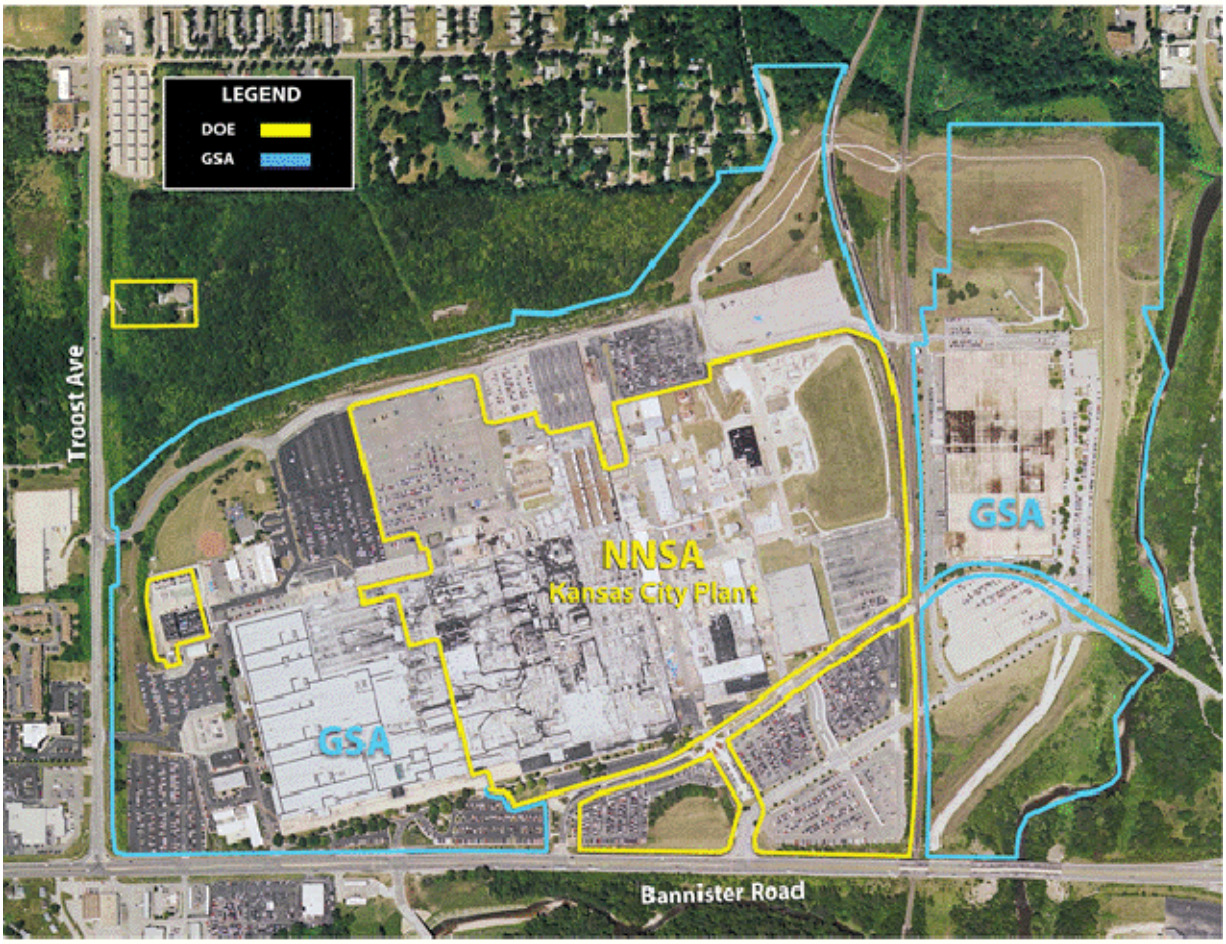

Figure 1-2. NNSA and GSA Properties at the BFC

Historically, the area occupied by the KCP was primarily agricultural, except for a brief period during the 1920s when it was an automobile racetrack. In 1942, the Federal Government built the Main Manufacturing Building, which Pratt and Whitney used to manufacture airplane engines during World War II. After the war, the government used the facility as both a warehouse and a facility to house government operations. Under contract with the U.S. Navy, Westinghouse built jet engines in part of the facility from 1948 to 1961. The Bendix Corporation (now Honeywell Federal Manufacturing & Technologies) began producing electrical and mechanical weapon components for the U.S. Atomic Energy Commission (a predecessor agency to DOE/NNSA) in part of the Main Manufacturing Building in 1949 and expanded its use of the facilities after Westinghouse left. Since that time, the principal operation at KCP has been the manufacture of nonnuclear components for nuclear weapons, which involves metals and plastics machining, plastic fabrication, plating, microelectronics, and electrical and mechanical assembly (NNSA 2007).

1.2.1 NNSA BUILDINGS

The 38 buildings NNSA owns comprise about 2.9 million square feet (Table 1-1) (NNSA 2007). About 90 percent of this area is industrial space, 2 percent is warehouse space, and 8 percent is office, cafeteria, and administrative space (NNSA 2012a). The most dominant structure on the BFC is the Main Manufacturing Building, which has about 2.7 million square feet of contiguous space and houses the primary KCP manufacturing operations (Figure 1-3). NNSA and GSA share this space. NNSA has

control of about 1.75 million square feet of space in this building. In addition to the Main Manufacturing Building, NNSA owns about 1.2 million square feet of space in the remaining 37 buildings. The KCP buildings vary in type of construction from steel and concrete to masonry. They were built at various times and with different design criteria. Twenty percent of the total KCP floor space is in excellent condition, 1 percent is good, 60 percent is adequate, 11 percent is fair, and 8 percent is poor (GSA and NNSA 2008). NNSA operations at KCP employ about 2,700 workers (DOE 2011a).

Table 1-1. NNSA Buildings at the BFC

Building	Building number	Year built	Area (square feet)	Construction type
Main Manufacturing Building	1	1942	1,755,593	Reinforced concrete
Main Office Building	2	1942	240,717	Reinforced concrete
West Powerhouse	5	1943	60,760	Reinforced concrete
Manufacturing Support Building	13	1957	142,516	Steel framed with unreinforced masonry block
Four Experimental Test Cells	14	1943	40,077	Reinforced concrete
Polymer Building	15	1943	18,991	Reinforced concrete
Kinematics Building	16	1942	5,331	Steel framed
Unfinished Test Cells	46	1943	5,509	Reinforced concrete
East Powerhouse	48	1961	12,958	Steel framed
High Power Lab	54	1944	31,309	Steel framed
Waste Management	59	1952	24,120	Prefabricated metal
Solid Waste Disposal	73	1972	8,868	Prefabricated metal
Production and Chemical Storage	74	1973	27,294	Pre-engineered metal with unreinforced masonry
Supervisory Control	75	1973	2,294	Reinforced concrete
Oil Storage Building	77	1948	2,319	Steel framed with unreinforced masonry block
North Wing Laboratory	86	1943	28,624	Reinforced concrete frame
Forge and Casting	88	1943	35,960	Reinforced concrete building
Fire Protection Pump House	89	1991	1,904	Steel framed
Mold Heating and Cooling	90	1984	2,400	Reinforced masonry
Plating Building	91	1985	38,113	Steel framed
Technical Transfer Center (Building 92)	92	1985	258,229	Steel framed
Special Process Building	96	1987	13,585	Steel framed
Industrial Waste Pretreatment Facility	98	1988	21,988	Steel framed
Receiving Dock	01-B	1987	3,650	Masonry
Main (West) Switchgear	01-C	1942	2,400	Reinforced masonry
East Employee Entrance	9	1942	1,884	Masonry
Central Guard Post	32	1974	1,043	Steel framed
North Employee Entrance	47	1942	1,747	Masonry
Storage Shed	68	1957	576	Steel framed
Explosive Storage Bunker	76	1953	150	Reinforced concrete
East Guard Post	78	1974	413	Steel framed
West Guard Post	79	1974	200	Steel framed
North Guard Post	80	1974	454	Steel framed
Test Cells	87	1943	132,596	Reinforced concrete
Northeast Guard Post	93	1985	191	Steel framed
Northwest Guard Post	94	1987	240	Steel framed
Receiving and Shipping Security Post	99	2004	305	Steel framed
Air Monitoring Building	31	1994	208	Steel framed
Total			**2,925,516**	

Source: NNSA 2007.

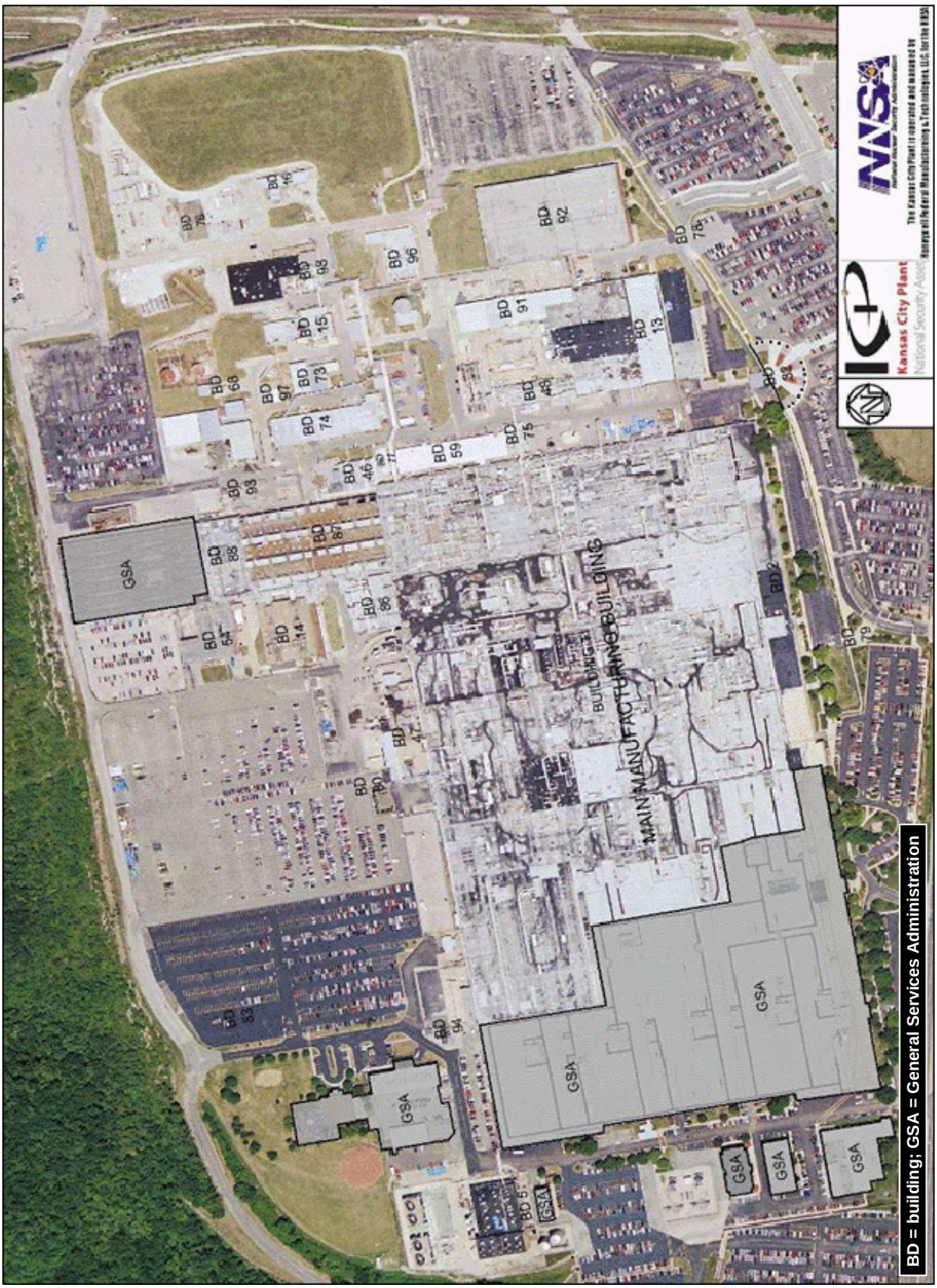

Figure 1-3. Primary Buildings at the KCP (Source: Honeywell 2013)

1.2.2 SITE REMEDIATION

The KCP has been characterized to identify soil, groundwater, and facility contamination from KCP operations and historical manufacturing operations that occurred before the involvement of DOE or DOE's predecessor agency at the site. In the mid-1980s, DOE began investigating past waste disposal and management practices to determine if there could be environmental hazards that required remedial action. In June 1989, DOE and the U.S. Environmental Protection Agency (EPA) entered into a consent order under the *Resource Conservation and Recovery Act of 1976* (42 U.S.C. §§ 6901 *et seq.*; RCRA) that identified release sites from past activities at the KCP and established a mechanism, as appropriate, for further investigation and corrective measures. Originally, 35 potential release sites were identified, but 8 more sites were added after the consent order was signed, bringing the total to 43 (MDNR 2012a). The original consent order identified several sites as requiring no further action based on existing information. These sites were left in the consent order to document potential sites, the conclusions that further action was unnecessary, and regulatory agency concurrence with those conclusions.

In 1999, the Missouri Department of Natural Resources (MDNR) issued a Missouri Hazardous Waste Management Facility (MHWMF) Permit to the KCP, which incorporated the remediation work and decisions started under the consent order. As a result, oversight of the remedial or corrective measure program at the KCP shifted from the EPA to MDNR and the 43 potential release sites were designated as solid waste management units (SWMUs).

NNSA completed remediation and restoration activities under the 1999 MHWMF Part I Permit in 2006. As an ongoing activity, NNSA monitors contaminant levels in groundwater and, where required to contain the plume, collects and treats groundwater and discharges it to the local, publicly owned sewage treatment plant. NNSA is required to sample surface water, sediment, and fish tissue in Indian Creek and the Blue River for polychlorinated biphenyls (PCBs) (MDNR 2012b). Soil remediation efforts are further discussed in Section 3.4. Groundwater remediation efforts are discussed in Section 3.5. The MHWMF Part I Permit was modified in 2012 and is discussed in Section 1.2.3 below.

1.2.3 REGULATORY COMPLIANCE

Any transfer of the KCP would comply with all applicable regulatory requirements. Key regulatory requirements include the *Comprehensive Environmental Response, Compensation, and Liability Act of 1976* (42 U.S.C. §§ 9601 *et seq.*; CERCLA) and the modified MHWMF Part I Permit and the *Hazardous and Solid Waste Amendments of 1984* (HSWA) Part II Permit[2]. Chapter 5 of this EA discusses applicable regulatory requirements related to the potential transfer of the KCP.

1.2.3.1 CERCLA Section 120(h), "Property Transferred by Federal Agencies"

NNSA is responsible for remedial activity at the KCP, and any transfer of KCP would comply with all regulatory requirements. Section 120(h) of CERCLA is particularly applicable because it imposes requirements on all transfers of Federal property to non-Federal entities to ensure continued protection of human health and the environment after the transfer. Section 120(h) allows a Federal agency to transfer property after the completion of remedial activity or, under certain circumstances, while remediation is ongoing.

If all remedial actions necessary to protect human health and the environment are complete before the date of the transfer, this would be considered a "Timely Transfer," and the deed would include a covenant that the agencies had taken all remedial actions necessary to protect human health and the environment

2. The HSWA Part II Permit addresses Federal regulatory requirements for which the State is not yet authorized.

with respect to any such substance remaining on the property before the date of the transfer. If NNSA transfers the property before completing all remedial actions, this would be considered an "Early Transfer":

- An Early Transfer allows an agency to defer the deed covenant referenced above and transfer the property before remediation is complete as long as safeguards are in place to protect human health and the environment.

- Early Transfer authority requires a 30-day period for the public to review and comment on the suitability of a property for Early Transfer. The State of Missouri further requires that the Governor of Missouri concur that the property is suitable for Early Transfer.

- In addition, Early Transfer authority allows NNSA to shift remediation responsibility to the new owner, although it cannot transfer its legal liability for the remediation.

In either Timely or Early Transfer, at transfer, NNSA must include a deed covenant that the United States will return and perform any additional response action that might be necessary in the future, and will retain a perpetual right of access to perform such actions.

1.2.3.2 MHWMF Permit

In 1999, MDNR issued an MHWMF Permit to the KCP, which incorporated the remediation work and decisions started under the consent order as described in Section 1.2.2 above. On August 24, 2012, MDNR issued a modified MHWMF Part I Permit and Region 7 of the EPA issued a modified HSWA Part II Permit to NNSA and GSA as co-owners, putting into effect the requested changes (MDNR 2012c). A major element of the modifications to the permits was consolidation of the entire BFC under the permit rather than just the KCP portion; that is, the modification would make the GSA a permittee as owner and operator of its portion. The MHWMF Permit modification also added two GSA sites, the Former Landfill and Building 50, as SWMUs 44 and 45, respectively (all 45 SWMUs are further discussed in Section 3.4.1.2 and are shown in Figure 3-4). Both are now identified in the permit as units requiring further corrective actions to protect human health and the environment.

The modified MHWMF Part 1 Permit requires the NNSA and GSA to prepare a series of reports and assessments of the entire BFC, and to potentially conduct additional site cleanup based on the conclusions of the assessments. Highlights of the permit requirements include:

- Prepare a Description of Current Conditions Report (DCCR) to memorialize the environmental investigations already performed at the BFC and identify areas that require further investigation;

- Prepare a qualitative baseline risk assessment across all environmental media and contaminants of concern to screen potential human health and ecological risks posed by current site conditions;

- Prepare a quantitative complex-wide assessment of human health and ecological risk;

- Perform a PCB fate and transport study to evaluate environmental media and transport mechanisms that may be contributing to the presence of PCBs in the nearby environment;

- Evaluate contaminant source reduction/removal options; and

- Specify limitations upon excavations that may occur (such as demolition of existing buildings) in areas of known contamination.

The DCCR will be submitted to MDNR on or before March 25, 2013. The associated baseline risk assessment is to be prepared on a schedule set by MDNR during the review and approval process for the DCCR (MDNR 2012a).

Any transfer of the KCP would comply with all applicable regulatory requirements, including the MHWMF Part I Permit. Future owners of the site are expected to be added to the MHWMF Part I Permit and would be responsible for complying with the permit. In essence, the permit will always be attached to the property. Any changes conducted by NNSA or future owners to the buildings (such as demolition) would open the permit to address any hazardous waste issues that are found. Any new owner would be required to provide financial assurance to guarantee the funding of all activities required by the permit. In lieu of such financial assurance, NNSA and GSA may continue to perform the work required by the permit. Additional details regarding the MHWMF Part I Permit can be found on the MDNR website: http://www.dnr.mo.gov/env/hwp/permits/mo9890010524/120824-finalI.pdf.

1.2.4 SOLICITATION OF INTERESTED PARTIES

NNSA solicited proposals for the KCP property through a Notice of Availability (NOA) published on October 11, 2011 (NNSA 2011). The NOA was published in "Federal Business Opportunities" and the *Wall Street Journal* and was available to Federal, State, and local governmental and private entities, No Federal or State government proposals were received; however, several private entity proposals were submitted. NNSA identified CenterPoint Properties as its preferred planning partner to further develop potential future use approaches for the KCP. These approaches will include continued conceptual design and feasibility studies. NNSA has made no commitments or decisions related to CenterPoint Properties' role in defining future uses associated with the transfer of the KCP.

NNSA carefully reviewed the proposals received and was able to determine the scope of foreseeable future uses of the property. Through the NOA process, NNSA determined that only land uses consistent with mixed use (industrial, warehouse, and office) are feasible. For this EA other uses that involve frequent access or occupancy by the public, such as residential, retail, and medical care land uses, are not included in this definition of mixed use.

1.3 Overview of NEPA Activities to Date

On April 21, 2008, NNSA and GSA issued the *Environmental Assessment for the Modernization of Facilities and Infrastructure for the Non-Nuclear Production Activities Conducted at the Kansas City Plant* (DOE/EA-1592; GSA and NNSA 2008). On April 29, 2008, NNSA and GSA issued a Finding of No Significant Impact (FONSI) for their proposal to construct a new KCP National Security Campus about 8 miles south of the BFC to house NNSA KCP operations (73 FR 23244). The new facility will reduce the environmental footprint of KCP operations, including improved energy efficiency, lower emissions, and a reduction in waste generation. Construction of that facility is nearly complete, and NNSA expects the relocation to be completed by fall of 2014. Once the move is completed and required decommissioning activities concluded, the property (potentially all land and buildings falling under NNSA's current management responsibilities) at the KCP will be excess to the needs of the NNSA mission and will be available for transfer.

NNSA also began development of the *Environmental Impact Statement for the Disposition of the Bannister Federal Complex, Kansas City, Missouri* (DOE/EIS-0475) (BFC EIS) to analyze the impacts of transferring of the entire BFC, with GSA as a cooperating agency. The Notice of Intent to prepare the BFC EIS was published in the *Federal Register* on January 23, 2012 (77 FR 3259). NNSA has decided to prepare an EA addressing transfer of KCP property rather than an EIS because the scope of the BFC EIS was impacted by the following items since the issuance of the Notice of Intent:

- NNSA issued an NOA on October 11, 2011, to determine interest in the property (see additional details in Section 1.2.4). Development consistent with mixed use (industrial, warehouse, and office) was the only feasible future use identified during this process. For this reason, the focus of analysis in this NEPA review is limited to those possible future uses consistent with mixed use (industrial, warehouse, and office). This determination has reduced the number of alternatives that are being considered in this EA compared with those that were going to be considered in the BFC EIS, as well as the potential environmental impacts associated with the alternatives.

- On August 24, 2012, MDNR and EPA issued the final modifications for the existing MHWMF Part I Permit and the existing HSWA Part II Permit. The modified permits add the GSA as a permittee and expand coverage to encompass the entire BFC (see additional details in Section 1.2.3). These permit modifications will allow better coordination of environmental investigations between Federal and State agencies and could facilitate a better coordinated implementation of any necessary corrective actions. As a result of the permit modifications, NNSA and GSA are required to conduct further environmental investigation, monitoring, risk assessment, and cleanup of the BFC. Because of the permit modifications, there is now less uncertainty related to the regulatory framework and drivers for cleanup of the BFC.

- NNSA review of comments received during scoping of the EIS, and work on the preliminary draft EIS, led to the conclusion that an EA was appropriate in order to inform NNSA decision makers of the potential environmental impacts of the proposed action and whether an EIS is required.

For these reasons, NNSA believes an EA is the appropriate NEPA document to evaluate the proposed action of transferring the KCP property to one or more entities for a use that is different from its current use. Due to the more uncertain timing of the transfer of the GSA-owned property, it was deleted from the proposed action. The impact of transferring GSA property is assessed in the cumulative impacts section of this EA.

1.4 Scope of this Environmental Assessment

This EA:

- Describes the purpose and need for agency action and provides background information on the KCP (Chapter 1);

- Describes the proposed action and the no-action alternative (Chapter 2);

- Analyzes the potential direct and indirect environmental impacts of the proposed action and no-action alternative (Chapter 3);

- Identifies and characterizes cumulative impacts that could result from the proposed action in relation to past, present, and other reasonably foreseeable actions (Chapter 4);

- Discusses applicable regulatory requirements related to the potential transfer of KCP (Chapter 5); and

- If the EA supports a finding that the proposed action would not have a significant effect on the quality of the environment, NNSA could issue a FONSI and proceed with the action.

1.5 Public Involvement

NNSA informed the public of this EA through a Notice of Intent (77 FR 71414, November 30, 2012). Public scoping is not required for an EA; however, NNSA performed an internal scoping process that considered public scoping comments previously received on the Notice of Intent for the proposed BFC EIS. NNSA held an informational meeting on December 11, 2012, to provide information regarding the scope of the EA and the new proposed action to interested parties. NNSA notified potentially interested local, State, and Federal agencies—including the Office of the Governor of Missouri, MDNR, the Missouri State Historic Preservation Office (SHPO), the U.S. Fish and Wildlife Service, EPA Region 7, local stakeholders, and officials from local communities—of this informational meeting. NNSA also published a notice for the informational meeting in the largest local newspaper (*Kansas City Star*). See Appendix A for the distribution list.

The process of preparing a NEPA document provides opportunities for public involvement. For this EA, these opportunities will occur during the public comment period after publication of the draft EA. NNSA notified potentially interested local, State, and Federal agencies—including the Office of the Governor of Missouri, MDNR, Missouri SHPO, the U.S. Fish and Wildlife Service, EPA Region 7, local stakeholders, and officials from local communities—of the availability of the draft EA via an NOA posted on various DOE websites, a postcard mailing, and a newspaper advertisement in the *Kansas City Star*. NNSA distributed the draft EA to the list of persons and organizations identified in Appendix A.

2. DESCRIPTION OF PROPOSED ACTION AND NO-ACTION ALTERNATIVE

This section presents the proposed action and no-action alternative that NNSA analyzed in this EA to address the transfer of KCP property to one or more entities for a use that is different from its current use. Section 2.1 discusses the proposed action and Section 2.2 presents the no-action alternative. Section 2.3 discusses future uses that NNSA considered but did not pursue for detailed analysis.

2.1 Proposed Action

The proposed action is to transfer the KCP, in whole or in part, to one or more entities for a use that is different from its current use. This proposed action alone would have no impact on the environment. However, the transferee(s) would use the property for mixed use (industrial, warehouse, and office), which could result in environmental impacts. NNSA does not know if the property transfer would be as a single unit or in parcels. NNSA would prefer to transfer its property as a single unit and based the EA analysis on that assumption. The potential environmental impacts are expected to be the same whether transfer occurs as a single unit or in parcels.

2.1.1 IMPACT ANALYSIS

To provide information and context to decision makers and other document reviewers relative to a FONSI and/or mitigation measures, this EA analyzes a representative and realistic range of potential future uses, referred to herein as the "analytical scenario." These potential future uses are not part of the proposed action. Because the future uses of KCP are not currently known, this analytical scenario serves only as a basis for estimating the potential environmental impacts of the proposed action. Potential future uses would be contingent upon receipt of necessary permits, authorizations, and additional environmental reviews.

NNSA has based the analytical scenario in this EA on the following assumptions:

- The specific corrective actions associated with the MHWMF Part I Permit will be determined based upon the results of the various studies[3] required by the permit. This EA presents a range of corrective actions that could be conducted.

- A new property owner would demolish all existing NNSA buildings.

- A new property owner would construct new facilities, depending on the development activities. The specific characteristics of any new facilities are not known at this time, but are expected to be consistent with mixed use (industrial, warehouse, and office) based on responses to the NNSA efforts to market the property.

- The site would be redeveloped in phases and subsequent construction-related activities would be phased as well.

3. The studies include a DCCR, a qualitative baseline risk assessment, a quantitative complex-wide assessment of human health and ecological risk, a PCB fate and transport study, and an evaluation of contaminant source reduction/removal options.

2.1.1.1 Demolition

As part of the analytical scenario, this EA assumes the demolition of all of the NNSA buildings or structures (including basements) and their removal for offsite disposal. Such demolition would be conducted by the NNSA or the new owner. In terms of potential environmental impacts, it would not matter if NNSA or the new owner performed this demolition. Table 2-1 lists key parameters for demolition. Most of the debris would be disposed of as nonhazardous waste in the local municipal landfill or an alternate offsite landfill developed specifically for construction debris; a limited amount would be disposed of as hazardous waste at permitted waste management facilities. Hazardous waste would consist primarily of PCBs, fuel oil, and heavy metal-affected debris from affected areas at the KCP property. All reasonable efforts would be used to reclaim and recycle salvageable material.

Table 2-1. Key Parameters Associated with the Demolition of KCP Facilities

Parameter	Value
Duration for demolition (years)	1 to 5
Electricity use—peak year (megawatt-hours)	200[a]
Water use—peak year (gallons)	5,000,000[b]
Natural gas use—peak year (cubic feet)	None anticipated
Large-scale equipment used in peak year of construction	23 (7 large excavators, 7 short-haul trucks, 3 front-end loaders, 3 bulldozers, 3 backhoes)
Annual workforce (persons)	100
Average daily truck transports in and out of the site	50[c]
Total wastes generated (tons)	Hazardous: 50,000 Nonhazardous: 1,050,000

Source: NNSA 2012a.

a. Electricity use based on requirements for one office trailer (lighting, air conditioning, and heating). NNSA does not anticipate other uses.
b. Water use based on requirements for dust control during demolition. NNSA does not anticipate other uses. Personnel would use portable restrooms.
c. Number of daily truck transports based on an 18-ton truck capacity and 260 working days per year.

NNSA based the analytical scenario in this EA on the following assumptions associated with demolition:

- Demolition would include all NNSA buildings, structures, roads, and adjacent parking areas.
- All equipment and furnishings would be removed from buildings before demolition and underground utilities (except storm sewers) would be disconnected and decommissioned.
- The floodwall system would be left intact and maintained.
- Contaminated soil would be left in place or remediated, as discussed below. If soils were not remediated, institutional and engineering controls would continue to be used to manage the SWMUs. Demolition would be performed in compliance with the MHWMF Part I Permit.
- Removal and disposal of hazardous materials, such as PCBs, solvents, and heavy metal-affected structures would be necessary for Building 1 (Department 26), some paved areas and roadways, and Buildings 14, 15, 46, 90, and 91.
- Groundwater monitoring and treatment would continue. The groundwater treatment system would be moved to a new, smaller building, and recovery wells would be installed where needed to assure plume containment once building footing tile drains were removed.

- The plant's internal storm sewer system would be modified, but would discharge to area streams through existing outfalls including the primary storm sewer lines that now carry water through the floodwall system.

- SWMUs would be covered with clay caps or remediated as discussed below in Section 2.1.1.2.

- Hazardous waste would be disposed of at permitted waste management facilities.

2.1.1.2 Remediation

The KCP has been characterized for the presence of legacy contamination that might affect soils and groundwater at the site. These efforts have found levels of chlorinated solvents, petroleum products, and PCBs in soil and groundwater that are above risk-based cleanup standards. Active environmental remediation under the RCRA corrective action process has occurred at identified SWMUs with ongoing implementation of environmental remedies. Additional studies associated with the MHWMF Part I Permit will further characterize the BFC for the presence of contamination. Chapter 3 discusses legacy contamination at the KCP in more detail.

Specific corrective actions cannot be known until the various studies associated with the MHWMF Part I Permit are completed. After demolition, the analytical scenario assumes a need for remediation activities beyond ongoing groundwater plume containment and treatment under the MHWMF Part I Permit. NNSA or the new owner could conduct such remediation. In terms of potential environmental impacts, it would not matter if NNSA or the new owner performed this remediation.

Remediation activities could include installation of a clay cap that immobilizes the soils contamination. Another option would be to have soils with contaminant levels above the EPA Regional Screening Levels excavated and disposed of as appropriate. In any case, remediation would be performed in compliance with the terms of the MHWMF Part I Permit. To assess the potential impacts under the analytical scenario, this EA assumes excavation and disposal of contaminated soil as the action with the highest potential impacts (the analysis presented in this EA is not intended to limit future actions under the MHWMF Part I Permit). NNSA or the new owner would not remove soil below the groundwater table, estimated to be 15 feet below ground surface, because the pump-and-treat system would be used to remediate contamination below 15 feet. NNSA anticipates that operation of the groundwater treatment system would continue in accordance with permit requirements. However, removal of affected soils above the groundwater table could reduce the overall operational time of the groundwater treatment system because the source of groundwater contamination would be significantly reduced.

NNSA based the analytical scenario in this EA on the following assumptions associated with remediation:

- Remediation activities would be for soils only. Groundwater treatment would continue as required under the MHWMF Part I Permit.

- Soil cleanup levels are based on EPA Regional Screening Levels.

- No soil removal would occur below the groundwater table (estimated to be 15 feet below the ground surface).

- The floodwall system would be left intact and maintained.

- Hazardous waste would be disposed of at permitted waste management facilities.

Table 2-2 lists key parameters associated with the removal of soil with contamination levels above the EPA Regional Screening Levels.

Table 2-2. Key Parameters Associated with Contaminated Soil Remediation from the KCP

Parameter	Value
Duration for remediation (years)	1 to 5
Electricity use—peak year (megawatt-hours)	240[a]
Water use	None anticipated[b]
Natural gas use	None anticipated.
Large-scale equipment used in peak year of construction	12 (3 large excavators, 3 short-haul trucks, 2 backhoes, 2 front-end loaders, 2 bulldozers)
Annual workforce (persons)	10[c]
Average daily truck transports in and out of the site	13[d]
Total wastes generated (tons)	Hazardous: 260,000 Nonhazardous: 40,000

Source: NNSA 2012a.
RCRA = *Resource Conservation and Recovery Act of 1976.*
a. Electricity use based on requirements for two office trailers (lighting, air conditioning, and heating). NNSA does not anticipate other uses.
b. No water use expected because personnel would use portable restrooms. Dust suppression expected to require minimal water.
c. Estimate based on approximately 3,000 labor hours to complete excavation. Additional labor was added as operators, laborers, health and safety, and field site managers.
d. Number of daily truck transports based on an 18-ton truck capacity and 260 working days per year.

2.1.1.3 New Construction

To assess the potential construction activities as part of the analytical scenario, NNSA assumes the new owner would construct new facilities. In light of uncertainty related to construction efforts and for the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new 500,000 square foot facilities, each requiring a 1-year construction period. Environmental impacts may be assessed by multiplying the impact of one facility by the reasonably foreseeable number of facilities that could be built. Table 2-3 lists key parameters for constructing 500,000 square feet of new facilities. The data are representative of the parameters for constructing industrial, warehouse, or office facilities. NNSA anticipates that a new owner would not construct more than 2.9 million square feet of facility space, which is the existing facility square footage.

2.1.1.4 Operations

As part of the analytical scenario, NNSA assumes that future operations at the KCP site would be the same scale as current operations and would be industrial, warehouse, and office in nature. Future owners and/or occupants would be responsible for seeking and obtaining, or revising, all applicable Federal, State, and local permits and licenses required for facility operations. Examples include building permits, air emission permits, and industrial wastewater discharge permits.

Table 2-3. Key Parameters for Building 500,000 Square Feet of Generic New Facilities over a 1-Year Period

Parameter	Value
Land use for facility (acres)	17
Electricity use (megawatt-hours)	6,000[a]
Water use (gallons)	3,000,000[b]
Natural gas use	None anticipated
Steel and concrete used in construction (tons)	Steel: 1,250 Concrete: 75,000
Large-scale equipment used in construction	9 (2 cranes, 2 bulldozers, 2 short haul-trucks, 2 front-end loaders, 1 backhoe)
Annual workforce (persons)	120
Daily truck transports in and out of the site	16 (4,160 over 1 year)[c]
Wastes generated (tons per year)	Hazardous: None Nonhazardous: 4,000 (steel and concrete)[d]

Source: NNSA 2012a.

a. Electricity use based on electrical requirements for two office trailers (lighting, air conditioning, and heating) and electricity use (interior lighting, heating, air conditioning, and equipment use) during the completion of building, after electrical service hookup (estimated at 6 months). NNSA based this on electricity consumption for a similar building at KCP.
b. Water use based on requirements for general housekeeping and minimal building (masonry) construction. Dust suppression expected to require minimal water.
c. Number of daily truck transports based on an 18-ton truck capacity and 260 working days per year.
d. Nonhazardous waste total based on 5-percent waste of total steel and concrete requirements.

2.2 No-Action Alternative

This section describes the no-action alternative, which assumes that NNSA would vacate the KCP, but would not transfer the KCP property. NNSA would be responsible for decommissioning the KCP and would continue to provide plant utilities for the BFC; NNSA expects that this work would be completed within 12 months after relocation of operations to the new NNSA industrial campus. The desired end state for the no-action alternative is to achieve a facility condition that could be economically sustainable without deterioration of the assets or a substantial reduction in value. The environmental end state represents site conditions that would protect human health and the environment consistent with that land use.

Due to the more uncertain timing of transfer of the GSA-owned property, provision must be made for potential GSA operations, pending possible relocation. Under the no-action alternative, NNSA would:

- Provide physical safety and security of KCP facilities;
- Inspect and maintain KCP facilities in a manner that would eliminate or mitigate hazards to workers, the public, and the environment;
- At a minimum, ensure adequate containment of contamination and continue use of institutional controls to manage the SWMUs (for example, no removal of contaminated soils);
- Continue operation of the groundwater pump-and-treat system as required under the MHWMF Part I Permit;
- Continue to maintain the floodwall system;

- Ensure life safety system integrity of KCP facilities through preventive maintenance activities;
- Maintain roofs at KCP facilities;
- Maintain grass at minimal landscaping standards; and
- Maintain fence and minimal security force and systems to ensure KCP property protection.

On completion of the move of NNSA to the new facilities and completion of KCP decommissioning, NNSA would have removed all regulated industrial air emission sources associated with KCP production operations with the exception of the high-pressure steam boilers at the West Boilerhouse.

