

*Description of Current Conditions Report*  
*for the*  
*Bannister Federal Complex*  
*May 2016*



## **Executive Summary**

This Description of Current Conditions Report (DCCR) summarizes environmental conditions for the Bannister Federal Complex (BFC) in Kansas City, Missouri. The BFC was originally constructed as an aircraft engine manufacturing facility in 1942 serving in similar capacities through the early 1960's. The Atomic Energy Commission (AEC) moved on site in 1949 and successor agencies have maintained a continuous manufacturing mission at the BFC to this day. The General Services Administration (GSA) and several tenant agencies have also utilized the BFC for office and warehouse space.

During the early 1980's initial site environmental investigation work was performed to begin characterization of known or suspected contaminant release sites. Extensive efforts were taken to interview longtime BFC employees, some of which worked at the facility in the plant's early history. These interviews established the basis for initial site environmental investigations. In 1989, the DOE and the Environmental Protection Agency (EPA) entered into an Administrative Order on Consent pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA) (Consent Order). The Consent Order outlined requirements and a schedule for completion of site environmental investigations and associated cleanup. The majority of the environmental investigations and cleanup activities were performed under the Consent Order. In 1999 the Consent Order was terminated with transfer of regulatory responsibility for clean-up to the Missouri Department of Natural Resources (MDNR) in the form of a Missouri Hazardous Waste Management Facility Permit (Permit).

In order to address concerns associated with DOE and GSA plans to move off-site and potential redevelopment of the BFC, the Permit was modified in 2012 to incorporate several new requirements. Areas of the BFC under GSA control were added to the definition of facility under the Permit and GSA added as a Permittee. Given the complexity of the BFC and the significant amount of pre-existing data, the revised Permit also required that a summary of site environmental conditions be prepared as a Description of Current Conditions Report.

This four volume DCCR provides a historical review of the BFC concentrating on activities (past and present) that had or have the potential to impact the environment through releases of hazardous waste or hazardous waste constituents.

The DCCR provides a discussion of site geologic conditions related to the subsurface material (soil and rock) at the BFC along with how the physical and chemical properties of this material influences the flow of water (and contamination) through it. In addition, local surface water background conditions are addressed. The nature and type of actual contamination found at the BFC is reviewed summarizing efforts to determine how this contamination behaves in the subsurface environment.

To understand the current conditions at the BFC one must understand the history of efforts performed to research, identify, investigate and, in some cases, remediate releases of hazardous waste and/or hazardous waste constituents to the environment from the site. The DCCR provides a review of selected historical environmental documents from the early to mid-1970's that describe the types of activities performed, waste generated and environmental issues that were present at this time and, that in some cases, still exist today.

The DCCR also provides insight into the early efforts to define the environmental conditions at the site and the interplay between DOE and the EPA and MDNR regarding the historical north and south lagoons and how the existence of these units lead to the site being addressed under hazardous waste clean-up authorities.

A detailed review of the environmental activities performed under the Consent Order and Permit is provided including an extensive array of historical tables and figures to facilitate an effective evaluation of the work performed. In addition, a review of considerable environmental investigatory efforts by the GSA and the US Army Corps of Engineers (USACE), conducted outside the scope of the Permit, is provided along with a discussion of how these activities tie in to the corrective action work being performed today.

Detailed discussion of stormwater is provided including the nature of flows, description of surrounding receiving streams and the efforts to characterize and evaluate the impact from the BFC to these areas. Further, a detailed discussion of an extensive set of bioaccumulation studies performed at the BFC over the years is provided including a review of information found, trends noted and activities planned for the future.

Specific additional topics outlined in the Permit are also included in the DCCR. These include a discussion of the historical use of natural and depleted uranium as well as beryllium at the BFC including evidence indicating there were no releases outside of the manufacturing areas. .

A risk screening study is provided that assimilates contaminant levels in environmental media at the BFC and compares it to various documented environmental screening levels for various actual and potential uses of the site.

