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Rocky Flats Site
Annual Report of Site Surveillance and Maintenance Activities Calendar Year 2006

April 2007

U.S. Department of Energy

Office of Legacy Management

Work Performed Under DOE Contract No. DE–AC01–02GJ79491
for the U.S. Department of Energy Office of Legacy Management.
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Appendixes

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Appendix B Water-Quality Data
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Appendix D Report on Treatability Studies for the Solar Ponds Plume
Appendix E Chains of Custody for Present Landfill and Original Landfill Water Monitoring Locations

2006 Ecology Data for the Rocky Flats Site

End of current text

Acronyms

ac-ft	acre-feet
Ag	silver
ALF	Action Level Framework
Am	americium
ANOVA	Analysis of Variance
AOC	Area of Concern
AOI	analyte of interest
As	arsenic
Ba	barium
Be	beryllium
Bo	boron
BZ	Buffer Zone
CAD	Corrective Action Decision
Cd	cadmium
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act – "Superfund"
CFR	*Code of Federal Regulations*
cfs	cubic feet per second
CNHP	Colorado Natural Heritage Program
COU	Central Operable Unit
Cr	chromium
CY	calendar year
D&D	decontamination and decommissioning
DCA	dichloroethane
DCE	dichloroethene
DER	Duplicate Error Ratio−calculated for real/duplicate radionuclide analyses
DOE	U.S. Department of Energy
DQA	data quality assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ERP	*Emergency Response Plan for Rocky Flats Site Dams*
ESL	Environmental Sciences Laboratory
ETPTS	East Trenches Plume Treatment System
FC	Functional Channel
FY	fiscal year
g	gram
GIS	Geographic Information System
GPS	Global Positioning Systems
GWIS	ground water intercept system
HR ICP/MS	high resolution inductively-coupled plasma/mass spectrometry
HRC	Hydrogen Release Compound®
IA	Industrial Area
IDLH	Imminent Danger to Life and Health
IHSS	Individual Hazardous Substance Site
IMP	Integrated Monitoring Plan

IRA	Interim Remedial Action
ITS	Interceptor Trench System
K-H	Kaiser-Hill Company, LLC
LANL	Los Alamos National Laboratory
LCS	laboratory control sample
LM	Office of Legacy Management
m^3	cubic meter
MDA	minimum detectable activity
MDL	method detection limit
µg/L	micrograms per liter
mg/L	milligrams per liter
ml	milliliter
Mn	manganese
mrem	millirem
MS	matrix spike
MSD	matrix spike duplicate
MSPTS	Mound Site Plume Treatment System
NA	not applicable
NSQ	Non-Sufficient Quantity
OBP	Oil Burn Pit
OLF	Original Landfill
OU	Operable Unit
PA	Protected Area
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCE	tetrachloroethene
pCi/g	picocuries per gram
pCi/L	picocuries per liter
PLF	Present Landfill
PLFTS	Present Landfill Treatment System
POC	Point of Compliance
POE	Point of Evaluation
POU	Peripheral Operable Unit
ppb	parts per billion
Pu	plutonium
PU&D	Property Utilization and Disposal
QA	quality assurance
QC	quality control
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFLMA	*Rocky Flats Legacy Management Agreement*
RFP	Rocky Flats Plant
RFPO	Rocky Flats Project Office
RFS	Rocky Flats Site
RI/FS	Remedial Investigation/Feasibility Study
RMA	Rocky Mountain Arsenal
RMRS	Rocky Mountain Remediation Services

ROD	Record of Decision
RPD	relative percent difference
Se	selenium
SEEPro	Site Environmental Evaluation for Projects
SEP	Solar Evaporation Pond
SID	South Interceptor Ditch
S-K	Seasonal-Kendall
SOP	standard operating procedure
SPP	Solar Ponds Plume
SPPTS	Solar Ponds Plume Treatment System
SVOC	semivolatile organic compound
SWD	Soil and Water Database
TCE	trichloroethene
TIMS	thermal ionization mass spectrometry
Tl	thallium
TPU	Total Propagated Uncertainty
TSS	total suspended solids
U	uranium
UHSU	upper hydrostratigraphic unit
USFWS	U.S. Fish and Wildlife Services
V&V	validation and verification
VOC	volatile organic compound
WQP	Water Quality Parameter
WWTP	former Waste Water Treatment Plant
ZVI	zero-valent iron