Cessation of NNSA activities at the KCP would reduce existing infrastructure demands at the BFC by 60 percent. Table 2-4 lists key parameters associated with the no-action alternative. Table 2-4 includes both NNSA's and GSA's current utility usage.

Table 2-4. Key Parameters Associated with the No-Action Alternative

Parameter	Current (NNSA & GSA)	No Action (NNSA &GSA)
Annual electricity use (megawatt-hours per year)	116,600	45,000
Annual water use (gallons per year)	151,000,000[a]	60,000,000
Annual natural gas use (cubic feet per year)	600,000,000	240,000,000
Air emissions (tons of nitrogen oxides, sulfur oxides, and carbon monoxide)	Annual air emissions: 17.8 tons, consisting of 13.8 tons of nitrogen oxides, sulfur oxides, and carbon monoxide; 3.9 tons of volatile organic compounds; and 0.1 ton of metal	Annual air emissions: 7.1 tons, consisting of 5.5 tons of nitrogen oxides, sulfur oxides, and carbon monoxide; 1.6 tons of volatile organic compounds; and 0.04 ton of metal
Workforce (persons)	2,700 (KCP) 1,400 (GSA)	42 (KCP) 1,400 (GSA)
Daily vehicle trips	36 trucks; 4,000 cars	14 trucks; 1,450 cars
Annual waste generated • Hazardous • Nonhazardous • Low-level radioactive waste	Nonhazardous: 855 tons, consisting of 760 tons routine plus 95 tons nonroutine[b] Hazardous: 214 tons, consisting of 20 tons routine plus 194 tons nonroutine[b] Low-level radioactive waste: 40 pounds	Nonhazardous: 340 tons Hazardous: 0 tons Low-level radioactive waste: 0 pounds

Source: NNSA 2012a.

a. The amount of potable water from the City of Kansas City.

b. Routine waste would be from normal production, maintenance, or support activities, while nonroutine waste would be from construction, refurbishment, or environmental restoration activities.

2.3 Future Uses Considered but Eliminated from Detailed Impact Analysis

There are no other alternatives beyond keeping the KCP or transferring the property. NNSA has not proposed a specific future use of the KCP. Rather, it has assessed the potential environmental impacts of an analytical scenario consistent with mixed use (industrial, warehouse, and office) based on information obtained through the NOA process (see Section 1.2.4). NNSA did not include certain future uses in the analysis because it did not consider them reasonably foreseeable. The following paragraphs discuss those uses.

2.3.1 RESIDENTIAL USE, RETAIL, OR PARKLAND

On February 23, 2012, the Kansas City, Missouri, City Council passed Resolution No. 120186, which stated the NEPA process "should consider an alternative for reuse of the Bannister Federal Complex involving the transfer for mixed use development of this 300-acre site which could include industrial, office, retail and residential uses." After the NOA process, NNSA determined that only land uses consistent with mixed use (industrial, warehouse, and office) are feasible. This determination has eliminated certain potential future uses, such as development for residential use, retail, or parkland, none of which received support from interested parties who responded to the NOA. Accordingly, consideration of residential use, retail, or parkland was eliminated from detailed analysis in the analytical scenario.

2.3.2 ENERGY PRODUCTION SITE PER THE DOE ASSET REVITILIZATION INITIATIVE

On January 7, 2011, Congress passed the *Ike Skelton National Defense Authorization Act for Fiscal Year 2011* (Pub. L. 111–383). Section 3124 of the Act specifically states, "The Secretary of Energy may establish a program to permit the establishment of energy parks on former defense nuclear facilities" (50 U.S.C. 2814). DOE's program is known as the Asset Revitalization Initiative (DOE 2011b). Consistent with that program, DOE considered and did not select KCP as an energy park. No proposals were received through the NOA process (see Section 1.2.4) for such a future use. As a result, use of the KCP as an energy production site was eliminated from detailed analysis.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter describes the affected environment and environmental impacts of DOE's proposed action and no-action alternative for the following potentially affected environmental resource areas: Land Use, Aesthetics, Air Quality, Geology and Soils, Water Resources, Biological resources, Cultural Resources, Infrastructure, Socioeconomics, Waste Management, Human Health and Safety, and Environmental Justice. The discussion of environmental impacts is presented in terms of the analytical scenario to provide a conservative estimate of potential impacts.

3.1 Land Use

3.1.1 AFFECTED ENVIRONMENT

3.1.1.1 Site Description

The NNSA-owned KCP property comprises approximately 122 acres within the 300-acre BFC. The BFC is bordered on the east by the Blue River and Blue River Road, on the south by Bannister Road and Indian Creek, on the west by Troost Avenue (a major north-to-south traffic artery), and on the north by a wooded bluff and parkland (Legacy Park) (Figure 3-1). There are no residences or agricultural activities or farmlands on the KCP or BFC (GSA and NNSA 2008). The property adjoining the complex to the west and south is residential with isolated commercial tracts. Legacy Park is adjacent to the northern edge of the BFC; a youth baseball complex is near the southeastern edge; and Blue River Parkway, a Jackson County stream corridor park, is directly east. Single- and multiple-family dwellings, commercial establishments, industrial districts, and public-use lands, such as William Minor Park and Swope Park, are within a few miles of the BFC (NNSA 2010). A floodwall protects the main facilities at the BFC, which are in the floodplain of Indian Creek and the Blue River, from a 500-year flood event (NNSA 2010).

The KCP is on a compact, highly developed site that is zoned for manufacturing, and it hosts the only heavy industry in the immediate area (NNSA 2010). The BFC contains a total of 52 buildings; NNSA uses 38 and GSA uses 14 for office, warehouse, and (on the KCP portion) manufacturing space. Many of the buildings are contiguous and, therefore, most of the offices and manufacturing areas are under one roof, with additional outbuildings for support (NNSA 2010). KCP consists of three primary buildings: the Main Manufacturing Building (Building 1); the Manufacturing Support Building (Building 13), and the former Technology Transfer Center (Building 92) (Figure 3-2, from Figure 1-3). The NNSA and GSA share the 2.7 million-square-foot Main Manufacturing Building. Of that, NNSA has control or permit to use about 1.75 million square feet. There are about 1.2 million square feet of space in the other buildings under NNSA control, for an approximate 2.9 million square feet (NNSA 2008), of which 90 percent is industrial space, 2 percent is warehouse space, and 8 percent is office, cafeteria, and administrative space (NNSA 2012a).

Figure 3-1. Location of the Kansas City Plant within the Bannister Federal Complex (Source: Modified from Honeywell 2013)

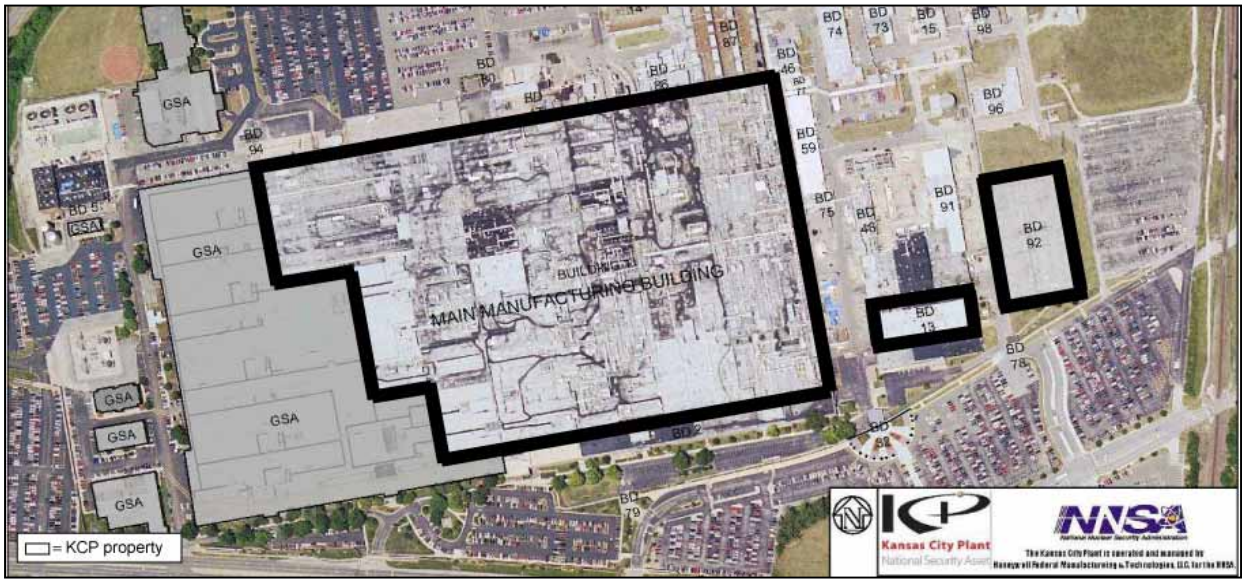

Figure 3-2. The Primary Buildings that Comprise the KCP (Source: Honeywell 2013)

Figure 3-3 shows current land use at the KCP, including production and administration areas, parking and roads, open areas, restricted land use areas, and major structures (GSA land uses are not indicated in this figure).

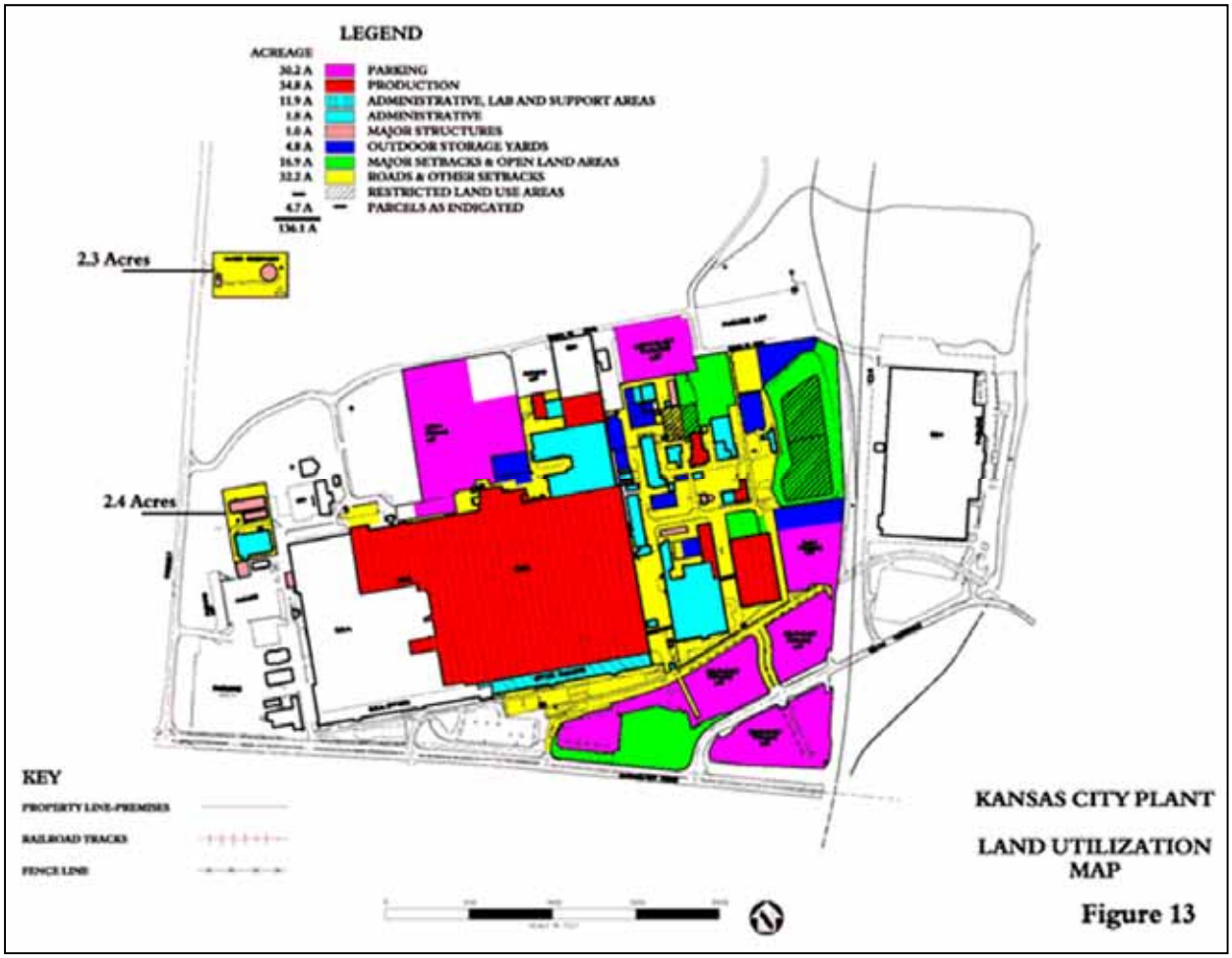

Figure 3-3. Land Use at the KCP (Source: NNSA 2008)

3.1.1.2 Land Transfer Regulatory Requirements

Section 120(h) of CERCLA imposes requirements on all transfers of Federal property to non-Federal entities to ensure protection of human health and the environment after the transfer. This includes identifying any restrictions in land use associated with the property due to a release or potential release of a hazardous substance for which the Federal agency is responsible. Further, Section 120(h) requires Federal agencies to identify contamination affecting contiguous or adjacent property and any monitoring associated with such contamination.

Because soil and groundwater contamination above cleanup levels remain at locations on the KCP, associated deed, access, and land use restrictions have been established for KCP real property in accordance with the MHWMF Part I Permit and agreements between EPA and NNSA. The Part I Permit establishes regulatory requirements for maintenance of the remaining SWMUs and serves as the regulatory document for continuing corrective actions under the DOE Long-Term Stewardship Program. See Section 1.2.3 of this EA for a detailed description of the MHWMF Part I Permit.

Documents filed with Jackson County, Missouri, include survey plats that show where soil and groundwater contamination above background levels would remain after completion of cleanup actions. These documents alert a future landowner that hazardous waste or hazardous constituents have been managed on the property in the past. They further establish restrictions and control measures required of the property owner and enforceable by Federal or State representatives to address the presence of the contamination (MDNR 2012b). Land use restrictions set as restrictive covenants tied to this property and in the MHWMF Part I Permit include the following requirements (DOE 2000; MDNR 2012b):

- Prevent public access to all contaminated soil;
- Comply with all Part I Permit requirements for any property use other than industrial/commercial;
- Comply with the Part I Permit for any alterations to buildings, structures, or pavements that could result in exposing contaminated soil, perform such work with appropriate worker exposure protection, and (with covering structures removed) provide alternative measures to protect human health and the environment;
- Appropriately manage (in accordance with Federal, State, and local regulations) any excavated contaminated soil; and
- Prevent the use of KCP groundwater as a water supply for any purposes.

3.1.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Demolition. Under the analytical scenario, existing NNSA facilities at the KCP, including adjacent parking areas, could be demolished. This would result in approximately 67 acres[4] of previously developed land becoming vacant and ready for new construction. Demolition activities would take from one to five years.

The land under the footprint of the demolished facilities would be disturbed, vacant land. Demolition activities would revert the land back to a more natural state in the short term. During any period the land remained vacant, NNSA or the new owner would implement best management practices to minimize any short-term impacts such as soil erosion and sedimentation. NNSA expects that demolition activities would not result in any adverse impacts to the land use of the area.

Remediation. Remedial action projects address contaminant releases to the environment. Remedial action projects are based on land use goals and the associated risk. Corrective action plans, permits, identified waste units, other agreements, and environmental baseline information are in place to pursue cleanup at the site. Continued remedial activities in the future by either the Federal Government or private entities would be consistent with current land use practices at the KCP and would be administered through the MHWMF permit (see Section 3.4.1.2).

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet, each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). Environmental impacts may be assessed by multiplying the impact of one facility by the reasonably foreseeable number of facilities that could be built. The KCP property is a heavily

4. In addition to the 67 acres associated with facility demolition, additional parking areas on the KCP could be demolished, affecting up to 32 additional acres.

developed site, and new construction would only occur on previously disturbed areas. NNSA expects that construction activities would not result in any adverse impacts to the land use of the area.

Operations. The KCP is designated for manufacturing use under the existing Kansas City Zoning and Development Code. There are no current development plans for the property; any such plans would be determined by the developer and new owner(s). NNSA expects that future operations on the KCP property would remain consistent with mixed use (industrial, warehouse, and office) and would not result in any adverse impacts to future land use of the area.

3.1.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. NNSA would continue to provide site security, buildings, and grounds maintenance, and continue environmental protection work at the KCP. Land use would not change and ongoing and planned remedial actions would continue.

3.2 Aesthetics

3.2.1 AFFECTED ENVIRONMENT

3.2.1.1 Visual

The KCP is 8 miles south of downtown Kansas City, Missouri, in a small river valley surrounded by low hills. The Blue River flows from south to north along the eastern edge of the BFC. Indian Creek flows from west to east along the southern side of the complex and merges with the Blue River. The area around the BFC is residential with occasional retail and light industry, giving the facility the predominance in the immediate community (NNSA 2010).

The compact development of the KCP has resulted in limited open space, consistent with the Bureau of Land Management Visual Resource Management Class IV. Class IV includes areas in which major modifications to the character of the landscape have occurred and are the dominant feature of the view and the major focus of viewer attention (DOE 2011a).

3.2.1.2 Noise

Major noise[5] emission sources on the KCP include equipment and machines (heating, ventilation, and air conditioning equipment, material-handling equipment, and vehicles). Most industrial operations occur far enough from the site boundary that noise at the boundary from these sources is barely distinguishable from background levels. Furthermore, Kansas City has established community noise standards that specify acceptable levels applicable at site boundaries (Kansas City, Missouri, Noise Ordinance, Chapter 46, Article IV). For receiving residential districts, limits were set at 60 A-weighted decibels from 7:00 a.m. to 10:00 p.m. and 55 A-weighted decibels from 10:00 p.m. to 7:00 a.m. These noise standards do not apply to construction activities conducted during daytime hours.

The closest residence is about 500 feet west of the KCP. Offsite traffic is the primary source of noise at the site boundaries. Noise levels are typical of an urban or industrial setting. Site-related traffic includes employee vehicles and trucks, which contribute to traffic on nearby roads and the associated traffic noise.

5. Noise is expressed as sound pressure level in decibels or A-weighted decibels, which is weighted toward those portions of the frequency spectrum, between 20 and 20,000 hertz (cycles per second), to which the human ear is most sensitive (DOE 1998).

Roads that provide access to the site include East Bannister Road, Blue River Road, and Troost Avenue (DOE 2011a).

3.2.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

3.2.2.1 Visual

Demolition. For purposes of analysis, NNSA assumes that all NNSA-owned buildings at the KCP would be demolished. The visual landscape would revert to a more natural appearance because the demolished buildings and support structures would have less predominance in the viewshed.

Remediation. Remediation activities would be temporary in nature and would not change or permanently alter the viewshed.

Construction. NNSA does not anticipate adverse impacts to the viewshed from the construction of a new 500,000-square-foot facility. The facility would be similar to current NNSA facilities is terms of viewshed prominence and other facilities that fall within the Bureau of Land Management's Visual Resource Class IV designation. In addition, any such facility would comply with height limitations and pertinent requirements under Kansas City's Zoning and Development Code.

Operations. NNSA anticipates no adverse impacts related to operations because the viewshed would not be altered from its current state.

3.2.2.2 Noise

Demolition. The emission of noise would increase over current levels due to demolition activities, which would include operation of heavy equipment, building dismantlement, and offsite transport of building debris. The operation of heavy equipment could involve as many as seven large excavators, seven short-haul trucks, three front-end loaders, three bulldozers, and three backhoes and would produce noise (see Table 2-1). During the demolition period, there would be an associated increase in traffic noise on the surrounding roads from an estimated 50 daily truck trips to and from the site (see Table 2-1) for the transport of supplies onto the site and building debris for offsite disposal. Tables 3-1 and 3-2 list typical noise emissions from heavy equipment and roadway traffic, respectively.

Table 3-1. Typical Noise Emissions from Heavy Equipment (A-weighted decibels)

Equipment	Typical noise level 50 feet from source	Typical noise level 500 feet from source
Backhoe	78	58
Crane	81	61
Dump truck	76	76
Bulldozer	82	62
Excavator	81	61
Front-end loader	79	59
Jackhammer	90	70

Source: FHWA 2012.

Since truck traffic from demolition activities would constitute less than 1 percent of the total traffic on Bannister Road (see Section 3.8 for more detail on transportation resources), noise attributable to these trucks would be indistinguishable from ambient levels. Traffic noise from cars would decrease drastically because there would be only about 100 employees annually involved with demolition in comparison with current KCP employment levels (2,700 employees).

Table 3-2. Roadway Noise Emissions

Distance from major noise source[a] (feet)		Noise exposure estimates (dBA)	
Interstate highways[b]	Other roadways[c]	L_{eq} day	L_{eq} night
10 – 50		75	65
50 – 100		70	60
100 – 200		65	55
200 – 400		60	50
400 – 800		55	45
800 and up		50	40
	10 – 50	70	60
	50 – 100	65	55
	100 – 200	60	50
	200 – 400	55	45
	400 and more	50	40

Source: FTA 2006.
dBA = A-weighted decibels; L_{eq} = a receiver's cumulative noise exposure from all events over 1 hour.
a. Distances do not include shielding from intervening rows of buildings or other objects.
b. Roadways with four or more lanes that permit trucks, with traffic at 60 miles per hour.
c. Parkways with traffic at 55 miles per hour but without trucks, and city streets with the equivalent of 75 or more heavy trucks and 300 or more medium trucks per hour at 30 miles per hour.

In relation to noise from heavy equipment (Table 3-1), under free-field conditions in which there are no reflections or additional attenuation (reductions), a point-source sound decreases at a rate of 6 decibels each time the distance from the source doubles (WADOT 2001). For example, a conservative noise emission estimate from a jackhammer (Table 3-1) would be 70 A-weighted decibels at the nearest residence (500 feet). However, the actual noise would probably be lower in the field, where objects and topography would cause further noise attenuation. Although there are residential units near the KCP (the closest residence is about 500 feet to the west), adverse impacts from increased noise emissions from construction equipment and activities in relation to current levels would be intermittent and temporary.

Remediation. Remediation noise is expected to be similar to demolition, and would include operation of heavy equipment and offsite transport of waste materials. The operation of large-scale equipment (as many as three excavators, three short-haul trucks, two front-end loaders, two bulldozers, and two backhoes) would emit noise. Noise impacts would be intermittent and temporary during daytime hours.

Construction. Construction noise is expected to be similar to demolition, and would include operation of heavy equipment, building dismantlement, and offsite transport of construction materials. The operation of large equipment would produce noise and could include as many as two cranes, two bulldozers, two short haul-trucks, two front-end loaders, and one backhoe (see Table 2-3). Noise impacts would be intermittent and temporary during daytime hours.

Operations. Operationally, major noise emission sources could possibly include equipment and machines (heating, ventilation, and air conditioning equipment, material-handling equipment, and vehicles). Most industrial operations would occur far enough from the site boundary that noise at the boundary from these sources would be barely distinguishable from background levels. Traffic would be the primary source of noise at the site boundaries. Noise levels would be the same as existing conditions at the site; therefore, no new impacts are anticipated.

3.2.4 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property.

3.2.4.1 Visual

Continued postclosure operations at the KCP would not result in changes to the viewshed and would have no adverse impacts.

3.2.4.2 Noise

Ambient noise levels are expected to remain close to current conditions.

3.3 Air Quality

3.3.1 AFFECTED ENVIRONMENT

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The levels of pollutants are generally expressed in terms of concentration, either in units of parts per million or micrograms per cubic meter.

Based on measured ambient air pollutant concentrations, the EPA designates whether areas of the United States meet National Ambient Air Quality Standards (NAAQS). Those areas demonstrating compliance with NAAQS are considered "attainment" areas, while those that are not are known as "non-attainment" areas. Those areas that cannot be classified on the basis of available information for a particular pollutant are treated as attainment areas until proven otherwise.

Characterization of the ambient air quality in an area can be in terms of whether it complies with the primary and secondary NAAQS. The *Clean Air Act* (42 U.S.C. §§ 7401 *et seq*.) requires the EPA to set standards for pollutants considered harmful to public health and the environment. National primary ambient air quality standards define levels of air quality EPA has determined as necessary to provide an adequate margin of safety to protect public health, including the health of sensitive populations such as children and the elderly. National secondary ambient air quality standards define levels necessary to protect the public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. EPA has established primary standards for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter [which includes particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}) and less than or equal to 2.5 micrometers ($PM_{2.5}$)], and sulfur dioxide. Table 3-3 lists the primary and secondary standards for each criteria pollutant.

The KCP is in Metropolitan Kansas City Interstate Air Quality Control Region 94, which is in attainment for all criteria pollutants. The nearest Prevention of Significant Deterioration Class I area is Hercules Glades Wilderness Area, about 175 miles to the southeast (DOE 2011a). The KCP and its vicinity are in a Class II area. No emissions source at the KCP requires a Prevention of Significant Deterioration permit (DOE 2011a).

The primary sources of criteria pollutants at the KCP are boilers, process heaters, and manufacturing operations (DOE 2011a) that produce nitrogen oxides. Boilers installed in 2002 greatly reduced nitrogen dioxide and carbon monoxide emissions (NNSA 2010). KCP is a major source under National Emission Standards for Hazardous Air Pollutants regulations. It operates under an operating permit application that

Table 3-3. National Ambient Air Quality Standards

Pollutant	Primary	Secondary	Form
Carbon monoxide			
8-hour average	9 ppm	None	Not to be exceeded more than once per year
1-hour average	35 ppm	None	Not to be exceeded more than once per year
Lead			
Rolling 3-month average	0.15 μg/m^3	Same as primary	Not to be exceeded
Nitrogen dioxide			
Annual arithmetic mean	0.053 ppm	Same as primary	Annual mean
1-hour	0.10 ppm	None	98th percentile, averaged over 3 years
Ozone			
8-hour average (2008 standard)	0.075 ppm	Same as primary	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
PM_{10}			
24-hour average	150 μg/m^3	Same as primary	Not to be exceeded more than once per year on average over 3 years
$PM_{2.5}$			
Annual arithmetic mean	12.0 μg/m^3	Same as primary	Annual mean, averaged over 3 years
24-hour average	35 μg/m^3	Same as primary	98th percentile, averaged over 3 years
Sulfur dioxide			
3-hour average	None	0.5 ppm	Not to be exceeded more than once per year
1-hour average	0.075 ppm	None	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years

Source: 40 CFR Part 50 (as of October 2011).
ppm = parts per million; μg/m^3 = micrograms per cubic meter.

covers these sources, as required under the *Clean Air Act* and corresponding State of Missouri regulations (DOE 2011a). Current annual air emissions of criteria pollutants from KCP are 17.8 tons. The primary sources are boilers, emergency generators, and process heaters (13.8 tons of nitrogen oxides, sulfur oxides, and carbon monoxide); electronic solvent spray cleaning operations (3.5 tons of volatile organic compounds); painting operations (0.4 ton of volatile organic compounds); and plating operations (0.1 ton of volatile organic compounds and metals such as nickel, cadmium, and chromium) (GSA and NNSA 2008).

The burning of fossil fuels such as coal, diesel, natural gas, and gasoline emits carbon dioxide, which is a greenhouse gas. Greenhouse gases can trap heat in the atmosphere, similar to the glass walls of a greenhouse, and have been associated with global climate change. "Climate change" refers to any significant change in measures of climate (such as temperature, precipitation, or wind) that lasts for an extended period (decades or longer). The Intergovernmental Panel on Climate Change, in its Fourth Assessment Report, stated that warming of the earth's climate system is unequivocal, and that most of the observed increase in globally averaged temperatures since the mid-twentieth century is very likely due to the observed increase in concentrations of greenhouse gases from human activities (IPCC 2007). These gases are well mixed throughout the lower atmosphere, so emissions would add to cumulative regional and global concentrations of carbon dioxide. The effects from an individual source, therefore, cannot be determined quantitatively.

Greenhouse gas emissions in 2011 for KCP were estimated to be 112,000 tons (Honeywell 2012). This emission rate is relatively small in comparison with the 49 billion tons of carbon dioxide equivalent emitted worldwide in 2004 (IPCC 2007) and the 7.3 billion tons (EPA 2011) of carbon dioxide emissions in the United States in 2009. In 2009, carbon dioxide emissions in Missouri were about 131 million tons (EPA 2011).

3.3.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

During demolition, remediation, and construction, the use of heavy equipment would generate engine exhaust containing air pollutants associated with diesel combustion. Similar air emissions would be generated from delivery vehicles bringing supplies and equipment to the construction site and from construction workers commuting in their personal vehicles. Emissions from heavy-equipment use would be short-term, sporadic, and localized. Dispersion would decrease concentrations of pollutants in the ambient air as distance from the construction site increased. The quantities of air pollutants produced by vehicles and equipment associated with construction would not be a substantial contribution to the total emissions from mobile sources already operating in the area and would not be expected to adversely affect local air quality.

Demolition, remediation, and construction activities could generate an increase in dust. Not all of the area available for construction would be under construction at any one time. Rather, earthwork would be undertaken in increments. Increases in dust concentrations would be noticeable on the site and in the immediate vicinity, and ambient concentrations of particulate matter could rise in the short term. However, control measures for lowering dust emissions including potential contaminants (i.e., covers and water or chemical dust suppressants) would minimize these emissions. For activities disturbing SWMUs, work plans would be required to comply with the MHWMF Part I Permit. For PCB remediation related activities, work plans would be required and approved by EPA under the *Toxic Substances Control Act of 1976* (15 U.S.C. §§ 260 *et seq*.). All of these work plans address waste disposal, prevention of offsite migration of contaminants, including dust, and protection of human health, safety, and the environment. All other dust control measures and prevention of contaminant migration offsite would be part of the city-issued construction permit.

Specific details about atmospheric pollutants that may be emitted by future companies located at the BFC are not available. However, the types of commercial businesses and industries that are anticipated to be potential tenants could produce air emissions (e.g., volatile organic compounds and particulates) typical of industrial, warehouse, and office operations. Minor emissions typically are controlled within the facility, using conventional treatment technologies like scrubber systems and particulate filters, and external effects are negligible. New facility operations that have minor air contaminant sources would be required to obtain air quality construction and operating permits (non-Title V of the *Clean Air Act*; see Section 5.4.1 of this EA) from MDNR. The terms and conditions of the permits would include emission limits and outline specific monitoring, operating conditions, and recordkeeping requirements for the source. Greenhouse gas emissions from mobile and stationary sources would be similar in magnitude to current operations at the KCP (approximately 112,000 tons annually).

Major sources of air emissions typical of industrial facilities could be subject to a *Clean Air Act* Title V operating permit. A Title V permit is required for any facility operations with the potential to emit more than 100 tons per year of any regulated air pollutant, 10 tons per year of any hazardous air pollutant, and/or 25 tons per year of any combination of hazardous air pollutants. If required, the appropriate permits would be obtained.

3.3.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. Site emissions from production-related activity would decrease. The primary sources of criteria pollutants at the KCP would be nitrogen oxide from boilers for heating. The boilers would continue to be a major source under the National Emission Standards for Hazardous Air Pollutants regulations. The boilers would continue to operate under the construction air permit and an operating permit application that covers these sources, as required under the *Clean Air Act* and associated State of Missouri regulations (DOE 2011a) until MDNR

issued the operating permit. Because NNSA vacating the property would result in less heating requirements, annual air emissions would decrease from 17.8 tons to an estimated 7.1 tons of criteria pollutants (see Table 2-4).

As a result of decreased operations and a smaller workforce, greenhouse gas emissions would decrease. These greenhouse gas emissions would be less than 1 percent of the near 131 million tons of carbon dioxide that were emitted in Missouri in 2009 (EPA 2011).

3.4 Geology and Soils

3.4.1 AFFECTED ENVIRONMENT

3.4.1.1 Geology

The KCP is fairly level, with elevations averaging around 800 feet above mean sea level. The Blue River alluvium makes up the surficial strata underlying the site. The alluvium is 40 to 45 feet thick and includes a continuous upper layer of thin-bedded clayey silt with minor amounts of sand and basal gravel in a sand-silt-clay matrix. The basal gravel is continuous across the site and ranges in thickness from a few inches to 8 feet. A layer of olive to blue-green clayey silt separates the uppermost clayey silt and basal gravel layers in certain areas (DOE 2012a).

The bedrock immediately underlying the alluvium consists of shales and sandstones of the Pleasanton Group (Pennsylvanian Age). The erosional surface of the Pleasanton Group is in direct contact with the alluvium and slopes gently to the east toward the Blue River. In the central portion of the BFC, the Knobtown Sandstone, which is part of the Pleasanton Group, underlies the alluvium. This sandstone is a well-sorted, very-fine-grained, well-cemented, lithic arkose (a sandstone that is up to 75 percent quartz and has feldspar in moderately higher abundance than rock fragments) of marine origin. The Knobtown Sandstone ranges in thickness from 5 to 10 feet and is present in the upper 30 feet of the Pleasanton Group, except where Quaternary Period erosion has removed it. The surrounding unnamed shales of the Pleasanton Group show transitional features due to their formation in nearshore sands to offshore muds.

Area development has limited access to geologic resources in the immediate vicinity of the site. Sites across Jackson County produce construction sand and gravel, and the site is in Missouri's western heavy-oil-producing region (MDNR 2001).

3.4.1.1.1 Seismicity

The northwestern portion of Missouri including the Kansas City area is seismically stable. Since 1973, there have been three recorded earthquakes within a radius of 62 miles around the KCP. The closest of these was nontectonic in origin. Of the remaining two, the closest was a magnitude 3.3 earthquake on May 18, 2005, about 47 miles southeast of the site (USGS 2012a).

Most of Missouri's earthquake activity has occurred in the southeastern corner of the state, in the New Madrid seismic zone, which, based on geologic evidence, has a long history of activity. The New Madrid earthquake sequence during 1811 and 1812 ranks among the largest seismic activity in the United States since European settlement; it consisted of three very large earthquakes and numerous aftershocks that occurred from December 16, 1811, through February 7, 1812. The epicenters were in northeastern Arkansas and near New Madrid, Missouri, and produced Modified Mercalli Intensity of IX to X (near the epicenters) and estimated magnitudes ranging from 7.5 to 7.7 (MDNR 2012d). In the vicinity of the KCP, the estimated Modified Mercalli Intensity was VI. The New Madrid seismic zone has experienced

numerous earthquakes since the 1811 to 1812 series, and at least 35 earthquakes of Modified Mercalli Intensity V or greater have been recorded in Missouri since 1811 (USGS 2012b).

Ground motion produced by earthquakes is expressed in units of percent *g* (*g* is the acceleration due to Earth's gravity). Based on 2008 U.S. Geological Survey National Seismic Hazard Maps (https://geohazards.usgs.gov/hazards/apps/cmaps/), there is a probability of 2 percent in 50 years (annual probability of 1 in 2,500), that the BFC will experience ground motion exceeding 0.05 *g* (about Modified Mercalli Intensity VI) from an earthquake.

3.4.1.2 Soils

Soil unit mapping by the National Resources Conservation Service identifies the site as nearly 100-percent urban bottomland on alluvial parent material (NRCS 2012). Urban bottomland consists of areas where more than 85 percent of the surface is covered by concrete, asphalt, buildings, or other impervious material. Due to the extensive amounts of construction and associated fill material added over the years, native soils are rare or nonexistent in many parts of the BFC.

3.4.1.2.1 Soil Contamination

KCP has been characterized to identify soil, groundwater, and facility contamination from KCP operations and historical manufacturing operations at the site. In the mid-1980s, DOE began investigating past waste disposal and management practices to determine if there could be environmental hazards that required remedial action. In June 1989, DOE and EPA entered into a RCRA consent order that identified release sites from past activities at the KCP and established a mechanism, as appropriate, for further investigation and corrective measures. Originally, 35 potential release sites were identified, but 8 more sites were added after the consent order was signed, bringing the total to 43 (MDNR 2012a). The original consent order identified several sites as requiring no further action based on existing information. These sites were left in the consent order to document potential sites, the conclusions that further action was unnecessary, and regulatory agency concurrence with those conclusions. In 1999, MDNR issued an MHWMF Permit to the KCP, which incorporated the remediation work and decisions started under the consent order. As a result, oversight of the remedial or corrective measure program at the KCP shifted from the EPA to the MDNR and the 43 potential release sites were designated as SWMUs.

By late 2006, DOE had completed active remediation on all KCP sites identified in the consent order that required action. This means that, as applicable, DOE had investigated the sites, evaluated corrective measures, and put those measures into effect. Further, DOE performed the formal corrective measure process with appropriate EPA, MDNR, and stakeholder input and approvals. Although active remediation is considered complete for all identified NNSA SWMUs, many of the actions started under the consent order have ongoing activities that are now required elements of the site's MHWMF Part I Permit. Sites with ongoing activities are generally in postclosure care (for example, the North Lagoon, South Lagoon, and Underground Tank Farm units) or operation and maintenance modes. Primary components of these ongoing corrective or remedial actions are a groundwater pump-and-treat system, which is described further in Section 3.5, a protective cap and cover, and institutional controls, which include the land use restrictions set in the MHWMF Part I Permit. As discussed in Section 1.2.3 and later in this section, the 2012 modification to the MHWMF Part I Permit sets requirements for additional work to evaluate further opportunities to reduce contaminated media at the entire BFC. The intent of this effort is not only to identify new sites that might warrant corrective actions, but also to evaluate existing site remedies and their efficacy to determine if new or modified corrective actions are appropriate.

