



2013 Annual Site Environmental Summary



*U.S. Department of Energy
National Nuclear Security Administration
Kansas City Plant
September 2014*

Cover Photos - Transition of the Bannister Federal Complex from Pratt & Whitney aircraft engine plant for WWII to AEC/ERDA/DOE facility to the new National Security Campus.
 Upper left: 1945 view to southwest. Streetcar in lower right foreground.
 Upper right: 1972 view to west. Construction of Bannister Road over the Blue River.
 Lower left: 2001 view to north. GSA roof line apparent on west half (lack of roof equipment).
 Lower right: 2013 National Security Campus. View to north. MO Hwy 150 to south.

***U.S. Department of Energy National Nuclear Security Administration
 Annual Site Environmental Summary Report***

Kansas City Plant

Table of Contents

	<u>Page</u>
<i>U.S. Department of Energy National Nuclear Security Administration.....</i>	<i>i</i>
<i>Table of Contents</i>	<i>i</i>
Figures	iii
Tables	iii
Acronyms & Abbreviations.....	v
<i>VOLUME I.....</i>	<i>1</i>
<i>KANSAS CITY PLANT.....</i>	<i>1</i>
<i>SECTION 1: INTRODUCTION.....</i>	<i>1</i>
1.1 Purpose.....	1
<i>SECTION 2: SITE DESCRIPTION.....</i>	<i>5</i>
2.1 Site Location / Description.....	5
2.2 Facility History and Mission	6
2.3 Geology.....	7
2.4 Hydrogeology.....	7
2.5 Seismology.....	8
2.6 Land Use.....	8
2.7 Population	8
2.8 Kirtland Operations.....	9
<i>SECTION 3: ENVIRONMENTAL PROGRAM SUMMARIES.....</i>	<i>10</i>
3.1 Clean Air Act (CAA).....	10
Current Issues	13
Regulatory Inspections	14
Kirtland Operations	14
3.2 Clean Water Act (CWA).....	14
3.2.1 NPDES Issues.....	17
VOCs.....	17

Outfall 001	18
Outfall 002	19
Outfall 003	19
Outfall 004	19
PCBs	20
Outfall 001	20
Outfall 002	20
Investigations – Outfall 002	21
Outfall 002 Corrective Actions	21
Base Flow Diversion System	30
MHWMF Permit Driven Actions	31
Outfall 002 Sediment	32
Access Restriction Over Outfall 002 Raceway	32
Notification Signs	32
Outfall 002 Aqueous PCB Mass	34
Outfall 003	35
Permit Non-compliance	37
Unauthorized Discharge Events	37
Receiving Stream Monitoring	38
3.2.2 Sanitary Sewer Discharge Issues	41
Sanitary Sewer	41
Industrial Wastewater	41
Groundwater Treatment Facility	42
Regulatory Inspections	42
Analytical Laboratory Quality Assurance	43
Kirtland Operations	43
3.3 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) / Superfund Amendments and Reauthorization Act (SARA)	43
Kirtland Operations	44
3.4 Toxic Substances Control Act (TSCA)	45
Current Issues	45
Kirtland Operations	45
3.5 Federal Insecticide, Fungicide, and Rodenticide (FIFRA)	45
Kirtland Operations	46
Current Issues	46
Reports	46
3.6 Resource Conservation and Recovery Act (RCRA)	46
3.6.1 Waste Management	46
Regulatory Inspections Update	46
3.6.2 Waste Minimization / Pollution Prevention (Wmin/P2) Program	46
Current Issues	47
3.6.3 Long Term Stewardship (LTS) Program	48
Groundwater Monitoring	49
Groundwater Sampling	49
Groundwater Contamination	49
Kirtland Operations	52
3.7 Underground Storage Tank (UST)	52
Kirtland Operations	52
Current Issues	52
Reports	52
3.8 Federal Facilities Compliance Act (FFCA)	52
Current Issues	53

Reports	53
3.9 National Environmental Policy Act (NEPA).....	53
Current Issues	53
3.11 Quality Assurance	53
3.12 Environmental Management System (EMS)	54
Kirtland Operations	54
3.13 Awards / Recognitions.....	54
SECTION 4: KANSAS CITY PLANT POINTS OF CONTACT	54
References	55
<i>Appendix A- Annual Site Environmental Summary Report for the National Security Campus</i>	<i>56</i>

Figures

	<u>Page</u>
Figure 2.1 Kansas City Area Map	6
Figure 2.2 Facility Site Map	7
Figure 3.1 NO _x Emissions (plant wide)	12
Figure 3.2 CO Emissions (plant wide).....	12
Figure 3.3 Water Monitoring Locations:	16
Figure 3.4 Wastewater Permit Compliance	17
Figure 3.5 Dept 26 Cross Section	24
Figure 3.6 Outfall 002 PCB Trend Graph.....	27
Figure 3.7 Outfall 002 System.....	31
Figure 3.8.a Outfall 002 – No Access Restriction	33
Figure 3.8.b with Access Restriction	33
Figure 3.8.c Access Restriction - Indian Creek	34
Figure 3.9 Outfall 002 Aqueous PCB Mass.....	35
Figure 3.10 Outfall 003 System.....	36
Figure 3.11 Outfall 003 PCB Trend Graph.....	37
Figure 3.12 IWPf Sludge	42
Figure 3.13 SWMUs.....	50
Figure 3.14 Groundwater Contamination	51

Tables

	<u>Page</u>
Table 1.1 Environmental Regulations and Requirements.....	2
Table 1.2 Permits	4
Table 1.3 Environmental Monitoring Programs	5
Table 3.1 Clean Air Act Reports	11
Table 3.1.a Source Registrations (SRs)	14
Table 3.2 VOC Sample Results – Outfalls 001, 002, 003, and 004.....	18
Table 3.3 Outfall 002 PCBs (results ug/L)	29
Table 3.4 Outfall 002 Sediment Sample Results	32
Table 3.5 Unauthorized Discharge Events.....	38

Table 3.6 Surface Water Sampling Results	39
Table 3.7 Clean Water Act Reports	43
Table 3.8 CERCLA/SARA Reports	44
Table 3.8.a KO CERCLA/SARA Report	44
Table 3.9 TSCA Reports.....	45
Table 3.10 Recycled Material - FY2013	47
Table 3.11 RCRA Reports.....	48

Acronyms & Abbreviations

AICO	Abandoned Indian Creek Outfall
AQD	Air Quality Division (of the Albuquerque Environmental Health Department)
ARDEQ	Arkansas Department of Environmental Quality
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response Compensation And Liability Act
CFR	Code of Federal Regulations
CMI	Corrective Measures Implementation Plan
CMS	Corrective Measures Study
CO	Carbon Monoxide
CSR	Code of State Regulations
CSS	Combined Sanitary Sewer
CTS	Cyanide Treatment System
CWA	Clean Water Act
DCE	1,2 Dichloroethene
DLSME	Defense Land Systems and Miscellaneous Equipment
DOE	Department of Energy
EIQ	Emissions Inventory Questionnaire
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-know Act
ERDA	Energy Research & Development Administration
HS&E	Health, Safety, and Environment
FFCA	Federal Facility Compliance Act
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FM&T	Honeywell Federal Manufacturing and Technologies
FY	Fiscal Year (October 1 through September 30)
gpm	gallons per minute
GHG	Green House Gas
GSA	General Services Administration
GTF	Groundwater Treatment Facility
GTS	Groundwater Treatment System
HAP	Hazardous Air Pollutant
HVAC	Heating, Ventilation, and Air Conditioning
ISO	International Organization for Standardization
IWPF	Industrial Wastewater Pretreatment Facility
IWRO	Industrial Wastewater Reverse Osmosis
KC	Kansas City
KAFB	Kirtland Air Force Base
KCMO	Kansas City, Missouri
KCP	Kansas City Plant
KCFO	Kansas City Site Office
KO	Kirtland Operations
LOW	Letter of Warning

LTS	Long Term Stewardship
MDNR	Missouri Department of Natural Resources
MMB	Main Manufacturing Building
MSL	Mean Sea Level
MSOP	Missouri State Operating Permit
NEPA	National Environmental Policy Act
NESHAP	National Emission Standard For Hazardous Air Pollutant
NNSA	National Nuclear Security Administration
NM	New Mexico
NMED	New Mexico Environment Department
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
ODS	Ozone Depleting Substance
OSHA	Occupational Safety And Health Administration
P2	Pollution Prevention
PCB	Polychlorinated Biphenyl
POTW	Publicly Owned Treatment Works
PPA	Pollution Prevention Act
ppb	parts per billion
QA	Quality Assurance
RCRA	Resource Conservation And Recovery Act
RFI	RCRA Facility Investigation
SARA	Superfund Amendments and Reauthorization Act
SO _x	Sulfur Oxides
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
tpy	Tons Per Year
TSCA	Toxic Substances Control Act
µg/l	Micrograms Per Liter
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WMin	Waste Minimization

**VOLUME I
KANSAS CITY PLANT**

SECTION 1: INTRODUCTION

1.1 Purpose

The purpose of this document is to present a summary of the Department of Energy's (DOE) Kansas City Plant (KCP) environmental programs, activities, and compliance status for calendar year (CY) 2013 (January 1, 2013, through December 31, 2013). The KCP is managed and operated by Honeywell Federal Manufacturing & Technologies (FM&T) and includes operations in Kansas City, Missouri (KC) and Albuquerque, New Mexico (KO).

Reference to FM&T locations and activities is defined as follows:

- Honeywell International – references to Corporate influence or performance expectations
- FM&T – references to both FM&T/KC and FM&T/KO operations.
- KCP – Activities related to operations conducted by FM&T/KC at the National Nuclear Security Administration's (NNSA) Kansas City Plant (KCP).
- KO – Activities related to operations conducted by FM&T/KO primarily in Albuquerque, NM; and on a limited basis near Ft. Chaffee, AR.
- National Security Campus (NSC) – Activities related to operations conducted by FM&T/KC at the newly constructed NNSA facility located at 14520 Bott's Road in Kansas City, Missouri.

In addition, an Annual Site Environmental Summary (ASES) for the National Security Campus (NSC) is provided as Volume II to this report. The ASES for the NSC provides information specific to the new facility. DOE-NNSA manufacturing operations began moving to the NSC during January 2013. Transfer of operations is scheduled to be complete by July 2014. The 2013 ASES for the KCP and the NSC reflect the fact that manufacturing and support functions occurred at both locations during the year.

The annual KCP Performance Evaluation Plan provides the basis for Kansas City Field Office (KCFO) customer expectations regarding Health, Safety and Environment (HS&E) performance including conformance to the HS&E Management System Description and Worker Safety and Health Program approved annually by KCSO. As described in that management system description document, this Annual Site Environmental Summary (ASES) is provided in lieu of an Annual Site Environmental Report.

The ASES is prepared annually as information for the general public and other stakeholders to:

- summarize the results of environmental compliance and monitoring programs;
- characterize site environmental management performance;
- provide compliance status with applicable environmental standards and requirements;
- highlight significant achievements, programs, and efforts which go beyond regulatory requirements; and
- provide an overview of quality assurance and environmental restoration activities.

This summary characterizes the environment primarily at the KCP location, which includes data reflecting effluent releases and environmental conditions. Characterization is accomplished via the data collected from the following routine monitoring locations:

- 4 Storm Sewer Outfalls
- 9 Surface Water Sites
- 1 Sanitary Sewer Discharge Point
- 1 Sampling Point for the Groundwater Treatment Facility
- 2 Industrial Wastewater Treatment Discharge Points
- 230 Groundwater Monitoring Well completions /5 groundwater pumping wells

More detailed discussion on each program can be found within the referenced resource documents and reports identified within this summary. Given the limited processes and environmental impacts of KO, this document will focus primarily on the KCP site.

Environmental and effluent monitoring are on-going activities at the KCP, which ensure the safety of KCP employees, the public, and the environment; and demonstrate compliance with permits and regulatory requirements. A list of environmental regulatory requirements applicable to the KCP and KO is contained in **Table 1.1**. A summary of federal, state, or local agency issued environmental permits for the KCP is provided in **Table 1.2**.

Table 1.1 Environmental Regulations and Requirements

Environmental Regulation	Requirements Summary
Clean Air Act (CAA)	The CAA 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, greenhouse gas emission reporting, 112 emergency release regulations, and operating permit requirements. Under the CAA, states may administer and enforce CAA provisions by obtaining Environmental Protection Agency (EPA) approval of a State Implementation Plan.
Clean Water Act (CWA)	The CWA established the National Pollutant Discharge Elimination System (NPDES), which is designed to control pollutants discharged to U.S. surface waters. The EPA sets effluent limitations, and permits are required for discharges from point sources.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) /Superfund Amendments and Reauthorization Act (SARA)	Congress enacted significant revisions to CERCLA through SARA and increased the size and complexity of CERCLA. CERCLA established liability, compensation, and cleanup for past hazardous waste activities and emergency response for hazardous substances released to the environment. SARA Title III Emergency Planning and Community Right to Know (EPCRA) requires reports on Hazardous Chemical usage and release reporting.
Toxic Substances Control Act (TSCA)	The TSCA establishes procedures for the reporting, use and manufacture of new and existing chemicals. TSCA also establishes prohibitions of, and requirements for the manufacture, processing, distribution in commerce, use, disposal, storage, and marking of Polychlorinated Biphenyls (PCBs) and PCB items.
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	The FIFRA restricts the application of pesticides and herbicides through a state-administered certification program.
Resource Conservation and Recovery Act (RCRA)	The RCRA governs the generation, storage, handling, treatment, and disposal of hazardous waste. Cleanup of environmental contamination from solid waste management units is also covered along with groundwater monitoring requirements.
Federal Facilities Compliance Act (FFCA)	The FFCA mandates compliance with RCRA by Federally owned facilities.
Pollution Prevention Act (PPA)	The PPA of 1990 establishes the federal government's priority for source reduction followed by recycling rather than treatment or disposal of waste or pollutants.
National Environmental Policy Act (NEPA)	The NEPA is a Federal policy, which requires the consideration of environmental impact prior to decision making.

Table 1.2 Permits

Permit	Expiration Date	Permit #	Regulating Agency
City Air Operating Permit	7/31/2013	13/14-AQ-OP-132	KCMO
City Air Construction & Operating Permits:			
1. Installation of 4 solvent spray booths	Terms and conditions of the permit run with the equipment use period. Equipment moved to NSC.	1092	KCMO
2. Emergency Generator - Security	Terms and conditions of the permit run with the equipment use period.	1078	KCMO
3. Installation of New Cross Draft Spray Booth for maintenance operations at FXJ-48	Terms and conditions of the permit run with the equipment use period. Equipment in place - not operational.	991	KCMO
4. Amended Boiler Replacement Project West Boiler House	Terms and conditions of the permit run with the equipment use period.	938A / 992	KCMO
5. Polymeric Reactor Vessel	Terms and conditions of the permit run with the equipment use period. Equipment moved to NSC.	868	KCMO
6. Ethanol Spray Booth D/57	Terms and conditions of the permit run with the equipment use period. Equipment moved to NSC.	804	KCMO
7. Special Projects Bldg., Radionuclides	Terms and conditions of the permit run with the equipment use period. Equipment moved to NSC.	726C	KCMO
8. Surface Coating Lines	Terms and conditions of the permit run with the equipment use period. Equipment in place - not operational.	694	KCMO
CWA-NPDES Permit	September 30, 2017	MO-0004863	MDNR
Wastewater Discharge Permit	June 30, 2019	dated: June 27, 2014	KCMO
RCRA - Missouri Hazardous Waste Management Facility Permit	October 6, 2009 (renewal application submitted April 2009, final modification issued August 24, 2012)	MO 9890010524	MDNR

Environmental monitoring, including analysis and data management, is the responsibility of the FM&T HS&E organization. Administration of the KCP environmental monitoring program is the responsibility of program managers within the HS&E organization. The National Nuclear Security Administration (NNSA) KCFO provides programmatic oversight. Local, state, and federal authorities, including the city of Kansas City, Missouri; the Missouri Department of Natural Resources (MDNR), and the EPA, enforce applicable permit and regulatory requirements and provide guidance and direction to the KCP regarding monitoring standards and reportable actions. Environmental monitoring programs for the KCP are identified in **Table 1.3**.

Table 1.3 Environmental Monitoring Programs

Monitoring Program	Purpose
Stormwater Outfalls	Ensures that stormwater effluents discharging to surface waters via four plant outfalls meet NPDES permit requirements. Process wastewater is not discharged to storm water outfalls.
Stream Monitoring	Assesses impact of effluents and contaminated groundwater plumes on surface waters.
Industrial Wastewater	Provides data relating to compliance with metal finishing standards and discharge of industrial wastewater to the combined sanitary sewer system. Monitoring of the effluent from the Industrial Wastewater Pretreatment Facility (IWPF).
Combined Sanitary	To ensure that effluent, which includes discharge from IWPF, meets Kansas City ordinance for sanitary and pretreatment standards for industrial wastes and to comply with the sanitary discharge permit.
Groundwater Treatment	To ensure that treated effluent discharging to the facility sanitary sewer system meets permit requirements.
Air Source	To ensure that air emissions from facility sources meet City, State, and Federal standards.
Soil	Soil is sampled as part of the environmental stewardship program to assess impacts of historic releases and through the construction waste program prior to excavation.

This report summarizes the significant information resulting from the environmental compliance and effluent monitoring programs at the KCP during 2013. In addition to complying with all applicable environmental regulations the KCP strives to improve performance by reducing the environmental impact of operations through several voluntary programs. Honeywell FM&T/KC and Honeywell FM&T/NM are both certified under ISO 14001. The ISO 14001 is an internationally recognized standard which serves as the foundation of an Environmental Management System (EMS). Additional detail regarding the ISO 14001 management system can be found under **Section 3.12** of this document.

SECTION 2: SITE DESCRIPTION

2.1 Site Location / Description

The U.S. Department of Energy (DOE) KCP is located 12 miles south of downtown Kansas City, Missouri, and is situated in the Blue River valley surrounded by low hills. The Blue River (a tributary of the Missouri River) flows from south to north along the eastern edge of the complex. Indian Creek flows from west to east along the south side of the complex and merges with the Blue River. The area around the facility is primarily residential with occasional light industry, giving the facility predominance in the immediate community (**Figures 2.1** and **2.2**). The DOE KCP is part of the Bannister Federal Complex in Kansas City, Missouri, occupying 136 acres of the 310 acre site. DOE/NNSA and the General Services Administration (GSA) share the site, including GSA administrative tenants with no appreciable environmental impact to the Bannister Federal Complex.

The majority of the offices and manufacturing areas are under one roof, with additional outbuildings for support operations. One boiler house situated to the west of the main building and a chilled water supply building situated to the east supply chilled water for cooling to the

entire federal complex. The west boiler house also provides steam for space heating. No electrical power generation occurs on-site.

2.2 Facility History and Mission

The KCP is a DOE-owned (NNSA), contractor-operated facility. Honeywell FM&T and predecessor companies have served as the Management & Operating (M&O) contractor since 1949. The main building was constructed in 1942 by the federal government and was used by Pratt-Whitney to manufacture airplane engines during World War II. After the war, the facility was used both as a warehouse and as 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. Bendix Corporation (now Honeywell FM&T) began producing electrical and mechanical weapon components for the Atomic Energy Commission (a predecessor to the DOE) in part of the Main Manufacturing Building (MMB) in 1949 and expanded its use of the facilities after Westinghouse left.

The principal operation performed at the KCP is the manufacture of nonnuclear components for national defense. This activity involves metals and plastics machining, plastic fabrication, microelectronics, and electrical and mechanical assembly. The KCP also performs similar manufacturing and engineering services for other governmental agencies.

Figure 2.1 Kansas City Area Map

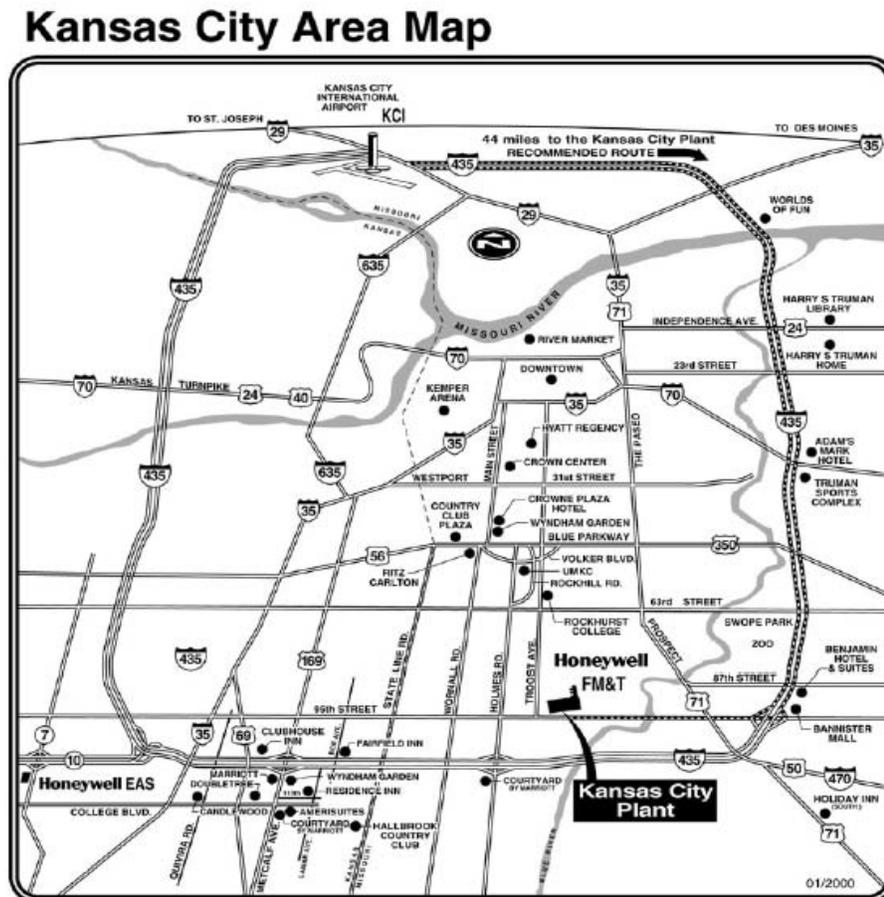
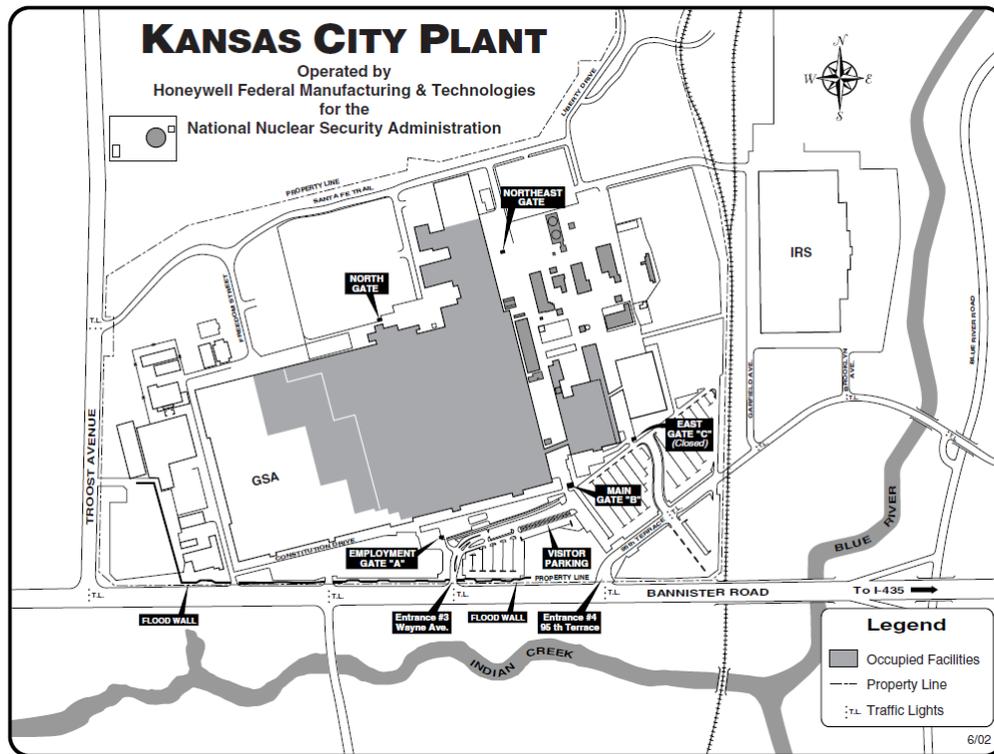


Figure 2.2 Facility Site Map



2.3 Geology

Kansas City is located in the middle of a 150-mile-wide outcrop of Pennsylvanian rocks extending north and south through western Missouri and eastern Kansas. The area slopes gently (10 to 12 feet/mile) toward the Forest City Basin in northwest Missouri.

During the last ice age, glaciers extended southward into what is now northern Kansas City. These glaciers and the changes brought about by the melt run-off are responsible for the relatively flat topography of the area. The resistant limestones in the Kansas City Group (a rock formation that is part of the Pennsylvanian strata) support the characteristic east-facing escarpments. Shales in the Kansas City Group largely underlie the gentle slopes and lowlands between escarpments.

In general, the Kansas City Group contains alternating limestone and shale strata. Sandstone is of minor importance in the Kansas City sections but increases at the expense of limestone in southeastern Kansas.

2.4 Hydrogeology

Alluvium at the KCP is approximately 40-45 ft thick and includes a continuous upper layer of thin-bedded clayey silt, with minor amounts of sand and a basal gravel within a sand-silt-clay matrix. The basal gravel, ranging in thickness from a few inches to 8 ft, consists of fragments of eroded bedrock in a sand-silt-clay matrix and is likewise continuous throughout the site. These

two layers are separated in certain areas by a layer of olive to blue-green clayey silt. All three layers transmit water and constitute the alluvial aquifer. In many parts of the facility, fill material has been added over the years and now comprises near surface material. This is especially true in areas northeast of the KCP including areas near the former north and south lagoons.

Groundwater monitoring wells at the KCP are screened in the upper alluvium to monitor for potential floating contaminants and shallow contaminant sources. The basal gravel in the lower alluvium is monitored because it is the most conductive water bearing zone. Wells that monitor this zone are called lower completion wells.

The bedrock underlying the alluvium consists of shales and sandstones of the Pleasanton Group. The erosional surface of the Pleasanton Group slopes gently to the east towards the Blue River. The overlying sandstones, shales and limestones of the Kansas City Group have been eroded away and are no longer present at the site.

2.5 Seismology

Kansas City is in seismic risk zone 1, the next-to-lowest earthquake risk area. The only earthquakes recorded in the Kansas City area this century have rated no higher than 3.5 on the Richter scale, enough to break windows and crack dishes.