The effects of removing remaining contamination source areas is also included through the submission of a groundwater modeling study to determine the amount of contaminant mass reduction required to achieve site clean-up of groundwater, the physical and chemical impediments that affect the achievement of these goals and the time it will take to achieve.

Finally, through a review of information from this effort, gaps in analytical data and/or understanding of environmental or contaminant conditions at the facility were identified and presented.



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## ACRONYMS, INITIALISMS, AND ABBREVIATIONS

AICO	-- Abandoned Indian Creek Outfall
ACL	-- Alternate Concentration Limit
ASTM	-- American Society for Testing and Materials
AEC	-- Atomic Energy Commission
AOC	-- Administrative Order on Consent
BFC	-- Bannister Federal Complex
BTEX	-- Benzene, Toluene, Ethyl-Benzene, Xylene
C	-- centigrade
CMI	-- Corrective Measures Implementation
CMS	-- Corrective Measures Study
COE	-- U.S. Army Corps of Engineers
d	-- day
D/20	-- Department 20
D/26	-- Department 26
D/71	-- Department 71
D/95	-- Department 95
DU	-- Depleted Uranium
1,1-DCA	-- 1,1-Dichloroethane
1,1-DCE	-- 1,1-Dichlorethylene
1,2-DCE	-- 1,2-Dichloroethylene

DNAPL	-- Dense Non Aqueous Phase Liquid
DOD	-- U. S. Department of Defense
DOE	-- Department of Energy
EPA	-- U. S. Environmental Protection Agency
ER	-- Environmental Restoration
ERDA	-- Energy Research Development Agency
FAA	-- Federal Aviation Administration
ft	-- feet
gal	-- gallons
GSA	-- General Services Administration
GJ	-- Grand Junction
gpm	-- gallon per minute
GSA	-- General Services Administration
IRS	-- Internal Revenue Service
in.	-- inch
IM	-- Interim Measures
KCP	-- Kansas City Plant
kg	-- kilogram
L	-- liter
MCL	-- Maximum Contaminant Level
MCLG	-- Maximum Contaminant Level Goal

MHWMF	-- Missouri Hazardous Waste Management Facility
m	-- meter
µg	-- microgram
mg	-- milligrams
mgd	-- million gallons per-day
MDL	-- minimum detection limit
MDNR	-- Missouri Department of Natural Resources
min	-- minute
MMB	-- Main manufacturing building
MSB	-- Manufacturing Support Building
NARA	-- National Archives Records Administration
NNSA	-- National Nuclear Security Administration
NPDES	-- National Pollutant Discharge Elimination System
ORNL	-- Oak Ridge National Laboratory
PID	-- photoionization detector
pg/L	-- pico-gram per liter
PCBs	-- polychlorinated biphenyls
QA/QC	-- quality assurance / quality control
RCRA	-- Resource Conservation and Recovery Act
RFI	-- RCRA Facility Investigation
RFIWP	-- RFI Work Plan

s	-- seconds
SOPs	-- Standard Operating Procedures
SPMDs	-- Semi Permeable Membrane Devices
SWMU	-- Solid Waste Management Unit
T-66	-- Therminol 66
TCDD	-- 2, 3, 7, 8 - dioxin
TPH	-- Total Petroleum Hydrocarbons
TEF	-- Toxic Equivalency Factor
TRC	-- Total Residual Chlorine
TSCA	-- Toxic Substances Control Act
1,1-TCA	-- 1,1-Trichloroethane
TCE	-- Trichloroethylene
TCLP	-- Toxicity Characteristic Leaching Procedure
TPH	-- Total Petroleum Hydrocarbons
USACE	-- U.S. Army Corps of Engineers
USFWS	-- U.S. Fish and Wildlife Service
USGS	-- U.S. Geological Survey
UST	-- Underground Storage Tank
USMC	-- United States Marine Corp.
VOCs	-- volatile organic compounds
WHO	-- World Health Organization