Figure 3-4 shows the 43 SWMUs on the KCP that currently are addressed under the corrective action process and for which NNSA retains environmental liability (NNSA 2010).

The primary contaminants in soil at the site are chlorinated solvents (with trichloroethylene of primary concern), petroleum hydrocarbons and PCBs (Woodward Clyde 1995). The primary groundwater contaminants are addressed in Section 3.5 of this EA. Figure 3-4 also shows areas at the KCP with elevated trichloroethylene, petroleum hydrocarbons, and PCB concentrations in soil. As noted above, KCP has completed active remediation at these areas and is implementing the institutional and engineering controls outlined in the *Sitewide Institutional Controls Plan* (as cited in MDNR 2012a).

In describing the corrective measures process, the MHWMF Part I Permit includes status entries for each of the SWMUs, which steps have been completed, and, as applicable, results of determinations made. One of the status groupings identified in the permit is for units requiring further corrective actions to protect human health and the environment. These include units with ongoing activity requirements even though active remedial actions have been completed. Table 3-4 identifies the KCP SWMUs associated with delineated areas of residual soil contamination that have been identified as requiring further corrective actions. Included at the bottom of the table are several other units that NNSA is tracking as possible soil contamination areas, but which are not characterized in the MHWMF Part 1 Permit as requiring further corrective actions. Also shown in the table are NNSA's conservative estimates of the amount of soil that could be involved in remediation if soil was removed down to the groundwater table (about 15 feet below the surface).

With regard to the preceding discussion of soil contamination, the MHWMF Part I Permit modification added two GSA sites, the Former Landfill and Building 50, as SWMUs 44 and 45, respectively. Both are now identified in the permit as units requiring further corrective actions to protect human health and the environment. That is, they are in the same grouping as the units identified in Table 3-4. (The U.S. Army Corps of Engineers is conducting investigation and remedial work on the Former Landfill under the Corps' Formerly Used Defense Sites Program and is identified with that role in the modified MHWMF Part I Permit.) Also of potential significance to the overall BFC corrective measure process, the modified permits require preparation of a DCCR to memorialize the environmental investigations already performed at the BFC, describe the current status of cleanup actions, and present the human health and ecological risks posed by current conditions. The process is also to identify environmental release/impact data gaps that may lead to additional investigations and possibly entering new units into the permit's corrective action process. The DCCR is to be submitted to MDNR within 210 calendar days of the August 24, 2012, effective date of the modified permit. The associated baseline risk assessment is to be prepared on a schedule set by MDNR during the review and approval process for the DCCR (MDNR 2012a).

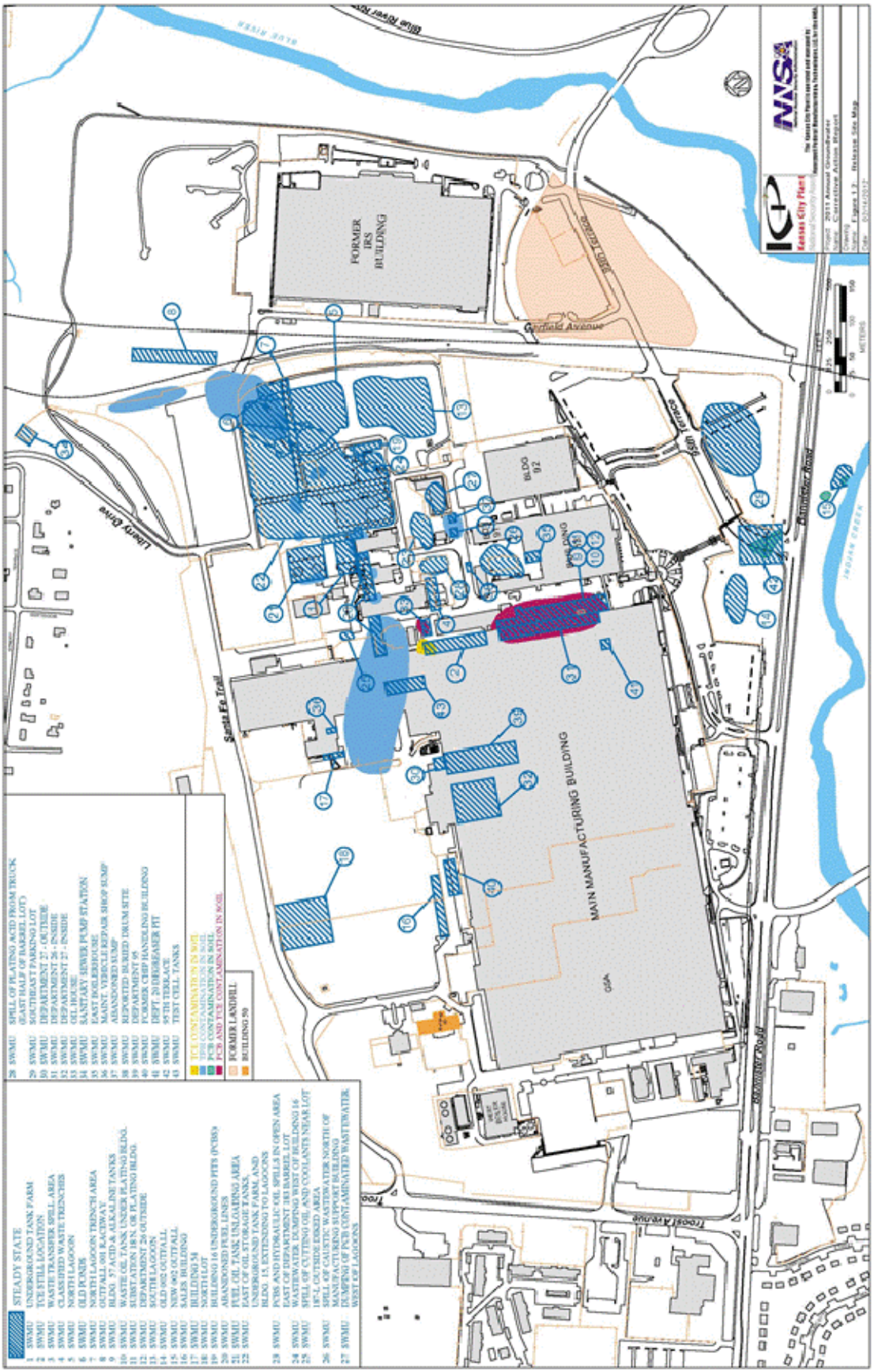

Figure 3-4. Solid Waste Management Units (Source: DOE 2012a) (Note: The shaded area identified as the "Former Landfill" is more appropriately identified as the "Area of U.S. Army Corps of Engineers' responsibility and Former Landfill.")

Table 3-4. Solid Waste Management Units with Soil Contamination and Ongoing Corrective Actions (primarily institutional controls and operation of the groundwater pump-and-treat system)[a]

KCP Solid Waste Management or RCRA Regulated Unit Designations	Soil Contamination Category			Estimated Contaminated Soil (tons)	
	Under Structures[b]	Above Saturated Zone[c]	Other	Haz	Non Haz
SWMU 1: Underground Tank Farm			PC care[d]	0	0
SWMU 2: TCE Still Location	X	X		58,000	0
SWMU 3: Waste Transfer Spill Area		X		16,000	0
SWMU 4: Classified Waste Trenches		X		300	0
RCRA 5: North Lagoon			PC care[d]	55,000	40,000
SWMU 6: Old Pond			Not specified[e]	In with SWMU 5	
SWMU 7: North Lagoon Trench Area			Not specified[e]	In with SWMU 5	
SWMU 8: Outfall 001 Raceway			Not specified[e]	In with SWMU 5	
SWMU 9: Bldg 57 Acid &Alkaline Tanks		X		36,000	0
SWMU 10: Waste Oil Tank under Plating Bldg		X		In with SWMU 9	
SWMU 11: Substation 18 N of Plating Bldg		X		In with SWMU 9	
SWMU 12: Department 26 Outside		X		In with SWMU 9	
SWMU 16: Sales Bldg	X	X		2,000	0
SWMU 17: Bldg 54	X	X		0	0
SWMU 20: Abandoned Fuel Lines			Not specified[e]	31,000	0
SWMU 21: Fuel oil tank unloading area			Not specified[e]	0	0
SWMU 29: Southeast Parking Lot			Not specified[e]	0	0
SWMU 31: Department 26 Inside	X	X		18,000	0
SWMU 32: Department 27 Inside	X	X		16,000	0
SWMU 33: Oil House	X	X		In with SWMU 2	
SWMU 36: Maint. Vehicle Repair Shop	X	X		3,000	0
SWMU 37: Abandoned Sump		X		In with SWMU 3	
SWMU 39: Department 95	X	X		300	0
SWMU 40: Former Chip Handling Bldg	X	X		In with SWMU 16	
SWMU 41: Department 20 Degreaser Pit	X	X		300	0
SWMU 42: 95th Terrace	X			900	0
SWMU 43: Test Cells	X			0	0
Other Suspect Areas					
SWMU 15 New 002 Outfall			Not specified[e]	In with SWMU 40	
SWMU 19 Bldg 16 Underground Pits			Not specified[e]	300	0
SWMU 30 Department 27 Outside			Not specified[e]	15,000	0
Utilities			Not specified[e]	10,000	0

Haz = hazardous waste (assumed characterization); PC care = postclosure care; RCRA = *Resource Conservation and Recovery Act*; SWMU = solid waste management unit; TCE = trichloroethylene.

a. Sources: MDNR 2012a (MHWMF Part I Permit); NNSA 2012a.
b. Soil contamination underlies buildings, pavement, or asphalt that serve as engineering controls and that cannot be removed or altered without MDNR approval.
c. Soil contamination exists above the saturated zone and is to be addressed by institutional controls and land use restrictions.
d. This unit is closed and now requires continuing care that includes inspection and maintenance of the protective cap and cover installed during closure, monitoring of groundwater and operation of the groundwater pump-and-treat system.
e. The MHWMF Part I Permit does not specify a soil contamination category for this unit. As with the other soil units, the approved corrective measure requires continuing institutional controls, groundwater monitoring, and operation of the pump-and-treat system to address residual contamination.

3.4.1.2.2 Underground Storage Tanks

The present KCP has no in-service underground storage tanks because they were either removed or abandoned in place in compliance with regulations existing at the time of tank closure (NNSA 2010). Historically, however, underground tanks have been used at the site and have resulted in soil contamination concerns. This includes tanks installed before and during KCP operations, noting that some of the original tanks were also used in KCP operations.

The largest concentration of underground storage tanks was in the northeastern area of the facility (Figure 3-5). The Underground Tank Farm, installed in 1943 while Pratt & Whitney occupied the facility, consisted of 22 steel and 6 concrete tanks. In 1987, shortly after the discovery of leaking tanks, they were closed and all tanks and related materials (such as piping, stored fuels, coolants and solvents, and concrete supports) were removed from the ground. Soils were excavated to about 15 feet (roughly the depth of the groundwater table), and the excavation was backfilled with uncontaminated soil and covered with a clay cap, topsoil, and vegetation. No soil cleanup criteria were established because soil was excavated to the groundwater table (HK+S 1988).

According to a 1984 historical survey (Korte and Kearl 1984), 30 additional underground storage tanks outside the tank farm were used to store fuels, solvents, and wastewater; they range in size from 500 to 250,000 gallons. A number of tanks were associated with the former aircraft engine test cells and the West Boilerhouse. In 2005, the last remaining underground storage tank, a 940-gallon diesel tank for emergency power generation, was removed and closed in accordance with MDNR regulations. There is no history of any diesel release from this tank (NNSA 2010).

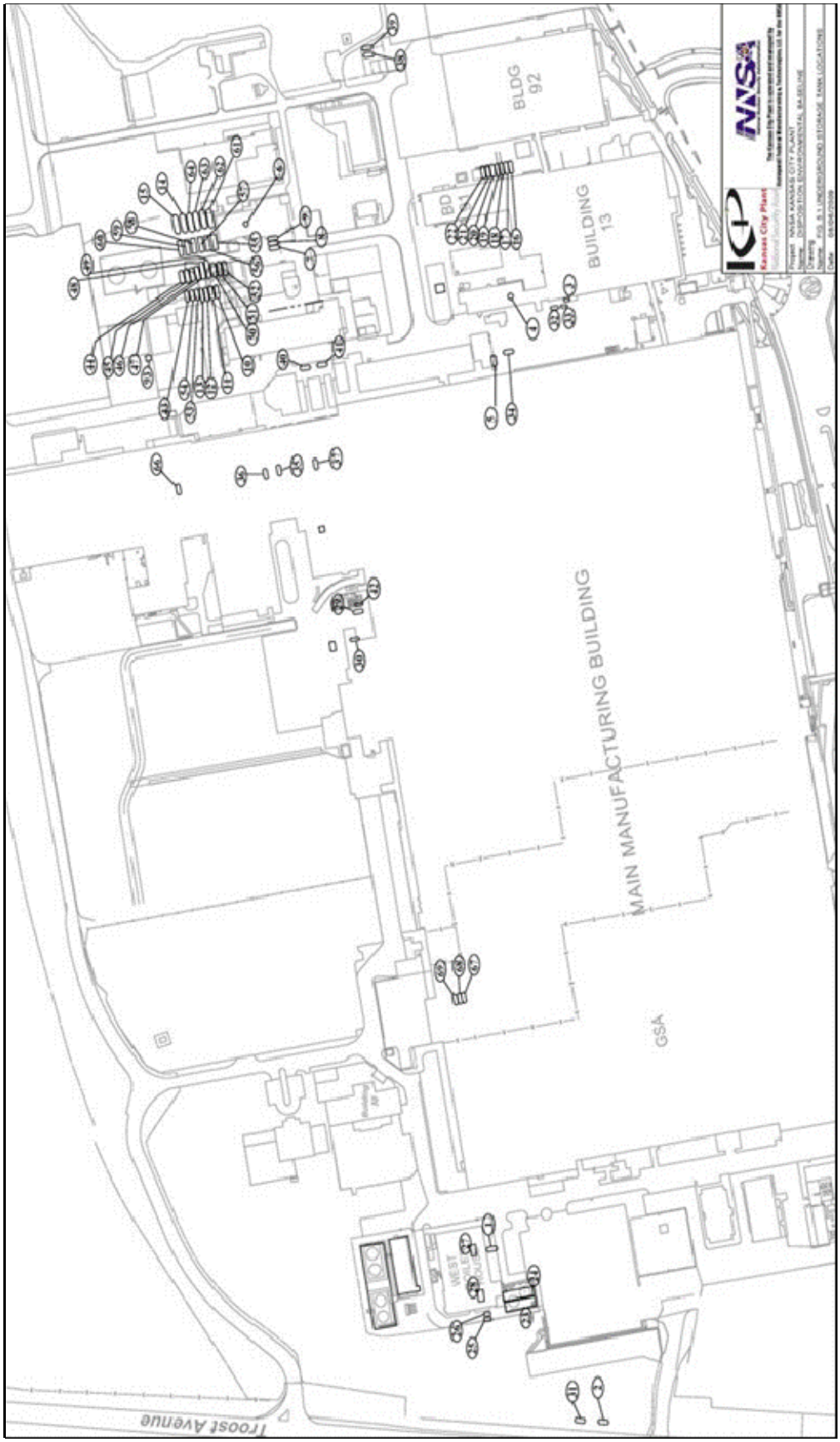

Figure 3-5. Locations of Underground Storage Tanks (Source: Honeywell 2013)

3.4.1.2.3 Former Wastewater Lagoons

During the 1960s and 1970s, the industrial wastewater system for KCP discharged to the North and South lagoons (Figure 3-6). The North Lagoon, built in 1962, was irregularly shaped with a surface area of about 2.1 acres and a depth of about 5 feet. The South Lagoon, built in 1975, was irregularly shaped with a surface area of about 2.2 acres, with a base reported to have been compacted native clay. Both lagoons were used for pH control of the industrial wastewater system; this was generally done through recirculation of the water if the pH was below 6.0 or above 10.0 (DOE 1991).

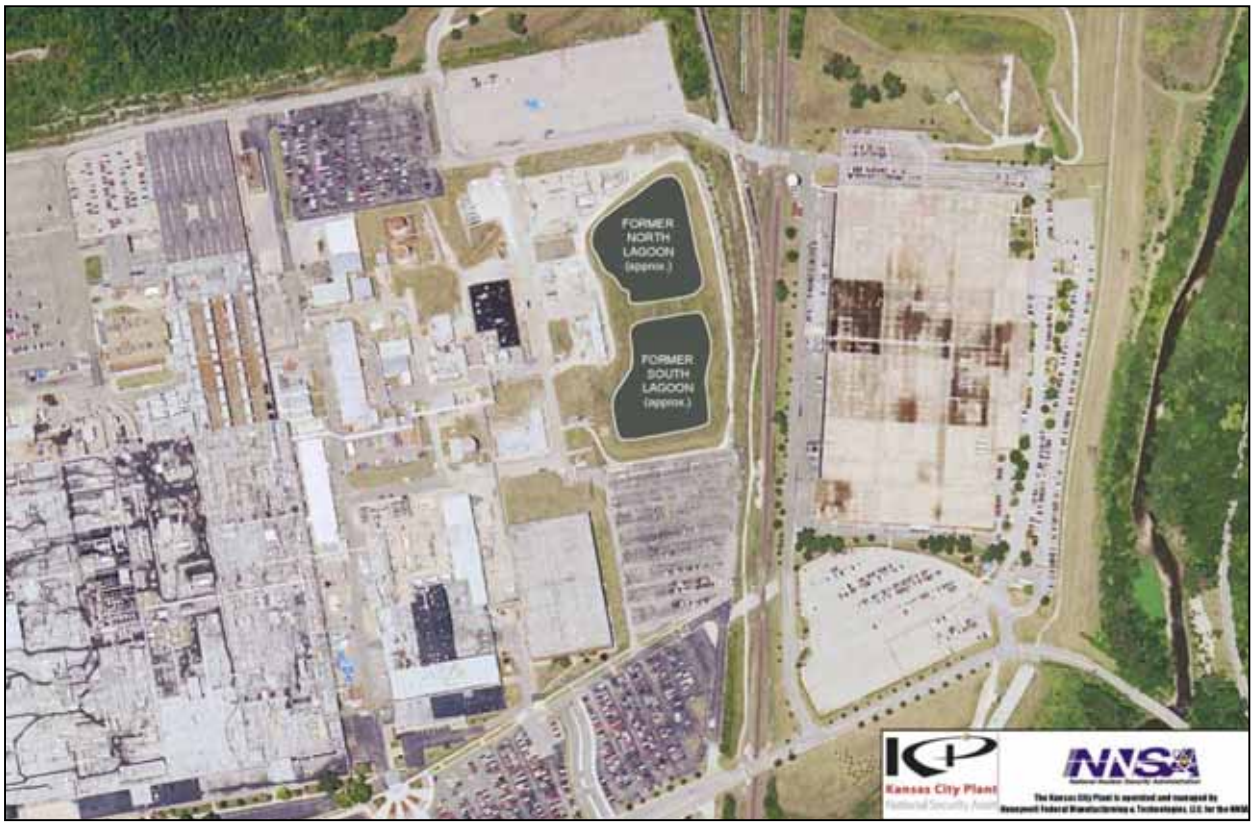

Figure 3-6. Former Wastewater Lagoons (Source: Honeywell 2013)

Wastewaters entered the lagoons from a number of locations including floor drains in production areas, laboratory and testing facilities throughout the plant, sprinkler system drains and deionizer waters during the regeneration cycle, heat exchangers operating on a single pass of city water, cooling tower overflows, condensate drains on air handling units, and miscellaneous sources. Dilute acid and caustic rinse waters, primarily from plating operations, were collected and conveyed to the lagoons through separate forced main systems. PCBs might have entered the lagoons through spill events. Plant processes contributed organic compounds that could have discharged to the lagoons during their use (DOE 1991).

Closure activities for both ponds involved excavation of contaminated sediments and soils so that remaining soils met MDNR cleanup standards. This was followed by backfilling with uncontaminated soil. These actions were performed in 1985 for the North Lagoon and in 1988 for the South Lagoon. In both cases, removed sediments and soils were sent to the Chemical Waste Management facility at Emelle, Alabama, for disposal. In 1988, both lagoon sites were covered with a clay cap, a minimum of six inches of topsoil, and vegetation (a mixture of fescue and rye) (DOE and Allied-Signal 1989).

Postclosure care activities for both the tank farm and the North and South lagoons include annual inspections of the caps to determine the need for reseeding and the presence of gullies along with animal, vehicle, or other damage to the vegetative cover. Reseeding or repair of the covers would be scheduled, as appropriate, based on observations during the cover inspections (MDNR 2012a).

3.4.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Demolition. Demolition of buildings would require the use of heavy machinery (for example, bulldozers, excavators, and backhoes); such activities would disturb soil in and around the building footprints. Under the analytical scenario, demolition of all buildings at the site would result in about 67 acres of soil disturbance. However, surface soil at the site consists primarily of fill and reworked material; native soils are rare or nonexistent. Therefore, there would be little, if any, impacts to native soils. With the use of best management practices for soil erosion control, the demolition activities would not impact soils or geologic resources. Activities also would not impact prime farmland since the KCP contains no prime farmlands and all activities would occur on previously disturbed land.

Remediation. NNSA expects that soil remediation could range from targeted contaminant "hot spot" removal to the physical removal of large areas of contaminated soil or utilization of cleanup technologies that treat contamination *in-situ*. As with demolition, soil disturbance would occur, but on a smaller scale because these activities would disturb only discrete SWMUs. Remediation would focus on the SWMUs that contain contaminated subsurface soil (as shown in Figure 3-4) and would include areas that buildings covered and that had not been previously accessible. Contaminated soil could be removed to approximately a depth of 15 feet. NNSA or the future owner would ship contaminated soils to an appropriately permitted waste management facility. Remediation involving soil removal would include backfilling of the remediated area with clean fill, which would produce a beneficial effect. The responsible party would implement best management practices for soil erosion control.

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet, each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). Such construction could result in soil disturbance and NNSA assumes that these disturbances would be about 50 percent greater than the size of the facility footprint. Because the KCP is such a heavily built up area, this disturbance would be no more than a continuation of that occurring during demolition and, as applicable, remediation. Use of best management practices during construction would mitigate the potential for soil erosion.

Operations. Operations would pose very little impact on geologic and soil resources. Any future use of the KCP would be consistent with mixed use (industrial, warehouse, and office), and no further impacts to geologic and soil resources would be expected.

3.4.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. NNSA would be obligated to fully meet the requirements of the MHWMF Part I Permit, including the stipulations dealing with contaminated soils.

Under the no-action alternative, geology and soils would not be affected beyond the ongoing requirements and programs implemented to address residual soil contamination. Institutional controls would continue to be implemented to keep contamination from moving and away from any pathways that could lead to exposures of individuals or releases to the environment beyond the site. Were the no-action alternative to be implemented for a long period of time, the only potential for contaminant migration in

the soils above the groundwater table is in those limited areas where there currently are no buildings, pavements, or other structures. Soil contamination in such areas would continue to be subject to infiltrating water from precipitation that could slowly wash contaminants into the groundwater. Contaminants in the groundwater, however, would be controlled by the existing groundwater pump-and-treat system or other corrective actions as determined pursuant to the MHWMF Part I Permit. Soil contamination conditions under the no-action alternative also would be subject to new or modified corrective actions developed under terms of the MHWMF Part I Permit.

3.5 Water Resources

3.5.1 AFFECTED ENVIRONMENT

3.5.1.1 Surface Water

The BFC, including the KCP, is in the Blue River watershed (Hydrologic Unit 10300310101), which is part of the much larger Missouri River watershed. Figure 3-7 shows the extent of the 270-square-mile Blue River watershed, including its start in eastern Kansas and its end at the Missouri River to the east of downtown Kansas City. Figure 3-7 also shows Indian Creek, a primary tributary to the Blue River. Indian

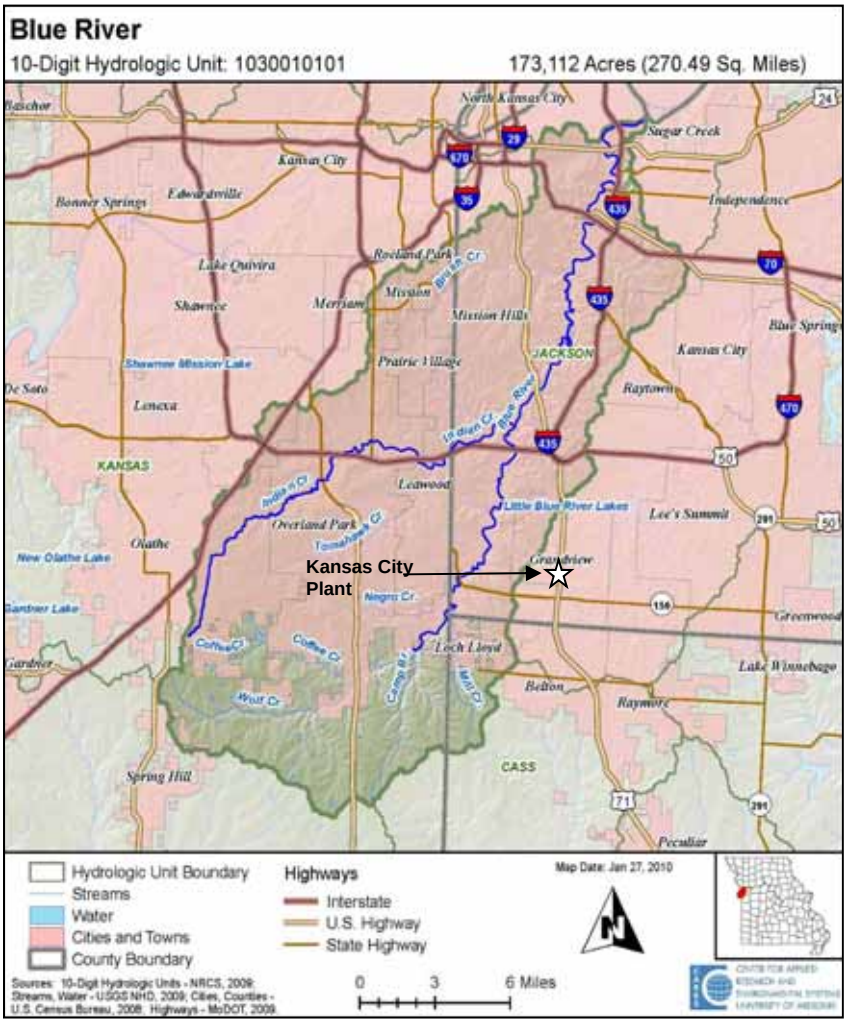

Figure 3-7. Blue River Watershed (Source: CARES 2011a)

Creek drains about 74 square miles of the Blue River watershed (Honeywell 2008) before it joins the Blue River southeast of the BFC. These two streams, the Blue River to the east and Indian Creek to the south, are the closest primary surface waters to the KCP and the most likely to be affected by, or to affect, KCP activities. A third, small stream that is unnamed on U.S. Geological Survey maps, but called Boone Creek in some documentation, borders the northeastern side of the BFC before draining into the Blue River. This small stream is noteworthy because it receives runoff from the northeastern portion of the BFC about one quarter of a mile before it joins Blue River.

Table 3-5 summarizes flow characteristics of the Blue River and Indian Creek near the BFC. The data for the Blue River are from a U.S. Geological Survey gauge station to the southeast of the complex, near where the 95th Street Terrace bridge crosses the river. About 188 square miles of the Blue River watershed contribute to this point of the river (USGS 2012c). Because the location is downstream of the convergence with Indian Creek, this includes all the Indian Creek drainage. The data for Indian Creek are from a gauge station at the Kansas-Missouri state line. In a straight line, this station is about 2.6 miles southwest of where Indian Creek and Blue River converge and about 3.3 miles upstream following the meanders of the creek. About 64 square miles of the Indian Creek drainage contribute to the location of the state line gauge station (USGS 2012d). Because its drainage area is largely urban, the long period of record available for the Blue River undoubtedly includes flow variations due to changes in physical conditions as well as meteorological patterns. As additional points of reference, over the last 10 years of record (October 2001 through September 2011), the average monthly flow at the Blue River gauge station ranged between 23 and 1,361 cubic feet per second and the overall average flow was 225 cubic feet per second (USGS 2012e). No flow data were located for Boone Creek.

Table 3-5. Flow Characteristics for Blue River and Indian Creek (cubic feet per second)

Parameter	Indian Creek at State Line	Blue River at 95th Street Terrace
Contributing drainage (square miles)	64	188
Period of record	May 2003 to September 2011	May 1939 to September 2011
Annual mean flow	103	176
Highest annual flow (occurrence)	138 (2010)	437 (1993)
Lowest annual flow (occurrence)	65.8 (2006)	12.8 (1956)
Highest daily flow (occurrence)	5,320 (July 30, 2008)	20,000 (September 13, 1961)
Lowest daily flow (occurrence)	12 (August 2, 2011)	0 (several years)
Maximum peak flow (occurrence)	18,700 (June 14, 2010)	41,000 (September 13, 1961)

Source: USGS 2012c, 2012d.

Under a framework established by the *Clean Water Act* (33 U.S.C. §§ 1251 *et seq.*), the states evaluate their surface waters, determine applicable beneficial uses, set water quality criteria to support those uses, and implement rules and regulations to achieve or maintain water quality criteria. Section 305(b) of the *Clean Water Act* requires states to develop and periodically update an inventory of the water quality of all water bodies in the state, and Section 303(d) of the Act requires states to develop and periodically update an inventory of water bodies that do not meet water quality standards.

Table 3-6 lists designated uses and general water quality status for surface waters near the KCP based on Missouri's most recent Section 305(b) report and Section 303(d) inventory. Boone Creek, to the northeast of the site and which joins the Blue River, is not identified in the report or State regulations. Consistent with Missouri regulations (Table H of 10 CSR 20-7), Table 3-6 presents Blue River data in four segments (in Missouri) to show changes in designated uses. The BFC is adjacent to the first and second segments. The table also lists the segment of the Missouri River into which the Blue River flows. Missouri regulations classify the portion of the Blue River upstream of the BFC (the first segment listed in Table 3-6) and the Indian Creek segment as "intermittent streams," indicating they might flow only part of the year. The other segments of the Blue River are classified as "permanently flowing waters."

Table 3-6. Surface-Water Quality and Designations near the BFC

Water body	Segment identifier and location	Length (miles)	Designated uses[a]							Water quality assessment results,[b] status (TMDL),[c,d] and other designations[a]
			IRR	LWW	AQL	WBC	SCR	DWS	IND	
1. Blue River	WBID 421 – from Kansas-Missouri state line to crossing of East 95th Street Terrace (just east of the BFC)	12.0		X	X	B	X			Impaired water—bacteria contamination from urban non-point source(s) does not support designated use of WBC (swimming)—TMDL under development Designated a metropolitan no-discharge stream
2. Blue River	WBID 419 – from crossing of East 95th Street Terrace (just east of the BFC) to near intersection of Hardesty Avenue and East 63rd Street	7.7		X	X	A	X			Impaired water—bacteria contamination from urban non-point source(s) does not support designated use of WBC (swimming) or SCR (fishing and boating)—TMDL under development Designated a metropolitan no-discharge stream
3. Blue River	WBID 418 – from near intersection of Hardesty Avenue and East 63rd Street to just north of crossing at East 12th Street	9.4		X	X	B	X		X	Impaired water—bacteria contamination from urban non-point source(s) does not support designated uses of WBC (swimming)—TMDL under development
4. Blue River	WBID 417 – from just north of crossing at East 12th Street to mouth (junction with the Missouri River)	4.4		X	X	B			X	Impaired water—bacteria contamination from urban non-point source(s) does not support designated use of WBC (swimming)—TMDL under development
5. Indian Creek	WBID 420 – from Kansas-Missouri state line to mouth (junction with the Blue River, just southeast of the BFC)	3.4		X	X	A			X	Impaired water—(1) bacteria contamination from multiple point sources and non-point source(s) does not support designated use of AQL, LWW, or IND—TMDL under development; (2) chloride contamination from urban non-point source(s) does not support designated uses of WBC (swimming), LWW, or IND—TMDL development scheduled Designated a metropolitan no-discharge stream
6. Missouri River	WBID 356 – from Kansas River (Kansas-Missouri state line) to Chariton River (Chariton County)	129	X	X	X	B	X	X	X	Potentially impaired water—habitat degradation and chlordane and PCB contamination are potential conditions that could impair designated uses (protection of human health associated with fish consumption)—TMDL approved in 2006

a. Source: 10 CSR 20-7.
b. Source: MDNR 2010.
c. Source: MDNR 2011b.
d. Source: MDNR 2006.

TMDL = total maximum daily load; WBID = unique Water Body Identification Number; PCB = polychlorinated biphenyl.
X indicates the designated use is applicable to the identified stream segment; A and B provide the same indication but with the additional definition below.
Designated use classifications:

IRR = Irrigation
LWW = Livestock and Wildlife Watering
AQL = Protection of Warm Water Aquatic Life and Human Health-Fish Consumption
WBC = Whole-Body Contact Recreation: A = Swimming open to public, B = WBC not contained in A
SCR = Secondary Contact Recreation
DWS = Drinking Water Supply
IND = Industrial

Each water segment listed in Table 3-6 is impaired or, in the case of the Missouri River, potentially impaired. Total maximum daily loads, which represent the maximum amount of a contaminant a specific water body can absorb before its quality is affected (MDNR 2011a), are under development or are scheduled for development for both Indian Creek and Blue River. Once such loads are established, an appropriate course of action can be developed to control or reduce contaminants to improve water quality. Indian Creek and two Blue River segments adjacent to the BFC are designated "metropolitan no-discharge" streams, which means no water contaminant except uncontaminated cooling water, permitted stormwater discharges in compliance with permit conditions, and excess wet-weather bypass discharges not interfering with beneficial uses, shall be discharged to the watersheds of streams (10 CSR 20-7).

3.5.1.1.1 Water Use

Table 3-7 summarizes water use in the Kansas City, Missouri, area. The values in the table represent water use in 2005 in Clay, Jackson, and Platte counties. The KCP is in Jackson County; however, the boundaries of Kansas City extend into the three counties and the combined information presents a more logical picture of water use. For example, it was apparent in the individual county data that water withdrawn from a source in one county was distributed to another county.

Excluding power production, domestic water use represents the largest demand in the three-county region, with industrial and commercial a close second, and surface water is the primary source of water. The largest water provider in the region is Kansas City Water Services, which treats an average of 113 million gallons of water per day (Kansas City 2011a). The City obtains its water primarily from the Missouri River but mixes in well water before treatment to maintain a stable water temperature (Kansas City 2011b).

Table 3-7. Water Use in 2005 for the Three-County (Clay, Jackson, and Platte) Area of Kansas City, Missouri

Water category	Average water use in 2005 (mgd)		Total (mgd)	Percent of total
	Public water supply	Self-supplied		
By use				
Domestic	100.5	0	100.5	46.0
Public water use (includes losses)	29.8[a]	0	29.8	13.6
Industry and commercial	45.1[a]	41.4	86.5	39.6
Agriculture (crops and livestock)	0.0	1.8	1.8	0.8
Totals	**175.5**	**43.2**	**218.6**	**100**
By source				
Groundwater	57.0	10.4	67.3	30.8
Surface water	118.5	32.8	151.3	69.2
Totals	**175.5**	**43.2**	**218.6**	**100**
Additional use				
Power production (cooling water, more than 99 percent from surface water and more than 99 percent returned)	0	939.8	939.8	100

Source: USGS 2010.
mgd = million gallons per day.
a. These values are not from USGS 2010. The estimated public water use, which includes such items as firefighting, filling public swimming pools, and transmission losses throughout the system, was 17 percent (MDNR 2002a). NNSA derived industrial and commercial use from the public water system by assuming the amount not used for domestic or public purposes was used for industrial and commercial purposes.
Note: Totals might differ from sums of values due to rounding.

There are no significant consumptive uses of Indian Creek or Blue River water near the KCP. According to State watershed data compiled by the University of Missouri, Columbia, almost 63 percent of the 270-square-mile Blue River watershed, which includes the Indian Creek drainage, is developed land and there are no areas identified as "public drinking water watershed" (CARES 2011b). The predominant public water supply in the area is that for Kansas City (CARES 2011c) described above.