2.6 Land Use

When the facility was originally constructed the surrounding property was in agricultural use with no nearby residential areas. During the 1950's and 1960's the area surrounding the federal complex was developed. Although the federal complex is zoned for heavy industry, it is the only heavy industry in the immediate area. The property adjoining the complex is residential with isolated commercial tracts, except along the east and north sides, which have been designated for public and recreational uses. The Bannister Federal Complex lies within the floodplain of Indian Creek and the Blue River. The federal complex is protected from a 500 year flood event by a flood wall / levee complex that surrounds the facility.

Much of the land adjacent to the KCP is privately owned residential and small business tracts. However, significant areas adjacent to the KCP serve various recreational uses. Legacy Park is adjacent to the north edge of the KCP, a youth baseball complex lies near the southeastern edge of the federal complex and Blue River Parkway, a Jackson County, Missouri, stream corridor park lies directly east of the KCP. Other public use lands, such as William Minor Park and Swope Park, are within a few miles of the plant and are used for many community recreational activities.

2.7 Population

Kansas City, Missouri, the largest of approximately 100 incorporated cities in the greater Kansas City area, is situated on the western border of Missouri at the confluence of the Missouri and Kansas Rivers. The population of Kansas City, Missouri (from the 2010 census), was 459,787, representing a 1.3% increase over 2006 statistics. The Kansas City Metropolitan Statistical Area (#3760), which consists of ten counties in Missouri (Bates, Caldwell, Cass, Clay, Clinton, Jackson, Johnson, Lafayette, Platte, and Ray) [1,218,344] and seven counties in Kansas

(Atchison, Franklin, Johnson, Leavenworth, Linn, Miami, and Wyandotte) [845,988], reflected a 2008 estimated population of 2,064,332. Kansas City, Missouri, is the 36th largest metropolitan area in the nation.

2.8 Kirtland Operations

KO is an applied-science and engineering organization engaged in technical, operational, mechanical and logistical support through research, analysis, testing, and field operations that support NNSA's Secure Transportation and Emergency Response missions, as well as the national laboratories, other DOE contractors, the Department of Defense, and other Federal and non-Federal agencies.

KO also provides a wide range of technical support activities in multi-disciplined fields. Activities include technical support in electronic, optical, and mechanical design and fabrication; drafting; videography; calibration; software development; experimental physics; information management; computer-based training; security system development and installation; and security force training. These activities routinely involve field operations within the United States and occasionally involve worldwide field operations. KO often uses the significant engineering, analytical, and manufacturing capabilities of NNSA/DOE's Kansas City Plant to provide support to their customers.

Specific Processes, Activities, and Capabilities:

KO consists of facilities at the following sites in the City of Albuquerque, Bernalillo County, New Mexico: NC-135 Site, Kirtland Air Force Base (KAFB); Alamo facility at 2445 Alamo Ave, SE; Craddock A, B, C facilities at 2540, 2460, 2450 Alamo Ave. SE, respectively; and the Air Park Facility at 2100 Air Park SE. KO also conducts activities within other NNSA facilities such as NNSA/Office of Secure Transportation's (OST's) Mobile Electronic Maintenance Facility, Building 854, and Depot, T-78, KAFB; the Logistics Support Site near Fort Smith, Arkansas; Los Alamos National Laboratories, and Sandia National Laboratories.

The main facility is the NC-135 Site which is in the process of being vacated. This site covers 18.3 acres with 3 concrete flight pads and multiple buildings totaling 63,510 ft². KO administrative operations were located there but as of CY2014 are now located at a leased facility called the Alamo facility, 2445 Alamo Ave., which includes engineering functions; various electronic equipment testing, repair, and fabrication areas; and a small machine shop. The Craddock A, B, C facilities are comprised of three leased facilities used for trailer refurbishment, motor vehicle modification, spray painting operations, machining operations, and metal fabrication work. The Air Park Facility is a leased facility used for classroom training and general office space. NNSA/OST's Mobile Electronic Maintenance Facility is used for electronics testing and repair.

The Logistics Support Site location near Fort Smith Arkansas provides Electronic and Vehicle Maintenance technical support to the Training and Logistics Division (TRACOM) during Agent Candidate Training (ACT) conducted at Ft. Chaffee or at remote sites as directed by the TRACOM. Technical support includes Mobile, Ground and Hand-held Communications, Target, ESS/MILES systems, and full mechanical support to the TRACOM Training Vehicle Fleet and

to the Operational Fleet as required. Support includes service, inspection, repair, modification, and transportation of vehicles.

All operations and processes conducted at KO are of a type and nature routinely encountered by the public in general industry. Small quantities of chemicals typical of machining operations, electronics repair, and spray painting are used. Hazard Class 1.3 and 1.4 explosives are stored at the Craddock A Facility. Air emissions are managed under a single Source Registration for the for spray painting operations at the Craddock A and B Facilities. KO typically is a Small Quantity Generator of hazardous waste for the calendar year and often meets the EPA definition of a conditionally exempt small-quantity generator. There are no continuous industrial wastewater flows and the few small batch industrial wastewater discharges that occur typically meet the publicly-owned-treatment-works discharge limits directly or they are shipped offsite as regulated waste. Stormwater at the NC-135 Site is managed under KAFB's MS4 Stormwater Permit and at the Craddock A, B, C facilities under an Environmental Protection Agency "No Exposure Certification for Exclusion from National Pollutant Discharge Elimination System Storm Water Permitting" which is currently pending approval by U.S. EPA.

Facility Changes:

The KAFB Commander requested that KO vacate the NC-135 Site by 2015. AAs of CY2014, all activities on the NC-135 Site were relocated to alternative sites, one of which includes about 55,000 ft² of leased space in the vicinity of the Craddock and Air Park facilities.

Ft. Chaffee Arkansas operations relocated to a new site called the "Logistics Support Site" located just outside of the secured area of Ft. Chaffee. This site was previously occupied by the Arkansas National Guard.

In summary, KO operations have a negligible environmental "foot print."

SECTION 3: ENVIRONMENTAL PROGRAM SUMMARIES

3.1 Clean Air Act (CAA)

The Clean Air Act (CAA) provides for ambient air quality standards for criteria pollutants, control technology standards for hazardous air pollutants and new sources, construction permitting rules, stratospheric ozone protection regulations, and 112(r) emergency release rules and Title V operating permit requirements. Under the CAA, states or local governments may administer and enforce CAA provisions by obtaining EPA approval of a State Implementation Plan.

KCP manufacturing activities subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) during 2013 included, Radionuclide Sources Other Than Radon From DOE Facilities (40 CFR Part 61 Subpart H), Aerospace Manufacture and Rework (40CFR Part 61 Subpart GG), Miscellaneous Organic Chemical Manufacturing (40 CFR Part 61 Subpart FFFF), Surface Coating of Miscellaneous Metal Parts and Products (40 CFR Part 61 Subpart MMMM), Halogenated Solvent Cleaning (40 CFR Part 63 Subpart T), and Flexible Polyurethane Foam Manufacturing (40 CFR Part 63 Subpart III). There is one manufacturing activity subject to 40 CFR 60 Standards of Performance for New Stationary Sources, (40 CFR 60 Subpart VVV) Standards of Performance of Polymeric Coating of Supporting Substrates.

In addition, the following Federal regulations are applicable to facility support activities; Standards of Performance for Small Industrial Commercial Institutional Steam Generating Units (40 CFR 60 Subpart Dc), Stationary Reciprocating Internal Combustion Engines 40 CFR 60 ZZZZ) and 40 CFR 82 Protection of Stratospheric Ozone. Asbestos abatement may occur in conjunction with plant maintenance and construction. Subcontractors performing these abatement activities, if required, comply with the applicable NESHAP, TSCA, and Occupational Safety and Health Administration (OSHA) regulations.

Table 3.1 identifies the reports that were submitted to listed agencies for this calendar year.

Table 3.1 Clean Air Act Reports

Report	Submittal due date(s)	Submittal Agency	Next Submittal	Frequency
NESHAP Compliance Report (Subparts T, H, GG, III, FFFF and MMMM)	January 2013 and July 2013	KCMO Air Quality Section, MDNR, Air Pollution Control Program, EPA Region VII	January 2014	Semi-annual
Emission Inventory Questionnaire	May 1, 2013	KCMO Air Quality Section MDNR Air Pollution Control Program	May 2014	Annual

A Title V operating permit application was submitted in 1996. Original comments from the City Air Quality Section were answered and the application was considered complete in 1997. Honeywell FM&T reviewed and commented on a draft permit issued by the Kansas City Air Quality Program in 2000 and a subsequent revised permit was developed by the MDNR in March 2002 and submitted for public comment. Honeywell has reviewed and commented on this draft version of the Title V permit. During 2007 the regulatory agencies agreed to delay issuance of the Operating Permit due to the impending move to a new facility in Kansas City on Botts Rd. The KCP continues to operate in accordance with the Title V Operating Permit Application.

Air pollution emissions from the KCP are predominantly the result of the West Boiler house operations, associated with natural gas combustion as boiler fuel, primarily nitrogen oxides (NO_x) and carbon monoxide (CO). Stack emission testing of NO_x, sulfuric oxides (SO_x) and CO at the West Boiler house was completed in 2002, 2008 and again in 2013 for the boilers while burning natural gas and #2 fuel oil. Emission factors from the 2008 test are used to determine the annual air emissions for the boilers. The combined annual NO_x emissions for the KCP were reduced from 41 tons in 2001 to 13.74 tons in 2013. The annual CO emissions for the KCP were reduced from 16 tons in 1996 to 0.849 tons in 2013. Natural gas is the primary fuel for the West Boiler house; but historically, gas curtailments imposed by the local utility, boiler testing, training, and recalibration have required the occasional use of #2 diesel fuel as an alternate fuel.

Figures 3.1 and 3.2 depict NO_x and CO reductions after the installation of the new boilers in 2002 / 2003. The new boilers were designed and built with low NO_x burners and flue gas recirculation specifically to reduce emissions of NO_x and CO.

Figure 3.1 NO_x Emissions (plant wide)

NO_x Emissions (Plant Wide)

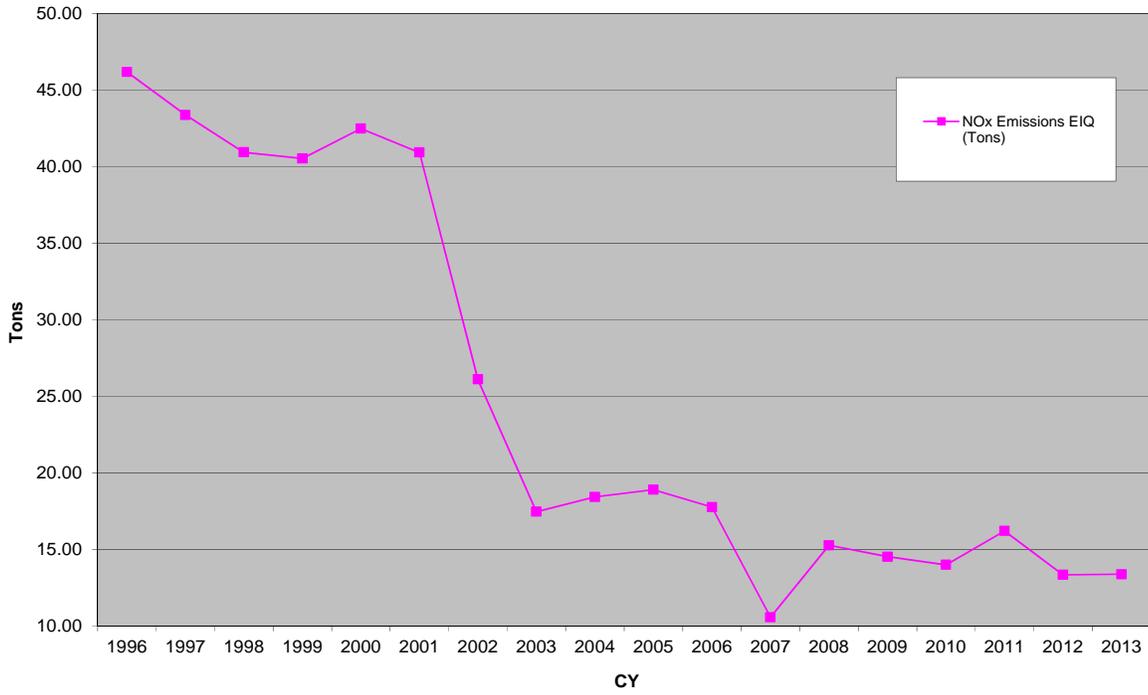
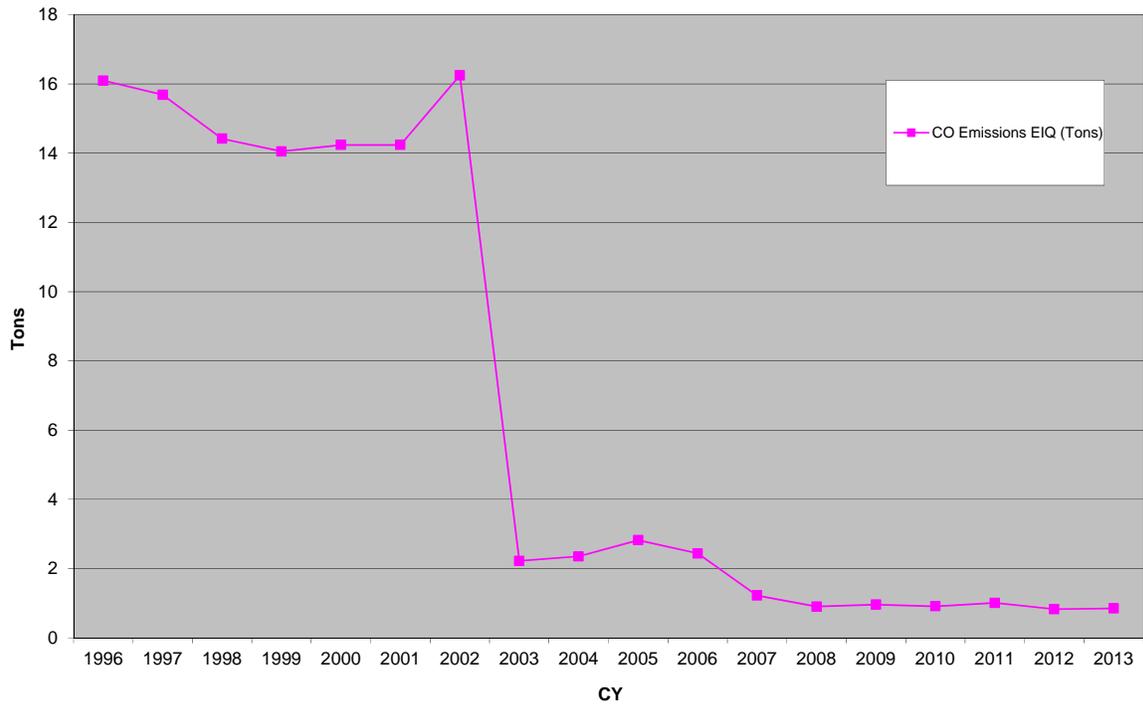


Figure 3.2 CO Emissions (plant wide)

CO Emissions (Plant Wide)



The KCP has multiple volatile organic compound (VOC) and hazardous air pollutant (HAP) point sources from operations including degreasing, cleaning, and surface coating. KCP VOC emissions from all sources were 10.24 tons-per-year (tpy) for 2013.

Ground level ozone levels can be increased due to emissions of NO_x, CO, and VOCs. These chemicals are considered “ozone precursors”. The Kansas City area (Clay, Jackson and Platte Counties in Missouri and Johnson and Wyandotte Counties in Kansas) was designated nonattainment with respect to the 1-hour ozone standard in 1978. Ground level ozone is problematic because of its health effects and as a significant factor in the formation of smog. The MDNR established more stringent VOC emission regulations in 1987 for solvent metal cleaning and surface coating operations. This was part of the state implementation plan designed to reduce ozone levels in the Kansas City area. In 1991 the area was able to demonstrate that it had attained the standard and EPA redesignated the area to attainment in 1992. This plan demonstrated how the area would maintain the ozone standard for the next ten years, i.e., through 2002. During 2001 MDNR implemented additional rules to control VOC emissions from Aerospace Manufacturing and miscellaneous other solvent usage. A Kansas City Ozone Maintenance Plan is currently implemented by MDNR to ensure ongoing compliance with the 1-hour ozone standard. The KCP reviews incoming equipment to ensure conformance with design features required by MDNR regulations and record keeping requirements.

Executive Order (EO) 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," was signed by President Obama on 5 October 2009. The goal of EO 13514 is "to establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions (GHG) a priority for Federal agencies." As required under EO 13514 2008 baseline emissions of scope 1, 2, and 3 greenhouse gases were provided in 2009. These emissions were reported in the KCP's 2013 Consolidated Energy Data Report (CEDR).

On October 30, 2009 EPA published a final rule on the mandatory reporting of greenhouse gases. Efforts to comply with this regulation in 2009 included the writing of a greenhouse gas Monitoring Plan. Annual GHG emissions reporting for EPA is submitted through EPA's Electronic Greenhouse Gas Reporting Tool (e-GGRT).

The KCP has phased out the use of Class I Ozone Depleting Substances (ODS). The KCP has seven remaining air conditioning units that contain greater than an individual charge of greater than 50 pounds of Class II ODS refrigerant (R-22). The combined Class II refrigerant charge between these seven units is 530 pounds. The KCP complies with the leak repair requirements of 40 CFR 82 - Protection of Stratospheric Ozone.

In 2013, the KCP maintained compliance with federal, state, and local air pollution regulations.

Current Issues

The KCP is subject to 40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, which was finalized during January 2013. The initial notification requirement associated with this rule was previously submitted to EPA Region VII in

correspondence dated January 5, 2005. The compliance date for existing sources is January 31, 2016. Minimal impact is expected from this regulation with activities expected to be limited to a facility energy audit and tune up requirements for the boilers. The other regulation that may affect the facility is the potential future lowering of the National Ambient Air Quality Standard for ozone. It is not known at this time how the future rules will affect the operations at the facility.

KCP pays an annual fee and operates within an annual Air Operating Permit issued by KCMO. Construction and operating permits for new or modified sources are shown in **Table 1.2**.

Regulatory Inspections

No air inspections were conducted at the KCP during 2013.

Kirtland Operations

Air pollution emissions are mainly the result of Large and Small Paint Booth operations, primarily Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs). KO CY2013 VOC emissions from the Large and Small Paint Booths were 0.157 tons-per-year (tpy).

Table 3.1.a Source Registrations (SRs)

Source Registration	Expiration Date	SR #	Regulating Agency
Large and Small Paint Booths	None	2068	Albuquerque Environmental Health Dept. Air Quality Division

No regulatory inspections occurred in CY13. KO pays an annual emissions fee for these sources to the City of Albuquerque.

3.2 Clean Water Act (CWA)

The CWA established the NPDES, which is designed to control pollutants discharged to surface waters. Effluent limitations are set by regulatory agencies and permits are required for discharges from a point source into surface waters (direct discharge). The CWA also establishes effluent limitations for indirect discharges (discharge to a sanitary sewer system) from certain sources. The KCP must maintain permits for both direct and indirect discharges of wastewater from the facility.

The KCP CWA permit monitoring program includes regular monitoring of plant stormwater discharges to surface water receiving streams and sanitary / industrial wastewater discharges to the KCMO Publicly Owned Treatment Works (POTW). All monitoring locations are indicated in **Figure 3.3**. Surface water effluent, receiving stream, and sanitary / industrial sewer effluent monitoring locations are discussed in more detail below.

Stormwater discharges (direct discharge) are regulated by the MDNR under Missouri State Operating Permit (MSOP) MO – 0004863. These discharges consist of uncontaminated rain event run-off, heating, ventilation, and air conditioning (HVAC) condensate, and minor discharges associated with test flows from the fire protection system through four permitted

stormwater outfalls. Discharges must comply with specific discharge limits established in the MSOP permit. Historically, the discharge of PCBs through one of the KCP outfalls has been a compliance issue for the plant. Since 1982, the NPDES or MSOP permit has prohibited any release of PCBs above the quantification level of one part per billion (ppb) on a monthly average. The NPDES permit was reissued in 1999 with a daily maximum interim PCB limit of one ppb with a final PCB discharge limit of 0.5 micrograms per liter ($\mu\text{g/L}$) effective November 2002, with weekly monitoring required with samples based on a grab sample. Four other parameters, temperature, pH, settleable solids and oil and grease also have specific discharge limits. This permit was re-issued October 1, 2012, and contains essentially the same effluent limitations. The current version of the permit does contain special conditions that address required actions in the event the PCB discharge standard is exceeded.

In addition to monitoring requirements and discharge limits, the current NPDES permit contains a requirement to notify the permit authority of the discharge of any toxic pollutant (defined in Section 307 (a) (1) of the Clean Water Act) which is not otherwise limited in the permit. Notification limits are defined by either the level determined by multiplying the value reported in the permit application by five or 100 $\mu\text{g/L}$ for a particular parameter with the highest level used as the notification limit. During 2013 toxic pollutants were not identified at levels greater than the above requirements.

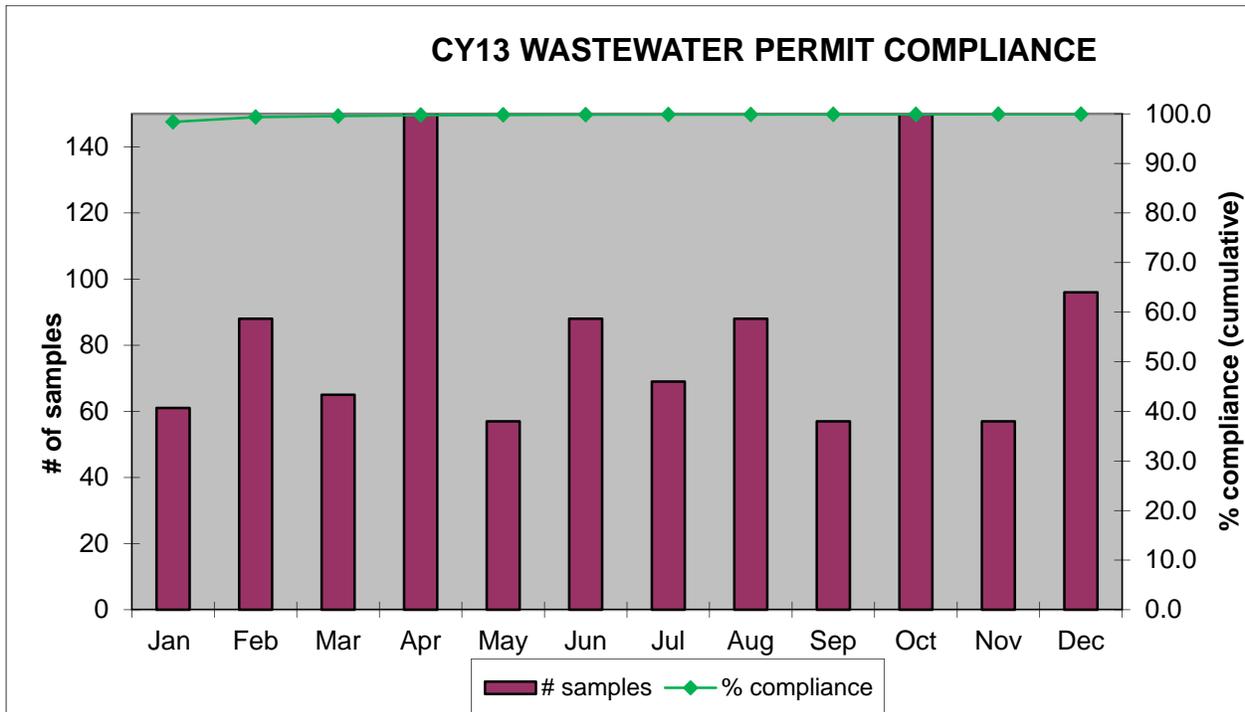
Sanitary and industrial wastewater from the KCP is discharged to the KCMO POTW. Effluents discharged from the plant into the POTW are regulated by a discharge permit enforced by the City of Kansas City, Missouri, Water and Pollution Control Department. This permit was reissued with only minor revisions June 24, 2009, and incorporates EPA Pretreatment Standards for the Metal-Finishing Category (40 CFR 433.17) and city ordinances. Industrial wastewater from manufacturing operations at the KCP is routed to an on-site Industrial Wastewater Pretreatment Facility (IWPF) where the wastewater is treated to levels below that required by Metal Finishing categorical standards prior to discharging to the KCMO POTW.

Figure 3.3 Water Monitoring Locations:



Permit compliance performance is summarized in **Figure 3.4** for both the MSOP (stormwater) and sanitary / industrial sewer permits. During the calendar year there were only two permit limit non-compliance events associated with either the NPDES or Industrial Wastewater permits. Approximately 1,100 wastewater permit compliance samples were collected during 2013 with no permit limit exceedances.

Figure 3.4 Wastewater Permit Compliance



3.2.1 NPDES Issues

NPDES (MSOP) permit number MO-0004863 was originally issued in 1973 as a NPDES Permit enforced by EPA Region VII and was most recently reissued by MDNR on October 1, 2012.

VOCs

Groundwater contaminated with VOCs impacts stormwater discharges from the KCP to a minor degree. With the exception of Outfall 001, groundwater infiltration rates are generally less than 5 gpm in each outfall and of this amount only a minor volume is contaminated with VOCs. As discussed below, the majority of groundwater that infiltrates into Outfall 001 is captured and routed to the groundwater treatment system. The occurrence of VOCs in stormwater discharges was noted on the occasions listed in **Table 3.2** during 2013. All results were below drinking water standards. The KCP’s NPDES Permit requires quarterly monitoring for TCE, 1,2-DCE, and vinyl chloride (chloroethene). There are no discharge limits. A “notification limit” of 100 µg/L is established under the permit. While “notification” has not been made as none of these parameters has exceeded 100 µg/L, these results are included with quarterly reports submitted to the MDNR Water Pollution Control Division. Results were within the historic range for each outfall.

Table 3.2 VOC Sample Results – Outfalls 001, 002, 003, and 004
(results in µg/L)

Outfall	001			002			003			004			
	Date	TCE	1,2-DCE	Vinyl Chloride									
1/31/12	<1	1.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4/03/12	<1	2.2	<1	<1	<1	<1	<1	<1	<1	1.1	<1	<1	<1
5/09/12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
7/03/12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
10/02/12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

*Outfall 002 sample collected on 1/27/13.
 **Outfall 002 sample collected on 4/17/13.
 ***Outfall 002 sample collected on 6/25/13.
 ****Outfall 002 sample collected on 7/29/13.
 *****Outfall 002 sample collected on 10/15/13.

