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Rocky Flats Site

Annual Report of Site Surveillance and Maintenance Activities Calendar Year 2007

April 2008

U.S. Department of Energy

Office of Legacy Management

Work Performed Under DOE Contract No. DE–AM01–07LM00060
for the U.S. Department of Energy Office of Legacy Management.
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Appendixes

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2007 Ecology Data for the Rocky Flats Site—DVD

End of current text

Acronyms

ac-ft	acre-feet
Ag	silver
Am	americium
ANOVA	Analysis of Variance
AOC	Area of Concern
As	arsenic
B	boron
Ba	barium
Be	beryllium
BMP	best management practice
BOA	Basic Ordering Agreement
BZ	Buffer Zone
CAD	Corrective Action Decision
Cd	cadmium
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act – "Superfund"
CFR	*Code of Federal Regulations*
cfs	cubic feet per second
cm/s	centimeters per second
CNHP	Colorado Natural Heritage Program
COU	Central Operable Unit
Cr	chromium
CY	calendar year
D&D	decontamination and decommissioning
DCA	dichloroethane
DCB	dichlorobenzene
DCE	dichloroethene
DER	duplicate error ratio
DG	Discharge Gallery
DO	dissolved oxygen
DOE	U.S. Department of Energy
DQA	data quality assessment
EPA	U.S. Environmental Protection Agency
ERP	*Emergency Response Plan for Rocky Flats Site Dams*
ETPTS	East Trenches Plume Treatment System
FC	Functional Channel
ft/yr	feet per year
g	gram
GIS	Geographic Information System
gpm	gallons per minute
GPS	Global Positioning System
GWIS	Groundwater Intercept System
Hg	mercury
HR ICP/MS	high-resolution inductively coupled plasma/mass spectrometry
HRC	Hydrogen Release Compound®

IA	Industrial Area
IHSS	Individual Hazardous Substance Site
IMP	Integrated Monitoring Plan
IRA	Interim Remedial Action
ITPH	Interceptor Trench Pump House
ITS	Interceptor Trench System
K-H	Kaiser-Hill Company, LLC
L	liter
LANL	Los Alamos National Laboratory
LCS	laboratory control sample
LM	Office of Legacy Management
M&M	monitoring and maintenance
m^3	cubic meter
MCL	maximum contaminant level
MDA	minimum detectable activity
µg	microgram
µg/L	micrograms per liter
mg/L	milligrams per liter
mL	milliliter
mL/min	milliliters per minute
Mn	manganese
µm	micron
MS	matrix spike
MSD	matrix spike duplicate
MSPTS	Mound Site Plume Treatment System
NA	not applicable
NOID	Notice of Intent to Delete
NPL	National Priorities List
NSQ	nonsufficient quantity
OBP	Oil Burn Pit
OLF	Original Landfill
OU	Operable Unit
PA	Protected Area
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
pCi	picocurie
pCi/L	picocuries per liter
pCi/µg	picocuries per microgram
PIP	Public Involvement Plan
PLF	Present Landfill
PLFTS	Present Landfill Treatment System
PMJM	Preble's meadow jumping mouse
POC	Point of Compliance
POE	Point of Evaluation
POU	Peripheral Operable Unit
PQL	practical quantitation limit
Pu	plutonium

PU&D	Property Utilization and Disposal
PVC	polyvinyl chloride
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
RFS	Rocky Flats Site
RFSOG	*Rocky Flats Site Operations Guide*
RI/FS	Remedial Investigation/Feasibility Study
RMRS	Rocky Mountain Remediation Services
ROD	Record of Decision
RPD	relative percent difference
Se	selenium
SED	Sitewide Ecological Database
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
TCA	trichloroethane
TCE	trichloroethene
TIMS	thermal ionization mass spectrometry
Tl	thallium
TM	temporary modification
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
VC	vinyl chloride
VOC	volatile organic compound
WQCC	Water Quality Control Commission
WQP	water-quality parameter
WWTP	Waste Water Treatment Plant
yr	year
ZVI	zero-valent iron

End of current text

Executive Summary

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) is responsible for implementing 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 (Site).

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 CAD/ROD determined that conditions in the POU were suitable for unrestricted use. The U.S. Environmental Protection Agency (EPA) subsequently published a Notice of Partial Deletion from the National Priorities List for the POU on May 25, 2007.