3.5.1.1.2 Stormwater

Stormwater runoff from the KCP and BFC discharges to Indian Creek and Blue River (via Boone Creek in one case) through four outfalls with discharge permits and through six outfalls without permits (DOE 2004). The latter are for runoff from areas without industrial activity such as parking lots and outlying areas. The permitted discharges include runoff from industrial areas of the complex and contain air conditioning condensate and minor flows from the testing of fire protection systems. These sources collect in a network of underground laterals, which connect to storm sewer mains and then to the outfalls. The permit also identifies "uncontaminated stormwater collected in various sumps, secondary containment structures, and excavated pits" as suitable for these discharges.

Figure 3-8 shows the drainage areas on the BFC that contribute to stormwater discharges. Each area with a dark border includes a label that links the area to its discharge outfall. The four discharges that operate under Missouri State Operating Permit MO-0004863 (the State equivalent of a National Pollutant Discharge Elimination System permit) are 001 through 004, and the six discharges not requiring permits are A through F. In most cases, approximate outfall locations are also shown in the figure. Permitted Outfalls 002, 003, and 004 are on the south side of the complex and discharge to Indian Creek. Outfall 001 is northeast of the main complex facilities and discharges to Boone Creek, which then flows into the Blue River. It can be seen in Figure 3-8 that the permitted outfalls drain GSA portions of the BFC as well as the portions that comprise the KCP. The operating permit, however, is issued to DOE and DOE/NNSA has the responsibility to meet its terms and requirements.

The operating permit requires the DOE to monitor each permitted outfall for PCBs and pH on a weekly basis and for settleable solids and oil and grease on a monthly basis. The permit also requires sampling and analysis for other metal and organic constituents on a quarterly schedule (MDNR 2012e). Monitoring of PCBs is due to historical contamination problems on the site. In the past, KCP operations used PCBs as heat transfer fluids in plant processes and as a common dielectric fluid in large electrical equipment such as transformers. Releases of these fluids occurred from the 1940s through the early 1970s, with notable spills in 1969 and 1971, before they were specifically regulated and well before they were banned in 1979. The spills were cleaned using standard industrial practices of the time, but residual contamination remained. Since that time, NNSA has removed accessible contaminated soils for proper disposition, but contamination remains beneath buildings where there is no practicable means for removal (NNSA 2010). Stormwater lines under these areas have been susceptible to infiltration of small amounts of PCB contamination. The primary area of remaining soil contamination is beneath the southeastern section of the Main Manufacturing Building, which is in the drainage area of Outfall 002 (Figure 3-8). Correspondingly, PCB contamination in discharges through this outfall has been a primary issue under the operating permit. In addition, contamination has been detected in Outfall 003; NNSA believes the source is a historical spill of transformer oil on the GSA portion (western end) of the Main Manufacturing Building's roof (NNSA 2010).

As with other legacy releases of contamination associated with plant operations, the occurrence of PCBs in stormwater is addressed under the MHWMF Part I Permit (Honeywell 2013). NNSA has undertaken investigations and corrective measures in the drainage area to Outfall 002 and, to a lesser extent, the drainage area to Outfall 003 to reduce the potential for PCB contamination to reach the outfalls. Corrective measures have included removing contaminated sediments from lines and manholes, rerouting

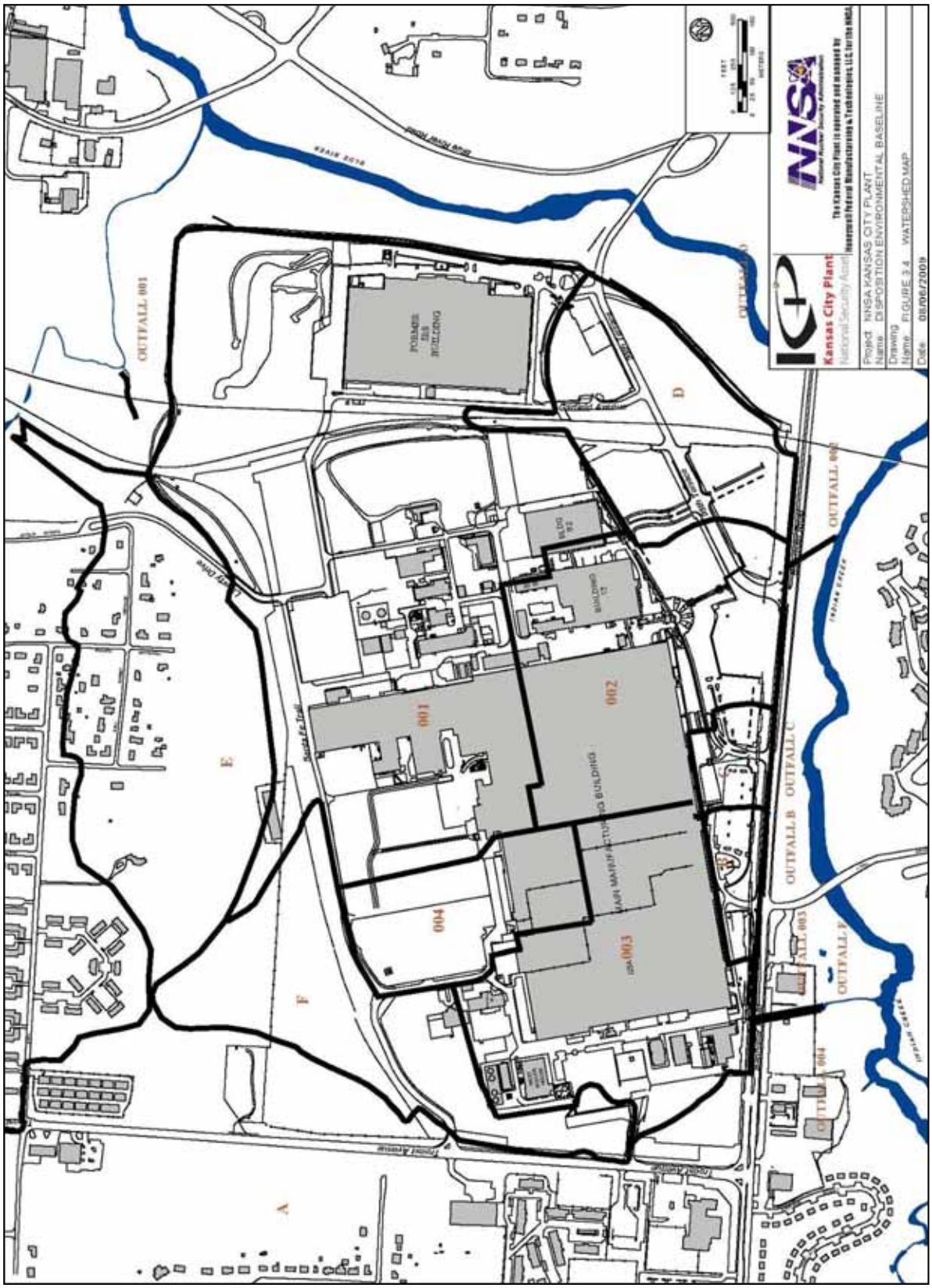

Figure 3-8. Drainage Areas on the BFC and the Outfalls to which They Drain (Source: Honeywell 2013)

roof drains, and installing liners in old piping (NNSA 2010). In relation to the discharge limit, the operating permit states there are to be no discharges "at or above the level of quantification," which the permit defines as 0.5 microgram per liter, or 0.5 part per billion. The potential for small amounts of PCBs to reach stormwater outfalls is a concern, but NNSA has reported that since 2008 all four outfalls have met permit limits for PCBs (Honeywell 2013).

3.5.1.2 Groundwater

3.5.1.2.1 Regional Characteristics and Quality

The Kansas City area includes two general drinking water aquifers: (1) the glacial drift and alluvium and (2) the Missouri River alluvium (MDNR 2002b). The glacial drift and alluvium aquifer, also referred to as the glacial till aquifer, is present over much of the northern half of Missouri, as shown in Figure 3-9. On the south side of the Missouri River, the glacial drift and alluvium material is relatively thin and basically limited to the area shown in the figure (Miller and Vandike 1997). The Missouri River alluvium aquifer is a band of varying width that follows the river.

Figure 3-9. Principal Drinking Water Aquifers in the State of Missouri (Source: MDNR 2002b)

Pennsylvanian-age bedrock formations of limestones, shales, and sandstones underlie these primary drinking water aquifers and represent the deeper aquifers of the region. The Kansas City area is on the northern side of the "freshwater-saline water transition zone" that extends east to west through the middle portion of the state (Figure 3-9). To the south of the transition zone, concentrations of dissolved solids, sulfate, and chloride in the deeper aquifers are generally low enough to be acceptable as drinking water sources. To the north of the transition zone, groundwater in the same deeper aquifer zones becomes increasingly mineralized and levels of dissolved solids, sulfate, and chloride become too high to be acceptable for drinking water. These deep formations have low permeability, which results in low potential for recharge, slow groundwater movement, and long contact periods between water and rock, all contributing to high mineralization (Miller and Vandike 1997). The following paragraphs address the upper aquifers, which are the area's primary drinking water aquifers.

The glacial drift and alluvium materials that represent the upper geologic sequence in the general region of northwestern Missouri consist of clay, silt, sand, and gravel. To the south of the Missouri River, these materials are in relatively thin layers, probably because the area was near the southern end of ancient glacier advances. Wells in the glacial drift and alluvium aquifer are generally not capable of producing large quantities of water except in areas where the alluvium materials are deeper as a result of filling preglacial channels. In addition, geologically recent alluvium materials associated with major rivers in the

region (like the Missouri River, which is addressed separately) and their tributaries can provide local groundwater supply sources.

Groundwater resources are poor in much of northwestern Missouri, which incorporates areas of the glacial drift and alluvium aquifer and underlying bedrock aquifers with high mineralization. In addition to being at the southern extent of ancient glaciers, the portion of Kansas City on the south side of the Missouri River is at the northern extent of the Osage Plains physiographic region. With limited exceptions, the Osage Plains of west-central Missouri probably have the least potable groundwater resources in the state (Miller and Vandike 1997).

The Missouri River alluvium aquifer is a very important and widely used water source throughout the river's path across the state. This aquifer underlies the Missouri River floodplain, which ranges in width from near zero, where bluffs are present, to 12 miles, where topography is flat. There is direct interchange between this aquifer and the river. Water levels are generally from less than 5 feet to about 20 feet below ground surface, and the potentiometric water surface level is typically within a few feet of the river's water surface elevation. Depths of the alluvium materials can be as much as 150 feet in the deepest portions and inches at the outer edges of the valleys (Miller and Vandike 1997).

The section of the Missouri River alluvium aquifer that extends from Kansas City to about the center of Saline County's northern border consists of fine sand, silt, and clay in the upper portions and coarse sands and gravels in the deeper portions. The average width of these materials is about 4 miles and the average thickness is 85 to 90 feet (Miller and Vandike 1997).

3.5.1.2.2 Groundwater Use

As indicated in Section 3.5.1.1 and listed in Table 3-7, about one-third of the public water supply in Clay, Jackson, and Platte counties comes from groundwater. About one-fourth of private water use in the three-county area comes from groundwater. The Missouri River alluvium aquifer, although relatively small in areal extent, is the most productive aquifer in the area, and many of the area's municipalities, including Kansas City, pump from it. This aquifer is the predominant groundwater source for the public water supply uses listed in Table 3-7. Watershed data from the University of Missouri, Columbia, show 40 private wells in the Missouri side of the Blue River watershed (Figure 3-7), mostly in areas north of the BFC, but some to the south (CARES 2011b). Based on the information in Table 3-7, water use from these wells is mostly for industrial and commercial operations; there is no identified domestic use for water from these private wells.

At the KCP, groundwater is typically about 15 feet below the ground surface; two water-bearing units have been identified in the glacial drift and alluvium aquifer: an upper sand-clay-silt unit and a lower gravel unit that sits atop the bedrock. A layer of olive to blue-green clayey silt, which is generally a less permeable layer than the other two, separates these two units. The bottom gravel unit is present throughout the site and ranges in thickness from a few inches to 8 feet. However, the overall stratigraphy of the materials that underlie the KCP is complicated due to past erosion actions and fill materials associated with the site's built-up condition (DOE 2012a). Groundwater beneath the KCP flows toward nearby streams. The northeastern portion of the site flows generally eastward toward the Blue River. Other portions, including the area of the Main Manufacturing Building, flow south-southeast toward Indian Creek if the flow is not diverted by footings, sumps, or interceptor wells (DOE 2006a). There are no known uses of the alluvial or bedrock aquifers near the KCP (NNSA 2010).

Groundwater contamination exists beneath the KCP and the larger BFC as a result of past operations. DOE's investigations of past waste disposal and management practices, as well as the 1989 consent order between DOE and EPA, were described in Section 3.4, as was the subsequent 1999 MHWMF Part I

Permit that shifted oversight of the corrective action program from EPA to the MDNR. A primary component of the ongoing corrective action activities described in Section 3.4 is a groundwater pump-and-treat system. Twenty-six of the forty-three original KCP potential release sites, or SWMUs, involve or could involve residual underground contamination (DOE 2006b); the corrective measures identified for these 26 sites include the continued operation of a system for pumping and treating groundwater at the BFC and monitoring the status of the contamination plume (MDNR 2012a).

Consistent with the soil contaminants identified in Section 3.4, trichloroethylene and its degradation products 1,2-dichloroethylene and vinyl chloride are the primary contaminants in the groundwater beneath the BFC; other volatile organic compounds are present, but these three constitute the vast majority (DOE 2012a). Figure 3-10 shows the shape, locations, and concentrations of groundwater contamination plumes beneath the BFC. The groundwater pump-and-treat system collects groundwater from tile drains in the footings of several buildings, drains associated with a contaminated air handling unit, and 10 wells. The system of footing drains is primarily in the Main Manufacturing Building, but extends to adjacent buildings. The ten extraction wells include two in the northeastern section of the BFC (north of the former Internal Revenue Service Building) that connect to an interceptor trench (DOE 2006a).

Extracted groundwater is pumped to the treatment system, which destroys volatile organic compounds through oxidation using ultraviolet light and hydrogen peroxide. The system is in the KCP Industrial Waste Pretreatment Facility. The treated groundwater and industrial wastewater discharge to the sanitary sewer system described in Section 3.8 of this EA. Terms of the corrective measures and the HSWA Part II Permit require NNSA to monitor groundwater routinely to track the shape and extent of contamination plumes and to determine if the pump-and-treat system is performing as intended. Monitoring includes the collection of samples from wells into the bedrock beneath the BFC. To date, this monitoring indicates the contamination is present only in the layers of the upper glacial drift and alluvium aquifer; it has not migrated to the underlying bedrock (NNSA 2010).

Since its installation in 1988, the pump-and-treat system has removed 15,109 pounds of volatile organic compounds from the aquifer (DOE 2012a). However, the areal extent and the contaminant concentrations of the plume remain relatively steady. Pockets of dense, non-aqueous phase liquids trapped in areas of contamination could provide the sources of the contaminant plumes. Further, the pump-and-treat system can remove only the contaminant mass that dissolves in the groundwater as it passes through the area of the dense, non-aqueous phase liquids (DOE 2012a). The system has been effective in preventing the migration of groundwater contaminants offsite, which would include the potential for contamination to reach sediments or surface waters of Indian Creek and the Blue River (DOE 2012a).

As was described in Section 3.4.1.2, the MHWMF Part I Permit and HSWA Part II Permit were recently modified to include GSA as well as NNSA operations (MDNR 2012c). A significant element of the modified Part I Permit is the requirement that NNSA and GSA prepare a DCCR to memorialize the environmental investigations already performed at the BFC, describe the current status of cleanup actions, and present the human health and ecological risks posed by current conditions. In light of the expected departure of NNSA and potentially GSA, another focus of the modified Part I Permit evaluations is the identification, if possible, of opportunities for additional contaminant source reduction or mitigation and the potential reduction in the scope and duration of groundwater pump-and-treat actions (MDNR 2012a). Other groundwater-related actions in the modified Part I Permit include changes to the wells identified as part of the pump-and-treat system and the incorporation of GSA wells into monitoring and reporting requirements. The modified Part I Permit also calls for a PCB fate and transport study to evaluate the presence of PCBs in surface water, sediment, and biota-receiving streams near the facility and additional corrective actions that may reduce PCB concentrations (MDNR 2012c). Also noted in Section 3.4.1.2, the

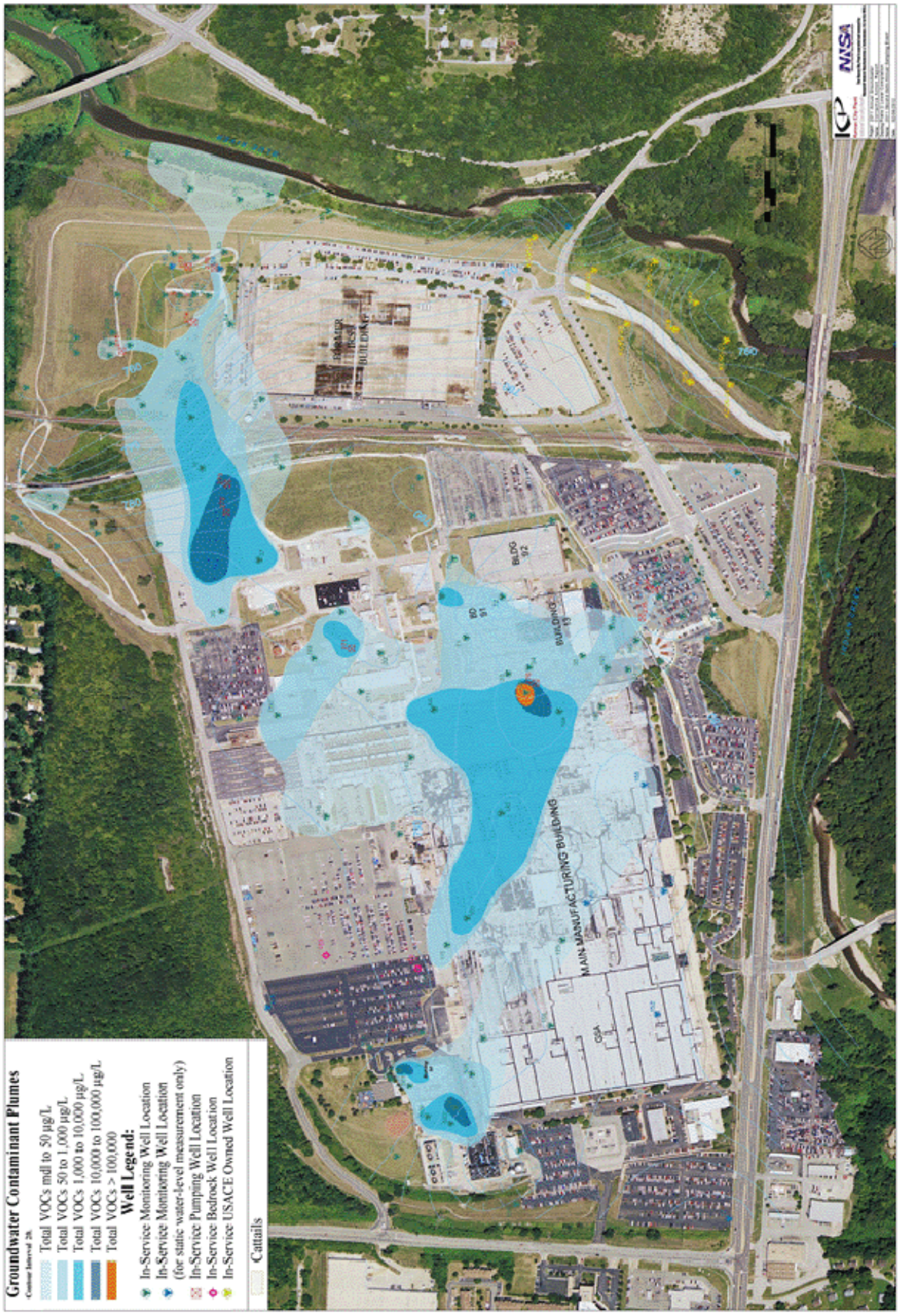

Figure 3-10. Volatile Organic Compound Contamination Plumes in Groundwater Beneath the BFC (Source: DOE 2012a)

DCCR is to be submitted to MDNR within 210 calendar days of the August 24, 2012 effective date of the modified permit (MDNR 2012a). A PCB fate and transport study work plan has been submitted.

3.5.1.3 Floodplains and Wetlands

3.5.1.3.1 Floodplains

The KCP is on floodplains associated with the confluence of Indian Creek and the Blue River. Minor flooding incidents during which water leaves the banks of these streams are not uncommon; the water generally flows onto undeveloped land. However, more severe flooding events have occurred in the BFC area. Since KCP began operations, the highest recorded flood level, 23.5 feet above flood stage, occurred in 1961 and covered large portions of the BFC. Flood stage for the Blue River at the 95th Street gauge station is a flow of 7,000 cubic feet per second. The 1961 event had a recorded flow of 41,000 cubic feet per second at that station (USACE 1990). Photographs of the area during the 1961 flood show water surrounding and reaching the walls of the former Internal Revenue Service Building, covering the parking areas, reaching the walls of facilities in the southern and southeastern portions of the BFC, and covering 95th Street all the way to Troost Avenue on the western side. There was extensive damage to structures and contents at the BFC (USACE 1990).

Planning for a long-term flood control project began in the late 1960s and control measures, including levees and a floodwall, were in place by 1973. These measures were constructed in conjunction with a new segment of Bannister Road that included a bridge over the Blue River. However, Federal funding limitations did not allow completion of all planned control measures at that time. Completed flood control measures included levees to protect the northeastern, eastern, and southeastern portions of the BFC and a portion of the floodwall for the northern side of Bannister Road. Elements not completed included the portion of the floodwall that would extend all the way to and north along Troost Avenue and the segment of levee that would extend farther north into the hillside. In 1987, planning began for the completion of flood control measures and included the decision to upgrade the design to provide protection against a 500-year flood (USACE 1990). In 1996, the U.S. Army Corps of Engineers completed a project that heightened existing levees and floodwalls; extended floodwalls west along Bannister Road, jogging north and around the parking lot in the southwestern corner of the BFC; and completed a levee adjacent to Troost Avenue that runs to the hillside at the northwestern corner of the complex. As a result of these actions, the BFC is surrounded by levees, floodwalls, and a hillside.

Because flood control measures for the BFC were designed and constructed around existing facilities, often in relatively confined space, there were practical constraints on how control measures could be integrated into the existing system of road and railroad access. As a result, the flood control system is not entirely passive; active measures must occur under extreme flooding or threatening conditions to put the facilities in a fully protected condition. These measures include:

- Closing five rolling gates on access roads and the southern railroad access point and installing sandbags as needed to make the closed gates secure and watertight;
- Filling four gaps, including at two sets of railroad tracks in the northeastern corner of the complex, designed for the placement of stop logs (stackable beams that span between end walls or posts) and installing sandbags as needed to make the stop logs secure and watertight;
- Closing a pedestrian gate at the southwestern parking lot and installing sandbags as needed;
- Closing the gap represented by the middle Troost Avenue access road with sandbags; and

- Monitoring and closing, as needed, 11 sluice gates that provide drainage through the levees and floodwalls to eliminate backflows. Eight additional drainage points have flap gates, which require routine maintenance to ensure proper operation, and which close automatically if backflows occur.

A flood protection plan (Honeywell 2008) guides the implementation of flood response actions, including the closing or installation of the devices listed above. The plan describes the use of four crews of eight individuals to put flood control measures in place. The timing of gap closures is based on their locations and water height readings from the Blue River gauge station. For example, when the river water height reaches 39 feet, actions begin to close two rolling gates and two stop log gaps; when water height reaches 40.8 feet, two other gates are targeted; and so on. Based on the timing estimates presented in the plan, if all measures were implemented in succession, it could take 6 to 7 hours from the time the crews were in place and ready to start. The plan notes, however, that the planned times are likely to be a worst-case situation, such as might result from poor weather conditions, because actions performed during practices were notably quicker. Using the quicker times for practices (also described in the plan), NNSA estimates that it could implement all flood control measures in 4 to 5 hours.

In April 1999, the U.S. Army Corps of Engineers requested that the Federal Emergency Management Agency revise the applicable Flood Insurance Rate Map to show the effects of the completed flood control system at the BFC. The Corps provided hydrologic analyses to support the request. The Agency responded to the request in a letter of map revision dated September 8, 1999, that formally revised the map and affected portions of supporting documentation (FEMA 1999). The letter included a copy of a section from the applicable map, annotated with the modifications in flood zones around the BFC. Figure 3-11 shows the annotated section of the Flood Insurance Rate Map. The figure shows the Zone A areas (in black) that represent the extent of the 100-year floods for the Blue River and Indian Creek and the Zone B areas that represent additional areas that the more extensive 500-year flood would cover. Essentially all of the BFC is in the 500-year flood area, but the figure's marking and notes show that the BFC is protected from this flood by levee, dike, or other structures subject to possible failure or overtopping during larger floods. In addition, the figure shows that the annotation was to the Flood Insurance Rate Map-designated Community Panel Number 290173 0115 C, dated September 14, 1990. The 1990 version of this map is the most recent available and, therefore, does not show the annotations in Figure 3-11. However, the Federal Emergency Management Agency posted the September 8, 1999, letter of map revision with this panel.

Additional flood control measures have recently been implemented on the Blue River downstream from the BFC. If these new measures act to constrict flow during flood events, there would be an associated rise in the depth of flow that would tend to increase depths back upstream to some extent. If the BFC were in this affected zone, the depth of the 100- or 500-year flood, for example, would be different than determined at the time the BFC flood control measures were put into place. To date, there is no information available on the possible effects that downstream flood control measures might have on the BFC; the most recent flood zone information available from the Federal Emergency Management Agency is as described above. Adverse effects at the BFC, if any, would be expected to be no more than a need to recalculate the level of flood protection that is provided by the existing flood control system. That is, the existing flood control system may provide protection for a slightly shorter return period, lower intensity flood than a 500-year flood. Protection from a 500-year flood is more than that normally provided for most industrial areas.

3.5.1.3.2 Wetlands

NNSA completed a wetland delineation report (Burns & McDonnell 2009) for the KCP portion of the BFC. The effort reviewed maps and related data for the site and included a field survey that recorded and evaluated vegetation, soil conditions, and hydrologic indicators for sample plots with potential wetlands characteristics. Figure 3-12, copied from that report, shows six tracts of land and facilities the survey considered (tracts A through F). The conclusion in the report is that the evaluated property includes two ephemeral streams and no wetlands and, further, the two streams are nonjurisdictional (Burns & McDonnell 2009); that is, neither stream meets the definition of a Water of the United States (a traditional navigable water or a relatively permanent tributary to one) and is not regulated by the U.S. Army Corps of Engineers. The two streams, S-1 and S-2 in the upper-right portion of Tract A in Figure 3-12, total 634 feet in length and are both open, unlined ditches that carry stormwater runoff between concrete culverts.

NNSA submitted the wetland delineation report to the Kansas City District of the U.S. Army Corps of Engineers with a request for a jurisdictional determination (or concurrence with the report's conclusion) for the survey area. The Corps response in January 2010 concurred that the two ephemeral streams were nonjurisdictional (USACE 2010). In addition, the response presented the Corps' position that 0.25 acre of potential jurisdictional wetland in a stormwater retention basin was part of the survey area. This area, in Tract D in Figure 3-12, was once a potential Water of the United States, but it was previously filled/impacted by site development and roadway projects and, like the two drainage channel segments, was not subject to regulation under the provisions of Section 404 of the *Clean Water Act* per 1986 preamble water definitions (USACE 2010).

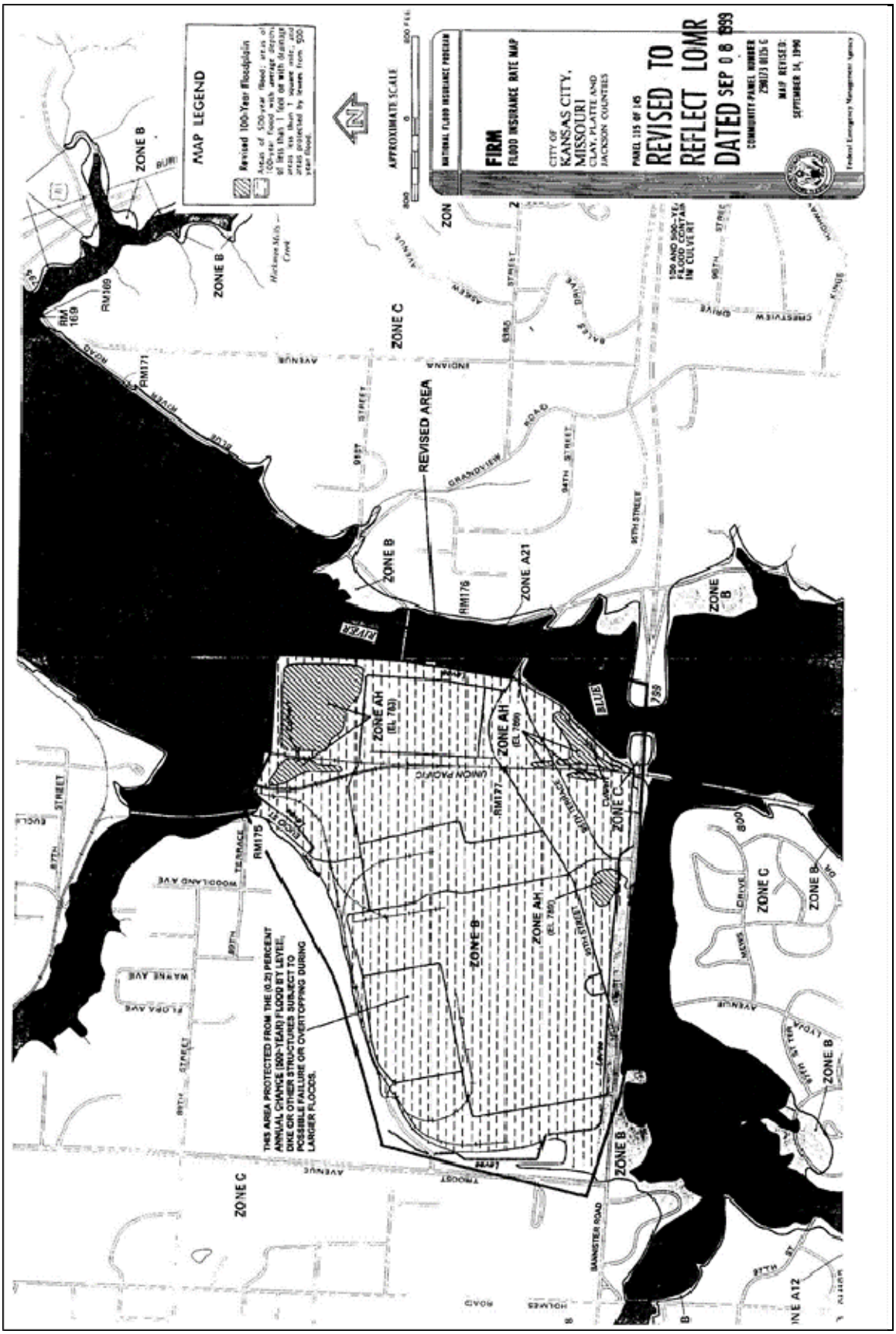

Figure 3-11. Applicable Flood Insurance Rate Map (annotated with modifications in the flood zones around the BFC) (Source: FEMA 1999)

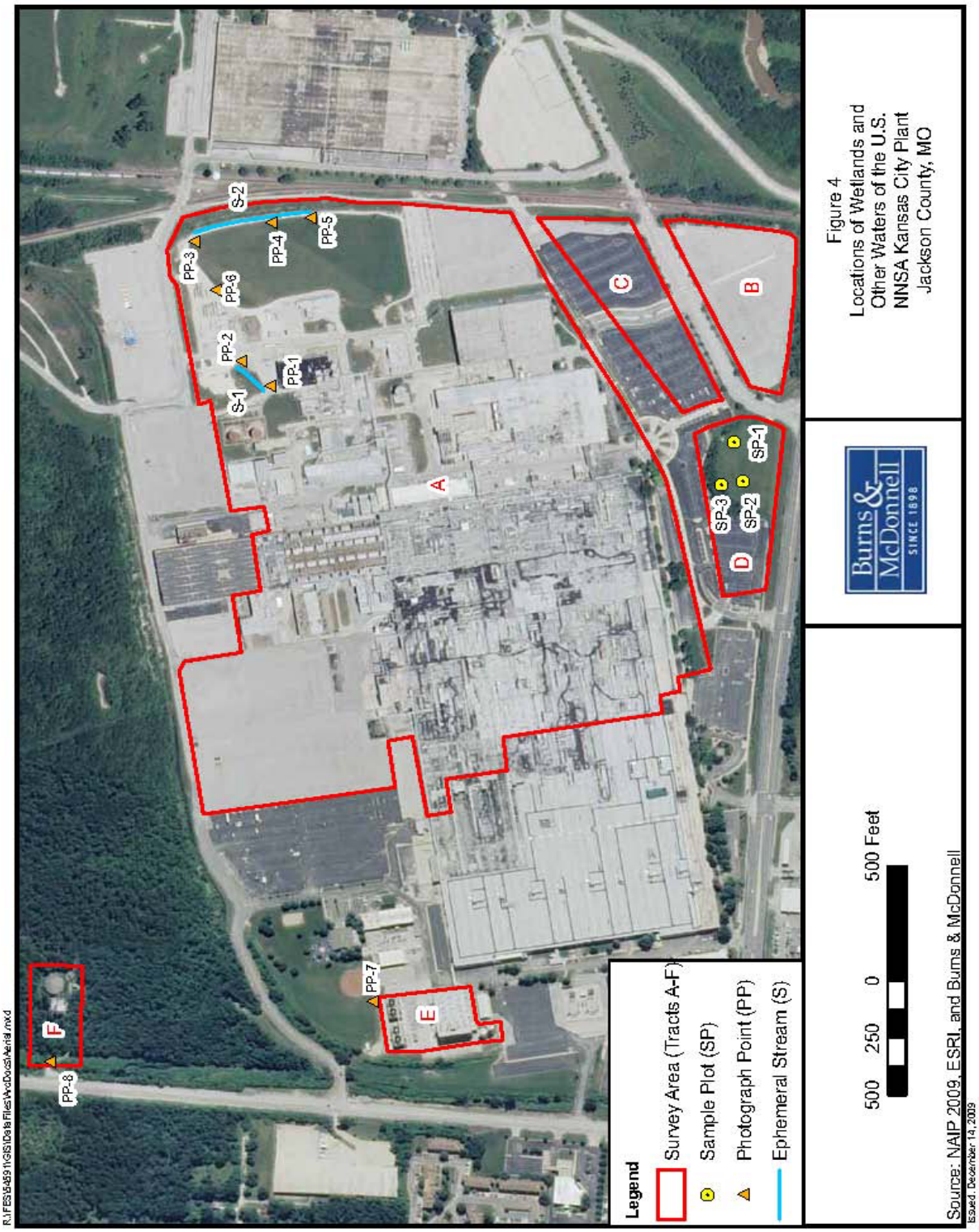

Figure 3-12. Wetlands and Streams in the KCP (Source: Burns & McDonnell 2009)

3.5.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

3.5.2.1 Surface Water

Demolition. Although a temporary change, NNSA expects that the amount of stormwater runoff would decrease compared with current conditions because disturbances would involve breaking up and removing impervious surfaces. Activities that involve land disturbance of more than 1 acre require an application to the MDNR for a stormwater discharge permit [10 CSR 20-6.200(3)]. The MDNR can permit such activities under a general permit or require the applicant to apply for an individual operating permit [10 CSR 20-6.200(7)]. In either case, the permit would require the applicant to develop plans and implement measures to keep contaminants and sediment out of runoff to protect Indian Creek and the Blue River during land-disturbing actions. In addition, demolition actions would be performed in compliance with the MHWMF Part I Permit. Permitting requirements and the involvement of the MDNR in oversight of demolition activities would minimize the potential for adverse impacts to surface waters from stormwater runoff.

Water use during demolition would consist primarily of dust suppression and workforce needs, come from the distribution system that already serves the site, and be minor in comparison with the quantities currently used at the site. For evaluation purposes, it is estimated that the 1- to 5-year demolition period would require about 5 million gallons of water per year, compared with the 151 million gallons per year the BFC currently uses. Since roughly 60 percent of current water use is attributed to KCP operations, which would cease, water use during demolition would represent a decreased demand on regional surface- and groundwater resources.

Remediation. Soil remediation after demolition would result in impacts to stormwater runoff and other surface water resources that would be similar to those described above for demolition. Soil removal actions would occur under the same or a modified stormwater discharge permit. There could be a permit modification to implement measures to ensure that runoff leaving the site did not carry contamination from excavated soils or sediments. NNSA would comply with the MHWMF Part I Permit for any soil remediation in addition to the stormwater permit, which would minimize the potential for adverse impacts to surface waters. Water needs during remediation would be minor, so the remediation activities would not impact surface water and groundwater resources.