Drinking water maximum contaminant levels (MCLs):
 TCE – 7 µg/L
 1,2-DCE – 70 µg/L
 Vinyl Chloride – 2 µg/L

Outfall 001

Historically, Outfall 001 has routinely detected VOCs. Past Interim Measures to address the occurrence of VOCs in Outfall 001 included the installation of a groundwater collection system to prevent the migration of contaminated groundwater into Outfall 001 (DOE 1993a). The Outfall 001 Interceptor System was installed during 1993 to capture VOC contaminated groundwater before it infiltrates the 001 storm sewer system. The 001 Interceptor System delivers the groundwater it captures to the Groundwater Treatment System. This portion of Outfall 001 lies in relatively low area where the storm sewer system runs overland. While this system greatly reduced the frequency and levels of VOCs detected at the Outfall 001 compliance point, VOCs continued to be periodically detected in the discharge of Outfall 001 (**Table 3.2**). VOCs in Outfall 001 began to again be routinely detected, at relatively low levels, during 2000. Prior to 2000 monthly samples were collected from outfalls for VOC analysis. After 2000 quarterly sampling for VOCs was performed. Between 2000 and 2004 several maintenance issues were addressed to ensure the 001 Interceptor System was performing as designed. During 2005 additional investigations were completed to determine the source of VOCs in Outfall 001.

Field reconnaissance of the area between the two Union Pacific railroad tracks in 2005 noted the presence of what appeared to be surface seepage along the base of the eastern embankment of the western railroad track immediately north of the existing 001 groundwater collection system. Subsequent sampling confirmed the presence of contamination. The data suggest that groundwater seepage is occurring at the base of the embankment of the railroad tracks and discharging to the 001 storm sewer system in an area of overland flow. Detectable levels of solvents have been noted in Outfall 001 since at least 1995 consisting primarily of 1,2-DCE (see trend graph provided at the end of this section). During 2006, an engineering design to address the seepage along the railroad track embankment was completed for a groundwater seep capture

system. In addition, a camera survey of the 001 stormwater piping system was conducted to determine if leakage of groundwater into piping could be a source of solvents detected in 001 flow. A number of piping integrity issues were noted from this survey. Groundwater was found to be infiltrating 001 piping in several areas. This information was used in the preparation of another engineering design for the repair of stormwater piping within the 001 storm sewer system. Corrective actions outlined in this design have not been implemented. No solvent discharge limit exists for the 001 outfall surface water discharge and as such no regulatory compliance issue exists at the outfall.

Outfall 002

The KCP's NPDES Permit and the Post Closure Permit require sampling for TCE, 1,2-DCE and vinyl chloride. The NPDES Permit requires quarterly sampling and the Post Closure Permit requires semi-monthly sampling for the above VOCs. Historically Outfall 002 has not detected VOCs in stormwater discharges. Sporadic detections of 1,2-DCE have been noted in Outfall 002, however, during 2013 VOCs were not detected in the discharge. As required by the NPDES Permit, quarterly sampling for VOCs will continue during 2014 and as required by the Post Closure Permit semi-monthly sampling for VOCs will also continue during 2014.

Outfall 003

The KCP has previously conducted investigations to determine the source of VOCs in Outfalls 003 and 004 completing a preliminary investigation of six 10,000 gallon underground storage tanks (USTs) associated with the Former Fuels Test Lab (Bldg. 50) located on the GSA controlled portion of the Bannister Federal Complex. GSA is responsible for investigation of Bldg. 50 and associated USTs. A summary of the KCP's preliminary investigation was included in Section 3.6 of the 2001 Annual Groundwater Monitoring Report. The investigation concluded that a source of solvent contamination does exist in this area and is likely contributing to VOCs detected in stormwater discharges from Outfalls 003 and 004. The GSA has further investigated this area to characterize contamination associated with the former tank farm. Follow-up investigations of the Bldg. 50 area and associated USTs by GSA identified TCE concentrations as high as 43,100 µg/L in groundwater (GSA 2008). Outfall 003 had previously been lined by the KCP to address contaminant infiltration concerns. Liner terminations and service connections were sealed during 2005 to further ensure contaminant infiltration points were addressed. VOCs (TCE) were not detected during 2013 in stormwater discharges from Outfall 003 (**Table 3.2**). Prior to the completion of the lining work in 2002 VOCs were routinely detected in stormwater discharges from Outfall 003.

Outfall 004

Outfall 004 continues to occasionally detect TCE in stormwater discharges (**Table 3.2**). The likely source of this contamination is the Building 50 area which is controlled by GSA (see discussion under Outfall 003 above). A camera survey of the 004 stormwater piping system was conducted during 2005 and 2006 to determine if leakage of groundwater into piping could be a source of solvents detected in Outfall 004 stormwater discharges. A number of piping integrity issues were noted from this survey. Relatively minor areas of groundwater infiltration have been found in several areas of Outfall 004. This information was used in the preparation of an

engineering design for the repair of stormwater piping within the 004 storm sewer system during 2006. The work outlined in this design has not been implemented since there is no compliance issue at this point.

PCBs

The occurrence of PCBs in stormwater discharges associated with stormwater run-off from the Bannister Federal Complex is largely associated with two sources that affect three of the four permitted outfalls. Under the KCP's MHWMF Permit (previously enforced by EPA as a RCRA Consent Order) potential sources of PCBs to the environment have been extensively investigated and regulatory approved corrective actions implemented. In addition, the KCP's NPDES permit requires weekly monitoring for PCBs at the four permitted outfalls. The PCB discharge limit is 0.5 µg/L which is also the analytical quantification level for routine compliance reporting purposes. During 2013 none of the four outfalls detected PCBs for samples analyzed by methods required for routine compliance purposes. The following sections provide a basic overview of PCB occurrence in Outfalls 001, 002, and 003. Outfall 004 has not detected PCBs in permit compliance samples.

Outfall 001

The occurrence of PCBs in Outfall 001 is associated with historic spills that occurred during the late 1960's and 1970's from the Department 27 (D/27) heat transfer fluid system (DOE 1995). The D/27 heat transfer fluid system used PCB Aroclor 1242 as the basis for the heat transfer fluid. Several spills associated with D/27 operations contaminated soils within the Outfall 001 water shed. Accessible areas of PCB soil contamination associated with D/27 have been removed (DOE 1994a). PCBs were last detected above the 0.5 µg/L discharge limit in Outfall 001 during 2004.

Outfall 002

The occurrence of PCBs in stormwater is associated with historic PCB releases that are also covered under the KCP's MHWMF Permit also referred to as the RCRA Part B Post Closure Permit. The Post Closure Permit governs the investigation and clean-up of legacy hazardous waste releases associated with plant operations. These releases occurred in the 1940's to the early 1970's timeframe. PCBs were used at the KCP as a heat transfer fluid in plastic injection molding operations. Notable spills of PCB heat transfer fluid occurred in 1969 and 1971 (DOE 1993). These spills were cleaned up according to industry practice at the time of the release; however, soils beneath the main building were contaminated. As a result, PCB contaminated soils remain beneath the MMB (**Figure 3.5**). PCBs are no longer used at the KCP. Portions of the Outfall 002 storm sewer run through or very near the area of PCB contaminated soils. Despite efforts to seal these lines minute quantities of PCBs have the potential to migrate into the storm sewer system and may then be discharged through Outfall 002. As required by the MHWMF Permit the KCP initiated fieldwork in support of a PCB Fate & Transport Study during 2013. As a part of this study sediment samples from the building roof, paved areas, and piping will be collected and analyzed. In addition, a number of receiving stream sediment samples are to be collected. Finally, a number of storm water and receiving stream water samples will be collected along with flow data. This information will be utilized to model the

effect of PCBs in stormwater discharges from the BFC. A summary report is scheduled to be completed during 2015.

The KCP has removed accessible areas of PCB contaminated soils; however, PCB contamination beneath the MMB is inaccessible. Non-intrusive means of remediation have been considered and none have been identified that are capable of removing the area of contamination beneath the building (DOE 2003a). Corrective actions related to investigation and cleanup of past contaminant release sites at the KCP are covered under the site's RCRA Hazardous Waste Management Facility permit. Numerous actions to identify and remediate the occurrence of PCBs at the KCP have been completed with EPA and MDNR oversight and approval (DOE 2003b) and are summarized below.

Investigations – Outfall 002

- Infiltration and Inflow Study, 1983.
- Hydrogeological Site Characterization initiated 1985.
- City Water and Sewerage Evaluation, 1989.
- Abandoned Indian Creek Outfall (AICO) RCRA Facility Investigation (RFI) 1990; Corrective Measures Study (CMS) 1992.
- Bioaccumulation Studies – 1992, 1993, 1994, 1998, 2003 and 2008
- D/26 RFI, 1993.
- 95th Terrace RFI, 1998.
- Miscellaneous Storm Sewer sample events to characterize discharge.
- 95th Terrace Corrective Measures Study, 2002.
- 2002 – DOE Office of Science and Technology Technical Assistance review team site visit and summary report with recommendations.
- 2003 - Interim Measures Report – Outfall 002 Corrective Actions, 2003
 - ↳ Main Building Roof
 - ↳ Semi-Permeable Membrane Devices
 - ↳ Method 1668 Analysis

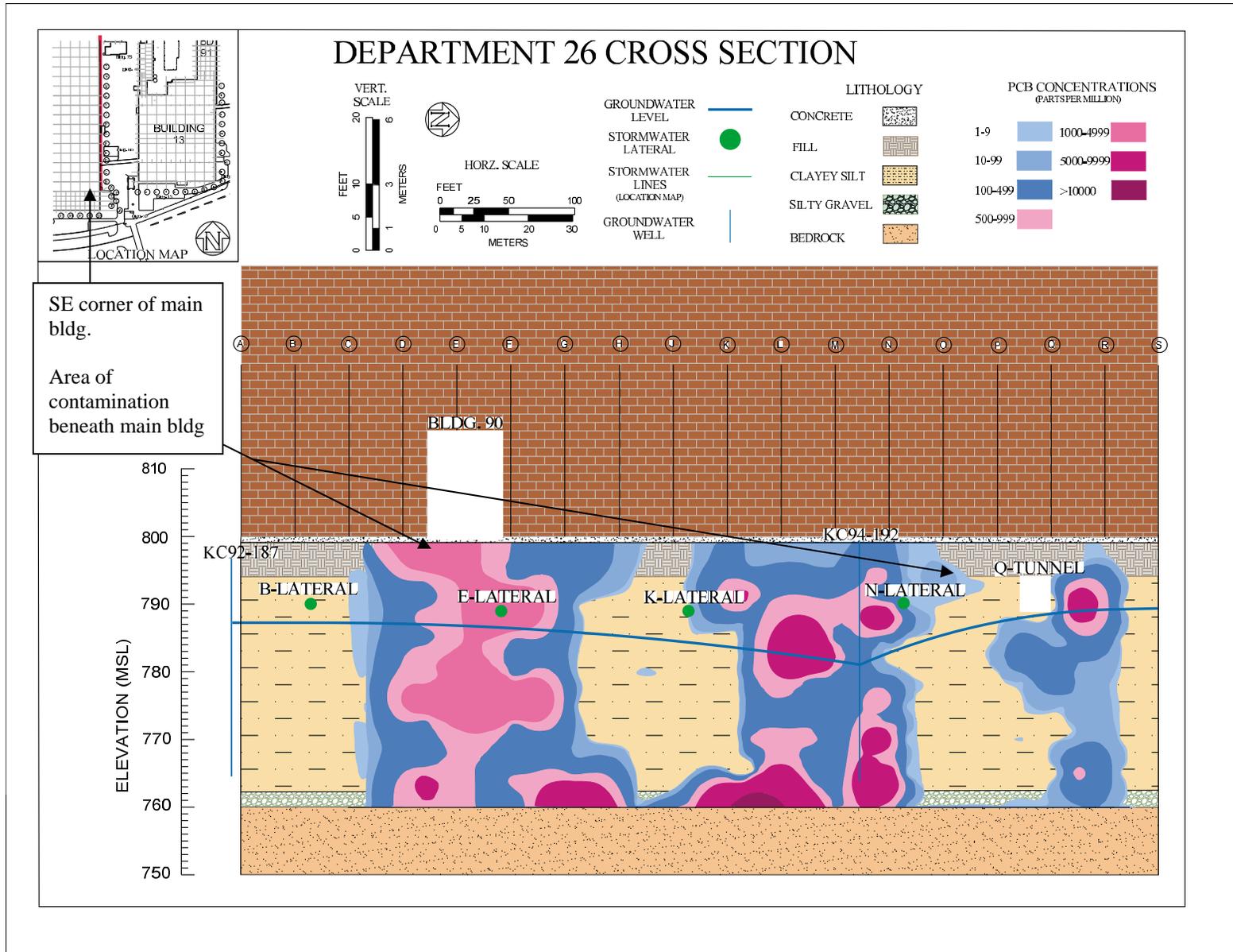
Outfall 002 Corrective Actions

- 1983 - Infiltration and Inflow Study (\$51k)
- 1984 - Modified manholes with debris traps. Cleaned Outfall 002 12/84 (\$600k).
- 1985 - Insituform lined K lateral.
- 1987 - PCB heat transfer piping and oil replaced (\$8,400k). Cleaned Outfall.
- 1988
 - ↳ Insituform lined B, E, N, T and W laterals and trunk line from southeast building corner to AICO (\$570k).
 - ↳ Sediment and debris plus a 320 ft. section of 60 in. corrugated metal pipe and grout removed (\$850k).
 - ↳ Outfall 002 Raceway remediated. 1600 tons of PCB contaminated soil removed. Clean-up level 4 mg/kg (\$600k).
 - ↳ Lined manholes to prevent PCB infiltration (\$40k).
- 1991 - Grout sealed box culvert joints (AICO to outfall) (~\$10k).

- 1993 - Abandoned Indian Creek Outfall remediated. 27,120 tons of PCB contaminated soil removed (\$10,000k).
- 1995 - Waste Oil Tank at former Plating Building site removed. 1,600tons of PCB contaminated soil and 5,000 gal of oil removed (\$600k).
- January 1996 - Cleaned storm sewer (\$6k).
- 1997
 - ↳ Cleaned storm sewer and raceway (\$83k).
 - ↳ D/26 Pipe Gallery remediation. 2,701 tons of PCB contaminated soil removed (\$2,000k).
- 1998 - Cleaned storm sewer (internal labor).
- 1999 – Cleaned storm sewer (\$53k)
- 2000 – Encapsulated PCB oil stain – AICO to flap gate (\$139k)
- 2001 – Cleaned storm sewer, grout injection work, and camera surveys of lateral lines (\$207k).
- 2002
 - ↳ Cleaned storm sewer (7.63 tons, ~ 1/3 dewatering agent), identified roof PCB contamination and developed SOW to address (\$60k).
 - ↳ Bioaccumulation fieldwork completed.
- 2003
 - ↳ Bioaccumulation study (\$233k).
 - ↳ Rerouted several D/26 roof drains (\$185.5k).
 - ↳ Cleaned main trunk line of Outfall 002 (\$124.5k).
 - ↳ Removed PCB contaminated tar coating on roof structures (\$230k).
 - ↳ Inspected and sealed Outfall 002 lateral lines (\$37k).
 - ↳
 - ↳ Grout injected several infiltration points and repaired epoxy coating in box culvert (\$157k).
 - ↳ Installed / evaluated passive filtration system.
- 2004
 - ↳ Install Access Restriction at Outfall 002. Other activities included ongoing investigations to characterize potential source areas (\$88.5k).
 - ↳ Clean Outfall 002 main trunk line (\$69.5k).
 - ↳ Reroute Outfall 002 base flow (\$107k).
 - ↳ Additional SPMD investigations (\$19k).
- 2005
 - ↳ Annual 002 inspection completed - cleaning not required.
 - ↳ Grout injected seeps in box culvert (\$119k).
 - ↳ Additional SPMD investigations conducted (\$70k).
 - ↳ Bioaccumulation Study - final report July 2006 (\$182k).
- 2006
 - ↳ Annual 002 inspection completed - cleaning not required
 - ↳ Lined main trunk line from C60R-05 to MH C42R-13 (see **Figure 3.7**) (\$1,030k)
- 2008
 - ↳ Annual 002 inspection completed - cleaning not required
 - ↳ Bioaccumulation Study – final report December 2008 (\$295k)
 - ↳ Grout injected Outfall 002 box culvert floor joints (\$107k) (see Figure 3.7)
- 2009

- ↳ Annual 002 inspection completed - cleaning not required
- ↳ Liner repairs to the section of pipe immediately upstream of the former Abandoned Indian Creek Outfall were implemented on a temporary basis to address a section of liner approximately 50 ft. in length that had heaved along the longitudinal axis and cracked. This section of liner has been temporarily sealed and a permanent repair is in design.
- ↳

Figure 3.5 Dept 26 Cross Section



- 2010
 - ↳ Annual 002 inspection completed – cleaning not required
 - ↳ Section of damaged liner noted above (2009) was replaced. A total of approximately 150 feet of storm sewer pipe was replaced. In addition, another 150 feet of existing liner was removed and replaced with a new pipe liner system.
- 2011
 - ↳ Annual 002 inspection completed – cleaning not required
 - ↳ No significant environmental projects occurred. Warranty work related to previous lining work was performed.
- 2012
 - ↳ Annual 002 inspection completed – cleaning not required
 - ↳ No significant environmental projects occurred. Warranty work related to previous lining work was performed.
- 2013
 - ↳ Annual 002 inspection completed.
 - ↳ Cleaned Outfall 002 Raceway. Warranty work related to previous lining work was performed.

TOTAL OUTFALL 002 CORRECTIVE ACTION COST TO DATE \$18,913k*

*Does not include \$8,400k to replace D/26 PCB heat transfer system or cost of RFI investigations.

The above actions have significantly improved compliance with the PCB discharge limit of 0.5 µg/L (**Figure 3.6**). These actions had previously resulted in routine compliance with the PCB discharge standard of 1.0 µg/L contained in the KCP's NPDES permit (MO-0004863). Weekly sampling and analysis for PCBs is required by this permit. The PCB NPDES Permit limit was reduced to 0.5 µg/L effective November 2002. During 2013 the 0.5 µg/L PCB limit was not exceeded. **Figure 3.6** and **Table 3.3** depict PCB concentrations in Outfall 002 during 2013. Both the table and the figure provide data from the NPDES permit monitoring location (sluice gate) and the Post Closure Permit monitoring location (flap gate). The sluice gate location (NPDES compliance point) is sampled on a weekly basis and the flap gate location (RCRA Part B Permit sample location) is sampled on a semi-monthly basis.

As discussed below, the Base Flow Diversion System has been operational since March 2005, and as a result, only stormwater is discharged from Outfall 002 during precipitation events. Although weekly sampling is required by the NPDES Permit there are numerous weeks throughout the year where there is no discharge and, therefore, no sample collected from the 002 NPDES compliance point. MDNR personnel from the Kansas City Regional office accompanied KCP representatives during an inspection to determine the effectiveness of the Outfall 002 diversion system on April 7, 2005. Active flow downstream of the diversion system was not observed during this inspection and KCP was instructed to note in the quarterly discharge monitoring reports that there was no flow during the monitoring period. In order to ensure samples are collected from outfall 002 during rain events an automated sampler has been installed. Sample events are triggered on a rain gauge tipping bucket and a flow sensor. This

configuration ensures samples are collected when rain events occur during weekends or off-shifts.

The flap gate monitoring location was added under the Post Closure permit at the request of MDNR RCRA Permit program personnel. Even though there may be no discharge from Outfall

Figure 3.6 Outfall 002 PCB Trend Graph

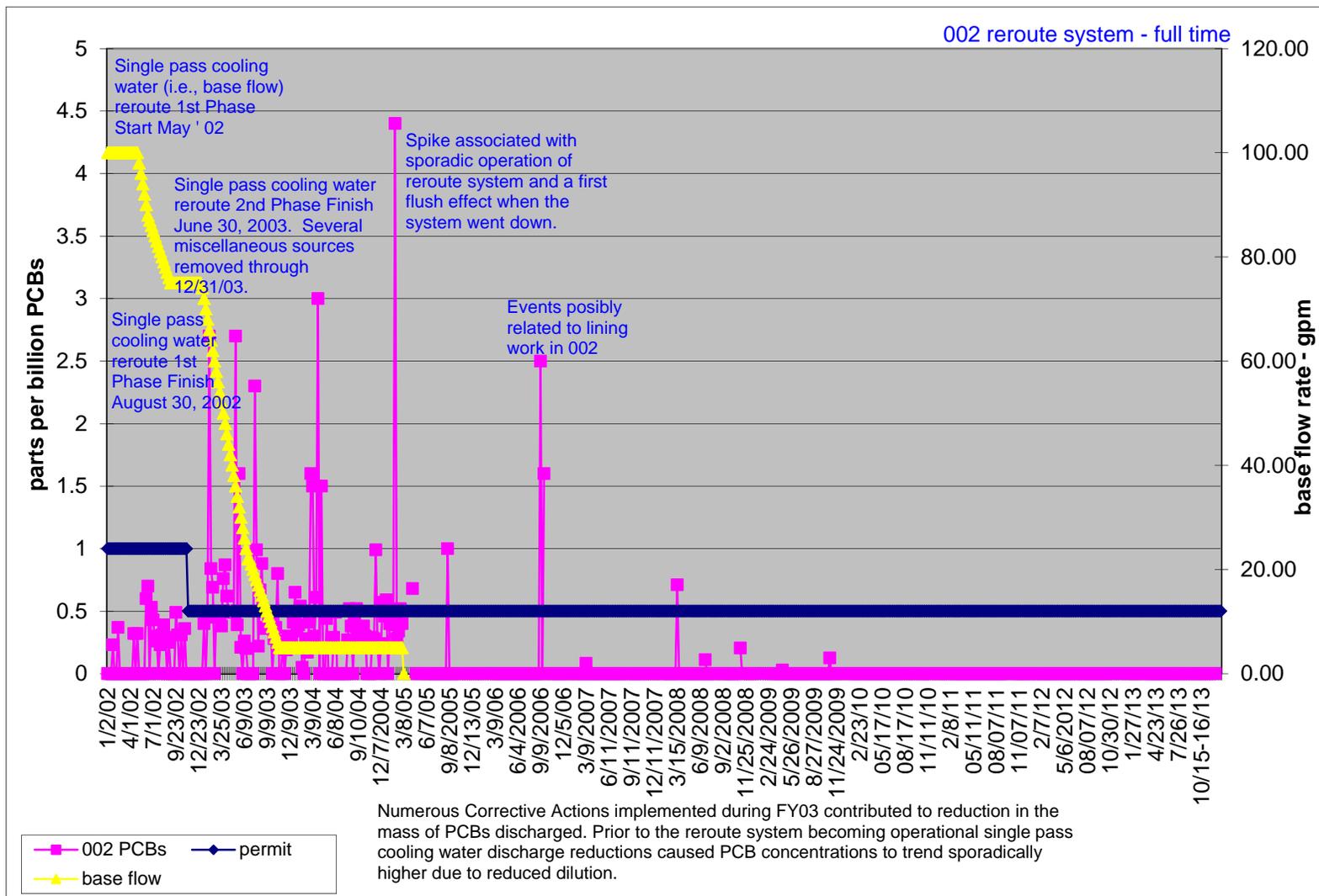


Figure 3.7 Outfall 002 PCBs

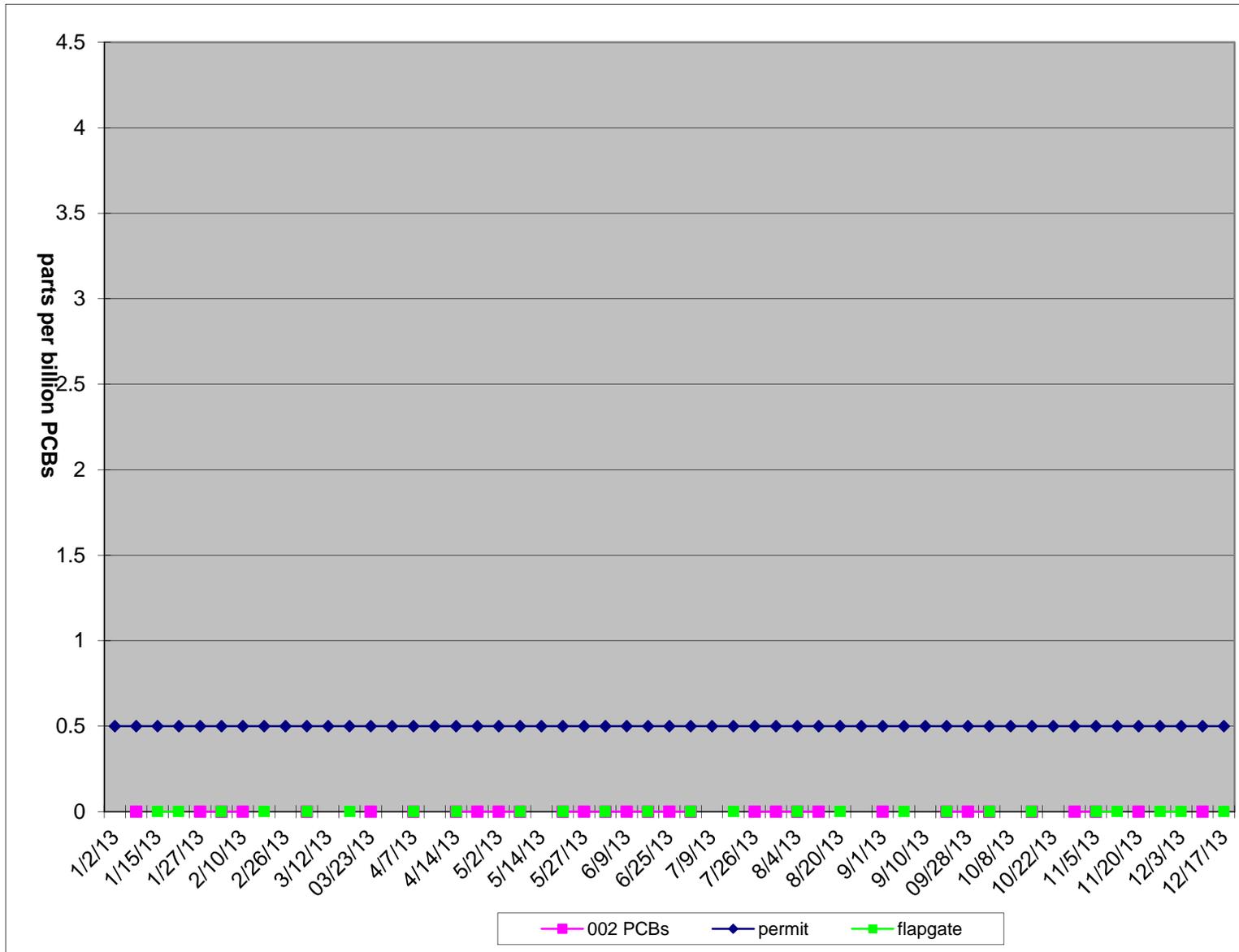


Table 3.3 Outfall 002 PCBs (results ug/L)

Date	002 PCBs	flapgate	permit	comments
1/2/13			0.5	002 reroute system on-line - effectively rerouted all flow
1/10/13	<		0.5	
1/15/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
1/21/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
1/27/13	<		0.5	
2/7/13	<	<	0.5	
2/10/13	<		0.5	
2/19/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
2/26/13			0.5	002 reroute system on-line - effectively rerouted all flow
3/9/13	<	<	0.5	
3/12/13			0.5	002 reroute system on-line - effectively rerouted all flow
3/19/2013		<	0.5	002 reroute system on-line - effectively rerouted all flow
03/23/13	<		0.5	
03/26/13			0.5	002 reroute system on-line - effectively rerouted all flow
4/7/13	<	<	0.5	
4/9/13			0.5	002 reroute system on-line - effectively rerouted all flow
4/14/13	<	<	0.5	
4/23/13	<		0.5	
5/2/13	<		0.5	
5/9/13	<	<	0.5	
5/14/13			0.5	002 reroute system on-line - effectively rerouted all flow
5/19/13	<	<	0.5	
5/27/13	<		0.5	
6/4/13	<	<	0.5	
6/9/13	<		0.5	
6/17/13	<	<	0.5	
6/25/13	<		0.5	
7/2-3/13	<	<	0.5	
7/9/13			0.5	002 reroute system on-line - effectively rerouted all flow
7/19/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
7/26/13	<		0.5	
7/29/13	<		0.5	
8/4/13	<	<	0.5	
8/12/13	<		0.5	
8/20/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
8/27/13			0.5	002 reroute system on-line - effectively rerouted all flow
9/1/13	<		0.5	
9/3/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
9/10/13			0.5	002 reroute system on-line - effectively rerouted all flow
9/15/13	<	<	0.5	
09/28/13	<		0.5	
10/3/13	<	<	0.5	
10/8/13			0.5	002 reroute system on-line - effectively rerouted all flow
10/15/13	<	<	0.5	
10/22/13			0.5	002 reroute system on-line - effectively rerouted all flow
10/29/13	****		0.5	lab error / issue
11/5/13	<	<	0.5	
11/12/13			0.5	002 reroute system on-line - effectively rerouted all flow
11/20/13	<		0.5	
11/26/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
12/3/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
12/13/13	<		0.5	
12/17/13		<	0.5	002 reroute system on-line - effectively rerouted all flow
12/24/13			0.5	002 reroute system on-line - effectively rerouted all flow
12/31/13			0.5	002 reroute system on-line - effectively rerouted all flow

002, samples from the flap gate location are nevertheless collected on a weekly basis. Surface water from Indian Creek backs up into the Outfall 002 raceway and therefore, water is available at the flap gate location.