DOE, EPA, and the Colorado Department of Public Health and Environment (CDPHE) have chosen to implement the monitoring and maintenance requirements of the CAD/ROD under, and as described in, the *Rocky Flats Legacy Management Agreement* (RFLMA), executed March 14, 2007. RFLMA Attachment 2 defines the COU remedy surveillance and maintenance requirements. The requirements include environmental monitoring; maintenance of the erosion controls, access controls (signs), landfill covers, and groundwater treatment systems; and operation of the groundwater treatment systems.

The *Rocky Flats Site Operations Guide* was prepared by DOE-LM to serve as the primary internal document to guide work to satisfy the requirements of RFLMA and implement best management practices at the Site.

This report addresses all surveillance and maintenance activities conducted at the Site during Calendar Year 2007 (January 1 through December 31). Highlights of the surveillance and maintenance activities are as follows:

- RFLMA references the use of contact records to document CDPHE approvals of field modifications to implement approved response actions. RFLMA Attachment 2 also references the use of contact records to document the outcome of consultation related to addressing any reportable conditions. This report discusses RFLMA contact records issued in 2007 and their status as of December 31, 2007. Because the status of RFLMA contact records issued in 2006 has not previously been reported, these are also included in the discussion.
- The second Comprehensive Environmental Response, Compensation, and Liability Act 5-year review of remedial actions implemented at Rocky Flats was performed, and concluded that the COU remedy continues to be protective of human health and the environment.
- In July 2007 DOE transferred approximately 4,000 acres of Rocky Flats POU land to the U.S. Department of Interior for management by the U.S. Fish and Wildlife Service as the Rocky Flats National Wildlife Refuge.

- Several Colorado Water Quality Control Commission (WQCC) proceedings related to Rocky Flats surface-water standards occurred in 2007. The WQCC accepted DOE's petition for a rulemaking hearing, set for January 2009, to eliminate the site-specific uranium (U) surface-water standard and allow the statewide surface-water standard, which is the drinking water standard, to apply to the Site. The WQCC also ruled in December 2007 that the current surface-water temporary modifications did not require change or elimination and the current expiration date of December 31, 2009, remains in effect. DOE also submitted information at the WQCC's October 2008 issues identification hearing for the triennial review of the South Platte River Basin surface-water standards, set for June 2009.
- A fence was constructed around the DOE-retained COU and RFLMA-required signage was posted.
- A geophysical study was begun at the Original Landfill (OLF) to gather information for a stability analysis to evaluate causes for and appropriate responses to surface conditions at the OLF including slumping and the formation of depressions.
- A slump that had formed on a hillside south of former Building 991 was regraded and excess soil was spread over the 903 Pad/Lip areas to aid in revegetation. An area near former Building 371 was also regraded to improve surface-water drainage.
- Access roads through the COU were maintained and in some locations improved, and several areas were revegetated.
- Surface-water flow volumes show expected reductions resulting from land configuration changes and removal of impervious surfaces.
- All surface-water Points of Compliance showed acceptable water quality for the entire year.
- Point of Evaluation (POE) location GS10 continued to show reportable values for total U. Evaluation has suggested that these reportable values are due to changes in hydrologic conditions resulting in groundwater with naturally occurring U 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.
- Surface-water monitoring at the Present Landfill Treatment System showed two analytes as periodically above applicable standards. RFLMA party consultation regarding these results was conducted and additional monitoring was performed as documented in contact records.
- All other surface-water monitoring showed acceptable water quality.
- The groundwater treatment systems at the Site continued to successfully remove contaminant loading to surface water from groundwater plumes.
- Groundwater quality and flow at the Site were generally consistent with previous years. Several groundwater flow models that were constructed prior to Site closure were updated and indicated groundwater flow conditions are consistent with the general predictions that had been made.
- A reportable condition was encountered at Area of Concern (AOC) well B206989 due to elevated concentrations of nitrate in groundwater samples. Concentrations were consistent with previous data, but upon implementation of RFLMA this well was reclassified from a

Sentinel well to an AOC well, with the associated reporting requirements. RFLMA party consultation regarding these results was conducted as documented in contact records. A decreasing trend in nitrate concentrations is suggested by the data.

- All RFLMA-required ecological data collection, analysis, and reporting were completed as scheduled.
- The annual data quality assessment showed that the Site continues to collect high-quality data sufficient for decision making.

End of current text