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet, each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). Stormwater runoff could increase slightly from the demolition portion of the analytical scenario due to the increase of rooftops and other impervious land coverage. Impacts to other surface water resources from construction activities would be similar to those described above for demolition. Land disturbance for 500,000 square feet of generic new facilities would be well over the 1 acre that would require an MDNR stormwater discharge permit, which would require the new owner to develop plans and implement measures to protect Indian Creek and the Blue River from runoff with contaminants or sediments from the construction site. If the owner built the facility with no soil remediation beforehand, the MHWMF Part I Permit would still be applicable. As with demolition activities, the MDNR's direct involvement would minimize the potential for adverse impacts to surface waters. Water needs during construction would be expected to be similar to or less than those during demolition, so construction activities would not impact regional surface- and groundwater resources.

Operations. The quantity of stormwater runoff from the site would be similar to current levels if existing facilities were used because the amount of impervious surfaces would be unchanged. If new construction involved a decrease in impervious surfaces, the quantity of runoff leaving the site would decrease

accordingly. Changes in the location of buildings, footing tile sumps, roof drainages, and pavements by demolition and construction could change local (within the BFC boundaries) surface- and groundwater flow directions and volumes.

If soil or building contamination that could contribute contamination to runoff is still present, it is assumed State regulators would require continuation of the discharge permit (Section 3.5.1.1) for the four stormwater runoff outfalls that serve the industrial parts of the site and discharge to Indian Creek and Blue River. This would include continued requirements for surveillance (including inspections and sampling) and maintenance in the discharge permit. Consistent with the MHWMF Part I Permit and in compliance with a restrictive covenant that would apply to the property with any use, the future owner would have to comply with the Part I Permit for any building, structure, or pavement alteration that could expose contaminated soil (Section 3.5.1.4). The latter restriction should ensure that future uses of the property would not increase the potential for soil contamination to reach stormwater runoff; both restrictions would ensure continued involvement of the MDNR in the development of plans for the site. Future operations would not adversely impact surface waters receiving stormwater from the site.

The sanitary sewer collection system would be altered as part of new construction, but as with current KCP operations, the sewage would still go to the main line going offsite to the municipal sewage treatment plant, the Blue River Wastewater Treatment Facility. Industrial or nonindustrial process wastewaters from new facility uses would also go to the municipal treatment plant. Process wastewaters would be subject to pretreatment requirements to meet the influent standards of the treatment plant. It would be illegal for future users of site facilities to discharge untreated wastewater to surface waters (Indian Creek and the Blue River). In addition, because the adjacent segments of Indian Creek and the Blue River are "metropolitan no-discharge streams" (Section 3.5.1.1.2), it would be illegal to discharge even treated wastewater to these streams. Because it is reasonable to assume new users would operate within all applicable environmental rules and regulations, future operations would not adversely affect surface waters.

Water use during new site operations would be expected to be within the range of what has been experienced historically at the KCP, and which has been adequately supported by the existing infrastructural and water resources of the region. As described further in Section 3.8 of this EA, current water use at the KCP is a very small portion of the quantity treated and distributed by the Kansas City Water Services Department and is even a smaller portion of the amount routinely used in the three-county region (Table 3-7). Changes, if any, to regional surface-water use would be negligible. Future operations would have no impacts on water resources.

3.5.2.2 Groundwater

Demolition. There would be no adverse impacts to groundwater from demolition activities. NNSA would continue operation of the pump-and-treat system, but the system would require alterations to accommodate demolition and new construction; these could involve changes such as relocation of the treatment system to another building, elimination of existing connections to building footing drains, and installation of new recovery wells. Because impervious surfaces would decrease, the groundwater recharge rate could increase. Land use restrictions (Section 3.1.1.2) would prohibit the use of local groundwater, even for dust suppression. Because connections to the municipal water supply already serve the property, there would be no need to use local groundwater.

Remediation. NNSA assumes that no soil removal would occur below the groundwater table (estimated to be 15 feet below the ground surface) and the pump-and-treat system would continue operation. As a result, remedial actions would be unlikely to cause impacts to groundwater. Removal of contaminated

soil, whether hot spots or large areas, would reduce the source for further groundwater contamination and thereby increase the chances of the pump-and-treat system's success.

Construction. There would be no impacts to groundwater from the construction of new facilities. There would be no local use of groundwater, in compliance with terms of the restrictions on the property, and the pump-and-treat system would continue to operate.

Operations. Transfer of the property would be unlikely to produce impacts to local groundwater because of the constraints that would accompany future use of the site. The new owner would obtain water from the local Kansas City Water Services utility. Restrictions associated with the property, which would transfer to any future user, prohibit the use of groundwater beneath the site as a water supply for any purpose (Section 3.1.1.2).

Use of the pump-and-treat system, with possible alterations described above, would continue as long as contaminants of concern remained above levels that allowed unrestricted use. With continued operation of remedial actions and compliance with the MHWMF Part I Permit, the activities would not impact local groundwater.

3.5.2.3 Floodplains and Wetlands

Demolition. NNSA expects that the existing BFC flood protection system would remain in place and be maintained during demolition activities. If the flood control system operated as designed, there would be no change in impacts to floodplains. A decision to deactivate or modify the system would require concurrence from the U.S. Army Corps of Engineers. If the stormwater runoff during demolition could not be directed to existing outfall points, the future property owner would have to develop a new way to drain water through the walls and levees of the flood protection system on the southern side of the site.

There are no jurisdictional wetlands within the KCP portion of the BFC (Section 3.5.1.3.2), so in most cases, demolition actions would have no impact on wetlands. There are, however, several jurisdictional wetlands associated with stormwater or snowmelt drainage patterns on GSA property along the northern and northeastern boundaries of the BFC, and possibly other areas near the southeastern portion of the site, in the area of the old landfill, that still need to be assessed. The runoff into the wetlands would have to be protected the same way as discussed for general surface water in Section 3.5.2.1. That is, any land-disturbing actions within the KCP that could potentially result in runoff carrying eroded soil or other material to these wetlands would be subject to MDNR stormwater discharge permitting requirements and the associated controls to protect down-gradient areas. If actions could affect the southeastern portion of the BFC, that area would have to be assessed for the presence of wetlands.

Remediation. Areas of KCP contaminated soil that would be subject to remediation are not expected to extend into wetlands areas or into locations of the levees and walls of the flood control system. Therefore, remedial actions would not impact floodplains or wetlands.

Construction. The BFC flood protection system would remain in place and operable during construction activities and, therefore, would not impact floodplains.

The jurisdictional wetlands on GSA property along the northern and northeastern boundaries of the BFC are associated with stormwater (or snowmelt) drainage patterns. If construction actions had the potential to affect these wetlands, for example by making changes to KCP property that alter the overall BFC drainage patterns, the future property owner(s) would be subject to MDNR stormwater discharge permitting requirements and the associated controls to protect down-gradient areas. A permit, if needed, would be expected to require mitigation if there was any potential for adverse impacts to wetlands. If

actions could affect the southeastern portion of the BFC, that area would have to be assessed for the presence of wetlands.

Operations. Any new owner would maintain and implement the flood protection system. As described in Section 3.5.1.3.1, the system requires active measures under extreme flooding conditions to protect the facilities fully. NNSA would provide documentation to GSA or the new property owner on how the system works, the maintenance activities necessary to keep it in working condition, and the steps to implement the system at various flood stages. As appropriate, NNSA would include materials it has stored as part of the system. Operating the flood control system as designed would lead to no change in impacts to floodplains. A decision to deactivate or modify the system requires concurrence from the U.S. Army Corps of Engineers.

The jurisdictional wetlands on the BFC are outside KCP property, in areas along the northern and northeastern boundaries, and possibly other areas near the southeastern portion of the site that still need to be assessed, and are associated with stormwater or snowmelt drainage patterns. Because of their locations, future use of existing KCP facilities should not affect those areas. However, if the future owner proposed development or other actions that could indirectly impact any of those areas, as by changing drainage patterns or causing increased erosion or sedimentation, such actions would be subject to MDNR stormwater discharge permitting requirements and the associated controls to protect down-gradient areas.

3.5.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. Existing KCP activities would end and NNSA would decommission most facilities and ensure a safe and stable condition. Compared to the preceding analytical scenario discussions, the following sections discuss potential impacts during operations.

3.5.3.1 Surface Water

The quantity of stormwater runoff from the KCP would remain the same as current levels because the amount of impervious surfaces would not change. Although NNSA has undertaken extensive corrective action to address legacy contamination issues, runoff from industrial areas would be subject to contact with potential surface contamination on structures; more significantly, there would be potential for seepage moving through contaminated soil to reach the stormwater collection systems in these areas. NNSA would maintain the existing discharge permit (Section 3.5.1.1) and associated monitoring requirements on four stormwater outfalls that discharge to local streams. The terms of the permit would be subject to modification with the support of regulatory agencies and involvement of the public if different approaches could still protect the environment. This could occur, for example, if NNSA demonstrated that changed monitoring or management methods were as effective as existing requirements, or that changed conditions presented a reduced threat to the environment. In any case, there would be no change in impacts to local surface water under the no-action alternative. There would be no discharge of treated or untreated process water to surface water, with the exception of air conditioning condensate and minor flows from the testing of fire protection systems, if still generated.

Operation of the pump-and-treat system would continue and remain effective in keeping contaminated groundwater from reaching local streams.

In terms of impacts to regional surface water, there would be a decrease in water use at the BFC (from the current 151 million gallons per year to about 60 million gallons per year); that decrease would be reflected in a decrease in the amount of water the local utility took from regional surface-water sources. On a regional basis, about two-thirds of the public water supply comes from surface-water sources

(Section 3.5.1.1.3). Reduced BFC water use could result in a reduction in regional surface-water use of about 61 million gallons per year; this represents less than 0.2 percent of the 118.5 million gallons per day of surface water that make up the public water supply of the three-county region. Changes to regional surface-water use would be negligible.

3.5.3.2 Groundwater

Under the no-action alternative, there would be no change in impacts to groundwater. The KCP would not use site groundwater and the pump-and-treat system would continue to remove groundwater contaminants from the site. Continuing KCP activities would obtain water from the local utility; as described for surface water, the reduction of water use would be reflected in a decrease in the amount of water from regional groundwater sources. Because groundwater makes up about a third of the region's public water supply, one-third of the reduction in water use would equate to less than 0.2 percent of the 57 million gallons per day of groundwater that make up the supply of the three-county region. Changes to regional groundwater use would be negligible. It is worth noting that groundwater used for public water supplies in the region does not come from the shallow aquifer affected by the KCP contaminated groundwater plume.

3.5.3.3 Floodplains and Wetlands

Under the no-action alternative, NNSA would decommission KCP facilities but leave them in place and continue maintenance and operation of the flood control system during times of potential flooding. As a result, there would be no impacts to floodplains because facilities would be outside the flood zone. Wetlands are far enough away from KCP facilities that decommissioning activities would be unlikely to cause direct impacts. Because there would be no reason to alter drainage paths, indirect impacts to wetlands would be unlikely.

3.6 Biological Resources

3.6.1 AFFECTED ENVIRONMENT

Jackson County is in west-central Missouri, which is part of the Central Irregular Plains of the Temperate Prairies Ecoregion (EPA 2010a). The ecoregion has a severe, mid-latitude, humid continental climate in the north and a milder, humid subtropical climate to the south. It has hot summers and mild to cold winters. Vegetation native to the rolling and irregular plains consists of grassland prairies with forested strips along streambeds. Prairie grasses consist of little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*); the forest areas include oak-hickory woodlands with red oak (*Quercus rubra*), white oak (*Q. alba*), bur oak (*Q. macrocarpa*), chinkapin oak (*Q. muehlenbergii*), post oak (*Q. stellata*), shagbark hickory (*Carya ovate*), and bitternut hickory (*C. cordiformis*) (CEC 2011).

3.6.1.1 Flora

The BFC is in a highly developed area inside the city limits of Kansas City, Missouri. Very little natural vegetation or habitat occurs on the BFC site except around the perimeter of the complex, primarily on the northern and eastern sides of the property. The BFC is bordered by the forested habitat of Legacy West Park and Legacy East Park on the north and the Blue River and its associated riparian forest habitat on the east. Within the BFC, the KCP contains mostly impervious surface features such as asphalt parking areas, driveways, concrete walkways, and buildings. The small vegetated areas within the KCP consist mostly of previously disturbed areas dominated by Kentucky bluegrass (*Poa pratensis*) and tall fescue (*Schedonorus phoenix*) that were physically altered to accommodate KCP operations. The largest

vegetated areas occur in the northeastern corner of the KCP and consist of a maintained grassy area that is part of the cap over the former wastewater lagoons (see Section 3.4.1.2) and two small ephemeral drainage ways. Kentucky bluegrass and tall fescue are the dominant species with areas of broadleaf cattail (*Typhus latifolia*) in the ephemeral drainage ways (Burns & McDonnell 2009). A flood retention basin on the southern side of the KCP adjacent to Bannister Road contains primarily tall fescue and Kentucky bluegrass (Burns & McDonnell 2009). A narrow (40- to 80-foot), wooded corridor exists around the flood detention basin except for the southern side. An intact forested area occurs in a noncontiguous KCP parcel in the northwestern corner of the BFC (west side of Legacy West Park) (Burns & McDonnell 2009). Wooded vegetation consists of eastern cottonwood (*Populus deltoides*) and a scrub/shrub layer composed of roughleaf dogwood (*Cornus drummondii*) and lanceleaf buckthorn (*Rhamnus lanceolata*) (Burns & McDonnell 2009).

3.6.1.2 Fauna

Because naturally occurring vegetation is limited at the KCP, wildlife is largely absent from the site. Some species living in habitats on the perimeter of the BFC and adjacent parks and riparian areas may occasionally use the KCP property but on a very limited basis. Mammals most likely to be observed on the KCP include the eastern cottontail rabbit (*Sylvilagus floridanus*) and gray squirrel (*Sciurus carolinensis*). Other common mammals in the region but not on the KCP site include whitetail deer (*Odocoileus virginianus*), fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and skunk (*Mephitis mephitis*).

Birds also are largely absent at the KCP because of the limited vegetation. However, common bird species noted in the area, including American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*), have adapted to human activity and grassy lawns. Raptors have been observed flying over the complex, but none are likely to nest within the boundaries. Common reptiles include the garter snake (*Thamnophis sirtalis*), black rat snake (*Pantherophis obsoletus*), and five-lined skink (*Eumeces fasciatus*) (DOE 2011a).

3.6.1.3 Aquatic Species

Aquatic features at the KCP are limited to manmade structures such as drainage basins and retention ponds. The Blue River and Indian Creek border the BFC and constitute the most substantial aquatic resources in the vicinity, although neither is inside the boundary. Common fish species in these systems include channel catfish (*Ictalurus punctatus*), gar (*Atractosteus spatula*), and carp (*Cyprinus carpio*). Although aquatic organisms can occur in nearby streams and rivers, none are likely at the complex (DOE 2011a). The streams identified in the GSA wetlands survey are intermittent or ephemeral and are unlikely to support fish species (Burns & McDonnell 2011). However, there are crayfish burrows (Burns & McDonnell 2011) and the nearby wetlands could support some amphibian species including western chorus frog (*Pseudacris triseriata*) and southern leopard frog (*Rana sphenocephala*) (Briggler and Johnson 1982).

3.6.1.4 Special-Status Species

The *Endangered Species Act of 1973* (16 U.S.C. §§ 1531 *et seq*.), protects threatened and endangered species and the ecosystems on which they depend. Endangered species are "any species which is in danger of extinction throughout all or a significant portion of its range," and listed as endangered under the Act. A threatened species is "any species which is likely to become endangered in the foreseeable future throughout all or a significant portion of its range" and is listed as threatened under the Act. Candidate species are eligible for listing as endangered or threatened; they have no protection under the Act, but are often considered for planning purposes.

The U.S. Fish and Wildlife Service maintains a list of protected species by county. Table 3-8 lists Federally listed threatened or endangered species that could occur in Jackson County (USFWS 2012). There are no candidate species.

Table 3-8. Federally Threatened and Endangered Species in Jackson County, Missouri

Species	Status	Habitat
Pallid sturgeon (*Scaphirhynchu albus*)	Endangered	Mississippi and Missouri rivers
Western prairie fringed orchid (*Plantantera praeclara*)	Threatened	Wet prairies and sedge meadows
Indiana bat (*Myotis sodalis*)	Endangered	Forests and caves

Source: USFWS 2012.

Although the Western prairie fringed orchid has been observed in disturbed areas, it occurs most often in native prairies and meadows (MNDNR 2012); there is no known habitat at the KCP. No summer maternity (forests) or winter hibernation (caves) habitats for the Indiana bat occur at the KCP (USFWS 2007). It is possible that Indiana bats use adjacent riparian habitats and woodlands in the Blue River watershed for summer habitat.

The State of Missouri lists three endangered species that might occur in Jackson County: the pallid sturgeon, the Lake sturgeon (*Acipenser fulvescens*), and the peregrine falcon (*Falco pereprinus*) (MDC 2012a). There are no water resources at the KCP to support the pallid or Lake sturgeons. Peregrine falcons, however, are highly adapted to hunting in urban environments, have occurred in Jackson County (MDC 2012b), and have the potential to forage at the KCP but are unlikely to breed there.

The *Migratory Bird Treaty Act* (16 U.S.C. §§ 703-712) makes it unlawful to pursue, hunt, take, capture, kill, or possess any migratory bird, part, nest, egg or product without a permit. Because of the highly developed nature of the KCP, the few migratory bird species present are those highly adaptable to human activity and most likely to use nearby undeveloped habitats.

3.6.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Under the analytical scenario, the existing facilities would be demolished and replaced with a similar type of facility and use consistent with mixed use (industrial, warehouse, and office). The small vegetated areas (mostly maintained grassy areas) within the KCP have been physically altered to accommodate KCP operations. These sites contain nonnative plant communities and do not provide habitat for any of the Federally or State-listed threatened and endangered species. Therefore, demolition, remediation, construction, or future operations would not impact flora and fauna or any of the Federally or State-listed threatened and endangered species. Because there are no Federally listed threatened or endangered species at the KCP, NNSA intends to send an informal consultation letter to the U.S. Fish and Wildlife Service and MDNR that the proposed action would have "no effect" on listed species.

3.6.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. Because the no-action alternative would result in vacating the KCP but maintaining the facilities to prevent deterioration in building conditions, the small vegetated areas (mostly maintained grassy areas) that have been physically altered to accommodate KCP operations would remain in the present condition. The few fauna species that currently use these areas likely would continue to do so. However, no activity would occur that would cause impacts to existing flora or fauna, including migratory birds. Threatened and endangered species do not occur at the KCP because of past alteration of habitat and therefore would not be impacted.

3.7 Cultural Resources

Cultural resources are archaeological sites, historic structures and objects, and traditional cultural properties. Historic properties are cultural resources that are listed in or eligible for listing in the *National Register of Historic Places* because they are significant and retain integrity (36 CFR 60.4). Section 106 of the *National Historic Preservation Act* (16 U.S.C. §§ 470 *et seq*.; NHPA) requires that Federal agencies take into account the effects of their actions on historic properties. Section 101(b)(4) of NEPA requires Federal agencies to coordinate and plan their actions to identify unique historic or cultural characteristics of the geographic area (40 CFR 1508.27) of the proposed project and act accordingly. The first step of the process is for an agency to determine if an action is an "undertaking" [36 CFR 800.3(a)]. The proposed action in this EA is an undertaking because it is "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval" [36 CFR 800.16(y)].

The regulations at 36 CFR Part 800, "Protection of Historic Properties," describe the process for compliance with Section 106 of the NHPA, including defining the area of potential effect, steps to identify resources and evaluate effects, and consultation with interested parties including the Missouri SHPO and others. The regulations state, "If the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties are present, the agency official has no further obligations under section 106, or this part" [36 CFR 800.3(a)(1)]. By definition, an "effect" is an "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" [36 CFR 800.16(i)].

According to 36 CFR 800.5(a)(2)(v), an adverse effect can include "introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features." A project can have adverse visual effects by involving a negative aesthetic or obstructive effect on historic properties. An obstructive effect diminishes the historic property's integrity by blocking the property from view or blocking the view from the property. In the case of the KCP, a project can have an adverse effect simply by transfer of the property such that it is no longer under Federal Government stewardship. The area of potential effect for the proposed action associated with property transfer at the KCP consists of the 122 acres inside the BFC site boundary that is controlled by NNSA.

3.7.1 AFFECTED ENVIRONMENT

3.7.1.1 Archaeological Resources

People have probably inhabited the area of the state of Missouri and Jackson County, including the KCP, continuously for about 12,000 years. Based on a broad cultural and historical classification scheme with which to organize and describe the prehistory of the Midwest and Missouri, archaeologists generally agree that the area has five major prehistoric occupational periods: the Paleoindian (9250 to 7500 BC), Early Archaic (7500 to 600 BC), Early and Middle Woodland (600 BC to AD 450) (SCI Engineering 2007). Inhabitants of the area during these periods appear to have flourished through changing climates with lifestyles and technologies ranging from hunter-gatherers using fairly primitive projectile points on spears to agriculture-based societies with more sophisticated tools.

The ground on the KCP site has been subjected to extensive land disturbance and industrial use since the early 1920s. Originally, the area was the site of a racetrack that was in use from September 1922 to July 1924. Pratt & Whitney began assembling aircraft engines for the Federal Government on the site in 1943. In 1949, the U.S. Atomic Energy Commission assumed control of the facility for the construction of

nonnuclear components of nuclear weapons. The KCP has served this function since that time (Gilliland 2010a).

Some areas on the KCP have been surveyed for cultural resources as a result of new construction, facility upgrades, and infrastructure enhancements. Three projects in the early 1990s did not require cultural resources surveys by the Missouri SHPO, or surveys that did occur did not identify cultural resources.

A review of the site by an archaeology contractor in 2007 concluded that intact archaeological resources were extremely unlikely on the site because of the extensive industrial use (SCI Engineering 2007). The site has been subjected to long-term, extensive disturbance from the siting and decommissioning of the racetrack, the construction of existing facilities, and associated upgrades and environmental controls over the years. In March 2010, the Missouri SHPO stated that there had been thorough and adequate cultural resources assessments and there was no need for additional archaeological surveys (SHPO 2010a).

3.7.1.2 Historic Resources

The KCP is a nationally significant historic resource, eligible for listing on the *National Register of Historic Places* as a district under Criteria A and C (Gilliland 2010b). (A historic district is a property consisting of a group of buildings or structures related by the same address and identified with the same owner, name, and historical association.) Criterion A refers to a property associated with events that have made a significant contribution to the broad patterns of our history. Criterion C describes a property that embodies distinctive characteristics of a type, period, or method of construction or represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components lack individual distinction. The KCP site has 38 buildings and structures and is significant in the areas of architecture, engineering, and industry, and for its role in supporting World War II and the Cold War efforts. In June 2010, the Missouri SHPO agreed with the *National Register* eligibility determination (SHPO 2010b).

In June 2010, an architectural historian completed an architectural evaluation under Section 106 of the NHPA of the buildings on the BFC (Gilliland 2010b); much of the following information is from that report. In 1942, the famed industrial architect Albert Kahn designed the original facility (the Pratt & Whitney Aircraft plant), which was completed in 1943; it consisted of several buildings specifically designed to assist in U.S. wartime efforts. Mr. Kahn designed 20 structures on the site, followed by other design and contracting firms over the years. Evaluations occurred at 38 NNSA structures.

Albert Kahn and his associates developed the "warspeed" construction system, which maximized the speed of the design and construction process while minimizing the use of critical resources necessary for the war effort. The largest building on the site is the Main Manufacturing Building. This structure uses load-bearing arches, each 40 feet wide, constructed with movable concrete forms. It represents one of the largest integrated projects in the war construction program, virtually under one roof. This approximately 2.7-million square-foot building was the location of the Pratt & Whitney Aircraft Plant, which built R-2800-C engines. Another of Mr. Kahn's designs, the West Boilerhouse, included steam-generating equipment, air compressors, refrigerating machinery, and the auxiliaries to run the aircraft plant and associated buildings. A series of 32 production test cells, constructed of concrete and attached to the Main Manufacturing Building, was also the work of Mr. Kahn.

With the exception of the Main Manufacturing Building, the buildings are predominately one- and two-story brick and cast-stone industrial structures with flat roofs. The KCP includes smaller structures that relate directly to the history and significance of the complex in support of production operations. Other buildings, while linked to the complex by their utilitarian nature, are prefabricated metal or reinforced concrete; many are open-air shelters and guard posts. Overall, the KCP has a consistent integrity of

design, materials, workmanship, setting, feeling, association, and location. Most resources remain in good condition and have retained most of the features to convey their historic significance.

3.7.1.3 American Indian Interactions

NNSA invited 14 American Indian tribes and organizations to participate in and provide input for cultural resources preservation through a government-to-government consultation process (Caughey 2011). The tribes and organizations were the Osage Nation of Oklahoma, Peoria Tribe of Indians of Oklahoma, Sac and Fox Nation of Missouri in Kansas and Nebraska, Sac and Fox Nation of Oklahoma, Sac and Fox Tribe of the Mississippi in Iowa, Caddo Nation of Oklahoma, Delaware Nation, Delaware Tribe of Indians in Oklahoma, Miami Tribe of Oklahoma, Modoc Tribe of Oklahoma, Ottawa Tribe of Oklahoma, Quapaw Tribe of Oklahoma, Shawnee Tribe, and Wyandotte Tribe of Oklahoma. To date, NNSA has received no input from the tribes.

3.7.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Because the BFC has experienced long-term and extensive disturbance from the siting and decommissioning of facilities dating back to the early 1940s, and the construction of and upgrades to existing facilities, the existence of intact archaeological sites and artifacts is highly unlikely. Therefore, there would be no impacts to archaeological resources from the analytical scenario.

Under the analytical scenario NNSA would no longer manage the KCP property, which would produce an adverse effect to the buildings and structures regardless of whether the future owner left them intact, demolished them, or remediated them. Therefore, detailed documentation of the historic nature and context of the KCP would need to be completed before transferring any assets. An architectural historian has conducted evaluations of most of the historic buildings and structures at the KCP; evaluations and documentation of the remaining structures are underway and will be completed regardless of whether the analytical scenario is implemented. As discussed in Section 3.7.1.2, all KCP properties that are associated with activities at the site and that date back to the early 1940s are eligible for listing on the *National Register of Historic Places* as a district, with most of the buildings and structures contributing to the historic nature of the property (Gilliland 2010b).

The Missouri SHPO has also determined that the proposed transfer of property at the KCP could have an adverse effect on the historic fabric of the *National Register*-eligible district and has recommended development of a Memorandum of Agreement that addresses mitigation of potential adverse effects (SHPO 2010b). NNSA and the Missouri SHPO signed a Memorandum of Agreement in September 2012 identifying two actions that NNSA must complete and are intended to mitigate the adverse effects of the analytical scenario. The first is to nominate the site for inclusion in the *National Register of Historic Places*. The second is to prepare a formal Historic American Engineering Record for publication in the Library of Congress.

The National Park Service manages the *National Register of Historic Places* and the documentation associated with *National Register*-eligible buildings and structures. The National Park Service has requested complete documentation of the KCP under the Historic American Engineering Record program as a historic district. The documentation (including large-format photographs) must include a report about the entire facility and individual reports about each building and structure at the facility (NPS 2011). The Federal Government is in the process of preparing the Historic American Engineering Record documentation of the KCP as well as a formal nomination of the KCP to the *National Register* as a historic district and associated buildings and structures; this nomination, along with the Memorandum of Agreement and Historic American Engineering Record reports, will complete the historic resource documentation for the KCP as defined in the Memorandum of Agreement. Once the documentation is

complete and approved in compliance with historic preservation requirements, the future owner(s) of the KCP would no longer be subject to Federal historic preservation requirements and could modify the property as desired.

3.7.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. NNSA would continue to provide site security, buildings and grounds maintenance, and continue environmental protection work at the KCP. Buildings would not be demolished and ongoing and planned remedial actions would continue. There would be no direct adverse effects to historic buildings and structures. Nevertheless, detailed documentation of the historic nature and context of the property is underway and will be completed regardless of whether NNSA vacates the BFC.

3.8 Infrastructure

3.8.1 AFFECTED ENVIRONMENT

An extensive infrastructure network supports BFC facilities and activities, including electricity, natural gas, process gases, water, and road and railroad systems. The following sections describe the systems in terms of utilities and transportation. Tables 3-9 and 3-10 (later in this section) provide an overview of current use of infrastructure capacities surrounding KCP. Also provided in the tables are regional infrastructure characteristics as a measure of their availability for gauging the potential impacts of the analytical scenario. KCP operates and manages utility services for the BFC (NNSA 2008). The primary utility systems are described in this section.

Table 3-9. Infrastructure Characteristics at the BFC and Regionally

Resource	Current BFC Use or Characteristic[a]	Regional Characteristic for Comparison	
		Quantity	Description
Electricity (megawatt-hours per year)	116,600	20,375,000[b]	Amount sold by Kansas City Power and Light in 2011
Fuel			
Natural gas (million cubic feet per year)	600	77,350[c,d]	Amount distributed by Missouri Gas Energy in 2010
Fuel oil (thousands of gallons per year)	5.28	1,290,000[c,e]	Amount (No. 2 distillate) sold by primary suppliers in Missouri in 2011
Diesel fuel (thousands of gallons per year)	2.0	1,500[c,e]	Amount (No. 1 distillate) sold by primary suppliers in Missouri in 2011
Gasoline (thousands of gallons per year)	0.53	2,780,000[c,e]	Amount sold by primary suppliers in Missouri in 2011
Water (million gallons per year)	151	44,000[f]	Amount distributed by the Kansas City Water Services Department in a typical year
Wastewater (million gallons per year)	86	29,600[g]	Average amount treated at Blue River Wastewater Treatment Facility
Transportation (miles)			
Roads	15.5	Extensive	Roads available regionally are extensive
Railroads	1	Extensive	Railroads available regionally are extensive

a. Source: DOE 2011a.
b. Source: Great Plains Energy 2012.
c. General availability is limited only by the ability to transport the resource to the site.
d. Source: EIA 2012.
e. Source: EIA 2011.
f. Source: Kansas City 2011a.
g. Source: MDNR 2011c.

3.8.1.1 Utilities

3.8.1.1.1 Electricity

The KCP buys electricity from Kansas City Power and Light Company for its production machinery, water chillers, pumps, compressors, lights, and general office equipment. Two 161-kilovolt overhead transmission lines from the Southtown and Tomahawk substations supply electricity to the BFC. Two onsite transformers owned by Kansas City Power and Light step the voltage down to 13.8 kilovolts and deliver power to two main busses for distribution at the main switchgear and then to subsequent substations and transformers. Electricity from Kansas City Power and Light has been reliable, high quality, and adequate to serve the plant loads (NNSA 2008).

The annual electricity consumption at the KCP under current operations is about 116,000 megawatt-hours per year (NNSA 2008). This electrical demand is a very small portion of the amount distributed by the Kansas City Power and Light Company during a year (Table 3-9). Kansas City Power and Light is a wholly owned subsidiary of Great Plains Energy (Great Plains Energy 2012) and provides electrical service to northwestern Missouri and eastern Kansas (KCP&L 2012).

3.8.1.1.2 Fuel

The KCP buys natural gas, which is the site's primary fuel, through a commodity contract held by the U.S. Department of Defense. Local pipelines deliver the gas to the site. Natural gas is the primary fuel for the steam boilers that provide heat (NNSA 2008). Although not the current commodity provider for the KCP, Missouri Gas Energy is the primary provider of natural gas to the region of Kansas City and would be the provider to future users of the KCP property. Missouri Gas Energy provides natural gas service to 155 communities in western Missouri (MGE 2012) and, as shown in Table 3-9, the amount of natural gas used by KCP under current operations is very small in comparison with the amount distributed by Missouri Gas Energy.

The KCP uses number 2 diesel fuel as a backup boiler fuel if natural gas is in short supply. It uses competitive bids from commercial suppliers to buy the fuel, which it stores in two 250,000-gallon aboveground storage tanks next to the West Powerhouse (NNSA 2008). NNSA inspected and repaired these tanks in fiscal year 2006. The annual consumption of natural gas at the KCP is 600 million cubic feet and that of diesel fuel is about 7,300 gallons. Annual use of gasoline is about 530 gallons (NNSA 2008). As would be expected, the amounts of these petroleum-based fuels that typically are used at the KCP are very small in comparison with the amounts distributed within the state.

3.8.1.1.3 Water

The Kansas City Water Services Department supplies water to the BFC. Three main lines (12, 20, and 16 inches) feed the site on the southern, northwestern, and northeastern sides (NNSA 2011c). The KCP uses domestic water as make-up for steam, chilled water, condenser water, and fire protection systems and for sanitary applications (toilets, sinks, eyewashes, showers, drinking fountains, and cafeteria). An isolation cross-connection control program protects potable water from industrial uses.

The KCP fire suppression system consists of two water supplies that provide water through a 10-inch underground and interior fire main grid to 144 individual sprinkler systems. The western side water supply is a dual-use reservoir with the cooling tower basin. The eastern side supply is an aboveground tank that supplies water to two diesel-driven pumps. These fire mains feed the non-NNSA part of the BFC in addition to the KCP sprinkler systems (NNSA 2008).

Current KCP operations use about 151 million gallons of potable water per year from the City of Kansas City Water Services Department. As shown in Table 3-9, the KCP demand is a very small portion of the amount produced and distributed by the City's potable water system.

3.8.1.1.4 Wastewater Treatment

The sanitary sewer system at the KCP consists of collection sumps and related piping. The main sanitary sewer line carrying wastewater from the site is dedicated to the BFC and travels about a mile before it intersects a Kansas City sewer main. KCP discharges sanitary and treated industrial wastewaters to the sanitary sewer system under a city permit (NNSA 2008). Process wastewater discharges are not allowed to flow to the storm sewer system.

Industrial wastewater is collected through five systems (dilute acid, dilute caustic, dilute chrome, dilute cyanide, and industrial waste). A reverse osmosis treatment system processes most of the dilute industrial wastewater, which KCP recycles for use as makeup water for cooling tower operations. The system routes dilute rinsewaters containing cyanide, chrome, acid, caustic, and the remaining industrial wastewaters to the Industrial Wastewater Pretreatment Facility. This facility also treats concentrated plating baths and cleaning solutions, which are delivered in carboys. The dilute wastewater collection systems are in good condition. The Industrial Wastewater Pretreatment Facility and reverse osmosis wastewater treatment systems are in good to excellent condition. Four large dilute wastewater collection tanks at the pretreatment facility receive routine inspection to determine the scope of maintenance activities to address interior and exterior coating conditions (NNSA 2008).

Based on 2011 records, the onsite groundwater treatment facility discharges about 38,000 gallons of treated water a day (DOE 2012a) to the sewer system in addition to the sanitary sewage and treated industrial waste described above. The combined KCP flow, at about 236,000 gallons per day (or about 86 million gallons per year) is discharged to the Blue River Wastewater Treatment Facility, Kansas City's largest publicly owned treatment works (GSA and NNSA 2008). KCP wastewater represents a very small portion (Table 3-9) of the wastewater routinely treated at the Blue River Wastewater Treatment Facility.

3.8.1.1.5 Steam, Compressed Air, and Chilled Water

Two onsite powerhouses produce centralized utilities for the complex. The West Powerhouse produces steam, compressed air, and chilled water for environmental and process control to support the plant mission and the East Powerhouse produces chilled water and is the primary location for monitoring and operation of BFC air handling systems (NNSA 2011c). The KCP operates these onsite utility services and distributes them throughout the BFC and to the various tenants.

The four boilers, dryers, and associated equipment in the West Powerhouse produce steam. The compressed air system supplies clean, dry, compressed air to the BFC for production and for control of temperature and humidity control devices. The air compressors are of various sizes to enable matching to plant loads.

A common distribution system supplies chilled water from the East and West Powerhouses to the site. The West Powerhouse can chill 10,500 tons of water and the East Powerhouse can chill 7,500 tons. The BFC uses chilled water to regulate temperature and humidity controls for personnel comfort and production requirements, and for process cooling (NNSA 2008).

3.8.1.2 Transportation

3.8.1.2.1 Roadways

Primary access into the BFC and the KCP is via Bannister Road, also known as East 95th Street or County Highway W, which runs east-to-west along the south side of the BFC. In the southeastern corner of the site, East 95th Street Terrace loops from Bannister Road around the front entrance of the BFC, enabling increased traffic flow. Four traffic lights along Bannister Road on the south side of the BFC control traffic flow to and from the site. The westernmost of these traffic lights is at the intersection of Bannister Road and Troost Avenue, which runs north-to-south on the west side of the BFC and provides additional access to that side of the site. Troost Avenue runs northward from Bannister Road all the way into the downtown area of Kansas City. The State's Functional Classification System identifies both Bannister Road and Troost Avenue as principal arterials (MoDOT 2008), which are only below freeways and expressways in supporting large volumes of traffic. Euclid Avenue also provides access through a primarily residential area on the northeastern side of the BFC. The State's Functional Classification System identifies Euclid Avenue as a local road, the least significant designation in terms of the volume of traffic intended to be handled.