Water from Indian Creek does not back-up into Outfall 002 piping as there is an approximate one foot drop-off from the flap gate structure to the raceway. Sample results from the Outfall 002 flap gate location periodically detect PCBs. Sample results derived from the flap gate location are not representative of discharges from Outfall 002. PCB results at the flap gate location are affected by sediment entrainment. The Outfall 002 raceway accumulates sediments that contain PCBs. Entraining even small amounts of sediment in the sample can impact the PCB concentration. Sediments that collect in the Outfall 002 raceway are typically contaminated with low level (i.e., less than 1 ppm) PCBs. The water is less than one foot deep in the raceway and the pickup tube on the sampler is occasionally impacted by these sediments resulting in detections of PCBs in the water sample collected at the flap gate location. Sample results at the sluice gate location (NPDES compliance point) and the flap gate location (sample location at the raceway) are not comparable. There are no active or passive sources of flow into Outfall 002 downstream of the sluice gate location that would otherwise account for the sporadic occurrence of PCBs at the flap gate sample location. During 2013, PCBs were not detected in semi-monthly samples collected at the flap gate (post Closure Permit) monitoring location (Figure 3.7). The Outfall 002 Corrective Actions Interim Measures Report (DOE 2003) was submitted to MDNR November 2003 which provides a detailed summary of historic and corrective actions completed through 2003 to reduce PCBs associated with Outfall 002 stormwater discharges (DOE 2003).

Base Flow Diversion System

As a result of significant flow reductions in Outfall 002 the KCP identified a project that would divert base flows (i.e., air conditioning condensate and fire protection system test flows) in Outfall 002 and route this flow to the Groundwater Treatment System (GTS). The GTS has historically received low levels of PCBs and is permitted to receive and treat groundwater contaminated with PCBs and VOCs. During 2005 the KCP completed construction of the Outfall 002 Diversion System. This system diverts all non-rain event flow (base flow) in Outfall 002 to the GTS. Base flow rates in Outfall 002 are approximately 5 gpm and are associated with condensate and to a minor degree fire protection system test flows. Outfall 002 base flows are diverted at manhole MHC60R-05 (**Figure 3-8**). The system is capable of rerouting up to 15 gpm. Once flows exceed 15 gpm a high level float shuts off the pump. As flows return to less than 15 gpm in the outfall the diversion pump is automatically actuated. **Figure 3-6** provides a trend graph of PCB concentrations and flow in Outfall 002.

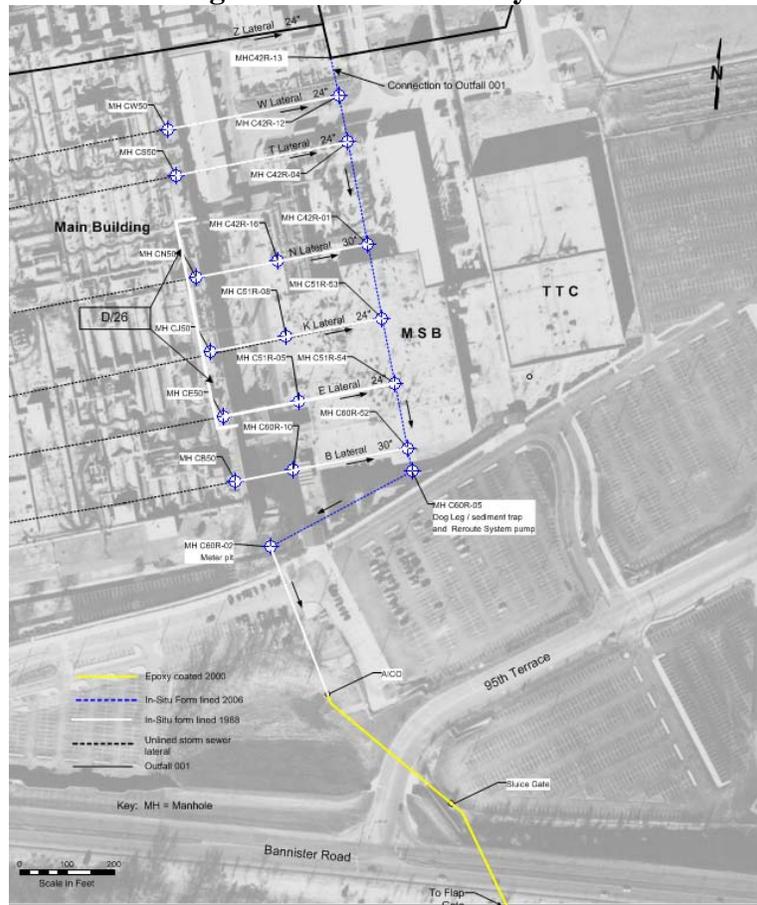
The location of the diversion system ensures that base flow will be captured as the majority of the Outfall 002 watershed is upstream of this location. There are no dry weather inputs downstream of this location. Operation of the 002 diversion system results in discharges from Outfall 002 during precipitation events only. Outfall 002 rain event flows have been characterized and typically do not detect PCBs. Downstream of MHC60R-05 storm sewer flows are related to overland flow such as parking lot drains. Therefore, the diversion system captures non-rain event related flow within Outfall 002. The Outfall 002 diversion system has effectively served reduced PCB discharges. The system operated in a continuous mode during 2010.

MHWMF Permit Driven Actions

The 95th Terrace Corrective Measures Study (CMS) and related Statement of Basis (incorporated into the RCRA Post Closure Permit in a September 29, 2006, permit modification) evaluated several corrective action alternatives related to PCB contaminated sediments associated with stormwater discharges from outfall 002. The approved alternative includes the following corrective actions related to contaminated sediments:

- Semi-Annual sampling of surface waters for PCB analysis by EPA Method 1668.
- Semi-Annual internal inspection of the outfall 002 storm sewer system to identify areas of sediment accumulation and removal of sediments if significant deposits are identified.
- Semi-Annual internal inspection of the Outfall 002 storm sewer to inspect the condition of the pipe and identify any areas of infiltration and mitigation of any infiltration areas.
- Installation and maintenance of an access restriction over the Outfall 002 raceway.
- Posting of notification signs near the Outfall 002 flap gate.
- Indian Creek sediment sampling and calculation of the Hazard Index for the recreational user for the ingestion and dermal contact pathways.

Figure 3.7 Outfall 002 System



Outfall 002 Sediment

The Post Closure permit requires collection of weekly sediment samples at the Outfall 002 sluice gate. There are numerous weeks throughout the year when sufficient sediment is not available for sampling. The majority of the Outfall 002 watershed is comprised of hard surfaces (i.e., buildings and paved areas); therefore, very few sources of sediment discharge to the storm sewer are available. Sediments deposited within the storm sewer system are comprised mainly of roof sand that is abraded off the building's composite roof. Sediments deposited within the storm sewer act as "sinks" where PCBs migrating on colloidal sized particles are entrapped by the sediments. Appendix F of the Sampling and Analysis Plan was modified with approval of the 95th Terrace CMS changing the sediment sampling frequency at the sluice gate to a monthly interval. Sufficient sediment was collected and analyzed on the following occasions during the year (**Table 3.4**):

Table 3.4 Outfall 002 Sediment Sample Results

Results in mg/kg (detection limit dependent upon volume of sample available)

Date / Aroclor	1016	1221	1232	1242	1248	1254	1260	Total
1/21/13	<0.192	<0.384	<0.192	<0.192	<0.192	<0.192	<0.192	<0.384
3/19/13	<0.322	<0.644	<0.322	<0.322	<0.322	<0.322	<0.322	<0.644
7/16/13	<0.195	<0.39	<0.195	<0.195	<0.195	<0.195	<0.195	<0.39

Access Restriction Over Outfall 002 Raceway

The 95th Terrace CMS and related Statement of Basis required the installation and maintenance of an access restriction over the outfall 002 raceway. The Outfall 002 discharge point to Indian Creek consists of a flap gate structure, which is essentially a large hinged door to allow flow to discharge from the storm sewer. When Indian Creek floods the flap gate prevents water from backing up into the storm sewer system. After the water exits the flap gate it enters a raceway, essentially a rectangular pipe with no top, and is discharged to Indian Creek. The raceway is approximately 150 feet long. The 95th Terrace Risk Assessment (URS 2003) identified PCB contaminated sediments that accumulate in the raceway as an area of higher potential risk than the surrounding area (i.e., sediments in Indian Creek). Sediments are periodically removed from the raceway. In order to reduce the potential risk posed by PCB contaminated sediments that accumulate in the raceway an access restriction was installed over the raceway August 2004 (**Figure 3.8.a. – c.**).

The KCP uses a maintenance scheduling program to manage preventive maintenance activities. Inspection of the access restriction is scheduled through this system on a quarterly basis.

Notification Signs

The 95th Terrace CMS and related Statement of Basis required the installation and maintenance of notification signs near Outfall 002. Sign configuration (wording, size, and layout) was previously agreed to by MDNR and KCP representatives. These signs provide notification that fish from the area should not be consumed, and that drinking the water and wading and swimming are not allowed. These signs are also inspected on a quarterly basis which is facilitated through the maintenance scheduling program as discussed above.

Figure 3.8.a Outfall 002 – No Access Restriction

Outfall 002 Raceway looking towards flap gate prior to access restriction installation

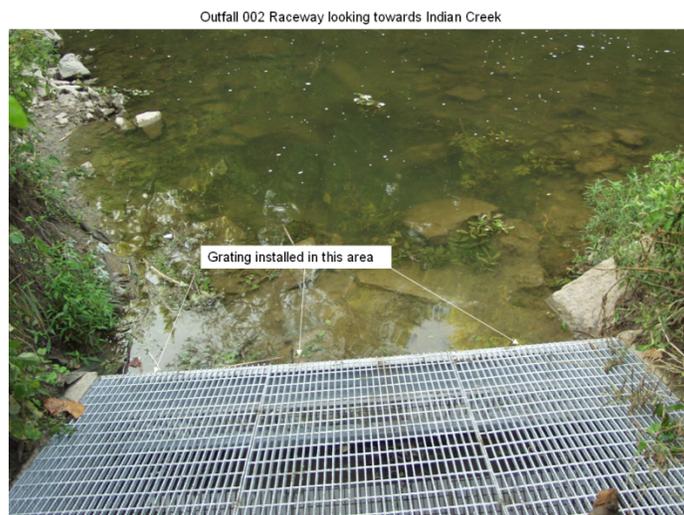


Figure 3.8.b with Access Restriction

Outfall 002 Raceway with access restriction installed looking towards flap gate.



Figure 3.8.c Access Restriction - Indian Creek

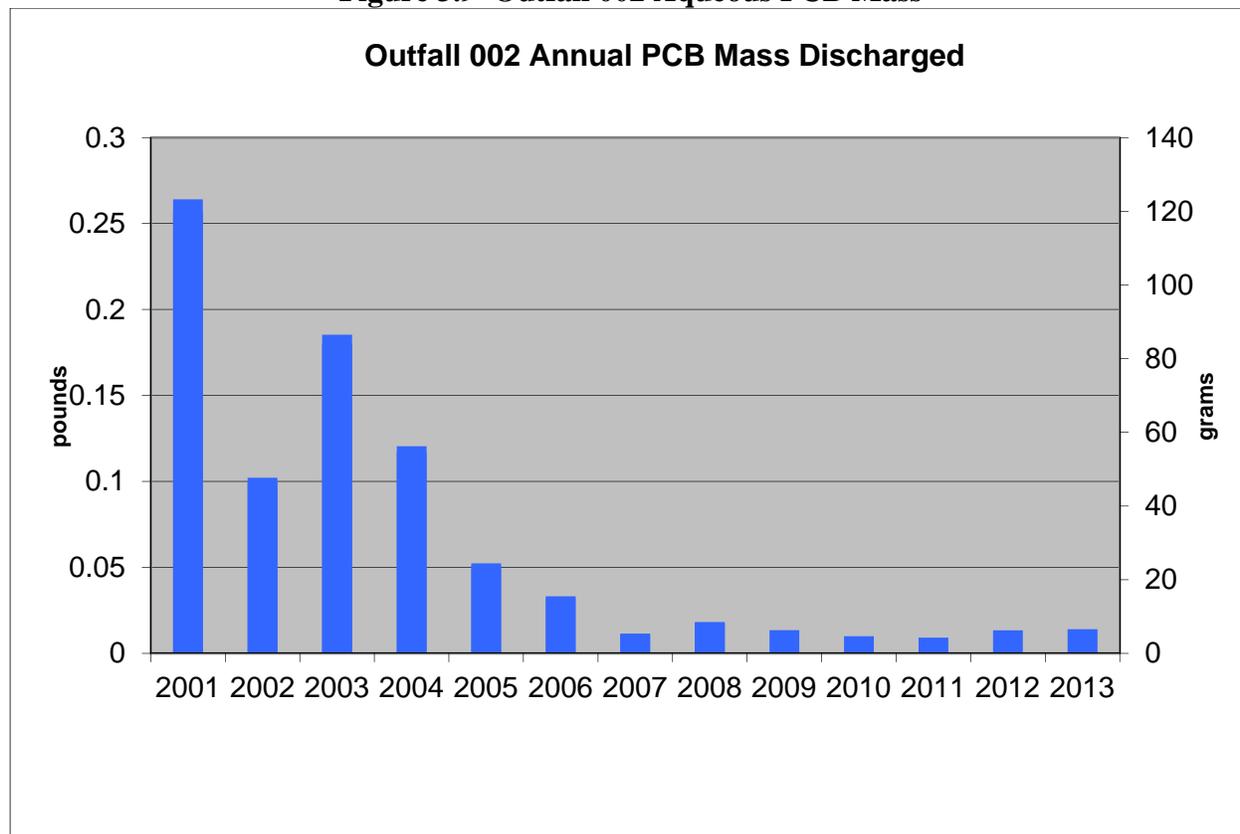


Outfall 002 Aqueous PCB Mass

The cumulative effect of corrective actions taken to date can be summarized, in one way, by reviewing the data trend associated with the aqueous mass of PCBs discharged through Outfall 002 (**Figures 3.6, 3.7, and 3.9**). Since 2003 there has been a steady downward trend in the mass of aqueous PCBs discharged through Outfall 002. The trend graph starts with 2001 since this is the last year prior to efforts initiated to reroute single pass cooling water discharges to the storm sewer system. Prior to 2002, Outfall 002 received approximately 100 gallons per minute (gpm) of single pass cooling water discharges. The KCP's November 1999 stormwater permit (MSOP 0004863) contained a total residual chlorine limit and related compliance schedule. Since single pass cooling water is made-up from drinking water, which contains residual chlorine, the KCP reconfigured processes requiring cooling water to utilize the plant's closed loop chilled water system or, in a few instances, rerouted the single pass cooling water to the sanitary sewer with city approval. As a result of efforts to stop the discharge of single pass cooling water to the storm sewer system the base flow rate (i.e., non-rain event flow comprised of single pass cooling water and air conditioning condensate) went from approximately 100 gpm in 2001 to 5-10 gpm in 2004. This reduction in base flow rate allowed the KCP to capture the remaining base flow in Outfall 002 (see previous discussion), which contained an approximate average of 0.5 $\mu\text{g/L}$ total PCBs, and reroute this water to the Groundwater Treatment System where the PCBs are treated and discharged to the sanitary sewer. This system (Outfall 002 reroute system) became operational March 2005 and has significantly reduced the aqueous mass of PCBs discharged through the Outfall 002 system. **Figure 3.6** provides a trend graph of weekly PCB results collected from the Outfall 002 compliance point, and the approximate single pass cooling water flow rate. As can be seen on **Figure 3.6** as single pass cooling water was reduced PCB trends became very erratic. Numerous corrective actions were also occurring during this period that

cleaned and sealed storm sewer piping. When the 002 reroute system became operational March of 2005 the occurrence of PCBs was greatly reduced.

Figure 3.9 Outfall 002 Aqueous PCB Mass



The methodology employed to calculate the aqueous mass of PCBs discharged through Outfall 002 conservatively estimates mass by using one half the detection limit when the result was non-detect for PCBs. The analytical lab used by the KCP has a 0.1 µg/L detection limit and a 0.5 µg/L quantification limit for PCB analysis. Therefore, 0.05 µg/L is assumed present in the discharge when sample results are non-detect for PCBs. During years when higher annual rainfall is received related PCB mass estimates are higher due to the assumption that up to one half the detection limit is present even though the analysis did not detect any PCBs. The only PCB detections during 2013 were the two sample events that employed Method 1668 analysis. During the other 30 sample events PCBs were not detected, however, one half the detection limit (0.05 µg/L) was used when calculating the mass of PCBs in the discharge which was estimated to be 6.38 grams. Outfall 002 only discharges during rain events and is therefore, not sampled on a weekly basis when there is insufficient rainfall to bypass the reroute system. The above mass estimates are mainly driven by the amount of rain fall received.

Outfall 003

Outfall 003 drains the southwest portion of the Bannister Federal Complex. The occurrence of PCBs in Outfall 003 is associated with a historic spill of PCB based transformer oil. A transformer located on the GSA controlled portion of the building roof is the likely cause of

PCBs detected in stormwater discharges from Outfall 003. Historic interviews with GSA personnel identified the leak of transformer oil. GSA conducted some additional follow-up wipe sampling of the area in question which did not detect PCBs. GSA has documented the occurrence of this transformer oil release and follow-up sampling in a Preliminary Assessment / Site Inspection Report that reviewed several areas of potential environmental contamination on GSA controlled portions of the Bannister Federal Complex (GSA 2008). PCB based transformer oil typically consists of Aroclor 1260. Based on the Aroclor typically detected in Outfall 003 stormwater and congener analysis by Method 1668 (see additional discussion below) analytical data from Outfall 003 confirms the source of PCBs is consistent with a transformer oil spill.

During 2002 the DOE began work to address the occurrence of PCBs in Outfall 003. The outfall was cleaned to remove PCB contaminated sediments during 2002 and again during 2008. Investigations by DOE also identified expansion joint material between pipe joints of the main collector line as being contaminated with up to 250 ppm of PCB Aroclor 1260. To rule out cross contamination issues, samples of the expansion joint material were collected from the top of the pipe. It is not uncommon to find PCBs in construction materials that pre-date the early 1970's. In order to address the occurrence of PCBs in the expansion joint material DOE lined the length of the main trunk line and the S lateral and AC lateral (**Figure 3.10**). Cleaning and lining the Outfall 003 storm sewer system has achieved routine compliance with the 0.5 µg/L PCB discharge limit (**Figure 3.11**).

Figure 3.10 Outfall 003 System

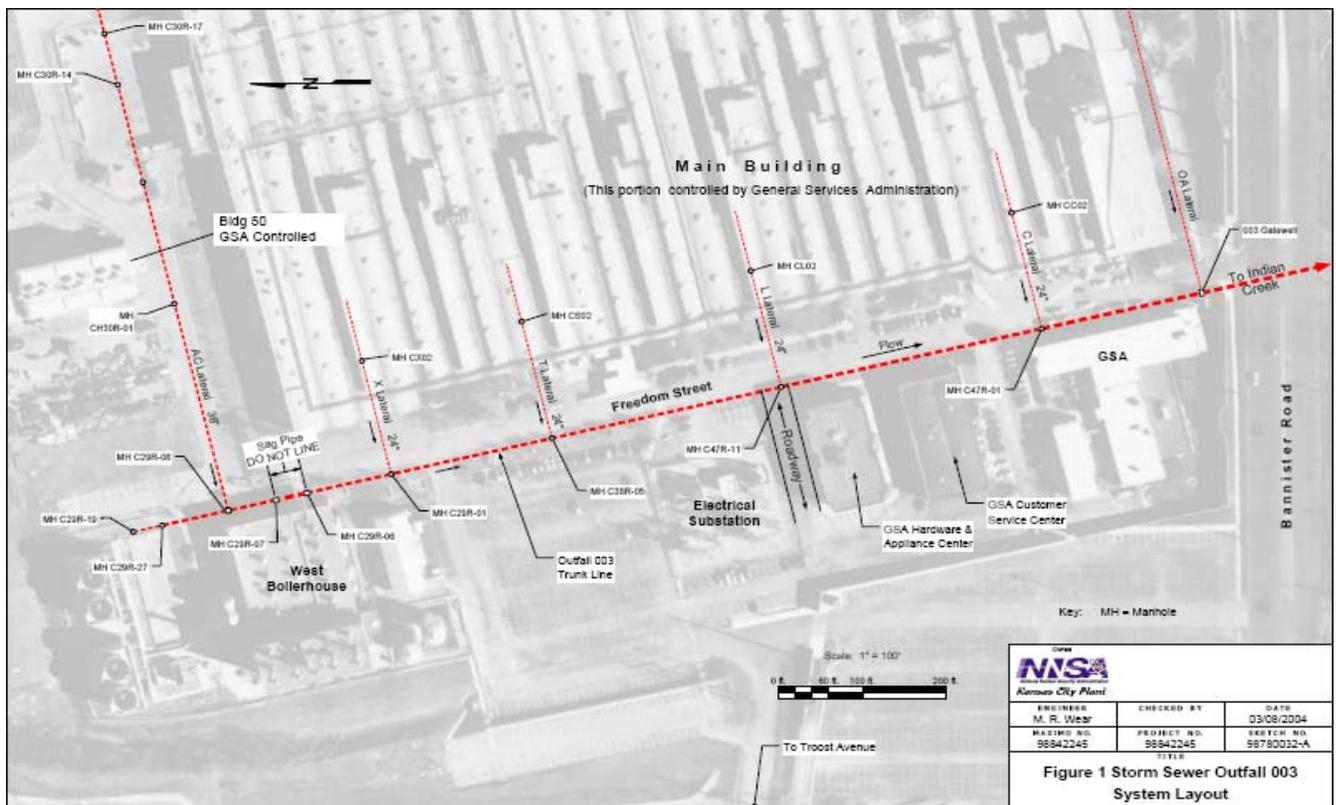
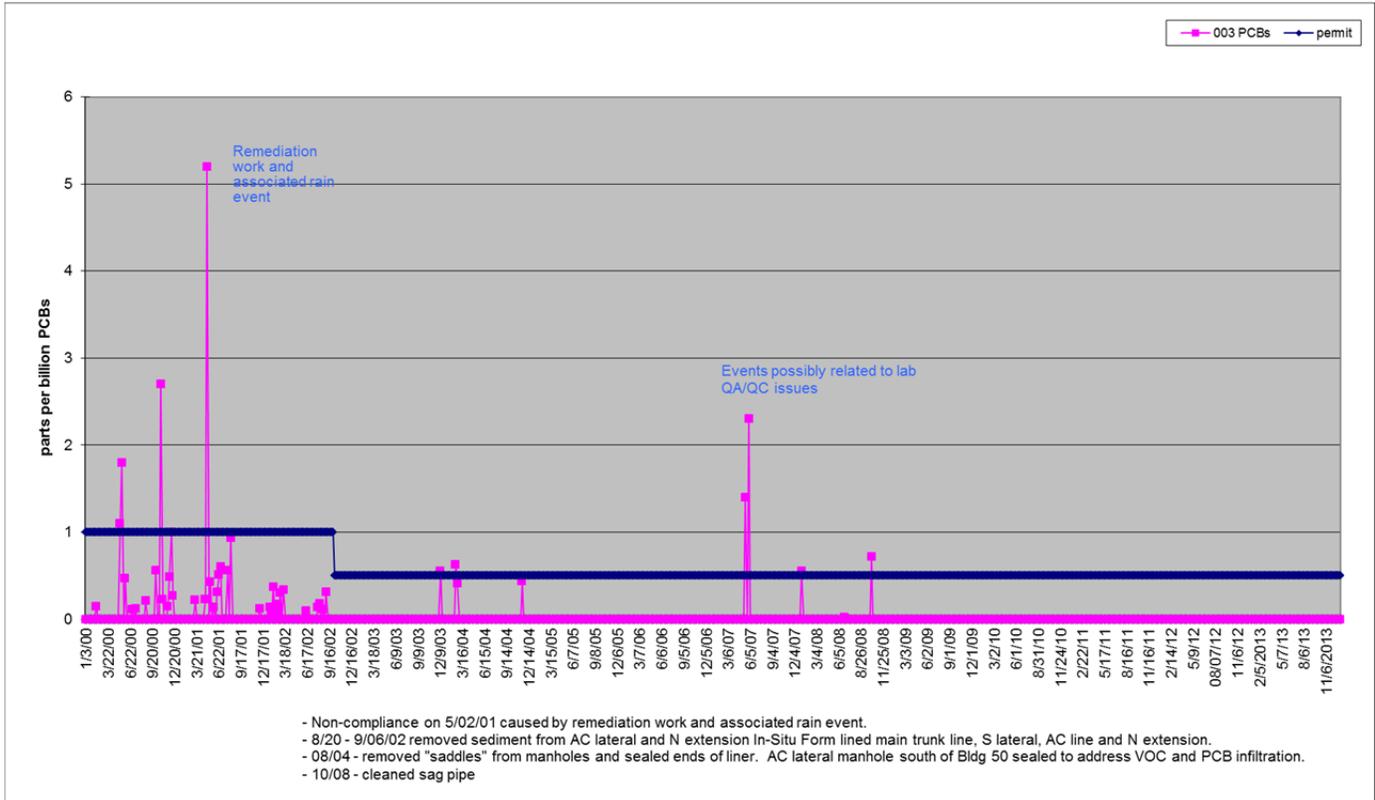


Figure 3.11 Outfall 003 PCB Trend Graph



Permit Non-compliance

Stormwater discharges collected from Outfall 002 on January 27, 2013, detected 19.2 mg/L of oil & grease. Permit limits associated with oil & grease are 15 mg/L daily and 10 mg/L as the monthly average. Outfall 002 was also sampled for oil & grease on January 10, 2013, which did not detect the presence of oil & grease. In addition, the backup sample from the January 27th event was analyzed and did not detect the presence of oil & grease. The average of the three samples is 6.4 mg/L which is below the permit limit monthly average of 10 mg/L. Results of the investigation associated with this event were provided in the written notification submitted to MDNR in a March 7, 2013 letter. The likely cause of this non-compliance event is the first flush effect associated with the minimal rain event (0.08 inches of rainfall recorded on the 27th) which resulted in a minimal amount of stormwater run-off sufficient to bypass the re-route system and was subsequently sampled.