End of current text

Executive Summary

This report covers the calendar year of 2006 (January 1 through December 31). The U.S. Department of Energy (DOE) Office of Legacy Management (LM) is responsible to implement the final response action selected in the Final Corrective Action Decision/Record of Decision (CAD/ROD) issued September 29, 2006, for the Rocky Flats Site (RFS). Prior to the CAD/ROD, cleanup and closure activities in accordance with the requirements of the Rocky Flats Cleanup Agreement (RFCA) were completed by the DOE Office of Environmental Management.

Under the CAD/ROD, two Operable Units (OUs) were established within the boundaries of the Rocky Flats property: the Peripheral OU (POU) and the Central OU (COU). The COU consolidates all areas of the site that require additional remedial/corrective actions, while also considering practicalities of future land management. The POU includes the remaining, generally unimpacted portions of the site, and surrounds the COU. The response action in the final CAD/ROD is no action for the POU, and institutional and physical controls with continued monitoring for the COU.

The Rocky Flats Legacy Management Agreement (RFLMA) will supersede RFCA. The purpose of RFLMA is to establish the regulatory framework for implementing the CAD/ROD final response action and ensuring that it remains protective of human health and the environment. As of December 31, 2006, the Draft RFLMA was issued for public review and comment prior to regulatory approval, but this report assumes the activities covered under this report will not significantly change in the final RFLMA.

Therefore, this report includes the results of surveillance and maintenance activities conducted under RFCA and subsequently conducted under the CAD/ROD and the Draft RFLMA. These surveillance and maintenance requirements include environmental monitoring; maintenance of the erosion controls, access controls (fences), landfill covers, dams, and ground water treatment systems; and operation of the ground water treatment systems.

This report includes all data evaluation as required by the 2006 RFCA Integrated Monitoring Plan, which underwent revision during this period (DOE 2006c, 2006d). For water monitoring, data evaluation is limited to those locations that remained after the CAD/ROD as part of the LM water-monitoring network.

Highlights of the monitoring, surveillance, and maintenance activities are as follows:

- Surface water flow volumes show expected reductions resulting from land configuration changes and removal of impervious surfaces. Surface water hydrologic data are summarized in Section 2.2.
- Surface-water monitoring at the Present Landfill Treatment System showed several analytes as periodically above applicable standards. These events have been discussed with the regulators and documented in contact records (Section 2.8).
- Point of Evaluation (POE) location GS10 continued to show reportable values for total uranium. Evaluation has suggested that these reportable values are a due to changes in hydrologic conditions resulting in ground water with naturally occurring uranium making up a larger proportion of streamflow at GS10. All other POEs and all other analytes at GS10 showed acceptable water quality for the entire year (Section 2.9).

- All surface-water Points of Compliance showed acceptable water quality for the entire year (Section 2.10).
- All other surface-water monitoring showed acceptable water quality (various subsections in Section 2).
- Ground water quality and flow at the RFS was generally consistent with previous years. Ground water contaminant plumes and ground water flow conditions are discussed in Section 3.
- Three of the four ground water treatment systems at the RFS underwent more intensive maintenance in 2006, including installation of automated instrumentation at the East Trenches Plume Treatment System and the Mound Site Plume Treatment System, media replacement at the Mound Site Plume Treatment System, and plumbing repairs at the Solar Ponds Plume Treatment System. These activities restored water treatment at the Mound and Solar Ponds systems, and allow enhanced maintenance and system performance at the Mound and East Trenches systems. Section 3 addresses these activities and water quality at the systems.
- The annual data quality assessment showed that the Site continues to collect high quality data sufficient for decision making (Section 4).
- Air quality monitoring was consistent with previous years and continued to show low emissions (Section 5).
- All required ecological data collection, analysis, and reporting was completed as scheduled (Section 6).
- Section 7 includes descriptions of Site operations and maintenance including inspections, issue resolution, facility upgrades, special projects, and significant events.