Being close to the downtown area of Kansas City, KCP is in close proximity to the freeway and expressway system that provides access to and from the city and the surrounding suburbs and communities. U.S. Highway 50 (U.S. 50) runs east-to-west and is located about 1 mile south of the site. This portion of U.S. 50 is also part of I-435, which is the commuter beltway that goes around Kansas City (see Figure 3-1). I-49/U.S. 71, the major north-to-south artery that connects Joplin to Kansas City, is about 1 mile to the east of the BFC. The interchange where U.S. 50 and I-49/U.S. 71 cross is less than 2 miles southeast of the BFC. This interchange is also where I-435 separates from U.S. 50 to start a roughly north-to-south portion of its loop around the city. On the eastern side of the interchange, U.S. 50 is part of I-470, an outer loop that provides access to and from Independence. Because of the number of highways involved, this interchange to the southwest of the BFC, which is officially named Three Trails Crossing but often referred to as the Grandview Triangle, is very complex and historically has experienced major congestion. The Missouri Department of Transportation has undertaken numerous projects to improve the handling capacity of this large interchange.

The quickest access from the KCP to the freeway system is directly east on Bannister Road. There are entrance ramps from Bannister Road to U.S. 71 and, about half a mile farther east, to I-435. Other portions of the Kansas City freeway system, including the west side of the I-435 beltway, can be reached by going west on Bannister Road. I-70, the major east-to-west freeway that intersects Kansas City, is roughly 10 miles north of the KCP, but can be easily reached via U.S. 71 or the I-435 beltway (either to the west or east of the city).

Table 3-10 presents data from the Missouri Department of Transportation on average daily traffic counts on major roadways in the study area and surrounding areas. I-435/U.S. 50 carries the highest amount of traffic in the region, more than 131,000 vehicles per day on the west side of Three Trails Crossing, which is just southeast of the BFC. The next highest volume is on I-470/U.S. 50 on the eastern side of Three Trails Crossing interchange, which carries nearly 89,000 vehicles per day (MoDOT 2011).

Table 3-10. Daily Traffic Volumes in 2011

Road	Count[a]
I-435 north of Bannister Road	74,847
I-435/U.S. 50 west of Three Trails Crossing	131,101
I-470/U.S. 50 east of Three Trails Crossing	88,649
I-49/U.S. 71 south of Bannister Road	73,179
U.S. 71 north of Bannister Road	74,459
Bannister Road at I-435 intersection	23,163
Bannister Road (BFC entrance)	16,651
Bannister Road west of BFC entrance	9,773

Source: MoDOT 2011.
a. Estimated average daily traffic.

3.8.1.2.2 Railroad

A portion of the Union Pacific Railroad runs north and south on the eastern portion of the BFC. A spur to provide site access to the railroad could be built in this area (GSA 2007).

At present, rail passenger service routes extend from Kansas City northeast to Chicago, east to St. Louis, and west toward Los Angeles. Increasing high traffic flow has led Jackson County authorities to begin the preliminary design stages of a Kansas City Regional Rapid Rail to increase commuter accessibility and decrease traffic. The system, as designed, would access six major corridors in five counties in two states and serve major municipalities, employment districts, and event centers throughout the area.

3.8.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

3.8.2.1 Utilities

Table 3-11 provides a summary of primary utility needs under the analytical scenario. Since NNSA does not know specifically what types of future actions would be implemented at the KCP site, there is no way to provide a reasonable estimate of utility needs during operations, as is shown in the table. However, general expectations with respect to operations are included in the discussion. Also shown in Table 3-11

Table 3-11. Utility Needs under the Analytical Scenario and No-Action Alternative

Utility	Analytical Scenario Utility Needs on KCP Portion of BFC[a]				No-Action Alternative Utility Needs (primarily for GSA operations[c])
	Demolition	Remediation	Construction	Operations[b]	
Electricity use (megawatt-hours per year)	200	240	6,000	Variable 19,400 to 116,600	45,000
Natural gas use (million cubic feet per year)	None	None	None	Variable 100 to 600	240
Water use (million gallons per year)	5	Minor	3	Variable 25 to 151	60

a. Source: Tables 2-1 through 2-3.
b. Utility needs during operations are assumed to vary between a high value comparable to current operation s (Table 3-9) and one-sixth of those values.
c. Source: Table 2-4. Under the analytical scenario, the GSA needs, which represent most of the no-action alternative values, would be concurrent with those for actions within the KCP portion of the BFC.

are the utility needs of the no-action alternative discussed in Section 3.8.3, and which would consist of GSA needs plus the minor needs of NNSA during caretaker operations. The GSA needs (making up most of the no-action alternative values) would also be ongoing during each phase of the analytical scenario.

Demolition. Demolition would take one to five years during which time utility impacts from electricity and water use would decrease significantly compared to current conditions (Table 3-9). Utility use during demolition would include about 200 megawatt-hours of electricity per year to run one office trailer (lighting, air conditioning, and heating) and water use of about 5 million gallons per year, primarily for dust control. It is assumed that construction personnel would use portable restrooms. All process-related utility systems (steam, compressed air, and chilled water) would be deactivated. Demolition activities would have no impacts on utilities.

Remediation. Remediation would take one to five years and little infrastructure would remain functional. Impacts similar to those during demolition would continue with a small increase in electricity and decrease in water use. Infrastructure impacts during remediation would include about 240 megawatt-hours of electricity per year to run two office trailers. It is unlikely that natural gas would be used during remediation and water use would be minor (personnel would use portable restrooms and dust suppression needs would be minimal). Remediation activities would have no impacts on utilities.

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet, each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). Such construction would involve minimal infrastructure requirements. Electricity use during the year of construction would be about 6,000 megawatt-hours and water use would be about 3 million gallons. There would be no use of natural gas. Construction activities would have no impacts on utilities.

Operations. NNSA believes future use of the KCP property could involve electricity, natural gas, and water needs that are similar to current usage (Table 3-9). Under the analytical scenario, activities in the 500,000 square feet of new facilities would be expected to involve smaller utility needs than the 3 million square feet of facilities NNSA currently operates and it is assumed that a low end of a range of estimated utility needs would be about one-sixth of current usage. However, it is recognized that future uses of the site could eventually involve facilities of similar square footage. Current utility needs of the site are a minor component of the capacity of available services (Table 3-9), and future use at those levels would not result in adverse impacts. Also, in the 1980s, the KCP had a notably larger workforce and required larger amounts of electricity, natural gas, and water to operate than at present. The utility infrastructure of the area was adequate to support those larger demands and, if necessary, would be able to support larger than current demands from the KCP site. Although specific future uses of the KCP cannot be known at this time, NNSA does not expect significant impacts to the area's utility infrastructure.

3.8.2.2 Transportation

Table 3-12 provides a summary of transportation data (trips and miles travelled) estimated for the analytical scenario. As noted in the table, there is no way for NNSA to provide a reasonable estimate of transportation numbers during operations. As with the discussion of utilities, general expectations with respect to operations are included in the discussion. Also shown at the bottom of Table 3-12 are two sets of data for comparison. The first set is transportation numbers representative of KCP activities during the no-action alternative discussed in Section 3.8.3. The second set is transportation data for current KCP operations. As noted in footnotes to the table, passenger vehicle trip numbers and miles traveled are based on the conservative assumption that each worker drives a car to the site (that is, no carpooling is assumed).

Table 3-12. Transportation Data for the Alternatives

Scenario	Vehicle type	Daily vehicle trips[a]	Annual vehicle trips	Annual miles traveled
Analytical scenario (KCP Operations)				
Demolition	Passenger	100	26,000[b]	520,000[b]
	Truck	50	13,000[b]	636,000[b]
Remediation	Passenger	10	2,600[b]	52,000[b]
	Truck	13	3,380[c]	2,197,000[c]
Construction[e]	Passenger	120	31,200[b]	624,000[b]
	Truck	16	4,160[d]	208,000[d]
Operations	Passenger	Variable	Variable	Variable
	Truck	Variable	Variable	Variable
No-Action Alternative (KCP portion of the BFC)				
Operations	Passenger	50	13,000[a]	260,000[a]
	Truck	0	0	0
Current KCP				
Operations	Passenger	2,700	702,000[a]	14,040,000[a]
	Truck	22	5,720[d]	286,000[d]

Source: Tables 2-1, 2-2, 2-3, and 2-5.

a. Annual vehicle trips based on number of employees making a round trip from home and 260 working days per year. Annual miles traveled based on 20-mile roundtrip daily.
b. The value in the table reflects average annual trips over a 5-year demolition period. For miles traveled, NNSA based the analysis on transport of hazardous wastes from the site to a permitted waste management facility such as the Clean Harbors facilities in Clive, Utah, or Waynoka, Oklahoma, and transport of nonhazardous debris to a local landfill. The average distance to the hazardous waste disposal sites is about 750 miles, and the distance to the landfill is about 15 miles.
c. The value in the table reflects average annual trips and the assumption it would take about 5 years to transport the estimated amount of waste that would be generated from remediation. For miles traveled, NNSA based the analysis on transport of hazardous wastes from the site to a permitted waste management facility such as the Clean Harbors facilities in Clive, Utah, or Waynoka, Oklahoma, and transport of nonhazardous material or special wastes to a local landfill. The average distance to the hazardous waste disposal sites is about 750 miles, and the distance to the landfill is about 15 miles.
d. Annual miles traveled based on 50-mile truck trip for delivery of materials to the KCP or products from the KCP.

Demolition. Demolition would take from one to five years and, assuming a 5-year duration, NNSA estimates there would be an average of 50 trucks per day hauling debris away from the KCP. This represents an increase of 28 trucks per day over current conditions (Table 3-12). However, passenger vehicle trips and miles would be greatly reduced compared with current conditions because the demolition workforce would be small in comparison to the KCP workforce. Demolition activities would not impact regional and local traffic flow.

Remediation. Remediation would take one to five years and it is estimated that daily vehicle trips during this period, both for passenger vehicles and trucks, would be lower than current conditions. Truck miles, however, would be higher than current conditions due to the assumption that hazardous or industrial waste removed from the KCP would have to be transported a relatively long distance to an appropriate permitted waste management facility. Remediation activities would not impact regional and local traffic flow.

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet, each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). Although similar in number to remediation, the daily truck trips would involve fewer travel miles because most building materials would be available in the local area. Construction activities would not impact regional and local traffic flow.

Operations. NNSA believes future use of the KCP property could involve passenger vehicle and truck activity similar to current levels, although some uses such as a distribution hub could involve more truck traffic in and out of the site. Overall, the KCP and the larger BFC were designed to accommodate a large workforce in a relatively small, densely configured parcel of property. All of the daily trip numbers shown in Table 3-12 might be characterized as being notable portions of the traffic along Bannister Road that is generally in the 10,000 to 20,000 counts per day range. Accordingly, vehicles going in and out of the BFC would continue to affect traffic along Bannister Road and Troost Avenue, but BFC traffic has been affecting these roads for decades and, at times, in larger trip numbers than currently being experienced. It is unlikely that future use of the KCP would significantly increase or worsen those effects. The trip numbers in the table become a much smaller portion when they are spread out over the nearby freeways and expressways that have daily traffic counts in the 70,000 to 100,000-plus range. Future use of the KCP would not be expected to adversely impact traffic flow on nearby freeways and expressways.

3.8.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

3.8.3.1 Utilities

Estimates of the primary utility needs at the BFC with only GSA and minor NNSA caretaking operations are shown in Table 3-11. KCP's caretaker operations would involve some use of the utilities and NNSA would continue to provide plant utility systems to the GSA, which would remain at the site and continue operating out of its facilities. Utility use of the overall BFC would decrease by roughly 60 percent compared to current operations. Although this would be a significant change in the utility needs of the BFC, the site exerts a relatively minor demand on regional utilities, so effects, either adverse or positive, would not be significant.

3.8.3.2 Transportation

As shown in Table 3-12, with KCP operations reduced to caretaker activities, there would be a significant decrease in the amount of traffic going in and out of the site. There would be notably less traffic on Bannister Road and Troost Avenue, but decreases in traffic on nearby freeways and expressways would be minor in relation to the large number of vehicles that travel those roads. Independent of other considerations, residents and businesses in the area of the KCP would likely consider reduced traffic under the no-action alternative to be a beneficial impact.

3.9 Socioeconomics

The KCP is in Jackson County, Missouri, about 8 miles south of the center of Kansas City (Figure 3-13). About 90 percent of the workers at KCP reside in a four-county socioeconomic region (Jackson, Cass, and Clay counties in Missouri, and Johnson County in Kansas).

The four-county region is in the Kansas City Metropolitan Area, which is a transportation hub with the junction of several major Interstate highways and the second largest rail center in the United States. The housing market in the region has owner vacancy rates of 2 to 3 percent; the rental property rate is 9 to 12 percent.

3.9.1 AFFECTED ENVIRONMENT

3.9.1.1 Employment and Income

The labor force was about 804,000 workers in the four-county region in 2010. Table 3-13 shows the increase in the labor force from years 2000 to 2010. The labor force increased about 5 percent during that period, while the employment rate declined by about 1 percent during the same period (BLS 2012).

Figure 3-13. Counties and Cities near the BFC

Table 3-13. Civilian Labor Force

County	2000	2005	2010
Cass	45,003	48,755	49,507
Clay	107,332	111,293	119,048
Jackson	348,214	336,508	340,864
Johnson	262,803	290,841	295,026
Four-county totals	**763,352**	**787,397**	**804,445**

Source: BLS 2012.

The Kansas City Metropolitan Area economy is diverse. In 2009, the government and government enterprises, retail trade, and health care industries were the largest sectors, collectively, contributing about 32 percent of regional employment (BEA 2012a). The manufacturing sector, the category under which most existing KCP missions fall, accounted for about 6 percent of all jobs in 2009, although the total manufacturing jobs decreased from 2005 levels by just under 1 percent.

The regional economy has surpassed the economies of Missouri and Kansas and the rest of the nation in generating income growth. As listed in Table 3-14, the region has a higher per capita income than the states of Missouri and Kansas, as well as the United States. Since 2005, all four counties in the region have increased in income growth. For example, in 2005, the four counties had an average per capita

Table 3-14. Per Capita Income in the Four-County Region, Missouri, Kansas, and the United States[a]

Area	2005	2009	Percent U.S., 2005	Percent U.S., 2009
Cass County	$29,839	$33,840	84	87
Clay County	$33,815	$35,877	95	92
Jackson County	$33,844	$37,058	95	95
Johnson County	$47,848	$53,353	135	137
Four-county region	$38,370	$42,292	108	109
Missouri	$32,162	$36,181	91	93
Kansas	$33,145	$39,173	93	101
United States	$35,452	$38,846	100	100

Source: BEA 2012b.

a. All per capita income dollar amounts are in nominal dollars (that is, current dollars not adjusted for inflation), as reported by the Bureau of Economic Analysis,

income of $38,370, or 108 percent the national per capita income of $35,452. In 2009, the per capita income in the region increased to $42,292, or 109 percent of the United States per capita income. In contrast, per capita income for Missouri and Kansas were both below that for the United States in 2005. Both states showed an increase in 2009, with Kansas increasing to 101 percent of the United States per capita income (BEA 2012b).

Total annual payroll during calendar year 2010 for KCP was $303.2 million. The average household annual income in the four-county region was $70,704 in 2010 (USCB 2010a). The BFC employs about 4,100 workers (2,700 KCP and 1,400 GSA). This represents about 5 percent of regional employment. The Kansas City Fifth Council District list KCP as one of the major employers in the area.

3.9.1.2 Population

NNSA used data from the 2010 Census in its analysis of population trends. In 2010, the population for the region was about 1.54 million, a 12-percent increase from about 1.37 million in 2000. Cass and Clay counties in Missouri and Johnson County in Kansas experienced the largest population growth between

2000 and 2010, each with an increase of 21 percent, compared with 7- and 6-percent growth in Missouri and Kansas, respectively. Jackson County experienced the lowest growth rate with an increase of 3 percent between 2000 and 2010 (USCB 2010b; Missouri 2012; Kansas 2012). During 2010, about 1,746 KCP employees lived in Missouri and 607 lived in Kansas.

Jackson County is the largest county in the region with a 2010 population of 540,000 people. Cass County is the smallest, with a 2010 population of 99,000 people (USCB 2010b). Population forecasts by Missouri and Kansas indicate a continuous population growth for most of the region. As listed in Table 3-15, Johnson County will have continued strong growth rate in relation to the other three counties; for example, Johnson County will have an estimated annual growth rate of 3 percent between 2010 and 2030, while Cass, Clay, and Jackson counties will have estimated rates of 1.9, 1.8, and 0.5 percent, respectively. Forecasts indicate that Johnson County will exceed the population of Jackson County by 2020.

Table 3-15. Historical and Projected Population for the Four-County Region

County	2000	2005	2010	2015	2020	2025	2030
Cass	82,092	92,387	99,478	112,247	121,499	129,880	136,933
Clay	184,006	199,772	221,939	241,150	261,469	281,228	300,021
Jackson	654,880	661,383	674,158	678,274	689,226	701,350	714,467
Johnson	451,479	504,662	544,179	626,723	701,381	786,890	884,894
Four-county totals	**1,372,457**	**1,458,204**	**1,539,754**	**1,658,394**	**1,773,575**	**1,899,348**	**2,036,315**

Sources: USCB 2010b; Missouri 2012; Kansas 2012.

3.9.1.3 Community Services

Community services in the four-county region include public schools, law enforcement, fire suppression, and medical services.

The region has 55 public school districts with 521 schools. An estimated 17,500 teachers provided educational services for about 253,000 students during the 2009-2010 and 2010-2011 school years. The student-to-teacher ratio was 14 to 1.

Thirty-eight hospitals serve residents of the region; most are in Johnson County. These hospitals have a total bed capacity of about 4,800.

The counties in the region employ about 1,000 law enforcement workers. Johnson County employs the largest number with 607 workers, followed by Clay County with 182 workers and Jackson County with 120 workers. Cass County has 93 full-time law enforcement employees (FBI 2010). The closest police station in Missouri to the KCP is the Kansas City Police Department in Jackson County about 4 miles away.

There are 34 fire stations in the region. There are six stations less than 5 miles from the site; the nearest station is at 9903 Holmes, about 1.2 miles from the site (Kansas City 2012).

3.9.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Demolition. Demolition would take from one to five years and would require 100 workers per year. In addition to the direct jobs created by demolition activities, supporting (indirect) activities would result in an additional 86 jobs for a total of 186 jobs (using the multiplier of 0.865 indirect job for every direct job) (GSA and NNSA 2008; BEA 1997). This represents less than 1 percent of the total regional labor force.

Based on the regional average annual income of $52,966 (BEA 2012c) for the construction industry, direct income would increase by $5.3 million annually. The demolition activities would also generate indirect income through supporting businesses. Based on regional average annual income of $44,248 (BEA 2012d), indirect income would increase by $3.8 million. The total impact to regional income would be about $9.1 annually. Since the Missouri income tax rate is 6 percent (for incomes over $9,000), this would generate an additional $550,000 in State income tax revenue.

The number of new direct and indirect jobs would result in short-term beneficial socioeconomic impacts. Jobs are likely to be filled from the existing labor pool; therefore, no in-migration of workers is expected and there would be no impacts to housing or community services.

Remediation. Remediation would take from one to five years and would require 10 workers per year. In addition to direct jobs, supporting businesses would create 9 indirect jobs, for a total of 19 jobs (using the multiplier of 0.865 jobs for every direct job) (GSA and NNSA 2008; BEA 1997). This represents less than 1 percent of the total regional labor force.

Based on the regional average income of $52,966 (BEA 2012c) for the construction industry, direct income would increase by about $530,000 annually. The remediation activities would also generate indirect income in supporting businesses. Based on the regional annual income of $44,248 (BEA 2012d), indirect income would increase by about $383,000 annually. The total impact to regional income would be about $913,000. Since the income tax for Missouri is 6 percent (for income over $9,000), this would generate about $55,000 in State income tax revenue annually.

The relatively small number of direct and indirect jobs would result in small, short-term beneficial socioeconomic impacts.

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet, each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). For purposes of analysis, NNSA assumes 120 construction workers would be needed per year. For the 1-year period at the nonresidential construction rate of $52,966, income would be about $6.3 million. Applying the 0.865 multiplier for indirect jobs, this would result in an additional 104 jobs earning an additional $4.6 million at the regional average labor rate of $44,248 annually. Construction would result in a total of 224 jobs earning an additional $10.9 million. The Missouri State incomes taxes would be about $645,000; therefore, the socioeconomic impacts would be short-term and beneficial.

Operations. The number of employees that would occupy any new business at the former KCP plant would not be expected to exceed the current KCP workforce. Future operations would have a positive impact on regional socioeconomics.

3.9.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. Cessation of NNSA activities at the BFC would reduce the workforce at the BFC by 2,700 workers. If GSA remains at the BFC, a total of 1,400 workers would remain at the BFC. The existing NNSA workforce would remain in the region but would relocate to the new Botts Road facility 8 miles south of the BFC. Because there would be no change in the overall workforce in the four-county region, employment and income, population and housing, community services, and local taxes would remain the same as the baseline discussed in Section 3.9.1. The no-action alternative would not affect socioeconomic characteristics.

3.10 Waste Management

3.10.1 AFFECTED ENVIRONMENT

Activities at the KCP result in the generation and management of hazardous, nonhazardous, and small quantities of low-level radioactive waste. Waste management operations consist mainly of hazardous and nonhazardous waste storage in preparation for offsite treatment or disposal. State of Missouri and Federal hazardous waste statutes, including 40 CFR Parts 260, 261, 264, and 270 and the corresponding State regulations, regulate all site waste, which KCP manages in compliance with its MDNR MHWMF Part I Permit and EPA HSWA Part II Permit.

The KCP's management of wastewater, including sanitary sewage and industrial wastewater, is addressed in Section 3.8.1.1.4 of this EA.

3.10.1.1 Waste Generation and Management

KCP operations generated about 2,100 tons of hazardous and nonhazardous waste in 2009 (Table 3-16). This waste can be categorized as routine or nonroutine as well as hazardous or nonhazardous. Routine waste is from normal production, maintenance, or support activities; nonroutine waste is typically from construction or refurbishment and environmental restoration activities.

As listed in Table 3-16, in 2009 the KCP disposed of about 19 and 796 tons of hazardous and nonhazardous waste, respectively, generated from routine operations. Processes that generate the major amounts of hazardous waste include plating, etching, and wastewater treatment (NNSA 2010). Nonhazardous waste at the site includes industrial scrap and waste along with office, lunchroom, and janitorial waste; the KCP disposes of such waste at the Johnson County (Kansas) Landfill.

Table 3-16. Waste Generation Totals by Waste Type for Routine and Nonroutine Operations at the KCP, 2009

Category	Waste type	Waste quantity (tons)[a]	
		1993[b]	2009
Routine	Hazardous	276	19
	Nonhazardous	7,671	796
Nonroutine	Hazardous	NDA	195[c]
	Nonhazardous	NDA	59
Recycled	Hazardous and nonhazardous	NDA	1,033
Totals		**7,947**	**2,102**

NDA = no data available.

a. Source: NNSA 2010 except for nonroutine hazardous waste.
b. Data for 1993 is presented to illustrate the significant reductions in wastes since 1993.
c. Source: GSA and NNSA 2008. Unlike the other numbers in the table, this value is a typical annual generation rate, not specifically for 2009.

Nonroutine wastes, by their nature, vary in quantity from year to year more than do routine wastes. The 195 tons of nonroutine hazardous waste shown in Table 3-16 is a typical quantity that might be produced annually from environmental restoration activities and construction or maintenance activities within contaminated areas. The 59 tons value is for nonroutine, nonhazardous waste generated in 2009 from construction and refurbishment activities.

Table 3-16 also lists waste generation totals for 1993 to show the significant reductions in the amounts of hazardous and nonhazardous wastes that have occurred. The KPC has achieved these reductions through material substitution, recycling, and reuse. Section 3.10.1.3 discusses waste minimization techniques.

Onsite waste management activities include temporary storage (less than 90 days) of hazardous waste, industrial wastewater pretreatment, and selective recycling, but no waste disposal.

Industrial processes generate about 40 pounds of low-level radioactive waste each year (GSA and NNSA 2008). The KCP stores low-level waste in two controlled access areas. It solidifies liquid low-level waste and mixes it in concrete or plaster for final handling and shipment to the Nevada National Security Site or a commercial facility for disposal (GSA and NNSA 2008). The last shipment of solid low-level waste was in September 2009 (NNSA 2010). The KCP generates no spent nuclear fuel or high-level radioactive waste (NNSA 2008).

The KCP generates small volumes of waste acid, which is neutralized as part of the manufacturing process to maintain the site's zero inventory of mixed waste. The last offsite shipment of absolute ethanol, with an extremely small amount of depleted uranium, was in September 2008 (NNSA 2010).

Under contract with waste transporters, the KCP ships waste stream residue that is not reclaimed, treated onsite at the Industrial Wastewater Pretreatment Facility, or recycled to permitted offsite facilities.

3.10.1.2 Hazardous Substances

As part of its *Superfund Amendments and Reauthorization Act of 1986* (Public Law 99-499) Tier II submittals, KCP routinely reviews the lists of extremely hazardous substances in Appendixes A and B of 40 CFR Part 355 for chemicals on the site at one time in an amount equal to or greater than 500 pounds (about 55 gallons) or the Threshold Planning Quantity, whichever is lower, and reports this to regulatory agencies (Honeywell 2013). Also identified on the KCP Tier II forms are chemicals that are not extremely hazardous substances but are identified in 40 CFR 302.4 and stored in quantities greater than 10,000 pounds (Honeywell 2013).

Table 3-17 lists chemicals that appeared on KCP's 2011 Tier II Chemicals form as being stored at the site above the reportable quantity of 10,000 pounds for hazardous substances or above the threshold value for extremely hazardous substances, which are as low as 100 pounds for some chemicals. The table also identifies the applicable reporting level for each chemical. Over the years, the list of chemicals reported on the Tier II submittals has varied. For example, chemicals appearing in submittals in the late 1990s, but

Table 3-17. 2011 TIER II Chemicals (pounds)

Chemical	2011 reporting for chemicals (minimum values in pounds)
2,6-Toluene diisocyanate	100
Argon gas	10,000
Carbon dioxide	10,000
Carbon dust	10,000
Diesel fuel	1,000,000
Highly refined petroleum oil	10,000
Lead	100,000
Nitrogen	100,000
Tetrafluoroethane (HFC-134a)	10,000
Rock salt (sodium chloride)	100,000
Sand (silica)	100,000
Sodium hydroxide	10,000
Sulfuric acid	100,000

Source: Caughey 2012.

not shown in Table 3-17, include acetone, ammonia, chlorine, hydrochloric acid, methylene chloride, phenol, phosphoric acid, toluene, trichloroethylene, 1,1,1-trichloroethane, and others (Honeywell 2013).

3.10.1.3 Waste Minimization

The KCP Waste Minimization and Pollution Prevention Awareness Program complies with EPA regulations and DOE Directives. Activities include the establishment of sitewide recycling and source reduction programs for all waste streams; the near-term objectives are to reduce the disposal volume of sanitary, hazardous, and low-level radioactive waste streams.

In 2009, KCP recycled about 2 million pounds of material, representing about 50 percent of the total generated waste (NNSA 2010). Table 3-18 lists categories and quantities of the materials recycled by KCP in 2009.

Table 3-18. Recycled Material, 2009 (pounds)

Material	Quantity
Scrap metal	715,155
Asphalt	473,660
Paper	153,207
Concrete	113,780
Cardboard	91,980
Computers	84,102
Wood and plastic	177,520
Batteries	52,818
Sludge	26,748
Fuel blend	123,033
Precious metal	16,917
Fluorescent lamps	7,999
Toner cartridges	1,842
Ground electronics	21,498
Turnings/floor sweepings	6,262
Total	**2,066,521**

Source: NNSA 2010.

3.10.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Demolition. Under the analytical scenario, demolition would take one to five years and generate about 50,000 tons of hazardous waste and about 1.05 million tons of nonhazardous waste. Hazardous waste would be disposed of at permitted waste management facilities such as the Clean Harbors facilities in Clive, Utah, and Waynoka, Oklahoma. In 2009, these facilities received about 68,000 tons of hazardous waste from offsite sources (RTKN 2012). The KCP hazardous wastes generated over five years, about 10,000 tons annually, would represent an increase of about 15 percent over 2009 quantities. With this type of impact to the two example waste management facilities, the option of sending the waste to multiple facilities might be pursued.

If it is determined that the hazardous waste generated from demolition would be suitable for disposal at a hazardous waste landfill, the 10,000 tons of annual generation can be compared with the more than 2 million tons of waste that was managed in hazardous waste landfills or surface impoundments[6] across the United States in 2009 (EPA 2010b). On a regional basis, hazardous waste landfill or surface

6. "Landfill/surface impoundment" is a standard category used by the EPA to track hazardous waste management activities. That is, "landfill" is not tracked as a separate waste management method.

impoundment facilities are very limited within EPA Region 7 (Iowa, Kansas, Missouri, and Nebraska); however, across the combined area of EPA Regions 6 (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) and 7, there were about 420,000 tons of hazardous waste managed in landfills or surface impoundments in 2009 (EPA 2010c). Ten thousand tons per year of hazardous waste represents less than 3 percent of the amount managed annually in hazardous waste landfills or surface impoundment facilities on a regional basis and less than 0.5 percent of the amount managed annually in such facilities across the county.

If NNSA completed the demolition in less than 5 years, a corresponding increase in the annual generation of hazardous waste would be expected; a lower annual generation rate would result if demolition took longer than 5 years. Nonhazardous waste would be disposed of at a local permitted sanitary landfill such as the Johnson County [Kansas] Landfill or, if available, a local landfill permitted solely for construction-type debris. No adverse impacts are anticipated as a result of demolition activities.

Remediation. After demolition, remediation activities would occur and would take one to five years to complete. Under the analytical scenario, NNSA assumes remediation activities would consist primarily of removing contaminated soils (above the EPA Regional Screening Levels for residential soil) down to the groundwater table. Remediation would generate an estimated 260,000 tons of hazardous wastes, 13,000 tons of waste with petroleum hydrocarbon contamination, and about 28,000 tons of nonhazardous waste. Hazardous waste would be disposed of at permitted waste management facilities such as the Clean Harbors facilities in Clive, Utah, and Waynoka, Oklahoma. The hazardous wastes generated annually (about 52,000 tons) would represent an increase of about 76 percent over the quantities managed by these two facilities in 2009. As with demolition waste, the option of sending remediation waste to multiple facilities would be pursued.

If NNSA determined that the hazardous waste soil would be suitable for disposal at a hazardous waste landfill, the 52,000 tons of annual generation can be compared with the more than 2 million tons of waste that was managed in hazardous waste landfills or surface impoundments across the United States in 2009 (EPA 2010b). On a regional basis, the annual generation can also be compared with the roughly 420,000 tons of hazardous waste managed in landfills or surface impoundments within EPA Regions 6 and 7 in 2009 (EPA 2010c). Fifty-two thousand tons per year of hazardous waste represents about 12 percent of the amount managed annually in hazardous waste landfills or surface impoundment facilities on a regional basis and less than 3 percent of the amount managed annually in such facilities across the county.

If NNSA finished the remediation in less than 5 years, a corresponding increase in the annual generation of hazardous waste would be expected; a lower annual generation rate would result if remediation took longer than 5 years.

Nonhazardous waste would be disposed of at a local permitted sanitary landfill such as the Johnson County Landfill. The Johnson County Landfill is also permitted to accept special waste such as soil contaminated with petroleum hydrocarbons. NNSA assumes this type of remediation waste would be disposed of in a local permitted sanitary landfill. No adverse impacts are anticipated as a result of remediation activities.

Construction. Table 2-3 lists key parameters for construction. As listed in the table, about 4,000 tons of nonhazardous wastes (mainly steel and concrete) would be generated and no hazardous wastes would be generated. The nonhazardous waste would be disposed of at a local, permitted sanitary landfill such as the Johnson County Landfill or, if available, a local landfill permitted solely for construction-type debris. No adverse impacts are anticipated as a result of construction activities.

Operations. NNSA cannot know the types and quantities of wastes that would be produced by future uses of the KCP, but believes they could involve waste generation similar to KCP's current levels (Table 3-16), with the exception of the nonroutine wastes from remediation actions, which should cease. Since future use could involve industrial processes, hazardous waste could be produced; NNSA assumes that such waste would be managed in accordance with all applicable regulations, and no adverse impacts would be expected. Further, regulatory requirements and costs associated with hazardous waste management promote recycling and other efforts to minimize hazardous waste generation. Nonhazardous waste and hazardous waste would be managed separately and would be sent offsite to available management and disposal facilities with the appropriate capabilities and permits for the applicable waste. No adverse impacts are anticipated as a result of operations.

3.10.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under this option, NNSA would vacate the BFC but not transfer its property. Cessation of NNSA activities at the BFC would reduce nonhazardous waste generation to 40 percent or less of existing generation. As such, nonhazardous wastes would be about 340 tons or less annually. Because almost all current hazardous waste generation is associated with NNSA operations, those wastes would decrease to essentially zero. The groundwater pump-and-treat system would continue to collect and treat contaminated groundwater from footing tile drains, contaminated air handling unit drains, and 11 groundwater wells. After treatment, the pumped groundwater would be discharged to the sanitary sewer system.

3.11 Human Health and Safety

3.11.1 AFFECTED ENVIRONMENT

3.11.1.1 Public Health and Safety

Past operational activities released substantial quantities of solvents and PCBs into the soils. Although KCP has cleaned up former waste disposal sites, significant quantities of these materials remain below the ground surface at depths of about 40 feet to the bedrock interface. High concentrations of solvents and anaerobically generated breakdown products are in the groundwater near the release points. Lower concentrations have spread on the site and to nearby offsite locations, including discharges of low levels of contamination (below the site cleanup standards) to the Blue River. Investigations have determined that there are no significant public exposure pathways (DOE 2001).

NNSA has established management systems to implement and monitor its environmental protection responsibilities (DOE 2010) in the protection of the public. Remedial activities are addressing contaminated soils and waters.

Section 3.3, 3.4, and 3.5 of this EA provide information on air releases, legacy soil, and water contamination, respectively.

3.11.1.2 Worker Health and Safety

Hazards within the KCP include cyanide salts, beryllium, mercury, chromium, acids, caustics, ammonia, and PCBs. Potential physical hazards include machine operations, noise, high-voltage electrical equipment, excavations, pressurized systems, and construction activities. Legacy building components include asbestos and lead-based paint. The following is a summary of hazardous materials that may be encountered during building demolition and other activities on the KCP.

- Asbestos. There are asbestos-containing materials (both friable and nonfriable) at the KCP in the form of building materials such as transite walls and wall partitions, floor tiles and mastic, and in pipe heating, ventilation, and air conditioning insulation materials. DOE has implemented programmatic asbestos abatement and containment measures at the site since the late 1970s and implemented a characterization survey for asbestos-containing materials in 1991. However, no buildings have been completely abated, and there has been no recent effort to survey buildings or to validate the complete removal of asbestos-containing materials of any type (Honeywell 2013).

- Lead-Based Paint. When many of the KCP facilities were built, lead-based paint was in common use. Through the years, the KCP has evaluated paint suspected of containing lead and repaired or abated it as necessary. There has been no plant-wide survey to identify lead-based paint. Typically, when an area is identified as containing lead-based paint, it is evaluated and repaired or abated as appropriate (Honeywell 2013). Given the construction age of facilities within the KCP, any building at the KCP could contain lead-based paint.

- PCBs. The major sources of PCBs associated with KCP operations was the use of these materials in heat transfer fluid for plastics injection molding. Passive leakage of the heat transfer fluid along with spills from pipe failures have resulted in contamination of soils. Residual contamination exists in the interior of Department 26 (Solid Waste Management Unit 31) in portions of the floor, walls, ceilings, air conditioning ductwork, and equipment. Before demolition, NNSA or the new owner(s) would submit a work plan to EPA in accordance with requirement under the *Toxic Substances Control Act of 1976* that would define how PCB decontamination in the area would be addressed.

- Beryllium. KCP has been a continuous user of metallic alloys and ceramic compounds that contain small amounts of beryllium since the early 1960s. Beryllium becomes a health hazard when particulates become airborne in respirable dusts, mists, or fumes.