Unauthorized Discharge Events

During 2013 there was one unauthorized discharge event. Unauthorized discharge events do not result in non-compliance with discharge standards, however, they are not technically allowed as only rain event, HVAC condensate, and fire protection test flow water are authorized discharges. Although fire protection line breaks are comprised of city drinking water these events are

technically considered unauthorized discharge events since the source of the flow is not associated with testing of the system.

Table 3.5 Unauthorized Discharge Events

1.	6/194/13	On June 19 th a fire protection line break occurred discharging approximately 5,000 – 10,000 gallons of water (drinking water) into the storm sewer system. The Kansas City Regional Office (KCRO) was verbally notified of the above event.
----	----------	---

Receiving Stream Monitoring

During 2013 water quality in Indian Creek and the Blue River was monitored at six sites on a semi-annual basis (Figure 3.3). Two monitoring sites, one on Indian Creek and one on the Blue River, are located upstream of plant outfalls. Additional monitoring points are located downstream of each plant outfall and at the confluence of Indian Creek and the Blue River. These sites were monitored for all parameters monitored in the outfalls.

Water quality in Indian Creek and the Blue River are highly variable because of contamination introduced upstream of the KCP by discharges from several POTWs and by general urban runoff (USGS 2006). A complete discussion of receiving stream monitoring is provided in the KCP’s Annual Groundwater Corrective Action Report (DOE 2013).

The reach of the Blue River bordering the KCP is a Class P stream meaning permanent flow is maintained even in drought periods (10 CSR 20-7.031(1)(F)). Designated uses are; AQL – protection of warm water aquatic life, human health / fish consumption, WBC – whole body contact recreation, LWW – livestock & wildlife watering, and BTG – boating and canoeing.

The reach of Indian Creek bordering the KCP is a Class C stream meaning flows may cease in dry periods but permanent pools are maintained which support aquatic life (10 CSR 20-7.031(1)(F)). Designated uses are; AQL – protection of warm water aquatic life, human health / fish consumption, WBC – whole body contact recreation, LWW – livestock & wildlife watering, and IND – industry.

The designated use of the water body determines the appropriate surface water standard. With the exception of iron levels in samples collected from the Boone Creek upstream location and Outfall 004 analytical results from samples were below the surface water quality standards (**Table 3.6**). However, the corresponding surface water sampling site did not exceed the standard for iron.

Table 3.6 Surface Water Sampling Results

Date	Parameter	Surface Water Standard	Unit	OF001	OF002	OF003	SWBCD	SWBCU	OF004	SWBRDD	SWBRU	SWICBR	SWICDA	SWICDB	SWICU
25-Jun-13	1,2-Dichloroethene (Total)	140000	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
25-Jun-13	Aluminum	750***	ug/L	176	508	87.7	115	133	189	168	178	356	151	108	107
25-Jun-13	Arsenic	20***	ug/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
25-Jun-13	Barium	2000*	ug/L	166	35.8	465	582	268	280	137	124	142	104	114	110
25-Jun-13	Beryllium	5***	ug/L	< 1	2.7	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
26-Jun-13	Biochemical Oxygen Demand, 5d		mg/L	3.5	12.5	4.3	2	5.9	5.2	3.6	10.7	2.8	3	2.9	3
25-Jun-13	Boron		ug/L	127	574	< 100	< 100	275	318	126	119	< 100	168	155	154
26-Jun-13	Chemical oxygen demand		mg/L	32.8	142	36.4	47.8	40.6	17.7	25.7	27.2	13.4	24.3	20	22.9
25-Jun-13	Chromium	74 - 117***	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
25-Jun-13	Copper	7 - 12***	ug/L	< 10	16	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
25-Jun-13	Cyanide	5***	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
25-Jun-13	Iron	1,000***	ug/L	584	568	199	473	1600	3260	252	213	411	219	130	129
25-Jun-13	Lead	3 - 5***	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	14.4	38.9	< 5	< 5	< 5
25-Jun-13	Mercury	0.5***	ug/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
25-Jun-13	Nickel	52 - 84	ug/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
25-Jun-13	Nitrogen, Ammonia	10*	mg/L	0.21	0.91	< 0.1	< 0.1	4.2	6.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
25-Jun-13	Nitrogen, Nitrate		mg/L	1.6	1.4	1.4	1.2	0.66	0.61	3.8	3.7	1.7	6.2	5.6	7
25-Jun-13	Nitrogen, Nitrite		mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2	< 0.5
25-Jun-13	Nitrogen, NO2 plus NO3, Water		mg/L	1.7	1.4	1.4	1.2	0.71	0.64	3.8	3.7	1.7	6.2	5.6	7
25-Jun-13	Oil and Grease	permit	mg/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
26-Jun-13	PCB-1016 (Aroclor 1016)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26-Jun-13	PCB-1221 (Aroclor 1221)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26-Jun-13	PCB-1232 (Aroclor 1232)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26-Jun-13	PCB-1242 (Aroclor 1242)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26-Jun-13	PCB-1248 (Aroclor 1248)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26-Jun-13	PCB-1254 (Aroclor 1254)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26-Jun-13	PCB-1260 (Aroclor 1260)		ug/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
25-Jun-13	pH	permit	Std. Unit	8	7.1	7.7	7.9	7.3	7.3	8	8	7.8	8.1	7.9	8
25-Jun-13	Phenolics, Total Recoverable	100***	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
25-Jun-13	Phosphorus		mg/L	0.21	0.11	< 0.1	< 0.1	< 0.1	0.12	< 0.1	< 0.1	< 0.1	0.17	0.14	0.18
25-Jun-13	Potassium		ug/L	3170	837	2250	2920	12000	14000	9140	7970	5920	9040	10100	11100
25-Jun-13	Selenium	5***	ug/L	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
25-Jun-13	Silver	3.2 - 8.4***	ug/L	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
25-Jun-13	Strontium		ug/L	1110	381	1430	1770	820	789	508	468	437	452	512	476

Table 3.6 Surface Water Sampling Results (continued)

Date	Parameter	Surface Water Standard	Unit	OF001	OF002	OF003	SWBCD	SWBCU	OF004	SWBRDD	SWBRU	SWICBR	SWICDA	SWICDB	SWICU
25-Jun-13	Sulfate	250*	mg/L	67	26.2	65	67.4	100	110	71.3	71.3	49.2	86.4	87.1	90.3
25-Jun-13	Temperature	permit	deg C	20.5	24.6	19.1	19.4	22.6	22.2	25.4	24.4	25.6	24.3	24.9	24.4
25-Jun-13	Thallium	6.63**	ug/L	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
25-Jun-13	Titanium		ug/L	< 10	12.5	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
26-Jun-13	Total Organic Carbon		mg/L	9	42.2	9.8	2.1	9.3	7	4.2	2.8	3.4	4	4.8	2.6
25-Jun-13	Total Settleable Solids	permit	mL/L/hr	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
25-Jun-13	Trichloroethene	80**	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
25-Jun-13	Vinyl Chloride	525***	ug/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
25-Jun-13	Zinc	129-165***	ug/L	< 50	744	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
<p>Surface Water Standards are taken from 10 CSR 20-7.031 Table A. Where applicable, the lowest designated use standard is used in the "Surface Water Standard" column. Where an applicable standard was not available the drinking water standard was used, if available.</p> <p>PCB results are included in a separate table showing Method 1668 results.</p> <p>*drinking water standard - designated use and associated standard does not apply to surface water near the KCP. Referenced as other standards do not provide a value.</p> <p>**human health protection - fish consumption</p> <p>***protection of aquatic life</p> <p>¹Dissolved metal</p> <p>²Hardness dependant. Assume receiving water hardness in the 121 - 180 range. Based on chronic standard.</p>															

3.2.2 Sanitary Sewer Discharge Issues

A Wastewater Discharge Permit enforced by the city of KCMO regulates sanitary and industrial wastewater discharges. This permit was reissued on June 24, 2009, to the Department of Energy. Permit limits are enforced for the Groundwater Treatment Facility (GTF), the IWPF, the Industrial Wastewater Reverse Osmosis (IWRO) treatment system, Cyanide Treatment System (CTS), and the total facility discharge. During 2013 all discharges were in compliance with permit discharge limits.

Sanitary Sewer

KCP discharges to the KCMO POTW include untreated sanitary sewage, treated industrial wastewater effluent from the IWPF, IWRO, CTS, and wastewater from the GTF. Regulatory compliance for each of the above systems is monitored at the effluent discharge point for each treatment unit. The point where all these flows join is identified as the Combined Sanitary Sewer (CSS) sampling location. The IWPF, IWRO, and CTS treat metal finishing byproduct wastewater prior to discharging to the sanitary sewer system. These discharges are regulated by federal pretreatment standards under the Metal Finishing category (40 CFR 433).

Industrial Wastewater

The IWPF treats all process related wastewater generated by production operations at the KCP. In addition, a portion of the dilute industrial wastewater is routed for treatment at the IWRO and recycled as cooling tower make-up water. Recycling treated industrial wastewater as cooling tower make-up avoids the use of potable water and the discharge of wastewater to the POTW. Water treated at the IWPF and the IWRO is regulated by the city sanitary sewer discharge permit under the Metal Finishing Pretreatment category (40 CFR 433).

Regulations, as implemented by KCMO, require monitoring of the IWPF and IWRO for three - day periods twice each year to determine compliance with regulatory limits. The results of this monitoring are reported to KCMO in Semi Annual Reports due on January 1st and July 1st of each year in "Semiannual Reports for Significant Industrial Users." In addition to this required monitoring and reporting the KCP monitored the CSS and the IWPF on a more frequent basis.

In order to reduce the volume of RCRA Hazardous waste sludge that is produced by IWPF operations process chemistry changes were implemented to use sodium hydroxide rather than slaked lime. Bench treatability tests were completed during 2002 and all IWPF operations were converted to use sodium hydroxide to adjust the pH of the wastewater by 2003. Using sludge volume from 1995 as a baseline, an 83% reduction in the volume of IWPF sludge was achieved in 2013 (**Figure 3.12**). In addition, all IWPF sludge generated during 2013 was recycled to recover copper held in the sludge.

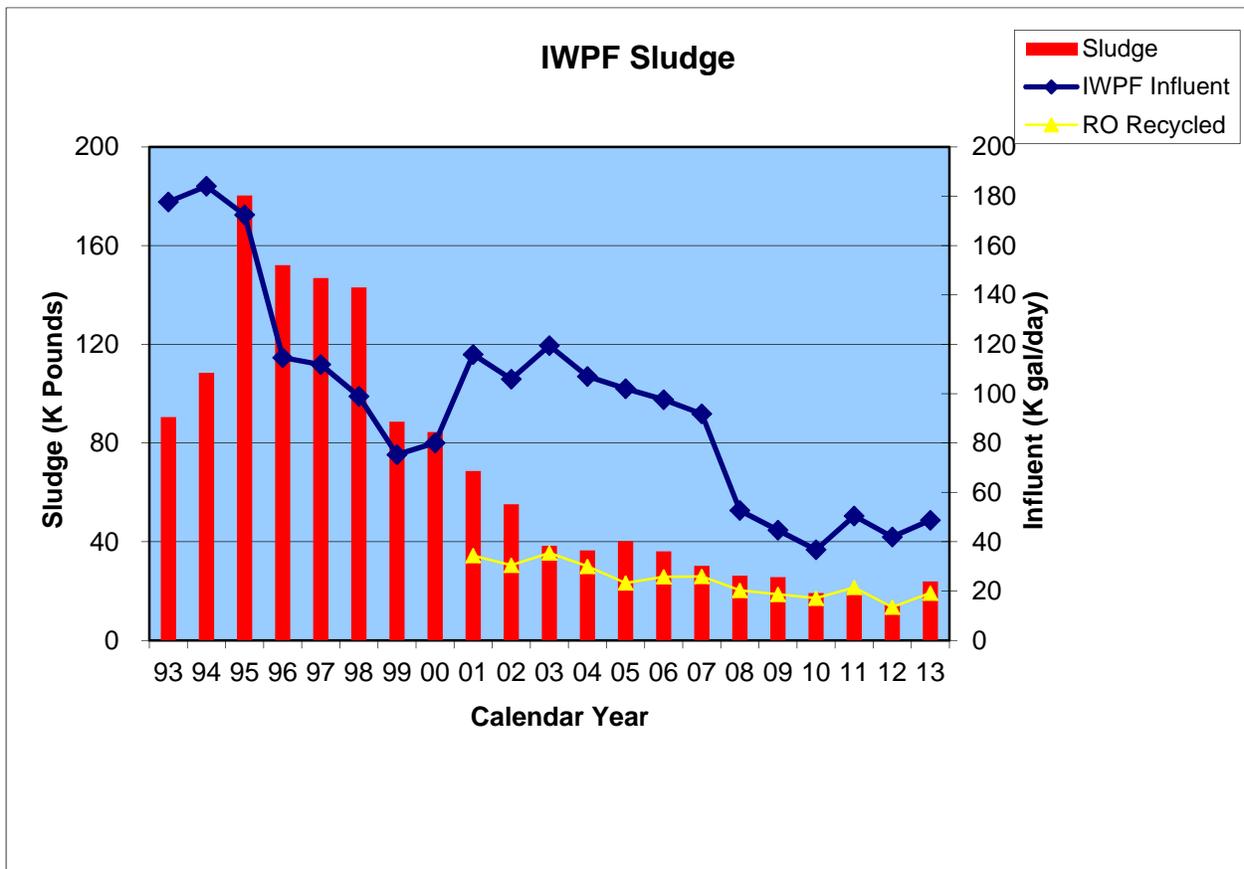
Total facility industrial wastewater flows are depicted by the "IWPF Influent" trend line in **Figure 3.13**. Influent industrial wastewater treated by the IWRO system is depicted with the "RO Recycled" trend line. The wastewater treated and recycled by the IWRO system reduces the volume of wastewater treated and discharged to the sanitary sewer by recycling the reclaimed wastewater and also reduced the volume of sludge generated by reducing the volume of

wastewater that contributes to the generation of IWPF sludge. During 2013, daily industrial wastewater flows averaged 48,700 gpd and 19,180 gpd of this total was treated and recycled as makeup to cooling tower operations. This recycling effort results in 19,180 gpd less make up water use and 19,180 gallons less discharged to the sanitary sewer.

Groundwater Treatment Facility

Operation of the GTF is required under the KCP’s RCRA Permit to cleanup and contain groundwater contaminated with solvents (trichloroethylene (TCE) and its degradation products 1,2-dichloroethylene (DCE) and vinyl chloride) and PCBs. Groundwater clean-up activities are further discussed under **Section 3.6**. All permit discharge limits were met at the GTF during 2013.

Figure 3.12 IWPF Sludge



*Since 2005 all IWPF sludge has been recycled for copper recovery.

Regulatory Inspections

On November 6, 2013, representatives from the Kansas City, Missouri, Industrial Waste Control Division conducted an inspection of the facility to ensure compliance with permit terms and conditions. Reports and records required by the permit were reviewed and samples were

collected from the permitted discharge points. As a result of the inspection, there were no findings and analytical results for the permitted discharges were in compliance with permit limits.

Table 3.7 Clean Water Act Reports

Report	Submittal due date(s)	Submittal Agency	Frequency
Quarterly NPDES Report	1/28 4/28 7/28 10/28	MDNR Kansas City Regional Office	Quarterly
Annual NPDES Summary Report	1/28	MDNR Kansas City Regional Office	Annual
Semi-Annual Significant Industrial Users Report	1/1 7/1	KCMO Pollution Control Department, Division of Industrial Waste Control	Semi-Annual

Analytical Laboratory Quality Assurance

The KCP utilizes the services of a subcontract laboratory to perform analysis on wastewater samples collected to demonstrate compliance with limits in the above wastewater permits. The subcontract laboratory is required to certify under the National Environmental Laboratory Accreditation Program (NELAP). NELAP auditors conduct comprehensive laboratory audits on a bi-annual basis. In addition, NELAP performance evaluation samples are submitted to the on a semi-annual basis and the laboratories performance is assessed to determine their ability to identify type and quantity of constituents present in the samples. Monthly QA Reports are submitted to the KCP for review. Performance against established method control limits is reviewed and corrective actions taken to address data trends and instances when warning or control limits were exceeded are reviewed.

Kirtland Operations

KO has only batch discharge of industrial wastewater from any of its facilities and is not required by the Albuquerque, NM or Barling, AR Publicly Owned Treatment Works to obtain a wastewater discharge permit.

Stormwater discharge from the NC-135 Site is regulated under the KAFB Stormwater Permit. KO has submitted a No Exposure Certification for Exclusion from NPDES Storm Water Permitting to U.S. EPA for the Craddock A, B, and C facilities and is currently awaiting a response from EPA. The Air Park Facility and the Mobile Electronic Maintenance Facility are not subject to stormwater regulations. There were no stormwater-related regulatory inspections in CY2013.

3.3 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) / Superfund Amendments and Reauthorization Act (SARA)

The KCP maintained compliance with SARA by completing the Emergency Planning and Community Right-to-Know, EPCRA Sections 311, 312 inventory reports, and the Toxic Release

Inventory, SARA Section 313 report. Also the KCP maintained compliance with the spill reporting requirements of SARA through the use of the KCP Spill Control Plan which is written in compliance with the requirements of 40 CFR 112 for spill prevention control and countermeasures plans and 40 CFR 264 Subpart D. The spills that occurred at the KCP were minor in nature and did not trigger any reporting thresholds. The National Response Center was not called for any of the minor spills.

As significant operational moves (equipment, chemicals, and people) to the National Security Campus (NSC) are completed, EPCRA reporting requirements for the NSC have also been initiated. Required Extremely Hazardous Substance (EHS) notices and the annual Tier II report have been submitted. A Toxic Release Inventory Facility ID Number, 6414WNTNLS1452B, was established for the NSC, and a RY2013 Form R completed. KCFO also determined that only the Federal Facility Form R was required to be submitted for both Bannister [TRI-ID # 64131SDPTF2000E] and NSC. The Bannister GOCO [TRI-ID # 64131SDKNS2000E] filing, which consisted of duplicate data, was determined to be no longer necessary and will not be prepared or submitted in the future.

Table 3.8 CERCLA/SARA Reports

Report	Submittal due date(s)	Submittal Agency	Next Submittal	Frequency
Section 311, 312 Inventory /Storage – Tier II	3/1/2013	Missouri Emergency Response Commission, Mid-America LEPC, and KCMO Fire Department	3/1/2014	Annual
Section 313 Toxic Release Inventory	7/1/2013	EPA EPCRA Reporting Center and State of Missouri	7/1/2014	Annual

Kirtland Operations

KO maintained compliance with SARA by completing Emergency Planning and Community Right-to-Know, SARA Sections 311, 312 inventory reports for lead-acid batteries. Spills that occurred at the KO were very minor in nature and did not trigger any reporting thresholds. A Baseline Environmental Survey was completed for the NC-135 Site which documents its environmental status and concludes there is no legacy or known underground contamination issues requiring remediation.

Table 3.8.a KO CERCLA/SARA Report

Report	Submittal due date(s)	Submittal Agency	Next Submittal	Frequency
--------	-----------------------	------------------	----------------	-----------

Section 311 Inventory	3/1/2013	New Mexico State Emergency Response Commission (NM SERC), Albuquerque/Bernalillo County Local Emergency Planning Committee (A/BC LEPC), and the Kirtland Air Force Base Fire Department	3/1/2014	Annual
Section 312 Storage	3/1/2013	New Mexico State Emergency Response Commission (NM SERC), Albuquerque/Bernalillo County Local Emergency Planning Committee (A/BC LEPC), and the Kirtland Air Force Base Fire Department	3/1/2014	Annual

3.4 Toxic Substances Control Act (TSCA)

The Toxic Substances Control Act of 1976 provides EPA with authority to require testing of chemical substances, both new and old, entering the environment and to regulate them where necessary. TSCA also regulates the use and storage of PCBs at the KCP. Transformers and other identified electrical equipment have been drained and removed from the KCP. The KCP maintained compliance with TSCA in 2010.

Current Issues

The reconfiguration of the plant has freed equipment to be excessed that has been contaminated with PCBs in the past. The new regulations provide for decontamination of this equipment. KCP has been decontaminating or encapsulating PCB contaminated plant areas that are to be abandoned or reused for other activities as the plant size decreases. If equipment cannot be decontaminated it has been shipped offsite and disposed of as a TSCA regulated waste. No equipment with surface PCB levels above 10 µg/100 cm² or internal fluid levels greater than 50 ppm has been released to the public.

Table 3.9 TSCA Reports

Report	Due date(s)	Submittal Agency	Next Due Date	Frequency
Annual PCB Report	6/30/2013	None - Retained in company files	6/30/2014	Annual

Kirtland Operations

KO has no regulated levels of PCBs at any of its facilities.

3.5 Federal Insecticide, Fungicide, and Rodenticide (FIFRA)

The Federal Insecticide, Fungicide, and Rodenticide Act restricts the application of pesticides and herbicides through a state-administered certification program. In 2010, the KCP contracted out all applications of pesticides to certified pest control firms, thus maintaining compliance with FIFRA.

Kirtland Operations

KO contracted out all applications of pesticides to certified pest control firms, thus maintaining compliance with FIFRA.

Current Issues

None

Reports

None

3.6 Resource Conservation and Recovery Act (RCRA)

3.6.1 Waste Management

The KCP is regulated by State and Federal hazardous waste regulations and is subject to RCRA inspections by the EPA and the MDNR. All reporting requirements to these agencies have been met. The varied operations of the KCP generate hazardous wastes as defined by 40 CFR 261 from processes such as surface coating, etching, electronic assembly, metals and plastics machining and forming, and wastewater treatment.

RCRA wastes are stored on-site less than 90 days in compliance with RCRA requirements for large quantity generators of hazardous waste. These wastes are then transported off-site by licensed transporters or are transferred to the on-site CWA-permitted IWPF. Recycling, treatment, or disposal occurs at Honeywell-reviewed facilities currently in substantial compliance with state and /or federal hazardous waste regulations. Operations that constitute the major contributors of hazardous waste include wastewater treatment, plating, and etching processes.

Regulatory Inspections Update

On March 12th and 13th a RCRA inspection was conducted at the KCP by US EPA Region VII. Three 55 gallon open top satellite storage containers in a single department were found to be not closed because the nut on the locking bolt on the container was not tight on the drum while in storage. The nuts on the container lids were tightened immediately upon finding them during the inspection. A formal response to the EPA inspection was submitted on March 26, 2013. Based on a letter dated June 5, 2013, EPA accepted the response and had no further issues.

3.6.2 Waste Minimization / Pollution Prevention (Wmin/P2) Program

This program is primarily driven by the following:

- Pollution Prevention Act (PPA)
- Resource Conservation and Recovery Act (RCRA)

Pollution Prevention (P2) is an integral part of the KCP's Environmental Management system. It is an organized and continual effort to systematically reduce material releases to all environmental media as well as conserve energy and water. The overall program focus is the reduction and eventual elimination of significant environmental impacts. The first choice is the elimination of the sources of waste. When this is not feasible options for recycling or reusing the waste are considered. Treatment and disposal are only considered when source reduction or

recycling options are not feasible or cost effective. The program also emphasizes the procurement of environmentally preferable products containing recycled materials.

Routine hazardous waste generated during FY12 was 34,945 pounds. Routine hazardous waste generated during FY13 was 53,898 pounds.

Routine non-hazardous waste generated during FY12 was 1,602,240 pounds and is defined as waste associated with production operations at the KCP. Routine non-hazardous waste generated during FY13 was 1,914,092 pounds. The increase in the volume of non-hazardous wastes generated by KCP operations has been caused by inventory reduction efforts resulting from plans to move the facility in CY2013 and CY2014.

During FY13 the KCP recycled 2,178,639 pounds of material, down from 2,201,461 pounds in FY2012. The total volume of non-hazardous waste generated by the KCP during this fiscal year was 4,092,731 pounds, an increase from 4,055,678 in FY2012, and includes the above recycled total, routine non-hazardous waste, miscellaneous waste streams including wastes associated with construction and remediation operations. The KCP recycled 53% of the total volume of non-hazardous wastes generated during this period. **Table 3.10** provides general categories and volumes of materials recycled.

Table 3.10 Recycled Material - FY2013

Material	Pounds recycled
Scrap Metal	1,053,841
Electric Motors	12,400
Asphalt	113,680
Paper	139,021
Concrete	170,520
Cardboard	166,360
Kitchen Grease	5,500
Computers/ Electronics	172,781
Wood/Plastic	97,920
Batteries	37,702
Sludge	22,958
Fuel blend	165,629
Precious Metals	95
Fluorescent Lamps	5,309
Ground Electronics	14,923
Total	2,178,639

Waste generation and pollution prevention accomplishments are reported annually to the Department of Energy. Waste disposal and recycling data are reported to DOE Headquarters in the Annual Report on Waste Generation and Pollution Prevention Progress.

Current Issues

RCRA requires certification that the generator has a pollution prevention program in place. There is no compliance requirement associated with the PPA. Executive Orders place

requirements on each federal agency. The NNSA incorporates these requirements into its contract with Honeywell and, thus, the requirements are contractual, not compliance issues. All required reports were submitted in a timely manner.

