Operable Unit 3
Offsite Areas

Rocky Flats Stewardship Council Board Meeting
February 4, 2013
Operable Unit 3 – Offsite Areas

• ~ 20,480 acres (32 square miles)
• 1 of 16 Operable units designated in IAG (1991) and RFCA (1996)
• 4 Individual Hazardous Substance Sites (IHSSs):
  1) Surface Soils (IHSS 199)
  2) Great Western Reservoir (IHSS 200)
  3) Standley Lake (IHSS 201)
  4) Mower Reservoir (IHSS 202)
Operable Unit 3 – Offsite Areas
OU 3 Corrective Action Decision / Record of Decision (CAD/ROD)

• Proposed Plan
  o Public comment period: Aug. 7 – Oct. 11, 1996
  o Public hearing: September 18, 1996

• Selected Remedy = “no action” (all IHSSs already in a state protective of human health and the environment)

• Offsite areas available for all uses w/o restriction

• Signed by DOE, EPA, CDPHE (June 1997)

• Did not consider potential future releases

• Decision based on RFI/RI Report
OU 3 RFI/RI Report
(RCRA Facility Investigation/Remedial Investigation)

- Investigated surface soils, subsurface soils, sediments, surface water, ground water and air
- Contaminants of Concern:
  1) Americium (surface soil)
  2) Plutonium (surface soil; surface sediment)
- Human Health Risk Assessment
  - Residential reasonable maximum exposure (RME) = 3 x 10^-6
  - Recreational Use reasonable maximum exposure = 1 x 10^-8
- Ecological Risk Assessment
  [Hazard Quotient < 1 = “no adverse ecological effects”]
- “Conditions in OU 3 pose no unacceptable or significant risks to human health or the environment”
Radionuclides in OU 3 Surface Soil
Am and Pu levels compared to background

Pu ≤ background (44)

Pu > background (17)

RFI/RI Report Data sets:
• 144 samples from 61 ten-acre plots
• 47 Remedy Lands samples
• Average Pu = 0.158 pCi/g
Plutonium levels in OU 3 surface soil

RFI/RI Report

Pu isopleths (pCi/g)

Plotted from about 750 sample points
OU 3 Air Sampling Test Sites

RFI/RI Report

- Wind Tunnel location
- Air monitoring location
OU 3 Sediment Samples

IHSS 200: GREAT WESTERN RESERVOIR
Pu contours (pCi/g)

SEDIMENT SAMPLES FROM 3 RESERVOIRS
120 surface sediment samples
155 subsurface sediment samples
114 Standley Lake samples (1983-84)

IHSS 200: GREAT WESTERN RESERVOIR
Pu depth profiles
Remedy Lands

tilled

untilled
Cook Case
Earlier Studies

Data do not meet EPA useability criteria.
Data included multiple analyses by various labs.
Other Off-site Environmental Studies

DOE:

- **1971.** Seed, J.R. et al. *Committee evaluation of Plutonium levels in soils within and surrounding USAEC Installation at Rocky Flats, CO.*
- **1972.** Loser, R.W. and Tibbals, R.L. *Soil sampling east of Indiana Avenue.*
- **1976.** Krey, P.W. *Remote plutonium contamination and total inventories from Rocky Flats.*
- **1977.** Illsley, C.T. *Results of special soil samples collected adjacent to the Rocky Flats Plant Site.*
- **1979.** Illsley, C.T. and Hume, M.W. *Plutonium concentrations in soil on lands adjacent to the Rocky Flats Plant.*
- **1980.** Hurley, J.D. *Great Western Reservoir spillway sediment sampling program, phase I report.*
- **1985.** Rockwell International. *Disclosure to the City of Broomfield.*
- **1985.** Illsley, C.T. *Soil sample collection and analysis for plutonium on lands adjacent to Great Western Reservoir for the City of Broomfield.*
- **1985.** Campbell, G.W. *Great Western Reservoir Sediment Cores.*
- **1987.** Illsley, C.T. *Remedial action program on Jefferson County Open Space land in Section 7, T2S, R69W, south of Great Western Reservoir.*
- **1991.** DOE. *Past Remedy Report, Operable Unit 3 – IHSS 199.*
- **2001.** DOE, CDPHE, and EPA. *Radionuclide Soil Action Levels.*
- **2002.** DOE. *First Five-Year Review Report*
Other Off-site Environmental Studies

**CDPHE:**

- **1996. CDPHE - Citizens’ Environmental Sampling Committee.** *Soil and sediment study of off-site areas surrounding the Rocky Flats Nuclear Weapons Plant, Golden, Colorado.*
- 1996. CDPHE. *Ground Water Plutonium\textsuperscript{239,240} Data in Walnut Creek Alluvium East of Terminal Ponds.*
Other Off-site Environmental Studies

Other sources:

- 1971. USEPA. Radioactivity levels in the environs of the Rocky Flats plutonium plant.
- 1973. USEPA. Radioactivity levels in the environs of the Rocky Flats plutonium plant – Part II.
- 1977. Sehmel, G.A. An overview of plutonium resuspension research at Rocky Flats conducted by Battelle Northwest.
- 2010. Moore, L. Citizens find plutonium in breathable form at two locations near the Rocky Flats Site.
Delisting OU 3

• 30-day public comment period (beginning March 13, 2007)
• Notice of Partial Delisting from National Priorities List (May 17, 2007)
• “OU 3 poses no significant threat to public health or the environment and, therefore, no further remedial measures pursuant to CERCLA are appropriate.”