  As of 2010, 14 KCP activities involved beryllium, which is a hazardous material. The KCP has implemented a Chronic Beryllium Disease Prevention Program to reduce the number of worker exposures from beryllium and to minimize the potential for exposure. The program includes routine surface and air sampling in beryllium processing areas, work authorization permits that establish specific controls for beryllium processing for a specified period, beryllium characterization and cleanup, medical surveillance to ensure early detection of precursor conditions, and beryllium sensitization (DOE 2010). About 900 of the 2,700 KCP employees participate in the Beryllium Medical Surveillance Program (NNSA 2012b).

- Ordnance. KCP has handled, stored, and tested explosives as part of normal production operations over the years. KCP also has an active fire range in the test cell area for firearms training and qualification. Several different-caliber ammunition has been used. Lead contaminates the fire range; NNSA would clean the range thoroughly before it vacates the facility.

- Methylenedianiline. KCP processed methylenedianiline in Departments 34, 77, and 85. NNSA would evaluate these areas and clean them as appropriate to meet surface cleanliness requirements (29 CFR 1910.1050). The concern is that the substance can be absorbed by the skin and can rapidly contaminate surface areas.

- Heavy Metals. The Plating Shop in Building 91 has used hexavalent compounds (29 CFR 1910.1026), cadmium and cadmium compounds (29 CFR 1920.1027), and beryllium (10 CFR Part 850) as part of normal operations over the years. Other chemicals of potential concern include nickel and nickel compounds, cyanide salts, and inorganic acids and bases, which do not

have substance-specific standards. Before vacating the site, NNSA would evaluate the area (including the shop area and basement) and clean it in accordance with the appropriate regulations.

- Miscellaneous Chemicals. KCP operations involve the use of a variety of chemicals throughout the campus, primarily in the Main Manufacturing Building, the Polymer Building, and the analytical laboratories in the Manufacturing Support Building.

- Depleted Uranium. In the late 1950s and early 1960s, KCP used a section of the manufacturing area, the Machining Area, for the machining and inspection of depleted uranium products. The area, formerly known as Department 20, covered about 12,000 square feet in the Main Manufacturing Building and had measurable levels of fixed radioactivity in sumps, floor drains, piping, floor expansion joints, and other surface areas. DOE remediated this area in phases and completed final decontamination to industrial standards in September 1986. KCP also used commercially available products that contained depleted uranium shielding for a radiography unit.

KCP has a Worker Safety and Health Program to reduce or prevent occupational injuries, illnesses, and accidental losses. This program incorporates DOE Worker Safety and Health Program requirements. Over the past 10 years, KCP has employed an average of about 2,500 workers annually. Figure 3-14 shows KCP health and safety performance for the 10-year period from 2002 through 2011. During this period, KCP averaged about 5.1 million work-hours per year, or 2,560 full-time equivalent workers. The total recordable case incidence rate averaged 0.7 per year per 100 full-time workers, and the days away, restricted, or transferred case incidence rate averaged 0.3. NNSA gathered the data from the DOE Computerized Accident Incident Reporting System (DOE 2012b). Almost all cases are attributable to production organizations and activities, which also account for the majority of work-hours each year. The total number of recordable cases over the same 10-year period ranged from 9 to 32 per year and averaged 19 per year. The number of days away, restricted, or transferred cases ranged from 3 to 16 per year and averaged 7.9 per year.

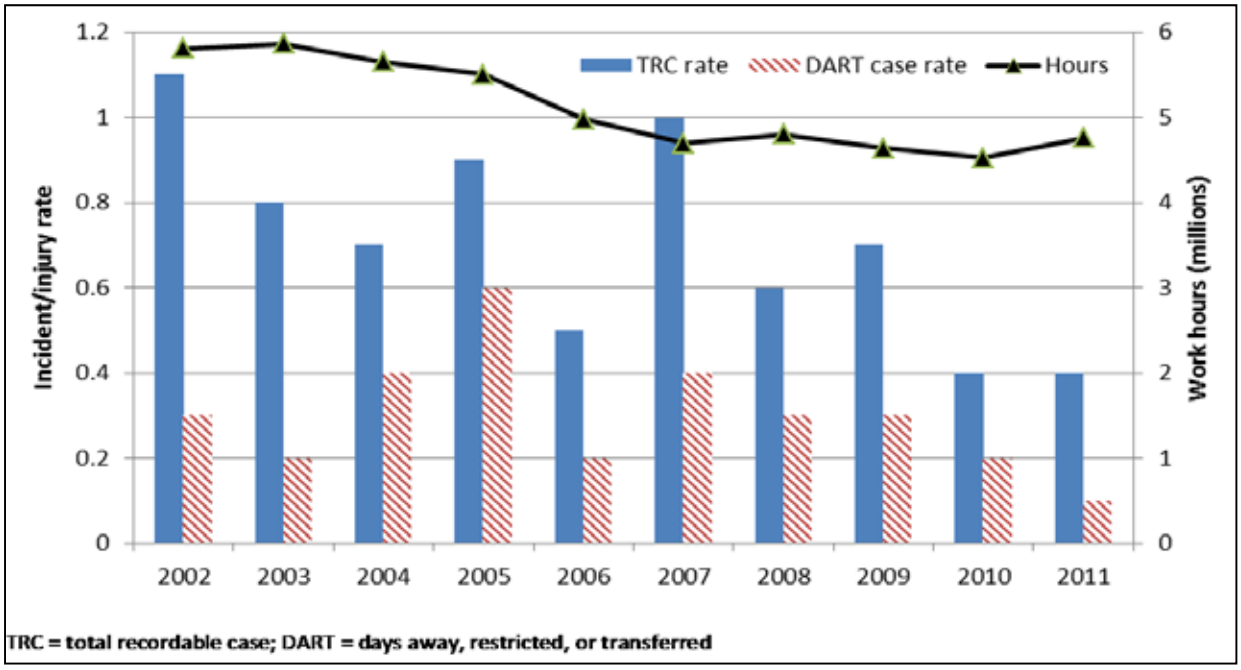

Figure 3-14. KCP Incident/Injury Rates and Work Hours, 2002 through 2011 (Source: DOE 2012b)

3.11.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Demolition. Demolition would take from one to five years and require 100 workers per year. Occupational injury and illness statistics for demolition are characteristics of "nonresidential construction." In 2010, the Bureau of Labor Statistics reported a total case incidence rate of 2.9 per year per 100 full-time workers and a days away, restricted, or transferred case incidence rate of 1.3 (BLS 2011).

Table 3-19 summarizes occupational injury cases for demolition and remediation. NNSA used the total recordable cases and days away, restricted, or transferred case rates to determine the number of cases for both demolition and remediation activities. The numbers of average cases differ due to the number of workers employed each year, and cases over the duration of each activity differ due to the time required to complete each activity. The worker-years incorporate both factors. Under the analytical scenario,

Table 3-19. Occupational Injury Rates and Cases for Demolition and Remediation

Activity	Annual averages		Worker-years to complete activity	Cases during duration of activity	
	TRCs	DART cases		TRCs	DART cases
Demolition	2.9	1.3	500	15	7
Remediation	0.3	0.1	50	1.5	0.5

Source: BLS 2011.
DART = days away, restricted, or transferred; TRC = total recordable case.

NNSA assessed potential occupational impacts based on a 5-year demolition timeframe. As shown in Table 3-19, demolition activities would result in approximately 15 total recordable cases and 7 days away, restricted, or transferred cases.

As described in Section 3.10.2, demolition would generate about 50,000 tons of hazardous waste, including materials described in Section 3.11.1.2, and about 1.05 million tons of nonhazardous waste. Hazardous waste would be disposed of at permitted waste management facilities such as the Clean Harbors facilities in Clive, Utah, and Waynoka, Oklahoma. Hazardous waste would be handled in compliance with applicable regulatory requirements, permit restriction, and best management practices. These measures would ensure worker safety. Regulated asbestos-containing materials removed before demolition or encountered in the demolition would have to be segregated and packaged in sealed and leak-tight containers for transport and disposal at an asbestos waste disposal facility. Category I and II asbestos-containing materials can be disposed of at a solid waste management facility such as a demolition landfill (MDNR 2006a). An asbestos permit filed with the City of Kansas City, Missouri, would be necessary before the start of asbestos removal.

Demolition waste would include paint residue (chips and scrapings); demolition debris (masonry, metal, and boards painted with lead-based or other heavy metal-based paint); and scrap metal (metal objects that contain lead or other heavy metals). Paint residue would require laboratory testing before disposal. Depending upon the results of this testing, wastes would be disposed of at a permitted hazardous waste disposal facility, a nonhazardous waste landfill, or used in a lead smelter (MDNR 2008).

Remediation. Remediation would take about one to five years and require 10 workers per year. As shown in Table 3-19, remediation activities would result in approximately 1.5 total recordable cases and 0.5 day away, restricted, or transferred cases.

Construction. For the purpose of evaluating environmental impacts of the analytical scenario, NNSA assumes that the future owner would construct one or more generic new facilities of 500,000 square feet,

each requiring a 1-year construction period and impacting approximately 17 acres of previously disturbed land (see Table 2-3). In addition, NNSA assumes a workforce of 120 people for a 1-year construction period. As with demolition and remediation, occupational injury and illness statistics for construction were characterized as "nonresidential construction." Under the analytical scenario, the total recordable cases related to construction would be 3.5 and the days away, restricted, or transferred cases would be 1.6; both figures are well below the range reported for the 10-year period 2002 through 2011 (see Figure 3-14).

Operations. The number of workers that any future new business would employ would not be expected to exceed the current KCP workforce. Potential occupational impacts to workers would be comparable to historical trends at the KCP or smaller. Potential impacts to the public would be expected to be minimal as a result of compliance with applicable regulatory requirements, permit restriction, and best management practices.

3.11.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. There would be an estimated 42 workers at the KCP (Honeywell 2013). These workers would maintain utilities, perform maintenance and repairs, and provide security. In order to estimate the potential impacts to the workers, NNSA used Missouri injury/illness incidence summaries for the following industries: "Police (Security)," "Repair/Maintenance," and "Utilities" for 2011(BLS 2011). Based on an average of these three industries, there would be a total recordable case rate of 4.6 per year per 100 full-time workers and a days away, restricted, or transferred case rate of 1.7 per 100 full-time workers (BLS 2011). For these 42 workers, approximately 1.9 total recordable cases would be expected annually and there would be 0.7 days away, restricted, or transferred case annually. Table 3-20 summarizes estimated impacts.

Table 3-20. Occupational Injuries under the No-Action Alternative

Number of workers per year	Annual averages	
	TRCs	DART cases
42	1.9	0.7

DART = days away, restricted, or transferred; TRC = total recordable case.

3.12 Environmental Justice

On February 11, 1994, the President of the United States issued Executive Order 12898, "Federal Action to Address Environmental Justice in Minority and Low-Income Populations," to focus the attention of Federal agencies on human health and environmental conditions in minority and low-income communities. Environmental justice analyses identify disproportionate placement of high and adverse environmental or health impacts from proposed Federal actions on minority or low-income populations and identify alternatives that could mitigate such impacts. NNSA used U.S. Census Bureau data to identify minority populations as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, other race, of two or more races, and Hispanic or Latino. Poverty status, used in this EA to define low-income status, is the number of persons with income below poverty level and is defined in the 2010 Census as $11,139 annual income or less for an individual, and $22,314 annual income or less for a family of four (USCB 2010c).

3.12.1 AFFECTED ENVIRONMENT

This analysis follows the guidance in the CEQ *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997a). The study area for environmental justice encompasses the four-county region of Jackson, Cass, and Clay counties in Missouri and Johnson County in Kansas where the

Federal action would have potential impacts. Data on race and ethnicity are from the U.S. Census Bureau "Profile of General Population and Housing Characteristics: 2010" (USCB 2010b) for the four-county region and census tracts in the region. Data on poverty status are from "Poverty Status in the Past 12 Months by Sex by Age" (USCB 2010c) for the four-county region and census tracts in the region. Following CEQ guidance, the NNSA identified minority communities where the minority population of the affected area exceeds 50 percent (CEQ 1997a). The guidance does not specify a threshold for identifying low-income communities. The analysis used the two-state area of Missouri and Kansas average poverty level of 13 percent of the population as the criterion to identify low-income communities. Table 3-21 summarizes minority and low-income populations in the region.

In 2010, the four-county region had a total population of 1,539,754 people. This area contains an estimated 25-percent minority and 13-percent low-income population. By comparison, the two-state area includes 14-percent minority and 13-percent low-income population. However, Jackson County, the location of the KCP, has 37-percent minority and 16-percent low-income population and has the most census tracts containing minority and low-income populations in the four-county area (Figure 3-15). This is consistent with the *Environmental Justice Assessment Screen Report* (EPA 2003).

Table 3-21. Minority and Low-Income Populations in the Four-County Area

Population	Cass County	Clay County	Jackson County	Johnson County	Missouri	Kansas
Minority population[a]						
Minority						
Black or African American	3,444	11,220	159,442	23,028	687,149	162,700
American Indian and Alaska Native	504	1,015	2,668	1,639	21,062	23,073
Asian	623	4,503	10,621	22,598	97,221	66,967
Native Hawaiian and other Pacific Islander	62	549	1,492	259	5,763	1,978
Some other race	66	272	846	864	5,372	2,928
Two or more races	1,712	4,668	16,081	10,798	106,142	64,891
Hispanic alone	3,988	13,101	56,434	38,949	212,470	300,042
White alone	89,079	186,611	426,574	446,044	4,850,748	2,230,539
Total population	99,478	221,939	674,158	544,179	5,988,927	2,853,118
Minority population	10,399	35,328	247,584	98,135	1,135,179	622,579
Percent minority	10%	16%	37%	18%	19%	22%
Low-income population[b]						
Total persons	**96,563**	**211,853**	**657,567**	**525,955**	**5,744,590**	**2,725,175**
Persons below poverty level	6,940	16,585	103,423	29,173	802,596	338,792
Percent below poverty level	7%	8%	16%	6%	14%	12%

a. Source: USCB 2010b.
b. Source: USCB 2010c.

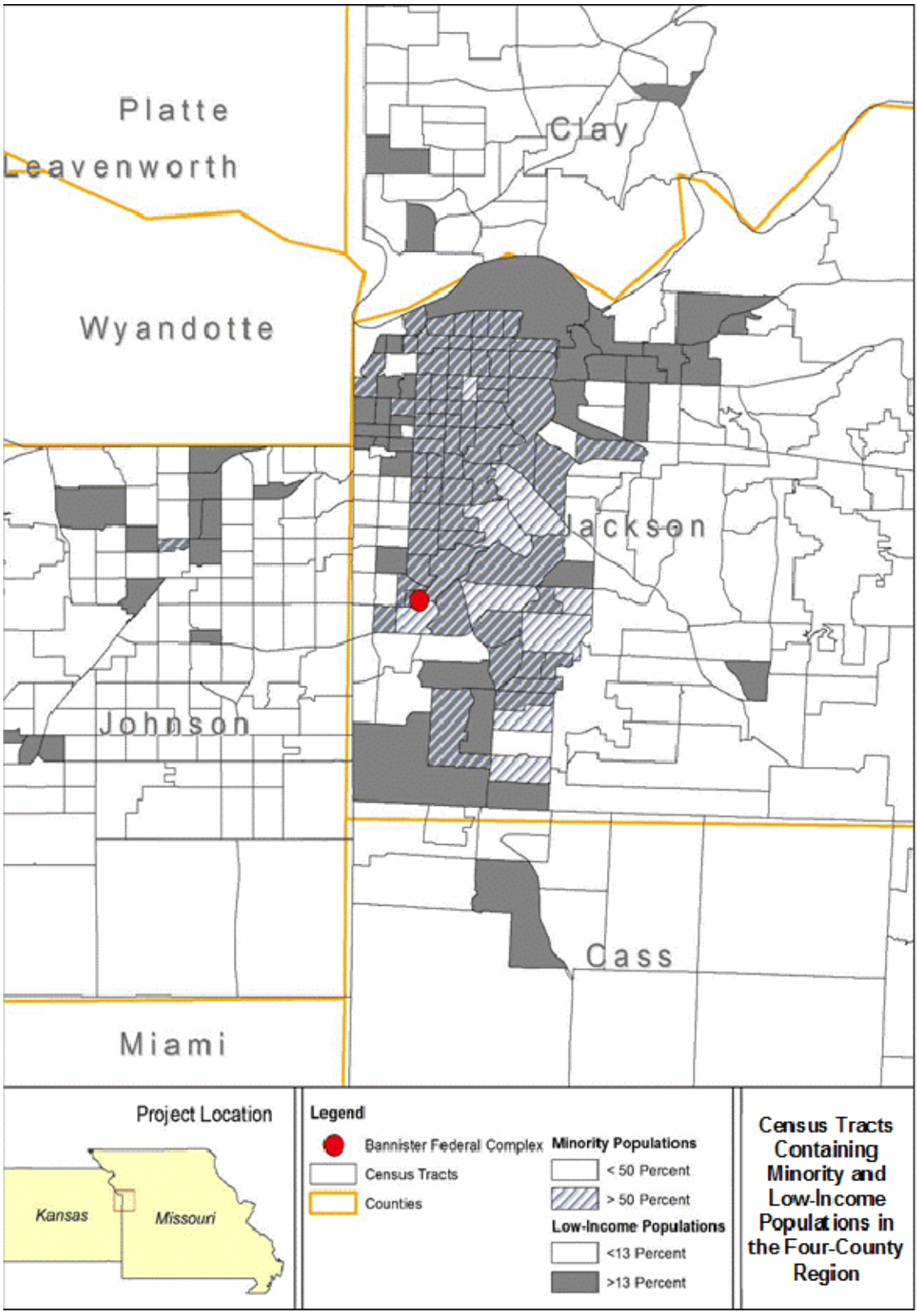

Figure 3-15. Minority and Low-Income Census Tracts in the Four-County Area (Sources: USCB 2010b, 2010c)

3.12.2 ENVIRONMENTAL IMPACTS FROM THE PROPOSED ACTION

Under the analytical scenario, NNSA would transfer the KCP property to one or more entities that would use the property for mixed use (industrial, warehouse, and office). During demolition, remediation, or construction-related activities, NNSA anticipates that environmental, health, and occupational safety impacts would be minimal, temporary, and confined to the KCP property. Therefore, there would not be disproportionately high and adverse human health effects or environmental impacts to minority or low-income populations.

3.12.3 ENVIRONMENTAL IMPACTS FROM THE NO-ACTION ALTERNATIVE

Under the no-action alternative, NNSA would vacate the KCP but not transfer its property. The KCP would be maintained in a secure condition to prevent deterioration of the property. Cessation of NNSA activities at the KCP would reduce the amount of hazardous chemicals at the BFC and reduce any potential impacts to workers and the public. Remedial actions to remove contaminants from groundwater at the site using the groundwater pump-and-treat system as required under the MHWMF Part I Permit would continue. Because there would be no impacts to members of the public in general, there would be no disproportionately high and adverse human health effects or environmental impacts to minority or low-income populations.

3.13 Intentional Destructive Acts

DOE considers intentional destructive acts (i.e., acts of sabotage or terrorism) in all its EAs and EISs. After review of the types of facilities that could be constructed by a new owner of the property, it was determined that the likelihood of such acts for the proposed action would be low because the types of operations and potential hazards would be similar to many other facilities. It is possible that random acts of vandalism could happen as in any other location. However, the act of transferring the property to a new owner would not offer any particularly attractive targets of opportunity for terrorists or saboteurs to inflict adverse impacts to human life, heath, or safety.

4. CUMULATIVE IMPACTS

4.1 Introduction

CEQ regulations (40 CFR 1508.7) that implement the procedural provisions of NEPA define a cumulative impact as the "impact on the environment which results from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Using this definition, the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities that affect or will affect that resource no matter what entity is taking the actions.

NNSA based the following cumulative impact analysis on the proposed action of transferring the KCP property at the BFC to one or more entities and the current and reasonably foreseeable actions discussed in Section 4.2. Based on the analysis in Chapter 3 of this EA, the cumulative impact analysis (Section 4.3) focused on those resources with the greatest potential to be meaningfully affected. Those resource areas are land use, air quality, geology and soils, water resources, cultural resources, socioeconomics, waste management, and environmental justice. NNSA conducted this analysis in accordance with the CEQ NEPA regulations and handbook, *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ 1997b).

4.2 Current and Reasonably Foreseeable Actions

Kansas City, Missouri, is a mixed-use community with industrial activities, offices, parks and recreation, and residential areas. The activities associated with such mixed use produce impacts across all resource areas assessed in this EA. The EA accounts for these impacts in the affected environment descriptions. The EA assumes that such uses would continue into the future, producing additional impacts across the various resources in the region. For example, roads will be repaired as required, new roads may be constructed, companies and people will move into and out of the area, jobs will be gained and lost, and community services (e.g., hospitals, education, and police) will continue to provide needed services to the region.

In addition to these ongoing impacts within the region, NNSA reviewed information on past, present, and reasonably foreseeable future projects and actions that could result in impacts over the same period and in the same general location as the KCP. To determine cumulative impacts from past, present, and reasonably foreseeable projects, NNSA conducted online research and consulted with local officials to account for any significant changes that might occur in the region. NNSA focused, in particular, on reasonably foreseeable projects on and around the KCP, because projects with a closer proximity to the KCP would contribute more to cumulative impacts than projects farther away. Through this process, NNSA identified three current or reasonably foreseeable actions in the region that could contribute to cumulative impacts in conjunction with the proposed action in this EA. The following sections describe these actions.

4.2.1 NEW KCP NATIONAL SECURITY CAMPUS

GSA and NNSA issued a FONSI (73 FR 23244, April 29, 2008) on their proposal to relocate nonnuclear component production and procurement activities at the BFC to a smaller, more efficient, and flexible facility about 8 miles south of the BFC. GSA and NNSA based their Finding on *Modernization of Facilities and Infrastructure for the Non-Nuclear Production Activities Conducted at the National*

Nuclear Security Administration's Kansas City Plant Environmental Assessment (DOE/EA-1592) issued on April 21, 2008 (GSA and NNSA 2008). The selected alternative is for GSA to procure the construction of a new facility at the intersection of Botts Road and Missouri Highway 150 in Kansas City, Missouri. GSA would lease the facility on NNSA's behalf; NNSA would move its operations from the BFC to the new facility and conduct production and procurement operations for electrical and mechanical nonnuclear components at the new facility.

The 45-acre facility, known as the KCP National Security Campus, has been completed at 14520 Botts Road. NNSA intends a phased move to the new facility in 2013. This facility will maintain the capability to ensure the reliability, safety, and security for any stockpile size while enabling NNSA to recruit and retain the next generation of nuclear security experts. This new facility will (NNSA 2012c):

- Reduce the cost of the nonnuclear component production mission by 25 percent ($100 million annually),
- Reduce the size and capacity of the nonnuclear component production footprint by two-thirds (1 million square feet),
- Reduce energy consumption by more than 50 percent; this will be one of the first Leadership in Environmental and Energy Design Gold manufacturing campuses, and
- Generate 1,500 new construction jobs in the region and hundreds of millions of dollars in economic development.

Moving manufacturing, laboratory, and office equipment from its current location at the KCP to the new facility will involve about 2,800 pieces of large capital equipment and more than 40,000 moving crates that will fill 3,500 semi-truck loads (NNSA 2012d).

4.2.2 NEW GSA LEASED SPACES

GSA has made a decision to relocate its operation at the BFC to Kansas City's Central Business District. GSA issued the final *Environmental Assessment, Proposed Downtown Federal Building, Kansas City, Missouri*, on March 9, 2012 (GSA 2012a). GSA issued a FONSI on May 24, 2012, in which it decided that relocating its Federal tenants from the BFC to the new downtown Federal building would not have a significant impact on the environment (GSA 2012b). In addition to GSA, other agencies occupying GSA space at the BFC include the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the U.S. Marine Corps.[7]

GSA has decided to begin a leasing process for relocating from the BFC to downtown Kansas City in 2014. When GSA relocates to the new building, its property at the BFC will be excess to its needs and available for transfer along with the NNSA portion of the BFC. The National Oceanic and Atmospheric Administration and the U.S. Department of Agriculture could relocate to new leased space contiguous with GSA or in noncontiguous space within the Kansas City area. When GSA vacates the BFC, environmental considerations and encumbrances similar to those discussed for NNSA in this EA also would apply to the transfer of the GSA property. Since the GSA property is covered by the MHWMF Part I Permit, any new owners of the GSA property would be subject to that Part I Permit.

7. The U.S. Marine Corps occupies two joined brick structures (Building 2306-2312) located at 2306 and 2312 East Bannister Road, less than 1 mile east of the main facilities of the BFC at 1500 East Bannister Road. The U.S. Marine Corps does not intend to relocate from these structures, and the GSA likely would not transfer these structures and the land east of the railroad tracks as shown on Figure 1-2. As such, this cumulative impact analysis does not include an analysis of the U.S. Marine Corps leaving these structures, or the transfer of this GSA property.

4.2.3 TRANSFER OF GSA PROPERTY AT THE BFC

GSA operations at the BFC consist of office and warehouse space. The 14 GSA buildings total about 2 million square feet (Table 4-1) (GSA 2012c). Of this area, about 3 percent is industrial space, 34 percent is warehouse space, and 63 percent is office/cafeteria/administrative space (GSA 2012c). There are about 1,400 Federal workers in the GSA space.

Table 4-1. GSA Buildings at the BFC

Building	Bldg No.	Year built	Area (square feet)	Construction type
Main Manufacturing Building	1	1942	1,060,881[a]	Reinforced concrete
Main Office Building	2	1942	259,808	Reinforced concrete
Office Building	3	1942	22,076	Brick
Office Building	4	1942	11,026	Brick
Office Building	6	1992	17,902	Brick
West Employee Entrance	7	1942	<1,000	Brick
Record Storage Building	28	1942	3,304	Metal
Warehouse Building	41	1942	101,614	Masonry
Sand Storage and Handling	42	1942	1,744	Brick
Gas Meter House	44	1943	<1,000	Brick
Storage and Office Building	50	1942	13,914	Brick
Childcare Center	52	1989	10,348	Brick
Outdoor Storage Building	60	1942	4,090	Metal
Office Building[b]	2306-2312[b]	1955	530,000[b]	Brick
Total			**2,039,707**	

Source: GSA 2012c.

a. Includes 231,000 square feet of space leased to NNSA.

b. Building 2306-2312 is located at 2306 and 2312 East Bannister Road, less than 1 mile east of the main facilities of the BFC at 1500 East Bannister Road. This cumulative impact analysis does not include an analysis of the U.S. Marine Corps leaving these structures, or the transfer of GSA land east of the railroad tracks as shown on Figure 1-2.

When GSA moves its BFC operations, the cumulative impact analysis in this NNSA EA assumes that the GSA property at the BFC (identified in Table 4-1) would transfer to one or more entities that would use the property for mixed use (industrial, warehouse, and office). Consistent with the analysis for transfer of NNSA property, this cumulative impact analysis assumes the demolition of all of the GSA buildings and their removal for offsite disposal similar to the discussion in Section 2.1.1.1, remediation activities similar to those discussed in Section 2.1.1.2, and the construction of new facilities similar to the discussion in Section 2.1.1.3.

4.3 Potential Cumulative Impacts

4.3.1 LAND USE

4.3.1.1 Proposed Action to Transfer KCP

The BFC is zoned for manufacturing under the existing Kansas City Zoning and Development Code. There are no current development plans for the property; any such plans would be determined by the developer and new owner(s). NNSA expects any future operations at the KCP would remain consistent with mixed use (industrial, warehouse, and office). The proposed action would be consistent with existing land use and would not result in any adverse impacts to future land use of the area.

4.3.1.2 New KCP National Security Campus

NNSA's relocation to the new KCP National Security Campus required a change of land use from agriculture to industrial. The associated rezoning process has been completed.

4.3.1.3 New GSA Leased Spaces

The new GSA leased spaces would be within the Kansas City, Missouri metropolitan area. The new leased spaces could have long-term benefits, in that it would utilize currently unused space, thereby increasing land use efficiency.

4.3.1.4 Transfer of GSA Property at the BFC

Existing GSA facilities at the BFC could be demolished, remediation would occur, and new facilities could be constructed, producing impacts similar to those for the NNSA discussed in Section 3.1.2 of this EA. Approximately 37 additional acres of land occupied by the GSA would be impacted. Land use would remain consistent with permitted uses of the site under existing zoning.

4.3.1.5 Cumulative Impact

The demolition of BFC buildings could result in about 104 acres of newly cleared land (that is, 67 acres associated with NNSA facilities and 37 acres[8] associated with GSA facilities and parking areas). The newly cleared land would be remediated and new facilities could be constructed consistent with permitted uses of the site under existing zoning. The new NNSA National Security Campus has resulted in the rezoning of approximately 185 acres from agricultural to industrial. The new GSA leased spaces would utilize existing unused office space in the Kansas City, Missouri metropolitan area.

4.3.2 AIR QUALITY

4.3.2.1 Proposed Action to Transfer KCP

Upon vacating the current KCP site, NNSA or the new owner could demolish existing facilities, remediate the site, and construct new facilities. Temporary emissions such as dust (which would be controlled through best management practices) and vehicle emissions would be expected during demolition, remediation, and construction activities. NNSA does not expect any NAAQS to be exceeded.

4.3.2.2 New KCP National Security Campus

The KCP National Security Campus on Botts Road would emit an estimated 12.8 tons of air pollutants annually, consisting of about 10.4 tons of nitrogen oxides, sulfur oxides, and carbon monoxide from the boilers and process heaters; 2 tons of volatile organic compounds from electronic component solvent spray-cleaning operations; and 0.4 ton of volatile organic compounds from painting operations. This is about 28 percent less than current KCP annual air emissions (GSA and NNSA 2008).

4.3.2.3 New GSA Leased Spaces

The GSA leased spaces would accommodate GSA, the National Oceanic and Atmospheric Administration, and the U.S. Department of Agriculture. Leasing office spaces would not affect regional

8. In addition to the 37 acres associated with facility demolition, additional GSA parking areas on the BFC could be demolished, affecting up to 30 additional acres.

air quality. Day-to-day operations would have minimal, long-term air quality impacts over the life of the project in comparison with the current conditions in the Kansas City, Missouri metropolitan area.

4.3.2.4 Transfer of GSA Property at the BFC

Existing GSA facilities at the BFC could be demolished, remediation would occur, and new facilities could be constructed, producing impacts similar to those for NNSA discussed in Section 3.3.2 of this EA. Temporary emissions would occur; however, NNSA does not expect any NAAQS to be exceeded.

4.3.2.5 Cumulative Impact

Cumulative emissions related to demolition, remediation, and/or construction activities at the BFC would not exceed current emissions levels. Any new owner of the KCP and BFC would be required to meet all applicable air regulations. The new KCP campus and GSA leased spaces would not involve demolition, remediation, or construction, as these facilities currently exist. New facility operations at the BFC that have minor air contaminant sources are required to obtain air quality construction and operating permits (non-Title V) from MDNR. The terms and conditions of the permits would include emission limits and outline specific monitoring, operating conditions, and recordkeeping requirements for the source. Greenhouse gas emissions from mobile and stationary sources would not be expected to exceed current emissions from operations at the BFC (approximately 112,000 tons annually).

4.3.3 GEOLOGY AND SOILS

4.3.3.1 Proposed Action to Transfer KCP

Demolition of buildings would require the use of heavy machinery (for example bulldozers, excavators, and backhoes); such activities would disturb soil in and around building footprints, which total about 67 acres. However, surface soil at the KCP consists primarily of fill and reworked material; native soils are rare or nonexistent. Therefore, there would be little or no impacts to native soils. With the use of best management practices for soil erosion control, NNSA does not expect adverse impacts. Remediation would excavate contaminated soils until it reached clean soils. Clean fill would produce a beneficial effect.

4.3.3.2 New KCP National Security Campus

The KCP National Security Campus was constructed on about 45 acres of a 185-acre plot of land previously used for agricultural purposes. During construction, soils and topography were altered and disturbed by general construction activity, grading, and placement of fill material. The potential impacts were small and temporary. NNSA complied with local building codes and implement best management practices regarding the control soil erosion and sedimentation. Some of the soils (Sharpsburg silt loam) within the complex and surrounding areas were considered prime farmland. Because the land is already committed to urban development under the *Kansas City Master Plan*, the land is excluded from the *Farmland Protection Policy Act* (7 U.S.C. § 4201). The removal of approximately 185 acres of farmland and its conversion to industrial uses is not expected to significantly impact the region's agricultural economy (GSA and NNSA 2008).

4.3.3.3 New GSA Leased Spaces

GSA would lease existing, unused space in the Kansas City, Missouri metropolitan area. Since the office space already exists, there would be no impacts to geology and soils.

4.3.3.4 Transfer of GSA Property at the BFC

Existing GSA facilities at the BFC could be demolished, remediation would occur, and new facilities could be constructed, producing impacts similar to those for NNSA discussed in Section 3.4.2 of this EA.

4.3.3.5 Cumulative Impact

The demolition of property at the BFC would result in about 104 acres of newly cleared land (that is, 67 acres associated with NNSA facilities and 37 acres associated with GSA facilities). The newly cleared land would be remediated and clean fill would produce a beneficial effect. Construction and operation of the National Security Campus had and has (respectively) little to no impact on geology and soils.

4.3.4 WATER RESOURCES

4.3.4.1 Proposed Action to Transfer KCP

Actions to maintain permit requirements would continue into the future. The new owner or NNSA would continue operating the pump-and-treat system, including any required system modifications, to keep contaminated groundwater out of streams. There would continue to be no use of groundwater. There could be minor changes to surface-water flows as a result of changes in stormwater runoff. No impacts to floodplains are likely, and the flood control system is expected to remain in place. If the flood control system is operated as designed, there would be no change in impacts to floodplains. There are no jurisdictional wetlands on NNSA-owned property. Water use during new site operations is expected to be within the range of what has been experienced historically at the KCP, and which has been adequately supported by the existing infrastructural and water resources of the region.

4.3.4.2 New KCP National Security Campus

Operations at the KCP National Security Campus would not impact groundwater. The Botts Road construction would permanently affect 0.099 acre of intermittent tributaries, 0.097 acre of ephemeral tributaries, and 1.24 acres of wetlands. The U.S. Army Corps of Engineers issued a permit under Section 404 of the *Clean Water Act*, and mitigation actions have been defined. Based on the small size of the wetlands (less than 1.5 acres combined) and the requirements imposed by the Section 404 permitting process, impacts to wetlands would not be significant. Water use would be less than current use at the BFC (GSA and NNSA 2008).

4.3.4.3 New GSA Leased Spaces

There would no impacts to water resources or natural water bodies from GSA's lease of existing office space in the Kansas City, Missouri metropolitan area.

4.3.4.4 Transfer of GSA Property at the BFC

Existing GSA facilities at the BFC could be demolished, remediation would occur, and new facilities could be constructed, producing impacts similar to those for NNSA discussed in Section 3.5.2 of this EA, with the exception of wetlands. The jurisdictional wetlands currently identified on the BFC are on the GSA portions of the site, in peripheral areas, and are associated with stormwater or snowmelt drainage patterns.

GSA completed a wetland delineation report (Burns & McDonnell 2011) for most of its portion of the BFC; the report considered about 175 acres of the 300-acre site. As with the corresponding project for the

NNSA portion, this effort reviewed maps and related data for the site and included a field survey that recorded and evaluated vegetation, soil conditions, and hydrologic indicators for sample plots that potentially included wetlands characteristics. The report concluded that the evaluated property includes eight wetlands, one ephemeral stream, and two intermittent streams (Burns & McDonnell 2011). The report classifies each of the eight wetlands areas, totaling 2.95 acres, as palustrine emergent, which is a designation for generally inland wetlands, without flowing water but with emergent wetland vegetation dominated by rooted herbaceous (not woody) plants. Six of the wetlands are associated with drainage ditches or channels that convey water offsite. The other two wetlands, with a combined area of 0.08 acre, are isolated low spots in mowed grassy fields. The three streams, with a total length of about 1,800 feet, convey runoff from the BFC. The conclusion of the report is that the six wetlands associated with drainage ditches or channels and the three streams all qualify as jurisdictional; that is, they meet the definition of a Water of the United States or are associated with a Water of the United States and, as a result, are regulated by the U.S. Army Corps of Engineers. GSA submitted the wetland delineation report for its portion of the BFC to the Kansas City District of the U.S. Army Corps of Engineers with a request for a jurisdictional determination (or a concurrence with the report's conclusion) for the survey area. The Corps provided a formal response in February 2011, which provided concurrence with portions of the report but differing positions on others (USACE 2011). According to the response, all three streams are nonjurisdictional, but all eight of the wetlands are jurisdictional. There is an area near the southeastern portion of the site that was not included in GSA's wetland delineation effort and still needs to be assessed. Runoff from both NNSA and GSA areas go through this southeastern area.