Table 3.11 RCRA Reports

Report	Submittal due date(s)	Submittal Agency	Next Submittal	Frequency
Annual Report on Waste Generation and Pollution Prevention Progress	end of calendar year	DOE-EM (Environmental Management Division)	December 2014	Annual
Generators Hazardous Waste Summary Report	5/15/2013 8/15/2013 11/15/2013 02/15/2013	MDNR	5/15/2014	Quarterly
EPA Biennial Hazardous Waste Report	3/1/2013	MDNR	3/1/2015	Biennial

3.6.3 Long Term Stewardship (LTS) Program

A modification to the existing Missouri Hazardous Waste Management Facility Permit (MHWMF Permit) was approved by MDNR and EPA in 2012. This modification expands the area covered by the permit to include the entire Bannister Federal Complex and adds the General Services Administration (GSA) as a Permittee. The modification also altered the site groundwater pumping and monitoring system by incorporating conclusions reached in a groundwater pumping system optimization report submitted in 2010. Changes to select perimeter and effectiveness wells and point of compliance wells, as defined in the permit, were made along with the number and location of groundwater pumping wells comprising the site groundwater pumping system.

The modified permit mandated the submission of a number of plans and reports within 60 days of the modification date (October 2012). The plans were all submitted ahead of schedule.

Additional documents mandated by the permit were submitted in 2013. This included but was not limited to a Description of Current Conditions Report (DCCR) and a Screening Level Risk Assessment. Regulatory comments are expected to be provided on all 2012 and 2013 documents submitted as required by the permit in calendar year 2014. Additional permit mandated plans and reports will be submitted in 2014 to address self-identified data gaps derived from the DCCR.

The modified permit requires that the entire BFC be evaluated from a risk standpoint. In very general terms, this risk based clean-up will determine the amount of contamination that can safely remain on site in soil and groundwater and related environmental media to be protective of human health and the environment. EPA generally interprets protective clean-up standards to mean consistent concentrations that an individual could be exposed to on a daily basis without appreciable risk of deleterious effects in a lifetime.

Figure 3.13 depicts all SWMUs identified including two new SWMUs added as a result of the modification SWMU 44 (Building 50) and SWMU 45 (Old Landfill).

Groundwater Monitoring

This section provides an overview of the groundwater protection program at the KCP. The groundwater monitoring program and its interrelationship with ongoing environmental stewardship activities are discussed. In addition, the hydrostratigraphy and a discussion of the type and extent of groundwater contamination are also provided.

The groundwater monitoring program at the KCP is driven by the MHWMF permit. The permit requires the submission of a groundwater sampling and analysis plan for the KCP. This document covers all aspects of groundwater monitoring.

Groundwater Sampling

The hydrostratigraphy (water-bearing units of soil and rock) at the KCP can be divided into two major units: the unconsolidated alluvium and the underlying bedrock.

In general, the alluvium consists of continuous and discontinuous zones of clayey-silt, sand, and gravel. Two more permeable water-bearing zones are present within the alluvium: an upper sand-clay-silt and basal gravel with a sand-silt-clay matrix. The two more permeable zones are separated in certain areas by an olive to blue-green clayey silt. The two more permeable zones (basal gravel and sand-clay-silt) and the intervening clayey silt all transmit water and comprise the alluvial aquifer. The stratigraphy is complicated throughout the KCP by the presence of fill and because portions have been removed by erosion.

The bedrock underlying the KCP consists of the Pleasanton group consisting of alternating sandstones and shales. Continued groundwater sampling from bedrock wells at the KCP has shown that no contamination exists.

Groundwater Contamination

Groundwater contamination at the KCP is derived from the release of VOCs consisting of chlorinated solvents. The solvent most closely associated with KCP groundwater contamination is TCE. This compound, present in soil and groundwater at the KCP, degrades over time into other compounds, specifically 1, 2- Dichloroethylene (1,2-DCE) and vinyl chloride. Together these compounds make up the vast majority of VOCs comprising the groundwater plume.

The shape of this plume of groundwater contamination at the KCP is shown in **Figure 3.15**. A detailed description of all compounds detected in the groundwater at the KCP and their extent can be found in the 2013 RCRA Groundwater Corrective Action Report dated March 2014 (DOE 2014).

Figure 3.13 SWMUs

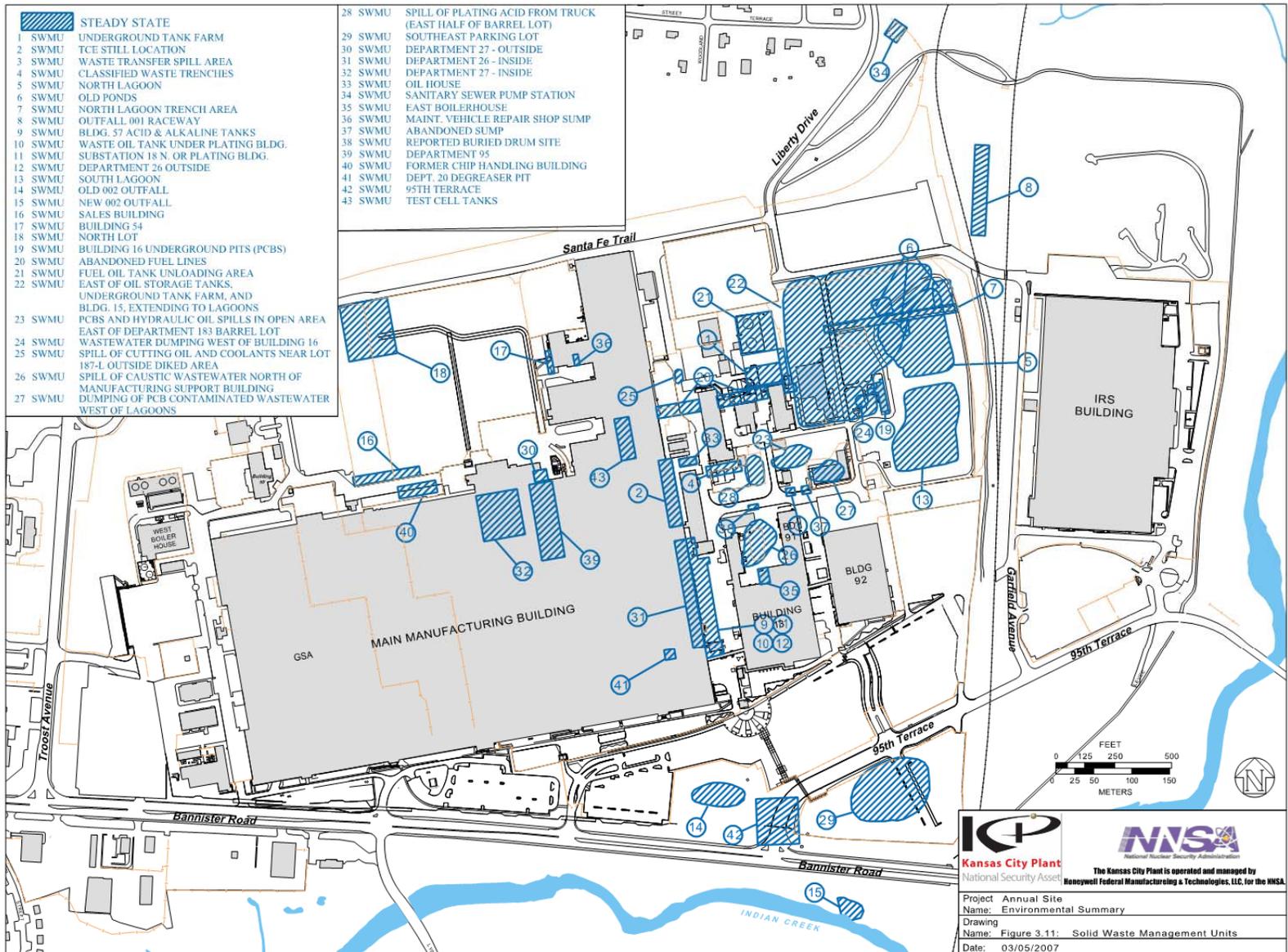


Figure 3.14 Groundwater Contamination



Kirtland Operations

KO is regulated by State and Federal hazardous waste regulations and is subject to RCRA inspections by the EPA, NMED, and ARDEQ. The varied operations of KO generate hazardous wastes as defined by 40 CFR 261 from processes such as painting, electronic assembly, and metal machining.

RCRA wastes are stored on-site at the NC-135 Site and the Craddock A Facility less than 270 days in compliance with RCRA requirements for small quantity generators of hazardous waste. KO submits an annual Hazardous Waste Fee Report to the NMED, as required. Wastes are transported off-site by licensed transporters. Recycling, treatment, or disposal occurs at Honeywell-approved facilities in compliance with state and federal hazardous waste regulations.

No RCRA-related regulatory inspections were conducted during CY13.

3.7 Underground Storage Tank (UST)

In accordance with MDNR rules, all UST's at the KCP have been closed. During 2006 the last remaining underground storage tank, a 940-gallon diesel-tank used for emergency power generation, was removed and closed in accordance with MDNR regulations. There was no history of any product release from this tank. The tank had been tightness tested and the cathodic protection system tested in early 1995. The tank was again tightness tested and the cathodic protection system tested in 1998, 2001, and 2004. Additionally, an internal inspection was performed, and leak detection controls tested. The tank had been in full compliance with federally mandated December 1998 upgrade requirements. MDNR conducted an unannounced inspection of the tank and associated records on December 5, 2001, and did not identify any associated compliance issues.

Kirtland Operations

KO has no USTs as defined by EPA, NMED, or ARDEQ.

Current Issues

None

Reports

None

3.8 Federal Facilities Compliance Act (FFCA)

The KCP was successful in managing its entire inventory of mixed waste (RCRA hazardous and radioactive waste). The KCP and the state of Missouri have a contingency agreement in the event mixed waste is generated which cannot be managed within the regulatory storage limits.

The KCP generates small volumes of waste acid. The acid was neutralized as part of the manufacturing process in order to maintain the KCP's zero inventory of mixed waste. The last shipment of this absolute ethanol with an extremely small amount of depleted uranium was 80 pounds in 4/2010. The mixed waste was shipped off-site for treatment. In 9/2010 9,014 pounds of low-level dry waste was shipped off-site.

Current Issues

None

Reports

None

3.9 National Environmental Policy Act (NEPA)

Honeywell submits requests for NEPA determination and notification to the KCFO NEPA Compliance Officer as outlined in the *HS&E Management System Description and Worker Safety & Health Program* document. To further transparency and openness in its implementation of the National Environmental Policy Act (NEPA), NEPA Compliance Records (NCRs) are posted to the Kansas City Field Office internet site. This is required as part of the *Online Posting of Certain DOE Categorical Exclusion Determination Policy Statement* effective 11/2/09. Historically, construction actions have been within the boundaries of existing KCP facilities and/or highly developed areas and have been categorically excluded by the DOE from the NEPA review process or are covered by the Non-Nuclear Consolidation Environmental Assessment or the Stockpile Stewardship and Management Programmatic Environmental Impact Statement.

The KCP site is largely covered with structures and pavement. There are relatively small areas of lawn and very few trees. In 1991 the MDNR determined that no sensitive species or communities are known to occur on the immediate or surrounding area. MDNR also determined that no known archeological or historical properties are located at the KCP site.

The KCP lies within a 100-year floodplain. Construction of a floodwall to increase flood protection to include floods that have an approximate recurrence interval of 500 years was completed in 1994.

Current Issues

None.

3.11 Quality Assurance

Quality Assurance (QA) measures were incorporated into all of the monitoring activities described in this report. An independent laboratory performs surface water sampling and analysis. This laboratory is selected only after successful performance on standard samples prepared by another independent subcontractor. Additional QA measures include duplicate or spiked sample analysis on 10% of all samples analyzed, semiannual laboratory audits by another independent subcontractor, and semiannual field sampler audits by KCP. The laboratory must also successfully analyze blind QA samples submitted at least annually, and QA data generated by the subcontract laboratory is reviewed by another independent subcontractor. The KCP requires the laboratory to maintain an internal quality assurance program, which meets or exceeds Environmental Protection Agency guidelines set forth in "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans".

Groundwater monitoring quality assurance data are evaluated to determine whether quality assurance requirements are satisfied and conform to the historical understanding of the site. The evaluation process includes data reduction and reporting. A complete description of data quality

objectives and laboratory QA requirements are presented in the KCP Groundwater Sampling and Analysis Plan submitted as a part of the RCRA Part B post closure permit.

3.12 Environmental Management System (EMS)

The EMS ensures ongoing compliance with applicable environmental regulations and requires the implementation of environmental improvement initiatives such as:

- Pollution prevention efforts.
- Significant Aspects Objectives and Targets (see **Section 3.6.2**)
- Implementation effectiveness
- Green efforts (procurement, building, electronics stewardship)

Honeywell FM&T/KC’s EMS is certified to the ISO 14001-2004 standard and has been certified since May 1997. The certification was most recently extended in May 2009. Maintenance of this certification involves semi-annual audits by a third party registrar with a certification extension audit every three years. The ISO 14001-2004 standard is internationally recognized and serves as the foundation of the EMS.

The KCP’s EMS has a sustained record of environmental compliance and is striving to make continuous improvements beyond that required by regulation. FM&T has an active media relations program that provides the community with positive environmental information and responds to public concerns. Press releases are issued, as appropriate, on both positive happenings and areas of concern. FM&T provides answers to external concerns through our Communications department and communications to employees are made so they can provide informed information to their family and neighbors.

Kirtland Operations

KO has been certified since May 2001 and its EMS is currently certified to the ISO 14001-2004 standard.

3.13 Awards / Recognitions

- Malcolm Baldrige National Quality Award - 2009
- KCP ISO 14001-2000 Certification Extension - May 2012
- KO ISO 14001-2004 Certification Extension - March 2013
- Missouri Water Environment Association Gold Award - 2013

SECTION 4: KANSAS CITY PLANT POINTS OF CONTACT

Copies of Reports and/or Documents referenced in this Summary may be obtained from:

National Nuclear Security Administration Kansas City Field Office David M. Caughey Environmental Manager Office of Operations 14520 Botts Road Kansas City, Missouri 64147	OR	Honeywell Inc. Federal Manufacturing & Technologies Tanya Snyder Specialist Senior Public Relations D/008 1.3E 14520 Botts Road Kansas City, Missouri 64147
--	-----------	---

References

- DOE 1993. Department 26 RCRA Facility Investigation Report. U.S. Department of Energy Environmental Restoration Program, Albuquerque Operations Office, Albuquerque, New Mexico.
- DOE 1993a. Outfall 001 Interim Measures Report. U.S. Department of Energy Environmental Restoration Program, Albuquerque Operations Office, Albuquerque, New Mexico.
- DOE 1995. Department 27 RCRA Facility Investigation Report. U.S. Department of Energy Environmental Restoration Program, Albuquerque Operations Office, Albuquerque, New Mexico.
- DOE 2003. Interim Measures Report Outfall 002 Corrective Actions. U.S. Department of Energy Kansas City Site Office, Kansas City, Missouri.
- DOE 2003a. Technical Assistance to Kansas City Plant: Mitigation of Polychlorinated Biphenyl Discharges. U.S. Department of Energy Office of Science and Technology. WSRC-RP-2003-00276.
- DOE 2014. Groundwater Corrective Action Report for Calendar Year 2013. U.S. Department of Energy Kansas City Site Office, Kansas City, Missouri.
- DOE/EA – 1592, Environmental Assessment for the Modernization of Facilities and Infrastructure for the Non-Nuclear Production Activities Conducted at the Kansas City Plant, April 21, 2008
- GSA 2008. Preliminary Assessment & Site Inspection. GSA-Managed Property, Bannister Federal Complex, Kansas City, Missouri. SCS Engineers. U.S. General Services Administration, Kansas City, Missouri.
- URS Corp 2003. Baseline Risk Assessment 95th Terrace Site. U.S. Department of Energy Kansas City Site Office, Kansas City, Missouri.
- USGS 2006. Water Quality in the Blue River Basin, Kansas City Metropolitan Area, Missouri and Kansas, July 1998 to October 2004. United States Geological Survey Scientific Investigations Report 2006-5147.

Appendix A- Annual Site Environmental Summary Report for the National Security Campus



Appendix A
U.S. Department of Energy National Nuclear Security Administration
Annual Site Environmental Summary Report
National Security Campus

Table of Contents

Figures.....	ii
Acronyms & Abbreviations	iii
SECTION 1: INTRODUCTION.....	1
1.1. Purpose	1
1.2. Facility Overview.....	1
1.3. Environmental Regulatory Overview	2
2. SECTION 2: SITE DESCRIPTION.....	5
2.1. Site Location / Description	5
2.2. Construction Related Actions	5
2.2.1. National Environmental Policy Act.....	5
2.2.2. Environmental Site Assessments	7
2.2.3. Jurisdictional Aquatic Resources in the Project Area.....	9
2.2.4. Construction.....	10
2.3. Climate.....	10
2.4. Geology.....	11
2.5. Soils.....	11
2.6. Groundwater Hydrology	12
2.7. Surface Water Hydrology	12
2.8. Flora and Fauna.....	12
2.9. Historical or Cultural Resources	12
2.10. Solid and Hazardous Waste	13
2.11. Socioeconomic Environment.....	13
<i>Environmental Justice</i>	13
<i>Demographics</i>	13
3. SECTION 3: ENVIRONMENTAL PROGRAM SUMMARIES.....	13

3.1.	Clean Air Act (CAA).....	13
3.2.	Clean Water Act (CWA).....	17
3.2.1.	Stormwater.....	17
3.2.2.	Sanitary Wastewater.....	19
3.2.3.	Industrial Wastewater.....	20
3.3.	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) / Superfund Amendments and Reauthorization Act (SARA).....	22
3.4.	Resource Conservation and Recovery Act (RCRA).....	22
3.5.	Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).....	23
3.6.	Toxic Substances Control Act (TSCA).....	23
3.7.	Federal Facilities Compliance Act (FFCA).....	23
3.8.	National Environmental Policy Act (NEPA).....	23
3.9.	Quality Assurance.....	24
3.10.	Awards / Recognition.....	24
4.	<i>REFERENCES</i>	25

Figures

Figure 2-1	Kansas City Area Map - Location of the NSC.....	6
Figure 2-2	NSC Site Map.....	7
Figure 3-1	Projected NSC Water Balance.....	19

Tables

Table 1.1	Environmental Regulations and Requirements.....	3
Table 1.2	Permits.....	4
Table 1.3	Environmental Monitoring Programs.....	4
Table 3.1	CERCLA/SARA Reports.....	20

Acronyms & Abbreviations

AEI	Adaptive Ecosystems, Inc.
AQD	Air Quality Division (of the Albuquerque Environmental Health Department)
CAA	Clean Air Act
ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response Compensation And Liability Act
CERCLIS	Comprehensive Environmental Response Compensation And Liability Information System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CPZ	CenterPoint Zimmer
CSR	Code of State Regulations
CSS	Combined Sanitary Sewer
CTS	Cyanide Treatment System
CWA	Clean Water Act
DOE	Department of Energy
EIQ	Emissions Inventory Questionnaire
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-know Act
ESA	Environmental Site Assessment
HS&E	Health, Safety, and Environment
F	Fahrenheit
FFCA	Federal Facility Compliance Act
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FM&T	Honeywell Federal Manufacturing and Technologies
FR	Federal Register
FY	Fiscal Year (October 1 through September 30)
GHG	Green House Gas
gpm	gallons per minute
GSA	General Services Administration
HAP	Hazardous Air Pollutant
HVAC	Heating, Ventilation, and Air Conditioning
ISO	International Organization for Standardization
IWPF	Industrial Wastewater Pretreatment Facility
LEED	Leadership in Energy and Environmental Design
l.f.	linear feet
JD	Jurisdictional Determination

LLC	Limited Liability Corporation
KAFB	Kirtland Air Force Base
KC	Kansas City
KCFO	Kansas City Field Office
KCMO	Kansas City, Missouri
KCP	Kansas City Plant
KO	Kirtland Operations
LOW	Letter of Warning
LTS	Long Term Stewardship
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
NEPA	National Environmental Policy Act
NESHAP	National Emission Standard For Hazardous Air Pollutant
NM	New Mexico
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
ODS	Ozone Depleting Substance
OSHA	Occupational Safety And Health Administration
%	percent
P2	Pollution Prevention
PCBs	Polychlorinated biphenyls
PID	Photoionization detector
POTW	Publicly Owned Treatment Works
PPA	Pollution Prevention Act
ppb	parts per billion
PSI	Professional Services Industries, Inc.
QA	Quality Assurance
RCRA	Resource Conservation And Recovery Act
RGAFB	Richards Gebaur Air Force Base
RHA	Rivers and Harbors Act of 1899
SARA	Superfund Amendments and Reauthorization Act
SHPO	Missouri State Historic Preservation Office
SO _x	Sulfur Oxides
SPCC	Spill Prevention Control and Countermeasures
SWPPP	Storm Water Pollution Prevention Plan
tpy	Tons Per Year
TSCA	Toxic Substances Control Act
µg/l	Micrograms Per Liter

USACE
USGS
VOC

U.S. Army Corps of Engineers
United States Geologic Survey
Volatile Organic Compound

SECTION 1: INTRODUCTION

1.1. Purpose

The purpose of this document is to present a summary of the Department of Energy's (DOE) National Nuclear Security Administration's (NNSA) National Security Campus (NSC) environmental programs, activities, and compliance status for calendar year (CY)2013. The annual Performance Evaluation Plan provides the basis for Kansas City Field Office (KCFO) customer expectations regarding Health, Safety and Environment (HS&E) performance including conformance to the HS&E Management System Description and Worker Safety and Health Program approved annually by KCFO. As described in that management system description document, this Annual Site Environmental Summary (ASES) is provided in lieu of an Annual Site Environmental Report.

The ASES is prepared annually as information for the general public and other stakeholders to:

- summarize the results of environmental compliance and monitoring programs;
- characterize site environmental management performance;
- provide compliance status with applicable environmental standards and requirements;
- highlight significant achievements, programs, and efforts which go beyond regulatory requirements; and
- provide an overview of quality assurance and environmental restoration activities.

1.2. Facility Overview

The U.S. Department of Energy (DOE) National Nuclear Security Administration's (NNSA) Kansas City Plant (KCP) operations that were historically located at the Bannister Federal Complex are being relocated to the National Security Campus (NSC).

Initial production operations were not initiated at the NSC until January 2013, therefore, the ASES for the NSC for CY2013 provides background related to initial operations of the facility as it relates to applicable environmental regulations and required permitting and a limited discussion of programmatic compliance and monitoring activities.

Subsequent ASESs for the NSC will summarize the environmental footprint of the facility with manufacturing operations included. Transfer of manufacturing operations from the Kansas City Plant (KCP) located at the Bannister Federal Complex was initiated January 2013. All manufacturing operations are scheduled to be transferred from the Bannister facility to the NSC by August 2014.

The NSC is owned by a development company (Center Point Zimmer (CPZ)). The General Services Administration (GSA) leases the facility on behalf of the NNSA. The facility has been designed and built to NNSA specifications in support of the manufacture of non-nuclear components for the nuclear weapon stockpile. The building and associated infrastructure (e.g., HVAC systems, cooling tower operations, boilers) is owned by CPZ and the manufacturing equipment and associated support equipment is

owned by the NNSA. The NNSA contracts manufacturing operations under a Management and Operating (M&O) contract. Currently the NNSA's M&O contractor for the NSC is Honeywell Federal Manufacturing & Technologies (FM&T), LLC.

In order to continue reducing the facility space devoted to electrical and mechanical component production, increase the flexibility and reliability of fabrication activities, and reduce facility maintenance costs, NNSA decided to relocate to a new facility that would better accommodate the continued consolidation of NNSA's non-nuclear component production and procurement activities. The NSC is smaller than the KCP (1.4 million ft² vs. 3.1 million ft²) and is designed for rapid reconfiguration to provide flexibility in meeting changing requirements and demands. The NSC has been constructed to achieve a Leadership in Energy and Environmental Design (LEED), Version 2.2, Gold certification, as defined by the US Green Building Council. In addition, the facility meets all executive orders on energy conservation. Reduced maintenance and energy costs are realized with the newer smaller facility. Associated cost savings of up to \$100 million per year (in 2006 dollars) once the facility becomes operational are projected.

The NSC covers approximately 1.4 million rentable square feet with 2,900 surface parking spaces. During construction, soils and topography were disturbed by construction activity. These impacts were mitigated by conforming to local building codes and land disturbance permits which included erosion and sediment control provisions. Approximately 45 acres of the facility are occupied by buildings and parking lots. Although not disturbed, the remaining 140 acres at the NSC are utilized as a buffer zone for the facility and as aquatic resource mitigation areas.

1.3. Environmental Regulatory Overview

Detailed discussions related to each environmental program can be found within the referenced resource documents and reports identified within this summary. Environmental and effluent monitoring are on-going activities at the NSC, which ensure the safety of employees, the public, and the environment; and demonstrate compliance with permits and regulatory requirements. A list of environmental regulatory requirements applicable to the NSC is contained in **Table 1.1**. A summary of federal, state, or local agency issued environmental permits for the NSC is provided in **Table 1.2**.

Environmental monitoring, including analysis and data management, is the responsibility of the FM&T HS&E organization. Administration of the NSC environmental monitoring program is the responsibility of program managers within the HS&E organization. The KCFO provides programmatic oversight. Local, state, and federal authorities, including the city of Kansas City, Missouri; the Missouri Department of Natural Resources (MDNR), and the EPA, enforce applicable permit and regulatory requirements and provide guidance and direction to the NSC regarding monitoring standards and reportable actions. Environmental monitoring programs for the NSC are identified in **Table 1.3**.

Table 1.1 Environmental Regulations and Requirements

Environmental Regulation	Requirements Summary
Clean Air Act (CAA)	The CAA 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, greenhouse gas emission reporting, 112 emergency release regulations, and operating permit requirements. Under the CAA, states may administer and enforce CAA provisions by obtaining Environmental Protection Agency (EPA) approval of a State Implementation Plan.
Clean Water Act (CWA)	The CWA established the National Pollutant Discharge Elimination System (NPDES), which is designed to control pollutants discharged to U.S. surface waters. The EPA sets effluent limitations, and permits are required for discharges from point sources.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) /Superfund Amendments and Reauthorization Act (SARA)	Congress enacted significant revisions to CERCLA through SARA and increased the size and complexity of CERCLA. CERCLA established liability, compensation, and cleanup for past hazardous waste activities and emergency response for hazardous substances released to the environment. SARA Title III Emergency Planning and Community Right to Know (EPCRA) requires reports on Hazardous Chemical usage and release reporting.
Toxic Substances Control Act (TSCA)	The TSCA establishes procedures for the reporting, use and manufacture of new and existing chemicals. TSCA also establishes prohibitions of, and requirements for the manufacture, processing, distribution in commerce, use, disposal, storage, and marking of Polychlorinated Biphenyls (PCBs) and PCB items.
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	The FIFRA restricts the application of pesticides and herbicides through a state-administered certification program.
Resource Conservation and Recovery Act (RCRA)	The RCRA governs the generation, storage, handling, treatment, and disposal of hazardous waste.
Federal Facilities Compliance Act (FFCA)	The FFCA mandates compliance with RCRA by Federally owned facilities.
Pollution Prevention Act (PPA)	The PPA of 1990 establishes the federal government’s priority for source reduction followed by recycling rather than treatment or disposal of waste or pollutants.
National Environmental Policy Act (NEPA)	The NEPA is a Federal policy, which requires the consideration of environmental impact prior to decision making.

Table 1.2 Permits

Permit	Expiration Date	Permit #	Regulating Agency
CAA			
Construction Permit	n/a NNSA Operations	1227B	MDNR
Construction Permit	n/a Center Point Operations	1228	MDNR
Basic Air Operating Permit (NNSA)	Issuance pending		MDNR
Basic Air Operating Permit (CPZ)	Issued March 9, 2012	2011-12-017	
CWA			
Stormwater Permit	No Exposure Certification	n/a	MDNR
Wastewater Discharge Permit	Issued November 7, 2012, expires January 13, 2018	n/a	KCMO

Table 1.3 Environmental Monitoring Programs

Monitoring Program	Purpose
Stormwater Outfalls	In lieu of a stormwater permit the NSC operates under a No Exposure Certification. Facilities that qualify for a No Exposure Certification are not required to seek coverage under a permit. In order to ensure ongoing routing compliance with the No Exposure Certification the NSC has developed and implemented a Storm Water Pollution Prevention Plan (SWPPP).
Industrial Wastewater	Provides data relating to compliance with metal finishing standards and discharge of industrial wastewater to the combined sanitary sewer system. Monitoring of the effluent from the Industrial Wastewater Pretreatment Facility (IWPF).
Combined Sanitary	To ensure that effluent, which includes discharge from IWPF, meets Kansas City ordinance for sanitary and pretreatment standards for industrial wastes and to comply with the sanitary discharge permit.
Air Emissions	Emissions are estimated under a process approved by MDNR. Estimates are based on emission factors associated with manufacturing processes and material disbursements to the various manufacturing operations.

This report summarizes the significant information resulting from the environmental compliance and effluent monitoring programs at the NSC during 2013. As noted above, only a limited amount of actual monitoring data were collected during 2013 and this report instead focuses on the permitting activities associated with initial operations of the newly constructed NSC.

In addition to complying with all applicable environmental regulations the NSC strives to improve performance by reducing the environmental impact of operations through several voluntary programs. Honeywell FM&T/KC is certified under ISO 14001. ISO 14001 is an internationally recognized standard which serves as the foundation of an Environmental Management System (EMS).

2. SECTION 2: SITE DESCRIPTION

2.1. Site Location / Description

The NSC is located approximately 16 miles south of the center of Kansas City, Missouri within the incorporated city limits (see Figure 2-1). It consists of approximately 185 acres of land that was previously zoned for agriculture and is located on the northwest corner of the intersection of Missouri Highway 150 and Botts Road. The site is bordered on the west by an active railroad line owned by the Kansas City Southern Railroad Company and on the north by property owned by the Kansas City Southern Railroad Company for the future extension of the railroad (Figure 2-2). Prior to development of the site as the NSC, the property was utilized for agricultural purposes. A radio beacon for Richard's Gebaur Air Force Base (RGAFB), which was formerly located immediately south of the property, was also located on the property.

Prior to initiating construction activities associated with development of the NSC numerous precursor activities were completed. Since the NSC was being developed to support a NNSA manufacturing facility, impacts to the environment associated with the development of the new site were required to be evaluated under the National Environmental Policy Act (NEPA). In addition, various permits associated with site development were also obtained by the developer.

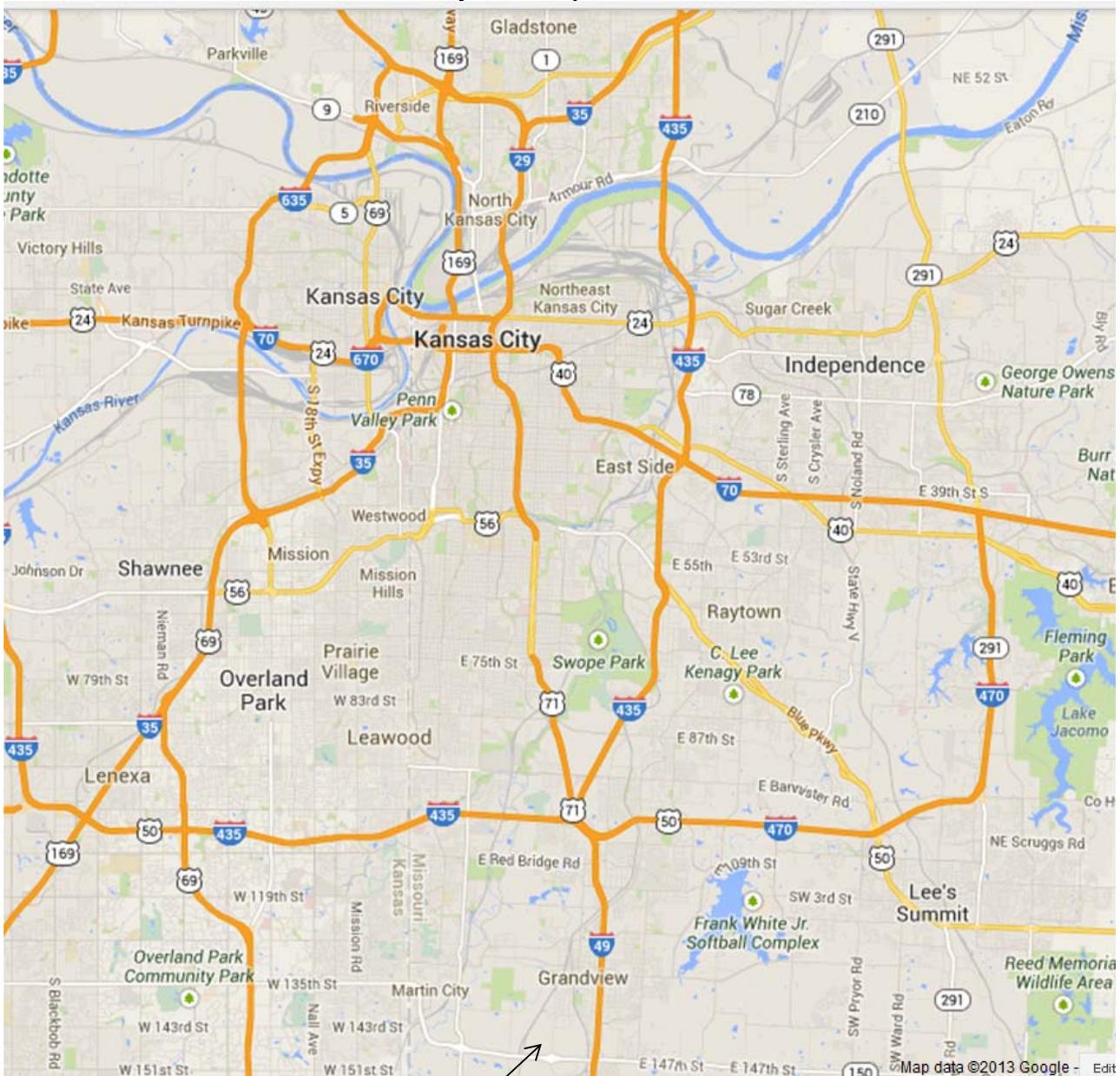
2.2. Construction Related Actions

2.2.1. National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires agencies to undertake an assessment of the environmental effects of their proposed actions prior to making decisions. Two major purposes of the environmental review process are better informed decisions and citizen involvement, both of which should lead to implementation of NEPA's policies. Prior to initiating actions associated with design and construction of the NSC the following NEPA actions were initiated:

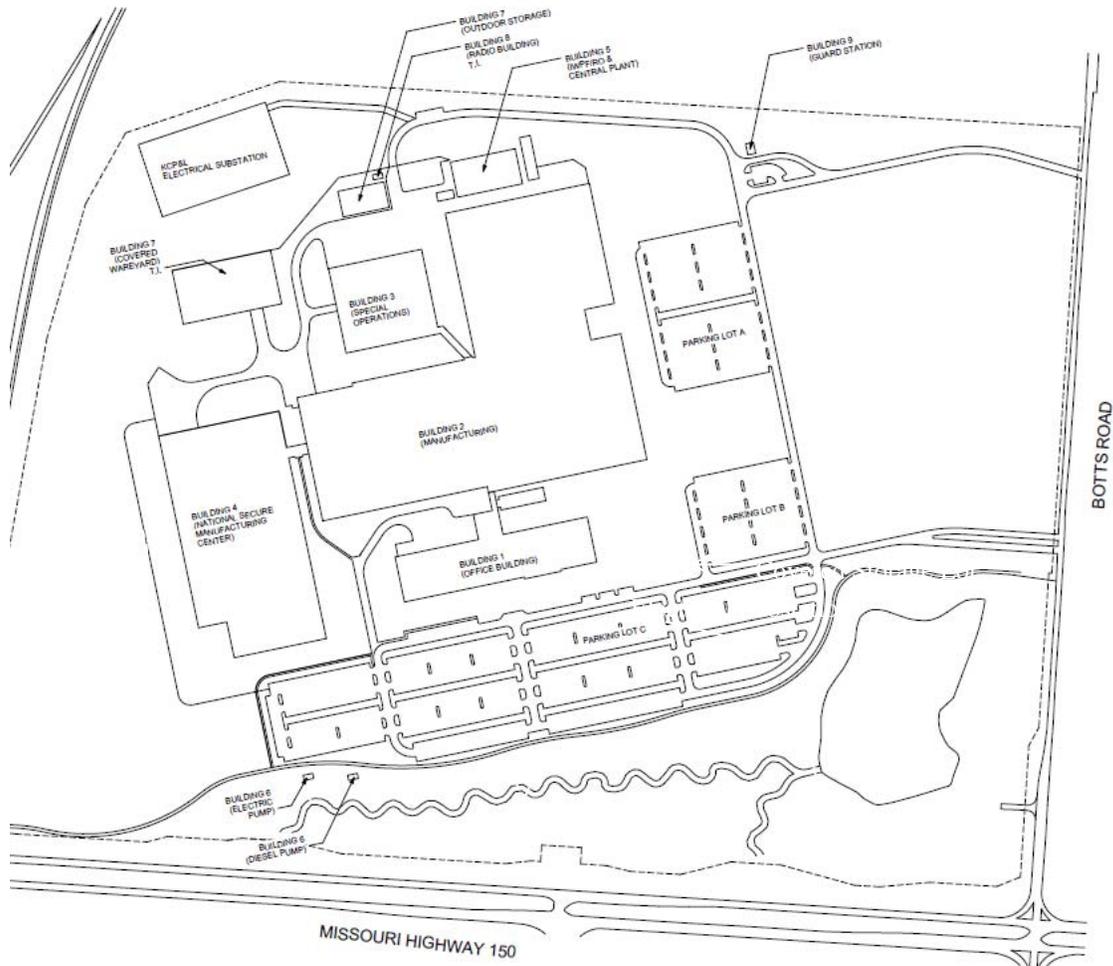
- May 1, 2007 - Notice of Intent published in the Federal Register (72 FR 23822).
- May 23, 2007 - Public Scoping meeting
- December 10, 2007 - Notice of Availability for the draft Environmental Assessment published in the Federal Register (72 FR 69690).
- January 17, 2008 - Notice of Extension of Comment Period published in the Federal Register (73 FR 3256).
- April 29, 2008 - Finding of No Significant Impact: 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).

Figure 2-1
Kansas City Area Map - Location of the NSC



NNSA National Security Campus
14520 Botts Road
Kansas City, MO 64147

Figure 2-2
NSC Site Map



2.2.2. Environmental Site Assessments

In order to determine if previous use of the proposed site for the NSC had resulted in soil and / or groundwater contamination a total of three Environmental Site Assessments were completed and associated reports generated. Environmental Site Assessments are typically conducted prior to real estate transactions of commercial property and follow procedures outlined under ASTM standards.

The developer (CenterPoint Zimmer), prior to purchasing the property, initiated a Phase I Environmental Assessment consistent with ASTM 1527. The GSA also conducted a Phase I Environmental Assessment and later, prior to initiating construction activities,

completed an ASTM 1903 Phase II Environmental Assessment. These assessments did not identify environmental issues of concern.

1997 Phase I

A Phase I Environmental Site Assessment (Kingston 1997) was previously completed on behalf of The Zimmer Companies. This assessment concluded that there was no evidence of recognized environmental conditions. The presence of Richards-Gebaur Air Force Base (RGAFB) immediately south of the NSC was noted as an exception. This report noted that the Air Base is a site listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), is a Resource Conservation and Recovery Act (RCRA) large quantity generator of hazardous waste, and is the location of two leaking underground storage tanks. These findings were cited as noteworthy due to the possibility that contaminants associated with these conditions may have migrated off-site and adversely impacted the property where the NSC currently resides was noted.

2007 Phase I

Professional Services Industries, Inc. (PSI) performed a Phase I Environmental Site Assessment (ESA) of the NSC property during 2007 (PSI 2007) as part of the Government's overall effort to assess the impacts of the proposed action to relocate KCP operations from the Bannister Federal Complex within the framework of the National Environmental Protection Act (NEPA) requirements. The ESA was generally completed in accordance with ASTM E 1527-05. PSI concluded the information they were able to gather and evaluate did not present significant data gaps that affected their ability to identify recognized environmental conditions in connection with the subject property. Except for the following conditions, the 2007 ESA did not identify evidence of recognized environmental conditions:

- The former RGAFB Radio Beacon installation located in the southwest portion of the property is noted as being on the CERCLIS database. The navigational beacon antenna and support utilities were installed in 1956. The installation was declared excess in 1979 and excessed to the City of Kansas City Missouri in 1985. The installation included a generator with an above ground fuel tank. No evidence of an underground storage tank was noted. PSI reviewed the Missouri Superfund Pre-CERCLIS Site Screening Form completed June 27, 2000. The Form indicates that in addition to the potential for petroleum contamination that chlorinated solvents were probably used to clean the equipment and were considered to be a potential contaminant. The Form indicated that the location of the fuel tank needed to be identified and soil samples should be analyzed to determine if any fuel was released. In addition, the Form notes that the presence of any electrical transformers should be stated or denied and that if transformers were present the soil should be analyzed for PCBs.
- A Magellan company pipeline that transects the property was noted. Information obtained from Magellan indicated the pipeline was installed in 1964 and was currently filled with nitrogen. Historically, the pipeline was used to transport

petroleum products. The possibility that petroleum products may have leaked from the pipeline was noted.

- The former RGAFB was noted as a historical recognized environmental condition. However, the ESA notes that remediation had been ongoing and the site was located hydrologically cross-gradient from the subject property.

2007 Phase II

This assessment (PSI 2007a) was conducted by PSI on behalf of the GSA and included the installation of 14 soil borings to a maximum depth of 13 feet below ground surface (bgs), 3 surficial soil samples, and field screening of collected soil samples with a photoionization detector (PID). A total of 23 soil samples were submitted for laboratory analysis.

PSI concluded that the Phase II ESA provided sufficient information to determine that the presence of a petroleum pipeline and a former radio beacon had not impacted the subject property under conditions indicating disposal or release. Further assessment of the property was not recommended.

2.2.3. Jurisdictional Aquatic Resources in the Project Area

Approved jurisdictional determinations (JDs) and preliminary JDs are tools used by the U.S. Army Corps of Engineers (USACE) to help implement Section 404 of the Clean Water Act (CWA) and Sections 9 and 10 of the Rivers and Harbors Act of 1899 (RHA). An approved JD is an official Corps determination that jurisdictional “waters of the United States,” or “navigable waters of the United States,” or both, are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the CWA/RHA. (See 33 C.F.R. 331.2.)

Prior to the initiation of construction, aquatic resources were evaluated by the USACE to determine whether or not jurisdictional waters were present at the proposed location for the NSC. The USACE assumed jurisdiction over three reaches and their associated wetlands. The USACE was not able to demonstrate a significant nexus for the other reaches. The jurisdictional determination was forwarded to the U.S. Environmental Protection Agency (USEPA) for review.

Wetlands present on the site prior to construction were a combination of stream-side and farmed wetlands. Executive Order (E.O.) 11988 Floodplain Management (May 24, 1977) directs each Federal agency to issue or amend existing regulations and procedures to ensure that the potential effects of any action it may take in a floodplain are evaluated and that its planning programs and budget requests reflect consideration of flood hazards and floodplain management. 10 CFR 1022 establishes policy and procedures for discharging DOE’s responsibilities under E.O. 11988.

Prior to construction of the NSC a study was conducted by Adaptive Ecosystems, Inc. to comply with 10 CFR Part 1022 to identify potential wetlands that may be impacted. Based on this study, aquatic resources on the site include approximately 8,541 linear feet (l.f.) (0.26 acre) of tributaries and 1.37 acres of wetlands.

Approximately 0.39 acres of the wetlands onsite are considered jurisdictional wetlands (AEI 2007). Based upon preliminary site design plans and the widespread nature of the tributaries and wetland areas onsite, impacts to the tributaries and wetlands would be anticipated.

The State of Missouri Stream Mitigation Method Adverse Impact Factors for Riverine Systems worksheet was used to calculate the total stream mitigation credits required for impacts resulting from the project (USACE 2007). Tributaries on the project site were considered functionally impaired because of channelization and the loss of stream stability and function. For tributaries on the project site there was a very high loss of system stability, resilience and the loss of one or more integrity functions. Recovery was unlikely to occur naturally, and further damage was likely, unless restoration was undertaken (USACE, 2007).

The GSA submitted a Section 404 permit application to the USACE on April 1, 2008 (AEI 2008), based on a conservative impact scenario. Under this scenario, construction impacted, permanently, 0.099 acres (3,655 l.f.) of intermittent tributaries, and 0.097 acres (3,440 l.f.) of ephemeral tributaries. A total of 1.24 acres of wetlands were also impacted. In the permit application, a conceptual Mitigation Plan was proposed for the permanently impacted intermittent and ephemeral tributaries (7,095 l.f., 0.2 acres) and the 1.24 acres of permanently impacted wetlands.

The Kansas City District of the USACE has the responsibility for making jurisdictional determinations for the tributaries and wetlands. Prior to construction, a 404 Permit was obtained by the GSA that required:

- Steps to avoid wetlands impacts;
- Minimization of potential impacts on wetlands; and
- Compensation for any remaining unavoidable impacts.

A Notice of Proposed Wetland Action was included in the draft EA Notice of Availability posted in the Federal Register on December 10, 2007.

2.2.4. Construction

Formal construction groundbreaking ceremonies took place on September 8, 2010. Construction activities were essentially completed, with the exception of Building 4, by December 2012. Commissioning of campus security, computer and other infrastructure systems was initiated during December 2012 and transfer of manufacturing equipment was initiated during January 2013. Transfer of manufacturing and related support equipment is scheduled to be completed by August 2014. Occupancy of Building 4 was initiated September 2013.

2.3. Climate

The climate in the region is characterized as humid and continental, with warm summers, moderately cold winters, and moderate annual precipitation. From 1971 to 2000, the annual mean temperature in Kansas City was 56.5° F. The coldest month is January, with

a mean temperature of 29.3° F and the warmest month is July, with a mean temperature of 81.3° F. The coldest recorded temperature was -19° F in December 1989 and the highest recorded temperature was 112° F in July 1954. The annual mean precipitation is 35.51 inches and the annual mean snowfall is 12.6 inches (NCDC 2004).

2.4. Geology

The Kansas City Group includes a succession of beds that extends from the base of the Hertha Formation to the top of the Bonner Springs Shale. The succession is divided into three subgroups, in ascending order: the Bronson, the Linn and the Zarah. The top and base of the Kansas City Group are conformable with strata above and below, and the subgroup boundaries are also conformable. The Group is well exposed at many localities in western and northern Missouri. The Bronson Subgroup is approximately 80 feet thick and contains the Hertha, Ladore, Swope, Galesburg and Dennis formations. The Bethany Falls and Winterset Limestone are the most prominent lithologic units in the subgroup.

The NSC site is underlain by the Bonner Springs Formation, which consists of the Bonner Springs Shale. The Bonner Springs Shale is composed principally of silty, gray, micaceous shale, but includes lenticular sandstone and locally, silty limestone in the upper part. An extremely thin, irregular coal bed has been reported to occur in the uppermost part of the formation at some localities in northern Missouri. The lower and middle parts of the formation at some localities contain scattered clay-ironstone concretions. The thickness of the formation ranges from less than 20 feet to as much as 40 feet.

The Bonner Springs Formation is underlain by the Wyandotte Formation, which consists of interbedded shale and limestone. The upper member of the Wyandotte Formation is the Farley Limestone Member. The Farley Limestone Member contains two limestone units and an intervening shale bed in its type area. The lower limestone unit is oolitic and extremely variable in thickness. The overlying shale contains a poorly-defined coal horizon in its upper part. The upper limestone is largely composed of algal debris and ranges in thickness from 2 to 3 feet. The member contains many gastropods and pelecypods. The average thickness of the Farley Limestone Member is about 15 feet (Thompson 1995) (Gentile 1983).

2.5. Soils

The soil on the western portion of the NSC is Sharpsburg silt loam, with 2% to 5% slopes. This loam is characterized by deep, gently sloping, moderately well drained soil on convex ridge tops. Permeability is moderately slow and surface runoff is medium. Natural fertility and available water capacity are high. Organic matter content is high and the shrink-swell potential is moderate.

The soil on the southwestern portion of the site is also Sharpsburg silt loam with 5% to 9% slopes, was identified as being located on the southwest portion of the subject property. This moderately sloping, moderately well drained soil occurs on convex side slopes and narrow, convex ridge tops. Permeability is moderately slow and surface runoff from cultivated areas is medium. Natural fertility is medium and available water capacity is high. The organic matter content and the shrink-swell potential are moderate.

Greenton silty clay loam, with 5% to 9% slopes, is located on the eastern portion of the subject property. This deep, moderately sloping, somewhat poorly drained soil occurs on

upland side slopes. Permeability is slow and surface runoff from cultivated areas is medium. The available water capacity and natural fertility are high. Organic matter content is moderate. The shrink-swell potential is high in the subsurface.

2.6. Groundwater Hydrology

The Western Interior Plains aquifer system underlies most of Kansas, the eastern and southern parts of Nebraska, and a small area in west-central Missouri. The aquifer system consists of lower units in rocks of Ordovician and Cambrian age, a shale confining unit of Mississippian and Devonian age, and an upper aquifer unit comprised of Mississippian limestone. The thickness of the aquifer (including the confining unit) ranges from less than 500 feet to more than 3,000 feet. The aquifer system is thin or absent on structural uplifts and is thickest in downwarps.

Regional groundwater in the aquifer system flows towards the southeast-east. Much of the water discharges from the aquifer system in the transition zone between the Western Interior Plains and the Ozark Plateaus aquifer systems. The aquifer system is considered to have a low permeability.

Dissolved-solids concentrations of water in the Western Interior Plains aquifer system are typically greater than 1,000 milligrams per liter. In thick, deeply buried parts of the aquifer system, dissolved-solids concentrations of more than 200,000 milligrams per liter have been reported. The elevated concentrations are due in part to the slow movement of groundwater in the aquifer system.

The Western Interior Plains aquifer system is not generally developed for potable use because it is deeply buried and contains highly mineralized water. Locally, deeply buried parts of the aquifer system contain oil and gas; some brine (that is a by-product of hydrocarbon production) is injected into disposal wells, which are completed in permeable parts of the system (USGS 1997).

Previous site assessment indicated the sporadic presence of shallow groundwater at depths ranging from approximately 5 to 11 feet below ground surface at the site. Groundwater is not utilized during operation of the facility. Groundwater samples collected onsite did not indicate the presence of hydrocarbon, pesticide, or herbicide contamination.

2.7. Surface Water Hydrology

The NSC is located within the Little Blue River Watershed. Site runoff flows into unnamed tributaries that flow generally to the east into the Little Blue River. The Little Blue River then drains into the Missouri River. The NSC does not lie within the 100-or 500-year floodplains.

2.8. Flora and Fauna

There are no records of species or habitats of federal or state conservation concern within one mile of the site (MDC 2007).

2.9. Historical or Cultural Resources

Prior to initiating construction activities the Missouri State Historic Preservation Office (SHPO) reviewed the Cultural Resource Assessment and determined that a Phase One

Archeological Survey was not required and historic properties would not be affected at the NSC. No items of archeological significance were found during construction excavation.

2.10. Solid and Hazardous Waste

Construction of the NSC was anticipated to generate 6,890 cubic yards of non-hazardous solid waste. Construction waste was visually inspected for the presence of hazardous materials and then sorted, with the recyclable materials removed. The resulting materials generated for disposal were trucked to a municipal land fill in accordance with the requirements of the Missouri Department of Natural Resources and all other applicable requirements.

2.11. Socioeconomic Environment

Environmental Justice

Executive Order No. 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, directs federal agencies to identify disproportionately high and adverse human health or environmental effects of their actions on minority or low-income populations. Pursuant to this Order, the federal agencies conducted an evaluation of the effects of construction of the NSC on the socioeconomic environment and environmental justice. Based upon 2000 census data, 33,406 people live within a three mile radius of the NSC. Within the three mile radius 21.3% of the population identified itself as minority and 9.7% of people live below the poverty level. For comparison, 441,545 people live in the City of Kansas City, with a minority population of 39%, and 14% of the population live below the poverty level (KC, MO 2007a & 2007b). Based on the analysis of impacts for resource areas, no significant adverse impacts from construction and operation activities at the NSC were identified.

Demographics

According to the 2000 census, 33,406 people live within a three mile radius of the NSC Road site, with 31.4% of the population under the age of 19 years and 9.4% of the population over the age of 65 years. The majority of the population was white (78.7%); 21.3% were self designated as minority. The median household income was \$42,242 (KC, MO 2007b), with 9.7% of the population below poverty level.

3. SECTION 3: ENVIRONMENTAL PROGRAM SUMMARIES

3.1. Clean Air Act (CAA)

The Clean Air Act (CAA) provides for ambient air quality standards for criteria pollutants, control technology standards for hazardous air pollutants and new sources, construction permitting rules, stratospheric ozone protection regulations, and 112(r) emergency release rules and Title V operating permit requirements. Under the CAA, states or local governments may administer and enforce CAA provisions by obtaining EPA approval of a State Implementation Plan. The MDNR has CAA enforcement authority and as such issues and enforces permits and associated terms and conditions.

Prior to start of construction associated with new facilities CAA regulations require that a construction permit be issued. Prior to initiating construction of the NSC Air Construction Permits (ACP) 1227 and 1228 were issued to the NNSA and GSA, respectively. As

described in Section 1.2 the NSC is leased on behalf of the NNSA by the GSA from a property development and management company (CenterPoint Zimmer, LLC.) ACP 1227, which addresses NNSA manufacturing operations, was originally issued by the Kansas City, Missouri, Air Quality Program on November 10, 2008. Subsequently, MDNR retained responsibility for the issuance of Air Construction Permits in Kansas City and the MDNR re-issued the original permit as ACP 1227A on November 2, 2012. This permit was revised and re-issued as ACP 1227B on October 28, 2013, with minor revisions that addressed differences between permitted and as-built emission units. . Air Construction Permit 1228, originally issued by the Kansas City, Missouri, Air Quality Program on October 28, 2008, addresses building support operations (e.g., emissions associated with boilers). ACP 1228 has been transferred from GSA to CenterPoint Zimmer. As noted above, MDNR retained responsibility for the issuance of Air Construction Permits in Kansas City and the MDNR re-issued the original permit as ACP 1228A on October 22, 2013.