Because of the distance from these wetlands, activities associated with demolition, remediation, and construction in areas of existing facilities should not affect identified wetlands. If construction actions had the potential to affect these wetlands, for example by making changes to GSA property that alter the overall BFC drainage patterns, the future property owner(s) would be subject to MDNR stormwater discharge permitting requirements and the associated controls to protect down-gradient areas. A permit, if needed, would be expected to require mitigation if there was any potential for adverse impacts to wetlands. If actions could affect the southeastern portion of the BFC, that area would have to be assessed for the presence of wetlands.

4.3.4.5 Cumulative Impact

Actions to maintain permit requirements at the BFC would continue into the future. The pump-and-treat system would continue to keep contaminated groundwater out of streams. There would be no use of groundwater. Groundwater quality could increase as a result of soil remediation activities and the ongoing operation of the groundwater pump-and-treat system. There could also be minor changes to surface-water flows as a result of changes in stormwater runoff. No impacts to floodplains are likely, and the flood control system is expected to remain in place. With respect to wetlands, activities associated with demolition, remediation, and construction in areas of existing facilities should not affect identified wetlands. If construction actions had the potential to affect these wetlands, for example by making changes to property that alter the overall BFC drainage patterns, the future property owner(s) would be subject to MDNR stormwater discharge permitting requirements and the associated controls to protect down-gradient areas. A permit, if needed, would be expected to require mitigation if there was any potential for adverse impacts to wetlands. If actions could affect the southeastern portion of the BFC, that area would have to be assessed for the presence of wetlands. Water use during new site operations at BFC would be expected to be within the range of what had been experienced historically at the BFC, and which has been adequately supported by the existing infrastructural and water resources of the region.

4.3.5 CULTURAL RESOURCES

4.3.5.1 Proposed Action to Transfer KCP

Because the KCP has experienced long-term and extensive disturbance from the siting and decommissioning of facilities dating back to the early 1940s, the existence of intact archaeological sites and artifacts is highly unlikely. The KCP is considered historically significant in terms of architecture, engineering, and industry, and for its role in World War II and the Cold War. The Missouri SHPO determined that the site is eligible for listing in the *National Register of Historic Places* and that the proposed transfer of property could have an adverse effect on the historic fabric of the site. The NNSA is in the process of preparing historic preservation documentation for the KCP under the Historic American Engineering Record program. Once the documentation is complete and approved for compliance with historic preservation requirements, the new owner(s) would no longer be subject to Federal historic preservation requirements and could modify the property as desired.

4.3.5.2 New KCP National Security Campus

A cultural resources assessment performed by SCI Engineering concluded that no previously recorded archaeological or historic sites are known to exist on the site of the new KCP National Security Campus (SCI Engineering 2007). The Missouri SHPO reviewed the assessment and determined that a Phase One Archaeological Survey was not required and historic properties would not be affected at the new site. In the event that items of archaeological significance were found during site excavation, excavation in the vicinity of the find would stop and the developer would notify GSA, as the contracting entity, immediately so that the government could coordinate with the appropriate State organization. No adverse effects to historic or cultural resources would be expected at the new National Security Campus (GSA and NNSA 2008).

4.3.5.3 New GSA Leased Spaces

There would no impacts to cultural resources from GSA's lease of existing office space in the Kansas City, Missouri metropolitan area.

4.3.5.4 Transfer of GSA Property at the BFC

Existing GSA facilities at the BFC could be demolished, remediation would occur, and new facilities could be constructed, producing impacts similar to those for NNSA discussed in Section 3.7.2 of this EA.

4.3.5.5 Cumulative Impact

The Missouri SHPO determined that the KCP is eligible for listing in the *National Register of Historic Places* and determined that the proposed transfer of property could have an adverse effect on the historic fabric of the site. NNSA is in the process of preparing historic preservation documentation for the KCP buildings that are within the historic district under the Historic American Engineering Record program. Because it is likely that some of the GSA-occupied facilities at the remainder of the BFC are *National Register*-eligible properties, additional documentation of GSA resources not included in the NNSA recordation documentation may be required. Once the documentation is complete and approved for compliance with historic preservation requirements, a new owner(s) would no longer be subject to Federal historic preservation requirements and could modify the property as desired.

4.3.6 INFRASTRUCTURE

4.3.6.1 Proposed Action to Transfer KCP

NNSA believes future use of the KCP property could involve electricity, natural gas, and water needs that are similar to current usage (Table 3-9). Future use of the KCP property could involve passenger vehicle and truck activity similar to current levels, as shown in Table 3-12.

4.3.6.2 New KCP National Security Campus

NNSA does not anticipate operations at the KCP National Security Campus to cause adverse impacts to infrastructure or traffic. Current and ongoing commercial development near the Campus will probably result in an increase in daily traffic on Missouri Highway 150 and adjacent roadways. Preliminary traffic studies estimate a total daily increase of 5,900 vehicle trips. At present, Highway 150 has a daily load of about 28,230 vehicle trips. The Missouri Department of Transportation and Kansas City are working on road improvement projects near the Campus to mitigate the increased traffic load from development in the area (GSA and NNSA 2008). Traffic increases associated with the transfer would be less than 2 percent in comparison with existing traffic.

4.3.6.3 New GSA Leased Spaces

The new GSA leased spaces in the Kansas City, Missouri metropolitan area would not be expected to cause long-term adverse impacts to public services and utilities. Traffic and transportation impacts would include an increase in weekday vehicle traffic equivalent to the number of employees driving to and from work on the streets around the new leased spaces.

4.3.6.4 Transfer of GSA Property at the BFC

Future use of the BFC property could involve electricity, natural gas, and water needs that are similar to current usage (Table 3-9). Potential new facilities would be expected to involve smaller to similar utility requirements compared with existing facilities operated by GSA. Current utility needs of the site are a minor component of the capacity of available services and future use at those levels would not result in adverse impacts. At the height of operations in the 1980s, the BFC had a notably larger workforce and required larger amounts of electricity, natural gas, and water to operate than at present. The utility infrastructure of the area was adequate to support those larger demands and, if necessary, would be able to support larger than current demands from the BFC site.

With respect to transportation, future use of the BFC property could involve passenger vehicle and truck activity similar to current levels for GSA. Overall, the BFC was designed to accommodate a large workforce in a relatively small, densely configured parcel of property. All of the daily trip numbers might be characterized as being notable portions of the traffic along Bannister Road. Accordingly, vehicles going in and out of the BFC would continue to effect traffic along Bannister Road and Troost Avenue, but BFC traffic has been affecting these roads for decades and, at times, in larger trip numbers than currently being experienced. It is unlikely that future use of the BFC would significantly increase or worsen those effects. The trip numbers in the table become a much smaller portion when they are spread out over the nearby freeways and expressways that have daily traffic counts in the 70,000 to 100,000-plus range. Future use of the BFC would not be expected to adversely impact traffic flow on nearby freeways and expressways.

4.3.6.5 Cumulative Impact

There would be minimal cumulative impacts on area roads from operations at the BFC site and the KCP National Security Campus. However, cumulative traffic impacts would be well within the capacity of the existing traffic network. Cumulative utility needs would be well within the capacity of available services.

4.3.7 SOCIOECONOMICS

4.3.7.1 Proposed Action to Transfer KCP

At present, there are about 2,700 workers at the KCP. Because the existing workforce would remain in the region, there would be no major change to the labor force, employment, or population. NNSA is not expecting any need for in-migrating workers. There would be no impacts to public services or housing availability. The number of workers associated with demolition, remediation, and construction of new facilities would be relatively small compared with the current KCP workforce. The number of employees that would occupy any new business at the KCP site would not be expected to exceed the current KCP workforce, but could represent an increase in jobs within the Kansas City region.

4.3.7.2 New KCP National Security Campus

For operations at the KCP National Security Campus, NNSA once anticipated a workforce reduction of about 445 employees from the 2007 baseline of 2,950 employees due to implementation of business process improvements, transfer of responsibility for facility infrastructure maintenance to the building owner, and facility footprint reduction. Some attrition has already been experienced, resulting in a 2012 count of about 2,700 employees. While skills mix issues could occur, resulting in attrition without replacement or targeted layoffs in certain classifications, NNSA now anticipates that workload increases for both the weapons mission and the work for other businesses would result in no overall change from today's count of 2,700 employees. Thus, there would be no major change to employment and population in the region.

4.3.7.3 New GSA Leased Spaces

Relocating the GSA and other Federal tenants to new GSA leased space in the Kansas City, Missouri metropolitan area would not impact socioeconomics.

4.3.7.4 Transfer of GSA Property at the BFC

The number of workers associated with demolition, remediation, and construction of new facilities would be relatively small compared with the current GSA workforce. The number of employees that would occupy any new business at the BFC would not be expected to exceed the current GSA workforce, but could represent an increase in jobs within the Kansas City region.

4.3.7.5 Cumulative Impact

Existing long-term employment in the Kansas City region is not expected to vary much from existing levels. Short-term, small, positive economic benefits would be realized through demolition, remediation, and construction of the facilities, and direct and indirect benefits from operations at the various facilities. The cumulative changes in employment would represent less than a 1-percent increase in the regional labor force and population. In addition, the location of the National Security Campus would not increase or decrease cumulative impacts from employees commuting to work, and the location is unlikely to cause employees to move to other residences (GSA and NNSA 2008).

4.3.8 WASTE MANAGEMENT

4.3.8.1 Proposed Action to Transfer KCP

NNSA anticipates some waste and debris from demolition, remediation, and any new construction. Hazardous waste generation associated with demolition is expected to be about 50,000 tons and nonhazardous waste would be about 1.05 million tons. Remediation activities would consist primarily of removing contaminated soils (above EPA Regional Screening Levels for residential soil). Remediation would generate an estimated 260,000 tons of hazardous wastes, 13,000 tons of waste with petroleum hydrocarbon contamination, and 11,000 tons of nonhazardous wastes. Minimal hazardous waste would be generated during construction of new facilities. NNSA estimates construction activities could result in about 4,000 tons of nonhazardous waste (mainly steel and concrete), which would be disposed of at a local, permitted sanitary landfill. Operation of the new facility would be expected to generate, at least initially, similar types of waste in lesser quantities.

4.3.8.2 New KCP National Security Campus

Generation of hazardous waste at the new KCP National Security Campus would be about 30 percent less than under current operations at the KCP due largely to process improvements and outsourcing. Nonhazardous waste would experience a similar reduction. NNSA would transport all waste materials offsite for disposal in accordance with Federal, State, and local requirements (GSA and NNSA 2008).

4.3.8.3 New GSA Leased Spaces

Waste typical of an office environment (including recyclables) would be generated. GSA wastes would be collected and transported offsite for disposal in accordance with Federal, State, and local requirements.

4.3.8.4 Transfer of GSA Property at the BFC

Existing GSA facilities at the BFC could be demolished, remediation would occur, and new facilities constructed, producing impacts similar to those for NNSA discussed in Section 3.11.2 of this EA. Although both hazardous and nonhazardous waste would be generated, the quantities would be less than those presented for NNSA in Section 3.11.2.

4.3.8.5 Cumulative Impact

Cumulative waste quantities would be well within the capacities of existing waste management facilities. The greatest quantities of hazardous waste would result from remediation activities at the BFC, in which approximately 434,000 tons of hazardous wastes would be generated. Over an assumed 5-year remediation period, approximately 86,840 tons of waste would be generated annually. Compared with the more than 2 million tons of waste that was managed in hazardous waste landfills or surface impoundments across the United States in 2009 (EPA 2010a), the increase would be approximately 4 percent.

4.3.9 ENVIRONMENTAL JUSTICE

4.3.9.1 Proposed Action to Transfer KCP

Potential occupational impacts to workers would be comparable to historical trends at the KCP or smaller. Potential impacts to the public would be expected to be minimal, assuming activities would be conducted in compliance with applicable permit restrictions. There would be no significant impacts on human health

and no disproportionate high and adverse environmental or health impacts on minority or low-income populations.

4.3.9.2 New KCP National Security Campus

The initiation of operations at the new KCP National Security Campus would produce no disproportionately high and adverse environmental or health impacts on minority or low-income populations (GSA and NNSA 2008).

4.3.9.3 New GSA Leased Spaces

GSA activities do not result in any significant impacts to human health. Consequently, the lease of new office spaces in the Kansas City, Missouri metropolitan area would not result in any disproportionately high and adverse environmental or health impacts.

4.3.9.4 Transfer of GSA Property at the BFC

Impacts would be similar to those discussed for NNSA (Section 3.12.2).

4.3.9.5 Cumulative Impact

None of the actions considered in this analysis would result in disproportionately high and adverse environmental or health impacts on minority or low-income populations.

5. REGULATORY REQUIREMENTS

This chapter discusses the Federal, State of Missouri, and local regulatory framework that applies to Kansas City Plant (KCP) facilities and operations. Section 5.1 discusses the roles of the regulatory agencies. Section 5.2 discusses Federal, State, and local environmental, safety, and health statutes and regulations and the agencies with authority to regulate KCP facilities and operations pursuant to those statutes. Section 5.3 discusses transfer requirements NNSA must consider before transferring the KCP property. Section 5.4 discusses environmental permits applicable to current operations at the KCP and the applicability of permits to future operations once NNSA leaves the KCP and the KCP is transferred to a new owner. Section 5.5 discusses consultations applicable to this EA.

5.1 Regulatory Agencies

Federal and State laws and local ordinances are the bases for the environmental, safety, and health requirements for KCP facilities and operations. In addition to DOE, the EPA, U.S. Department of Transportation, and the U.S. Department of Labor are responsible for implementing Federal environmental, safety, and health statutes. The implementation direction can be statutory or by Executive Order. The EPA has delegated permitting and enforcement for the *Clean Air Act*, *Clean Water Act*, and RCRA to MDNR; however, EPA retains oversight of such State programs.

The *Clean Air Act*, *Clean Water Act*, and RCRA have the greatest effect on the KCP, which maintains related permits. Other regulations that affect the KCP are those adopted under the *Federal Insecticide, Fungicide and Rodenticide Act* (7 U.S.C. §§ 136 *et seq*.), which regulates use of pesticides, and the *Toxic Substances Control Act of 1976*, which regulates the management of contamination from release to the environment of PCBs. In addition, Section 120(h) of CERCLA imposes requirements on all transfers of Federal property to non-Federal entities to ensure continued protection of human health and the environment after the transfer.

State agencies operate under their own statutory authorities to establish and enforce environmental, health, and safety laws. MDNR administers environmental regulatory programs that affect KCP facilities and operations and is responsible for the protection and improvement of Missouri land, air, water, and recreation resources. Most State environmental regulations are in Title 10 of the *Missouri Code of State Regulations*. In addition, the City of Kansas City administers the Industrial Wastewater Pretreatment permitting program.

5.2 Federal, State, and Local Environmental Statutes and Regulations

Table 5-1 lists major Federal statutes, regulations, and Executive Orders that deal with control, remediation, and regulation of the environment and worker safety. Table 5-2 lists major State and local statutes, regulations, and orders that deal with these issues. NNSA and GSA are committed to comply fully with applicable local, State, and Federal environmental statutes, regulatory requirements, and Executive Orders.

Table 5-1. Major Federal Environmental Laws

Environmental Regulation	Requirements
Clean Air Act	Enacted in 1970, the *Clean Air Act* provides air quality standards for criteria pollutants, control technology standards for hazardous air pollutants and new sources, a construction permit program, regulations on ozone-depleting substances, Section 112(r) emergency release regulations, and operating permit requirements. Missouri has an EPA-approved program administered by MDNR.
Clean Water Act	The 1972 amendments establish the National Pollutant Discharge Elimination System to control pollutants discharged to Waters of the United States from a point source. EPA establishes technology-based effluent limitations and requires permits for discharges. Missouri has an approved program administered by MDNR. The Act contains requirements for oil spill control and prevention. The City of Kansas City administers the Industrial Wastewater Pretreatment permitting program.
Comprehensive Environmental Response, Compensation and Liability Act	Enacted in 1980, CERCLA establishes a liability, compensation, and cleanup program for past hazardous waste activities and imposes requirements on all transfers of Federal property owned by the United States to non-Federal entities. KCP would comply with the transfer requirements listed in CERCLA 120(h).
Superfund Amendments and Reauthorization Act	Enacted in 1986, this Act increased State involvement in the CERCLA program and increased program focus on human health problems posed by hazardous waste sites. The 1986 Act created the Emergency Planning and Community Right-to-Know program and requires reporting of hazardous chemical usage and release.
Toxic Substances and Control Act	Enacted in 1976, this Act establishes procedures for reporting the use and manufacture of specific new and existing chemicals. It establishes certain prohibitions and regulates the manufacture, processing, distribution, use, disposal, storage, and marking and labeling of PCBs and items that contain PCBs.
Federal Insecticide, Fungicide and Rodenticide Act	Enacted in 1947, this Act creates a State-administered program to regulate pesticide and herbicide application.
Resource Conservation and Recovery Act	Enacted in 1976, RCRA regulates the generation, storage, handling, treatment, and disposal of hazardous wastes. Of particular interest at the KCP are the requirements for cleanup of environmental contamination from solid waste management units and the associated groundwater monitoring requirements.
Community Environmental Response Facilitation Act of 1992	This Act amends CERCLA to establish a process for the identification, before termination, of Federal activities on property that does not contain contamination. It requires prompt identification of parcels that will not require remediation to facilitate the transfer of such property for economic redevelopment.
Federal Facilities Compliance Act (Public Law 102-386)	This Act waives sovereign immunity for Federal facilities under RCRA, including the KCP, and requires development of plans and agreements with States for the management of specific waste streams.
Pollution Prevention Act of 1990	This Act establishes the Federal Government's preference for source reduction followed by recycling rather than treatment or disposal of waste or pollutants.
Noise Control Act of 1972	This Act requires facilities to maintain noise levels that do not jeopardize public health and safety.
National Environmental Policy Act of 1969	Enacted in 1970, NEPA establishes a national policy that requires consideration of environmental impacts in Federal decisionmaking. A Federal agency considering an action that could impact the human environment must prepare an environmental assessment. If such assessment determines that impacts could be significant, the agency must prepare a more detailed analysis in the form of an environmental impact statement.

Table 5-1. Major Federal Environmental Laws (continued)

Environmental Regulation	Requirements
Endangered Species Act of 1973	The *Endangered Species Act of 1973* prohibits Federal actions that might harm a Federally listed endangered species or designated critical habitat, unless a special exemption is granted. Consultation with the U.S. Fish and Wildlife Service of the U.S. Department of the Interior is necessary if a proposed action is likely to affect a listed species or critical habitat (50 CFR Part 17). Preparation of a biological assessment of potential effects on listed species is also necessary for Federal actions that are "major construction activities."
National Historic Preservation Act of 1966	The NHPA requires consultation with State Historic Preservation Offices and other interested parties to ensure protection of archaeological or historical properties of significance.
Occupational Safety and Health Act of 1970	DOE, through 10 CFR Part 851, exercises its jurisdiction over worker safety and health programs at KCP by substantially adopting *Occupational Safety and Health Act of 1970* establishes standards to enhance safe, healthy working conditions in places of employment throughout the United States. While DOE and EPA each have a mandate to reduce exposure to toxic substances, the Administration's jurisdiction is limited to safety and health conditions in the workplace environment. In general, under the Act, each employer must furnish all employees a place of employment that is free of recognized hazards that are likely to cause death or serious physical harm. Employees have a duty to comply with the occupational safety and health standards and all related rules, regulations, and orders.

Table 5-2. Major State and Local Environmental Laws, Regulations, and other Potentially Applicable Requirements

Environmental Law and Regulation	Requirements
Missouri Revised Statutes, Chapter 653, Air Conservation – Title 10 Code of State Regulations (CSR) Division 10, Chapters 1–6	Establishes the State program implementing the *Clean Air Act*. Requires permits to construct, modify, or operate an air contaminant source, and adopts the primary National Emission Standards for Hazardous Air Pollutants for State enforcement.
Missouri Revised Statutes, Chapters 640 and 644, Clean Water Law – Title 10 CSR Division 20, Chapters 1–15	Establishes the State Program implementing the *Clean Water Act*. Requires permits for discharges to State waters, establishes water quality standards, and regulates storage tanks.
Missouri Revised Statutes, Chapter 260 Environmental Control, Chapter 260.353-430 Missouri Hazardous Waste Management Law, Chapter 260.200-260.345 Missouri Solid Waste Management Law – Title 10 CSR Division 25, Chapters 1–19; 10 CSR Division 24 Chapters 1–5 and 10 CSR Division 10 CSR Division 100 Chapters 1–5	Establishes for Missouri a program that incorporates the requirements of CERCLA, RCRA, *Federal Facilities Compliance Act,* and *Toxic Substances and Control Act*. Regulates aspects of storage tanks. Requires permits for hazardous waste storage and disposal facilities and remediation of contaminated sites.
Missouri Revised Statutes, Chapter 640, Department of Natural Resources, 10 CSR Division 60, Chapters 1-16	Establishes a State program that incorporates the requirements of the *Safe Drinking Water Act.*
Missouri Revised Statutes, Sections 260.1000 to 260.1039 (*Missouri Uniform Environmental Covenants Act*)	Creates a standard for the development and application of environmental covenants that increases their reliability when used as part of the cleanup of contaminated sites.
Missouri Revised Statutes, Sections 253.408 to 253.412 (*State Historic Preservation Act*)	Authorizes MDNR to administer the *National Historic Preservation Act of 1966*.
Code of Ordinances of Kansas City, Missouri; Chapter 88	Contains regulations for land development and use.
Code of Ordinances of Kansas City, Missouri; Section 60-130 to 60-147	Outlines requirements for industrial/sanitary wastewater permit.

5.3 NNSA Transfer Requirements

5.3.1 COMPLIANCE WITH CERCLA

Section 120(h) of CERCLA imposes requirements on all transfers of Federal property to non-Federal entities to ensure continued protection of human health and the environment after the transfer. Section 120(h) allows a Federal agency to transfer property before or after the completion of remedial activity. If NNSA takes all remedial action necessary to protect human health and the environment before the date of the transfer, this would be considered a "Timely Transfer" and the deed would include a covenant that the agency had taken all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property before the date of the transfer.

Section 120(h) also established an "Early Transfer" authority, which allows a Federal agency to transfer property to a non-Federal entity before the completion of remediation. An Early Transfer allows an agency to defer the deed covenant and transfer the property before remediation is complete as long as safeguards are in place to protect human health and the environment. Early Transfer authority requires a 30-day period for the public to review and comment on the suitability of a property for Early Transfer. The State of Missouri further requires that the Governor of Missouri concur that the property is suitable for Early Transfer. In addition, Early Transfer authority allows NNSA to shift remediation responsibility to the new owner, although it cannot transfer its legal liability for the remediation. In either Timely or Early Transfer, at transfer, NNSA must include a deed covenant that the United States will return and perform any additional response action that might be necessary in the future, and will retain a perpetual right of access to perform such actions.

5.3.2 POTENTIAL ROLES AND RESPONSIBILITIES OF THE NNSA RELATED TO KCP REMEDIATION AND KCP TRANSFER

In support of the transfer of the KCP, NNSA's roles and responsibilities related to remediation could vary significantly depending on the specific contractual agreements between the Federal Government and the new owner, as well as any requirements that derive from the modified RCRA permit process. NNSA could:

- Delay transfer until it has performed all required remediation and include a covenant in the deed that states "all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of such transfer" (Timely Transfer).

- Transfer the KCP before all required remediation was complete as long as safeguards were in place to protect human health and the environment (Early Transfer). In this case, the public would have 30 days to review and comment on the suitability of the property for Early Transfer, and the Governor of Missouri would have to concur that the property was suitable for such transfer. NNSA could shift remediation responsibility to the new owner, although it cannot transfer its legal liability for the remediation. NNSA transfer requirements are discussed in Chapter 1 of this EA. As an alternative, NNSA could retain remediation responsibility after the transfer.

- As required by CERCLA Section 120(h), include a deed covenant that the United States would return and perform any additional response action that might be necessary in the future, and retain a perpetual right of access to perform such actions.

- Include encumbrances in any transfer agreement or deed(s) to limit future land use and activities as determined necessary to achieve the goals of NEPA to consider the environmental impact of a proposed Federal action.

In relation to transferring the KCP, NNSA has legal authority to impose restrictions in a transfer agreement as well as in a deed. If NNSA pursued an Early Transfer, NNSA would have a statutory obligation to impose, in one or both of those instruments, restrictions on the property necessary to protect human health and the environment. NNSA has not determined what restrictions beyond those required to accompany a modified MHWMF Part I Permit, if any, would be necessary. Further, NNSA has not determined if it intends to impose restrictions beyond those necessary to make the transfer. Such a decision would have to be made with information learned from environmental characterizations before a transfer and, in the case of an Early Transfer, discussions between the groups that must approve the transfer. After the transfer, NNSA would no longer have the opportunity to impose restrictions through a deed or amendments to a transfer agreement. Major Federal, State, and local regulations and ordinances outlined in Tables 5-1 and 5-2 will remain in effect. NNSA would impose specific restrictions or other terms and conditions as part of a transfer agreement in coordination with State and local authorities.

5.3.3 TRANSFER AUTHORITY

Disposition of property at the KCP could occur in accordance with either of the following authorities:

- By GSA in accordance with the provisions of the *Federal Property and Administrative Services Act of 1949* (40 U.S.C. § 471) and under procedures at 41 CFR 102-75;

- By NNSA in accordance with the *Atomic Energy Act of 1954* [42 U.S.C. §§ 161(g), 646(c) to 646(f) (the Hall Amendment), and 7274q], which empowers DOE to promulgate regulations that enable the transfer of property at Defense Nuclear Facilities to permit economic development of the property; regulations for transfer of Defense Nuclear Facilities for economic development are at 10 CFR Part 770; or

- Other legislative authority to be identified later. Potential environmental impacts of transfer would be independent of the transfer authority utilized.

5.3.4 TIMING OF TRANSFER, MAINTENANCE BEFORE TRANSFER, AND TRANSFER OF THE KCP IN PARCELS

The date by which NNSA would transfer the KCP is unknown. NNSA could find it necessary to maintain the KCP for an undetermined period between the end of operations and transfer. From the time of operational closure until transfer of the property, NNSA would preserve and protect facilities and equipment needed for reuse in an economical manner to protect the environment and public safety and health. NNSA would not necessarily keep the facilities in a state of repair to permit rapid reuse; maintenance would consist of activities that ensured safety and security, protection of the environment, and avoidance of deterioration.

NNSA does not know if the property transfer would be as a single unit or in parcels. NNSA would prefer to transfer its property as a single unit and based the EA analysis on that assumption. In relation to potential environmental impacts of the proposed action, NNSA has assumed the result would be the same whether transfer was as a single entity or in parcels.

5.4 Environmental Permits

The KCP has many permits, including those related to air, water, and solid and hazardous wastes. Implementation of the proposed action would require modification of or amendment to some permits to reflect the changes in facility operations and ownership. In addition, for demolition activities and the construction and operation of new facilities, the site would need new or modified permits.

5.4.1 CLEAN AIR PERMITS

The *Clean Air Act* provides ambient air quality standards for criteria pollutants and control technology standards for hazardous air pollutants and new sources. In addition, it includes construction permitting rules, stratospheric ozone protection regulations, and emergency release rules under Section 112(r) of the *Clean Air Act* and Title V operating permit requirements. The MDNR administers the EPA-authorized program.

The KCP is in Metropolitan Kansas City Interstate Air Quality Control Region 94, which is in attainment for all criteria pollutants. The KCP is a major source, as defined by the National Emission Standards for Hazardous Air Pollutants. In 2007, regulatory authorities delayed the issuance of the operating permit due to the impending move of KCP to another location in the Kansas City area. KCP operates in compliance with the operating permit application, draft Title V permit, and various source-specific air construction permits.

After the move of KCP operations to the new facility and the decommissioning phase of the transfer project, NNSA would remove all regulated industrial emissions sources associated with production with the exception of the high-pressure steam boilers at the West Boilerhouse. In the absence of regulated production processes, the regulatory status of the KCP should reduce from a major source to a basic source of air emissions, and the permitting status would change accordingly.

After the decommissioning phase, the site transferees would notify the permitting authorities of the change in facility status. NNSA anticipates that the boilers would operate in compliance with the provisions of the air construction permit the State issued when the boilers were installed as long as the boilers continue to be operated. Existing permits would transfer to the new owner. The permits would require modification or the transferees would need new permits to authorize new activities that required permitting under the *Clean Air Act* programs administered by the State.

5.4.2 CLEAN WATER PERMITS

The *Clean Water Act* establishes the National Pollutant Discharge Elimination System to control pollutant discharges to Waters of the United States. MDNR administers an EPA-authorized program and has established performance standards, effluent limitations, and water quality standards, which are implemented in permits for direct discharge into surface waters. MDNR issues the direct discharge permit, which contains discharge limitations and monitoring and reporting requirements. In addition, indirect discharges (such as one to a municipal wastewater treatment plant) are subject to regulation and require permits. Indirect discharges from the KCP go to the Kansas City treatment works under a permit enforced by the City Water and Pollution Control Department.

MDNR regulates stormwater discharges under a Missouri State Operating Permit. Historically, the discharge of PCBs through a KCP outfall has been a compliance issue. The current discharge limitation is 0.05 microgram per liter, with required weekly monitoring. The transferees would need to modify the permits or could require new permits to authorize activities that would require permitting under *Clean Water Act*-related activities that State or local authorities administered.

5.4.3 MHWMF PART I PERMIT

RCRA, which has been the regulatory driver for environmental cleanup at the KCP, provides a regulatory scheme to control solid waste disposal and the storage, treatment, and disposal of hazardous wastes. See Section 1.2.3 for a discussion of the MHWMF Part I Permit.

5.5 Consultations

NEPA and CEQ regulations require Federal agencies to consult with other Federal agencies, Federally recognized tribal governments, and State and local agencies with jurisdiction or special expertise on any environmental impact of Federal actions. Agencies include those with authority to issue applicable permits, licenses, and other regulatory approvals, as well as those responsible for protecting significant resources (such as endangered species, critical habitats, or historic resources).

If a proposed action could disturb sensitive species or habitats, ecological resource consultations with the appropriate agencies would be necessary. If a proposed action could disturb or disrupt a cultural resource or archaeological site, cultural resource consultations would be necessary.

If, during the implementation of a proposed action, there is a discovery with potential impacts on ecological, cultural, or American Indian artifacts or materials or human remains, all activity would stop until after consultation with affected agencies, organizations, and governments. Actions cannot resume until there is a plan to mitigate potential adverse impacts and consultations have ended.

NNSA has initiated consultations with applicable organizations on ecological resources (Table 5-3). The consultations solicit input from the agencies and organizations about the potential for ecological and cultural impacts on threatened, endangered, or otherwise protected species or habitats that the proposed action could affect directly or indirectly.

Table 5-3. Consultations

Subject	Contact
Ecological resources	Charlie Scott, Field Supervisor U.S. Fish and Wildlife Service, Columbia Ecological Services Office
Ecological resources	Andrea Collier, Director Missouri Department of Natural Resources Kansas City Regional Office
Cultural resources	Sara Parker Pauley, State Historic Preservation Officer Missouri Department of Natural Resources State Historic Preservation Office

6. REFERENCES

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10 CFR Part 851. "Worker Safety and Health Program." *Energy*. U.S. Department of Energy.

10 CFR Part 1021. "National Environmental Policy Act Implementing Procedures." *Energy*. U.S. Department of Energy.

29 CFR 1910.1026. "Occupational Safety and Health Standards: Chromium (VI)." *Labor*. Occupational Safety and Health Administration.

29 CFR 1920.1027. "Occupational Safety and Health Standards: Cadmium. *Labor*. Occupational Safety and Health Administration.

29 CFR 1910.1050. "Occupational Safety and Health Standards: Methylenedianiline." *Labor*. Occupational Safety and Health Administration.

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36 CFR Part 800. "Protection of Historic Properties." *Parks, Forests, and Public Property*. Advisory Council on Historic Preservation.

40 CFR Part 50. "National Primary and Secondary Ambient Air Quality Standards." *Protection of Environment*. U.S. Environmental Protection Agency.

40 CFR Part 1500. "Purpose, Policy, and Mandate." *Protection of Environment*. Council on Environmental Quality.

40 CFR Part 1501. "NEPA and Agency Planning." *Protection of Environment*. Council on Environmental Quality.

40 CFR Part 1502. "Environmental Impact Statement." *Protection of Environment*. Council on Environmental Quality.

40 CFR Part 1503. "Commenting." *Protection of Environment*. Council on Environmental Quality.

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APPENDIX A: DISTRIBUTION LIST

A.1 Scoping Notice

NNSA held an informational meeting on December 11, 2012, to present the new proposed action to interested parties. This section lists those individuals who were notified of this meeting.

U.S. Senate

Roy Blunt, Missouri
Claire McCaskill, Missouri
Jerry Moran, Kansas
Pat Roberts, Kansas

U.S. Senate Committees

Chairman, Committee on Appropriations
Ranking Member, Committee on Appropriations
Chairman, Committee on Energy and Natural Resources
Ranking Member, Committee on Energy and Natural Resources
Chairman, Subcommittee on Energy and Water Development, Committee on Appropriations
Ranking Member, Subcommittee on Energy and Water Development, Committee on Appropriations

U.S. House of Representatives

Emanuel Cleaver, Missouri
Sam Graves, Missouri
Vicky Hartzler, Missouri
Kevin Yoder, Kansas

U.S. House of Representatives Committees

Chairman, Committee on Appropriations
Ranking Member, Committee on Appropriations
Chairman, Armed Services Committee
Ranking Member, Armed Services Committee
Chairman, Energy and Commerce Committee
Ranking Member, Energy and Commerce Committee
Chairman, Subcommittee on Energy and Water Development, Committee on Appropriations
Ranking Member, Subcommittee on Energy and Water Development, Committee on Appropriations
Chairman, Subcommittee on Environment and the Economy, Committee on Energy and Commerce
Ranking Member, Subcommittee on Environment and the Economy, Committee on Energy and Commerce

Federal Agencies

Joe Cothern, U.S. Environmental Protection Agency
Charlie Scott, U.S. Fish and Wildlife Service
Michael Reynolds, National Park Service

Governors

Jay Nixon, Missouri
Sam Brownback, Kansas

State Agencies
Andrea Collier, Missouri Department of Natural Resources
John Mitchell, Director, Kansas Department of Health and Environment
Sara Parker Pauley, Director of the Missouri Department of Natural Resources
Mark Templeton, Missouri State Historic Preservation Office

Mayors
Sly James, Kansas City, Missouri

Local Government
Michael Brooks, City Council of Kansas City, Missouri
Cindy Circo, City Council of Kansas City, Missouri
Araceli Gallegos, City Council of Kansas City, Missouri
John Sharp, City Council of Kansas City, Missouri
Scott Taylor, City Council of Kansas City, Missouri

Environmental Organizations
Jay Coghlan, Nuclear Watch New Mexico
Alicia Dressman, Physicians for Social Responsibility
Jane Stoever, PeaceWorks
Ann Suellentrop, Physicians for Social Responsibility
Claus Wawrzinek, Sierra Club

Other Organizations
Carol McClure, Southern Communities Coalition
Betty Ost-Everley, Marlborough Community Coalition
Forest Phelps, Waldo Homes Association
Evaline Taylor, Noble Neighborhood Association

Individuals
Brittany Barrientos
Maurice Copeland
Harold Draper
Karen Fogleson
Bob Kessler
Joe Otto
Phil Scaglia
Kent Smith
Maurice L. Smith
Marvanean Sowell
Ben Wearing

Public Reading Rooms and Libraries
U.S. Department of Energy
Freedom of Information Act Reading Room
1000 Independence Avenue, SW, 1G-033
Washington, D.C. 20585-0001
Phone: 202-586-5955

Ms. Geraldine Haile
Kansas City Site Office
Mid-Continent Public Library
Blue Ridge Branch
9253 Blue Ridge Boulevard
Kansas City, MO 64138
Phone: 816-761-3382

A.2 Draft EA Notice

NNSA sent the draft EA to the individuals listed in Section A.1 of this EA, as well as the following individuals.

Federal Agencies

Erin Dries, General Services Administration
Jeremiah Nelson, General Services Administration
Patrick Hoopes, National Nuclear Security Administration

Local Government

Dennis Murphey, City of Kansas City, Missouri
Robert Stout, Chief of Policy, Missouri Department of Natural Resources

Civic Groups

K.B. Winterowd, Center Planning and Development Council
Linda Bureman, Indian Heights Homeowners Association
Katherine A. Trummer, President, Indian Heights Homeowners Association
Tania Taylor Givens, Noble Neighborhood Association
Steve Rinne, Blue Hills Estate Home Association

Industry Groups

Alex Wendel, Global Prairie
Melissa Roman, CenterPoint

Individuals

Thomas Cosgrove
Terry Everley
Leonard Fullbright
Karen Hohe Suchomel
Rick Lavelock
Bob Ludlow
Cathy Mayweather
Delmira Quarles
James Tira

Media

Tom Klammer, KKFI