Facilities that are regulated under the CAA are permitted based on their potential to emit (PTE). Generally, facilities that have a PTE of 10 tons per year of any one Hazardous Air Pollutant (HAP) or 25 TPY of total combined HAPs are considered as a major facility and are permitted under 40 CFR Part 70 regulations. Major facilities are regulated under a Title V CAA Permit. However, facilities can opt to limit emissions by application of Federally Enforceable Limits and are then no longer considered to be a major facility that would otherwise be regulated under a Title V CAA permit. Air emissions associated with NSC operations will be limited by application of Federally Enforceable limits and are regulated under the two ACPs noted above. In addition, two Basic Air Operating Permits that include special conditions from the associated ACP have been issued by the MDNR to the NNSA and CPZ, respectively.

Three natural gas-fired hot water boilers provide heating for the facility. The peak heating load is estimated at 80 million Btu/hour. The new boilers are addressed under Air Construction Permit 1228 issued to the GSA and subsequently transferred to CenterPoint. The boilers are also operated in accordance with Title 10, Division 10, Chapters 2 and 6 of the Missouri Code of State Regulations (10 CSR 10-2 and 10 CSR 10-6). Air pollution control regulations for the state of Missouri are found in 10 CSR 10-6; 10 CSR 10-2 contains air pollution control rules specific to the Kansas City metropolitan area. Natural gas combustion byproducts of NO_x and SO_x compounds comprise the majority of air emissions associated with the building support function.

Manufacturing operations were originally addressed under ACP 1227A. Emissions of volatile organic compounds (VOCs) associated with cleaning and painting operations will comprise the majority of air emissions associated with manufacturing operations. The Basic Operating Permit references applicable local, state and federal regulations and operating requirements.

The following CAA regulations are applicable to NSC manufacturing operations:

City of Kansas City Air Quality Ordinances (KCAQO)
Section 8-8(c) Control of emissions of VOC from industrial surface coating.
Section 8-8(a) Restriction of emission of VOC from solvent metal cleaning
MDNR Division 10 Air Conservation Commission Regulations
10 CSR 10-2.205 Control of Emissions From Aerospace Manufacture and Rework Facilities and KCAQO
10 CSR 10-2.210 Control of Emissions from Solvent Metal Cleaning
10 CSR 10-2.215 Control of Emissions from Solvent Cleanup Operations
10 CSR 10-2.230 Control of Emissions from Industrial Surface Coating Operations
10 CSR 10-6.045 Open Burning Requirements
10 CSR 10-6.050 Start -up, Shutdown and Malfunction Conditions
10 CSR 10-6.060 Construction Permits Required
10 CSR 10-6.065 Operating Permits
10 CSR 10-6.110 Submission of Data, Emission Fees and Process Information
10 CSR 10-6.130 Controlling Emissions During Episodes of High Air Pollution Potential
10 CSR 10-6.165 Restriction of Emissions of Odors
10 CSR 10-6.170 Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin
10 CSR 10-6.220 Restriction of Emissions of Visible Air Contaminants
Federal Rules
40 CFR 60 Subpart VVV —Standards of Performance for Polymeric Coating of Supporting Substrates Facilities
40 CFR 61 Subpart H -National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities
40 CFR 63 Subpart T - National Emission Standards for Halogenated Solvent Cleaning
40 CFR 63 Subpart OOOOOO National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources
40 CFR 63 Subpart WWWW National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations
40 CFR 82 Protection of Stratospheric Ozone
40 CFR 98 Greenhouse Gas Reporting Program (GHGRP)

On October 28, 2013 the MDNR issued a New Source Review Permit Amendment to the November 2, 2012 ACP 1227A. Permit 1227B was issued to address differences between permitted and as-built emissions units at the NSC. As discussed above the NSC consists of emission units owned by DOE and those transferred to the building owner, Centerpoint Properties Trust. Permit 1227B contains emissions limits as listed in the Table below. Of note is that Hazardous Air Pollutant (HAP) Emissions are limited to the respective screening model action level (SMAL) as established by 10 CSR 10-6.060(12(J)). Potential emissions of other pollutants are either directly limited or proportionately reduced by a direct limit to below the respective de minimus levels.

Pollutant	Deminimus Level	NNSA Actual Emissions 2012 (EIQ)	NNSA Conditioned Potential Emissions	Combined Installation Conditioned Potential Emissions
PM	25.0	N/D	N/A	12.07
PM10	15.0	1.5	N/A	11.50
PM2.5	10.0	0.56	<7.0	<10.0
SOx	40.0	0.14	N/A	0.76
NOx	40.0	13.41	<1.0	<40.0
VOC	40.0	8.88	<39.0	<40.0
CO	100.00	0.8	N/A	25.78
CO2	N/A	N/A	N/A	N/A
CH4	N/A	N/A	N/A	N/A
N2O	N/A	N/A	N/A	N/A
GHG (mass)	0/100.0/250.0	N/A	N/A	45,303.96
GHG (CO2e)	75,000/100,000	N/A	N/A	46,886.22
Combined HAPS	25.0	1.65	1	<25.0
Individual HAP	10.0	N/D	1	<SMAL

¹ GSA and NNSA shall share the installation-wide individual HAP SMAL limit and combined HAP 25.0 tpy limit

2013 was a transition year for the NSC as operations were initiated with full operations not expected until late 2014. An Emissions Inventory Questionnaire was submitted for the NSC for 2013. Only 1.09 Tons of VOCs were emitted during 2013 from NNSA operations. When fully operational, a reduction of air emissions is expected in comparison to the former operations at the KCP Bannister Facility as a result of the reduction in size of the facility and improvements to the manufacturing processes.

When fully operational, the total estimated annual air emissions from a new facility are 12.8 tons. The emissions would consist of 10.4 tons of NOx, SOx, and CO from the boilers and process heaters, 2.0 tons of VOCs from electronic component solvent spray cleaning operations, and 0.4 tons of VOCs from painting operations. These estimated total annual air emissions would be approximately 28% less than the annual emissions from the KCP. The reduction of air emissions are the result of the reduction in size of the facility and improvements to the manufacturing processes.

Comparing NSC to KCP facility natural gas usage during 2013 an approximate 44% reduction was realized. This calculation includes assumptions used to normalize the KCP use to account for natural gas used in the boilers to heat the GSA portion of the BFC. Although, both the NSC and KCP were undergoing significant transition from a manufacturing standpoint gas usage is primarily related to comfort heating of the building.

3.2. Clean Water Act (CWA)

3.2.1. Stormwater

Surface water was not used during facility construction and will not be used during routine site operations. Site construction activities were regulated under Missouri State Operating Permit, Land Disturbance General Permit # MO-R10A000. This permit required development of a Storm Water Pollution Prevention Plan (SWPPP) to control runoff and erosion associated with site construction activities.

Operation of the new facility will result in additional surface water runoff. Fire protection system test flows will generate, on average, approximately 1000 gallons/day and HVAC condensate discharges will generate approximately 14,400 to 43,200 gallons/day of surface water runoff. In addition, the impermeable surfaces of the proposed buildings and parking lots will increase the quantity of stormwater runoff, as there is less area for infiltration.

The NSC is required to comply with Section 438 of the Energy Independence and Security Act of 2007, Pub. L. No. 110-140, which was enacted on December 19, 2007. Section 438 of the Act requires that the developer of the proposed facility use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow. The NSC includes stormwater mitigation and control features such as detention basins, extended detention basins, and constructed wetlands that satisfy the above criteria.

Stormwater flows generally run from west to east across the NSC. There are two stormwater discharge points from the NSC. Stormwater discharges from the NSC are regulated in the form of a stormwater No Exposure Certification. State regulations at 10 CSR 20-6.200 (1)(B)16 exclude industrial facilities that meet the requirements of 10 CSR 20-6.200 (1)(B)16.A.(I) through B.(III) from requirements that would otherwise require the facility to obtain a NPDES permit. The NSC has been designed and built to comply with the above MDNR requirements which parallel associated EPA No Exposure Certification requirements. All manufacturing related activities are housed in buildings. Support activities located in yard areas of the facility pose the greatest potential for exposure of materials that could become entrained in stormwater discharges. Material storage areas are provided with appropriate control features to prevent inadvertent discharges and spills to the storm sewer system. The NSC's Storm Water Pollution Prevention Plan (SWPPP) provides additional information on material storage and spill prevention measures that have been incorporated into the facility (NNSA 2012).

In order to ensure activities at the NSC are in continuous compliance with the above requirements a SWPPP has been developed to ensure activities at the NSC do not impact storm water discharges associated with NSC operations. The objectives of the SWPPP Plan are:

- Document requirements that will ensure ongoing compliance with a No Exposure operating envelope.
- Facilitate planning and organization in support of the SWPPP.

- Identify routine actions to prevent the release of pollutants to receiving streams.
- Periodically evaluate and facilitate revision of operating practices to prevent the release of pollutants to receiving streams.

Site operations that pose the greatest potential for spills or leaks are addressed within the SWPPP. The greatest potential for possibly impacting the storm sewer is associated with movement of materials that are not properly protected or an accident that involves damage to a container.

In addition, Spill Prevention Control and Countermeasures (SPCC) Plans have been developed to satisfy requirements associated with 40 CFR 112 by both the NNSA (DOE 2012) and the CPZ (Terracon 2012). The NNSA Spill Control Plan (DOE 2012) satisfies SPCC requirements and also addresses other related regulatory requirements to develop spill response plans. These plans provide a comprehensive description of prevention systems and response actions that can be taken to protect personnel and minimize impact to the environment.

Locations within the facility where quantities of oil greater than or equal to 55 gallons are used or stored that are addressed in each respective plan. The NNSA plan addresses, in large part, the use of hydraulic oil in reservoirs and oil based machine coolant reservoirs in manufacturing equipment and limited storage of drums containing 55 gallons of oil or greater. All equipment is located inside the building. Manufacturing areas of the building have been constructed without floor drains. Drums containing 55 gallons of oil are stored at the Ware Yard (secondary containment provided) or transported inside the building and located near the point of use.

CPZ operates and maintains certain functions at the facility which are also regulated under 40 CFR 112. Due to the separate nature of CPZ and NNSA operations separate SPCC Plans have been developed that address the requirements of 40 CFR 112 for the NSC. A separate standalone SPCC Plan has been developed and implemented by CPZ that addresses equipment under their control (Terracon 2012). CPZ's SPCC Plan addresses the two 8,000 gallon fuel oil storage tanks located at the Central Utility Plant (CUP), a fuel cell associated with the emergency generator, a fuel cell associated with the backup diesel fire pump, elevator hydraulic systems, oil filled electrical transformers and other locations / equipment where oil is stored in quantities greater than or equal to 55 gallons.

In the event of a significant spill associated with CPZ operations incident command is facilitated through the NSC's Emergency Plan (DOE 2012a). FM&T's on-site spill response team will serve as the first responders for any spill event at the NSC. If the spill is associated with a CPZ activity once the spill is stabilized CPZ's spill response contractor will assume responsibility for spill response, reporting and cleanup activities.

The NNSA Spill Control Plan (DOE 2012) has been prepared as a comprehensive spill prevention and response plan that addresses regulatory requirements related to spill

prevention and response related to NNSA operations at the NSC. The Spill Control Plan addresses the following regulations / permits:

- ✓ 40 CFR 112 – Oil Pollution Prevention (separate standalone SPCC Plans are maintained for landlord and tenant operations - see Section 1.4.1)
- ✓ 40 CFR 403.8(f)(2)(vi) – Slug Discharge Control Plan required for categorically regulated facilities
- ✓ 40 CFR 264 Subpart C and D requirements that require prevention and contingency / emergency response planning at RCRA regulated facilities
- ✓ CERCLA, SARA, and EPCRA
- ✓ Stormwater Discharge Permit – No Exposure Certification in lieu of a Missouri State Operating Permit (MSOP)

3.2.2. Sanitary Wastewater

Sanitary wastewater discharges from the NSC are regulated under a permit issued by the city of Kansas City, Missouri, Industrial Waste Control Division. A permit application was submitted by the NNSA February 2012. The corresponding permit was issued November 7, 2012. Sanitary wastewater discharges from the NSC are comprised of treated industrial wastewater, domestic discharges, cooling tower and boiler blowdown, fire protection system test flows, and limited discharges associated with storage areas. Figure 3-1 provides the projected water balance for the NSC.

The volume of wastewater discharged to the sanitary sewer system from the NSC, when fully operational, is projected to be about 86,500 gallons per day. This would be a reduction of nearly 150,000 gallons per day (63%) compared to the current discharge from the existing facility located at the Bannister Federal Complex. The projected reduction is associated with several factors:

- The new facility's boilers would use a closed-loop system instead of a pass-through system;
- There would be a reduction in the cooling tower capacity and a relative reduction in cooling tower blow-down; and
- Domestic water usage would be reduced by approximately 40%.

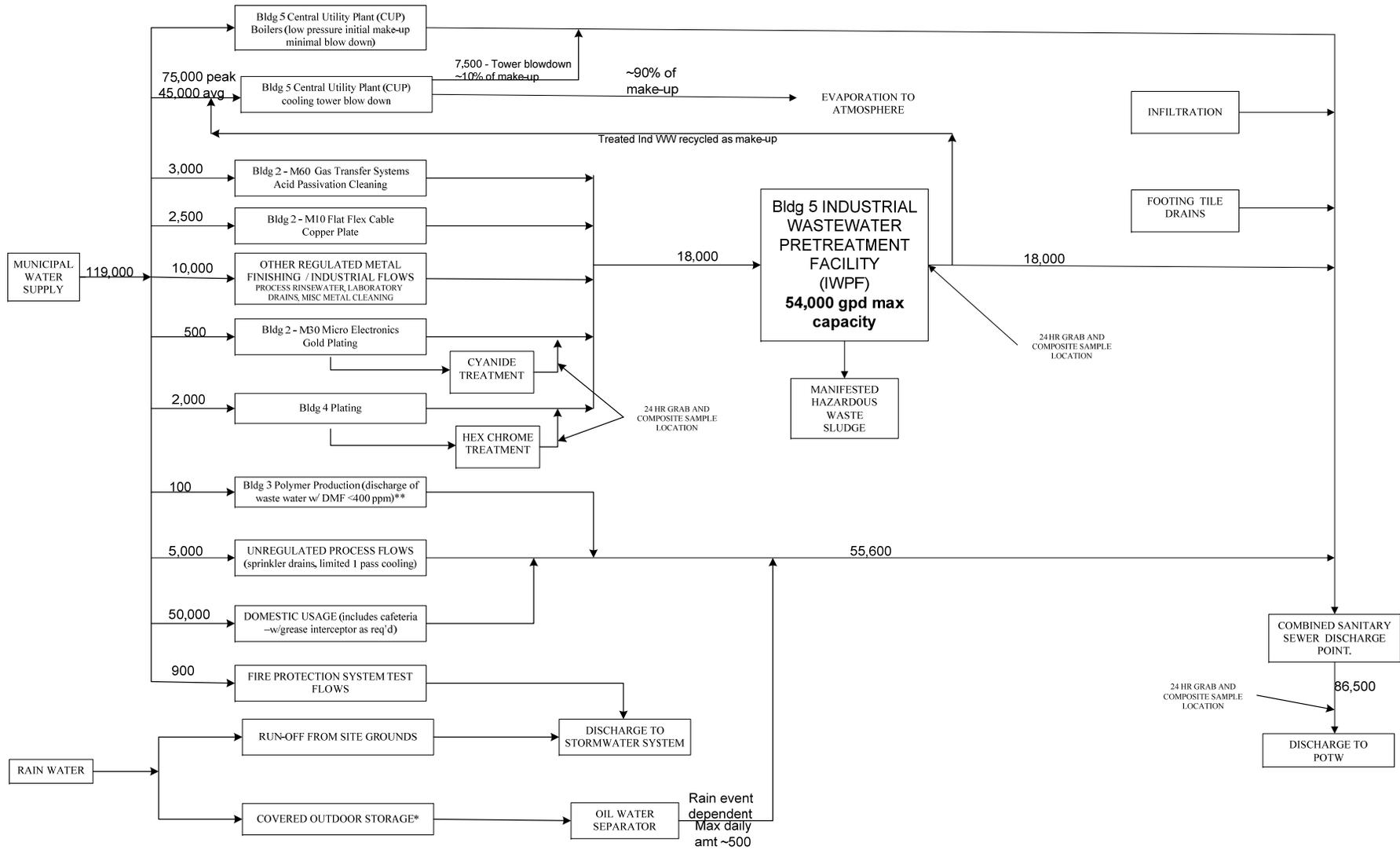
Based on a comparison of potable water usage at the NSC and BFC the above estimates are reasonable. Potable water use at the NSC for CY13 averaged 105,359 gpd. The normalized potable water use for the BFC was estimated to be 180,503 gpd. Potable water use for the BFC was normalized by deducting 33% of the cooling tower and domestic water use attributed to comfort cooling of the GSA portion of the BFC and GSA personnel use in lavatories. Comparison of water use rates in support of NNSA operations at the NSC and BFC result in an approximate 41.6% reduction in potable water use. Manufacturing operations at both facilities were in a state of flux during CY13 and the percent reduction noted above should not be used as a baseline reduction. A baseline reduction should be calculated by comparing pre-move potable water use at the BFC (CY11) that has been

normalized to backout GSA use and compare this value to NSC potable water use when fully operational (CY15). Water use at both the NSC and BFC was impacted during the move period that included 2012 - 2014.

3.2.3. Industrial Wastewater

Manufacturing related process wastewater (industrial wastewater) generated by manufacturing operations at the NSC is regulated under 40 CFR 433 Metal Finishing Pretreatment Categorical Standards. Pretreatment discharge standards are included in the NSC's sanitary sewer discharge permit. Periodic monitoring and reporting are required by the permit. Industrial wastewater is routed to an onsite skid-mounted microfiltration-based treatment unit. Prior to treatment, process wastewater is stored in onsite tanks with secondary containment to prevent accidental release to stormwater systems. The treated water is discharged to the sanitary sewer system. All sanitary and treated industrial wastewater from the facility is discharged to the Little Blue Valley Sewer District Atherton POTW. During CY2013 there were relatively minimal manufacturing related process wastewater discharges. The NSC Sanitary / Industrial waste water discharge permit contains discharge limits for the IWPF, a cyanide pre-treatment system and the total facility sanitary sewer discharge. Building support operations must comply with the Kansas City, Missouri sewer use ordinance limits.

FIGURE 3-1
NSC PROJECTED WATER BALANCE



3.3. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) / Superfund Amendments and Reauthorization Act (SARA)

The NSC maintained compliance with SARA by completing the Emergency Planning and Community Right-to-Know, EPCRA Sections 311, 312 inventory reports, and the Toxic Release Inventory, SARA Section 313 report. Also the NSC will maintain compliance with the spill reporting requirements of SARA through the use of the NSC Spill Control Plan (DOE 2012) which is written in compliance with the requirements of 40 CFR 112 for spill prevention control and countermeasures plans and 40 CFR 264 Subpart D.

As significant operational moves (equipment, chemicals, and people) to the National Security Campus (NSC) are completed, EPCRA reporting requirements for the NSC have also been initiated. Required Extremely Hazardous Substance (EHS) notices and the annual Tier II report have been submitted. A Toxic Release Inventory report was not completed for NSC as no operations under KCFO / Honeywell control were in place during the reporting year. It is expected that additional Section 311, 312, and 313 notices and reports will be required as more of the move is completed and operations commence.

Table 3.1 CERCLA/SARA Reports

Report	Submittal due date(s)	Submittal Agency	Next Submittal	Frequency
Section 311, 312 Inventory /Storage – Tier II	3/1/2013	Missouri Emergency Response Commission, Mid-America LEPC, and KCMO Fire Department	3/1/2014	Annual
Section 313 Toxic Release Inventory	*Did not exceed thresholds	EPA EPCRA Reporting Center	7/1/2014	Annual

Roles and Responsibilities:

As the new NSC has a unique owner/operator relationship that is significantly different than the present KCP, is expected that the owner will be responsible for chemical procurement, storage and use requirements (including EPCRA reporting) associated with the operation and maintenance of buildings, grounds and the Central Utility Plant. The NNSA and Honeywell FM&T will continue to provide EPCRA reporting for operational processes in support of the DOE mission and the on-site IWPF.

3.4. Resource Conservation and Recovery Act (RCRA)

The NSC is regulated under RCRA as a large quantity generator of hazardous waste. As such the NSC has been assigned an EPA hazardous waste facility number (MOR000545376).

3.5. Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

The Federal Insecticide, Fungicide, and Rodenticide Act restricts the application of pesticides and herbicides through a state-administered certification program. CPZ is responsible for applications of pesticides at the facility. Application of chemicals regulated under FIFRA is subcontracted to certified pest control firms, thus maintaining compliance with FIFRA.

3.6. Toxic Substances Control Act (TSCA)

The Toxic Substances Control Act of 1976 provides EPA with authority to require testing of chemical substances, both new and old, entering the environment and to regulate them where necessary. In the past the KCP has manufactured chemicals subject to TSCA Pre-Manufacture Notification (PMN) requirements. The necessary PMN have been filed for manufacture of the subject chemicals. In addition, the NSC will, from time to time, conduct research activities that are subject to the Research and Development (R&D) requirements under TSCA.

3.7. Federal Facilities Compliance Act (FFCA)

The Federal Facility Compliance Act (FFC Act) was signed into law on October 6, 1992. This Act, which amends the Solid Waste Disposal Act (as amended by the Resource Conservation and Recovery Act (RCRA)), makes major changes to existing sections of RCRA as they apply to Federal facilities and adds provisions that specifically address waste issues germane to the Department of Energy (DOE). The most significant and far reaching provision of the FFC Act is the statute's waiver of the Federal government's sovereign immunity. This waiver provides the Environmental Protection Agency (EPA) and the various States authorized to implement the RCRA program the authority to require "...each department, agency, and instrumentality of the United States..." to comply with all relevant substantive and procedural requirements of RCRA. This provision essentially places all Federal facilities on the same compliance footing as private industry and may result in punitive fines if violations occur. In addition to the sovereign immunity waiver, other important issues addressed by the FFC Act include provisions that address radioactive mixed wastes.

The NNSA and the state of Missouri have a contingency agreement in the event mixed waste is generated which cannot be managed within the regulatory storage limits. As noted in Section 3.8 of Volume I of the ASES manufacturing operations at the Bannister facility occasionally generate small volumes of waste acid. During 2013 this manufacturing operation was transferred to the NSC. During 2013 manufacturing operations at the NSC that potentially generate mixed waste did not occur.

3.8. National Environmental Policy Act (NEPA)

The NNSA submits requests for NEPA determination and notification to the KCFO NEPA Compliance Officer as outlined in the *HS&E Management System Description and Worker Safety & Health Program* document. To further transparency and openness in its implementation of the National Environmental Policy Act (NEPA), NEPA Compliance Records (NCRs) are posted to the Kansas City Field Office internet site.

This is required as part of the *Online Posting of Certain DOE Categorical Exclusion Determination Policy Statement* effective 11/2/09. See also Section 2.2.1 of Volume II.

3.9. Quality Assurance

Quality Assurance (QA) measures were incorporated into all of the monitoring activities described in this report. An independent laboratory performs surface water sampling and analysis. This laboratory is selected only after successful performance on standard samples prepared by another independent subcontractor. Additional QA measures include duplicate or spiked sample analysis on 10% of all samples analyzed, semiannual laboratory audits by another independent subcontractor, and semiannual field sampler audits by FM&T. The laboratory must also successfully analyze blind QA samples submitted at least annually, and QA data generated by the subcontract laboratory is reviewed by another independent subcontractor. The laboratory must maintain an internal quality assurance program, which meets or exceeds Environmental Protection Agency guidelines set forth in “Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans”.

3.10. Awards / Recognition

The NSC is certified as an LEED Gold facility.

4. REFERENCES

- AEI 2007 Adaptive Ecosystems, Inc. *Jurisdictional Waters Determination Botts Road and Missouri Highway 150*. September 2007.
- AEI 2008 Adaptive Ecosystems, Inc. *Section 404 Permit Application, National Nuclear Security Administration KC Plant Adaptive Ecosystems Project # 2008-104*, March 2008.
- DOE 2012 Department of Energy. *U.S. Department of Energy, National Nuclear Security Administration, National Security Campus, Spill Control Plan*, December 2012.
- DOE 2012a Department of Energy. *National Security Campus Emergency Plan*, May 2012
- Gentile 1983 Gentile, Richard. *Bedrock Geology – Belton Quadrangle*. Missouri Department of Natural Resources Publication Number LA8301, 1983.
- GSA / DOE 2008 Environmental Assessment for the Modernization of Facilities and Infrastructure for the Non-Nuclear Production Activities Conducted at the Kansas City Plant DOE/EA – 1592 April 21, 2008.
- KC, MO 2007a Kansas City, MO Planning and Development Department. *1500 E. Bannister Road – 3-Mile Radius*, 2007.
- KC, MO 2007b Kansas City, MO Planning and Development Department. *Botts and 150 Highway – 3-Mile Radius*, 2007.
- Kingston 1997 Kingston Environmental. *Phase I Environmental Assessment of: Vacant Land, Vicinity of Missouri Highway 150 and Botts Road, Kansas City, Missouri*, September 17, 1997.
- MDC 2007 Missouri Department of Conservation. *Heritage Review Report (T48N R33W Section 28)*, April 19, 2007.
- NCDC 2004 National Climatic Data Center. *Climatology of the United States No. 20 1971-2000*, February 2004.
- PSI 2007 Professional Service Industries, Inc. *Phase I Environmental Site Assessment, Approximately 186 Acres NWC Botts Road & Highway 150 Kansas City, Missouri*, May 25, 2007.

- PSI 2007a Professional Service Industries, Inc. *Phase II Environmental Site Assessment, Botts Road Site 150 Highway & Botts Road, Kansas City, Missouri*, August 6, 2007.
- Terracon 2012 Terracon Consultants. *Spill Prevention Control and Countermeasures, NNSA National Security Campus, 14510 Botts Road, Kansas City, Missouri*, November 8, 2012.
- Thompson 1995 Thompson, Thomas L. *The Stratigraphic Succession in Missouri (Revised – 1995)*. Missouri Department of Natural Resources Division of Geology and Land Survey, Volume 40 (2nd Series) Revised, 1995.
- USACE 2007 U.S. Army Corps of Engineers, 2007. *State of Missouri Stream Mitigation Method*, updated February 2007.
- USGS 1997 U.S. Geological Survey. *Groundwater Atlas of the United States Segment 3 Kansas, Missouri, and Nebraska*, 1997.