

## Proposed Plan and Draft Modification of the Rocky Flats Environmental Technology Site Resource Conservation and Recovery Act Permit for Operable Unit 3 — Offsite Areas

United States  
Department of Energy (DOE)

Jefferson County, Colorado

August, 1996

### DOE Announces Preferred Alternative for OU 3, Offsite Areas

This *Proposed Plan*<sup>1</sup> presents DOE's preferred alternative for remedial action at the Rocky Flats Environmental Technology Site (RFETS) (the "Site") *Operable Unit 3 (OU 3) – Offsite Areas*. The Site is located in Jefferson County, Golden, Colorado (see Figure 1). The OU 3 – Offsite Areas occupies approximately 38 square-miles of land located outside the site boundary as shown on Figure 2.

The Proposed Plan serves as the basis for the OU 3 *Corrective Action Decision/Record of Decision (CAD/ROD)* and applies only to OU 3. All interested parties are encouraged to review and comment on the Proposed Plan and to submit their comments to the supporting agency points of contact identified below. This Proposed Plan has been prepared by DOE in cooperation with the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) pursuant to the *Resource Conservation and Recovery Act (RCRA)*, the *Colorado Hazardous Waste Act (CHWA)*, and the *Comprehensive Environmental Response Compensation and Liability Act (CERCLA)*.

This Proposed Plan was prepared pursuant to the requirements of CERCLA section 117(a),

<sup>1</sup> *Bold italic words or acronyms are defined in the glossary located at the end of this Proposed Plan.*

RCRA, and the *Rocky Flats Interagency Agreement (IAG)*, between DOE, EPA, and CDPHE dated January, 1991, and represents concurrence between these parties regarding the preferred remedy for OU 3. The Draft Modification of the Rocky Flats RCRA Permit is used to incorporate remedial action decisions at the Site into the Site's RCRA Permit. CDPHE will issue the Final Hazardous Waste Permit Modification when the remedial decision process is completed. The Proposed Plan also meets the requirements of the *Rocky Flats Cleanup Agreement (RFCA)* between DOE, CDPHE, and EPA. The RFCA supercedes the IAG signed July 19, 1996.

The preferred remedial alternative proposed in this plan for OU 3 is No Action (no remedial action taken). In accordance with the IAG, RFCA, EPA and CDPHE guidance, a No Action decision is appropriate at sites where a previous removal action or natural environmental processes mitigate the likelihood of an adverse effect on the health of a human or ecological population as a result of exposure to chemical and/or radiological constituents. Results of the *RCRA Facility Investigation/Remedial Investigation (RFI/RI)* performed at OU 3 show that OU 3 meets risk standards promulgated by EPA and CDPHE as being protective of human health and the environment both now and in the future.

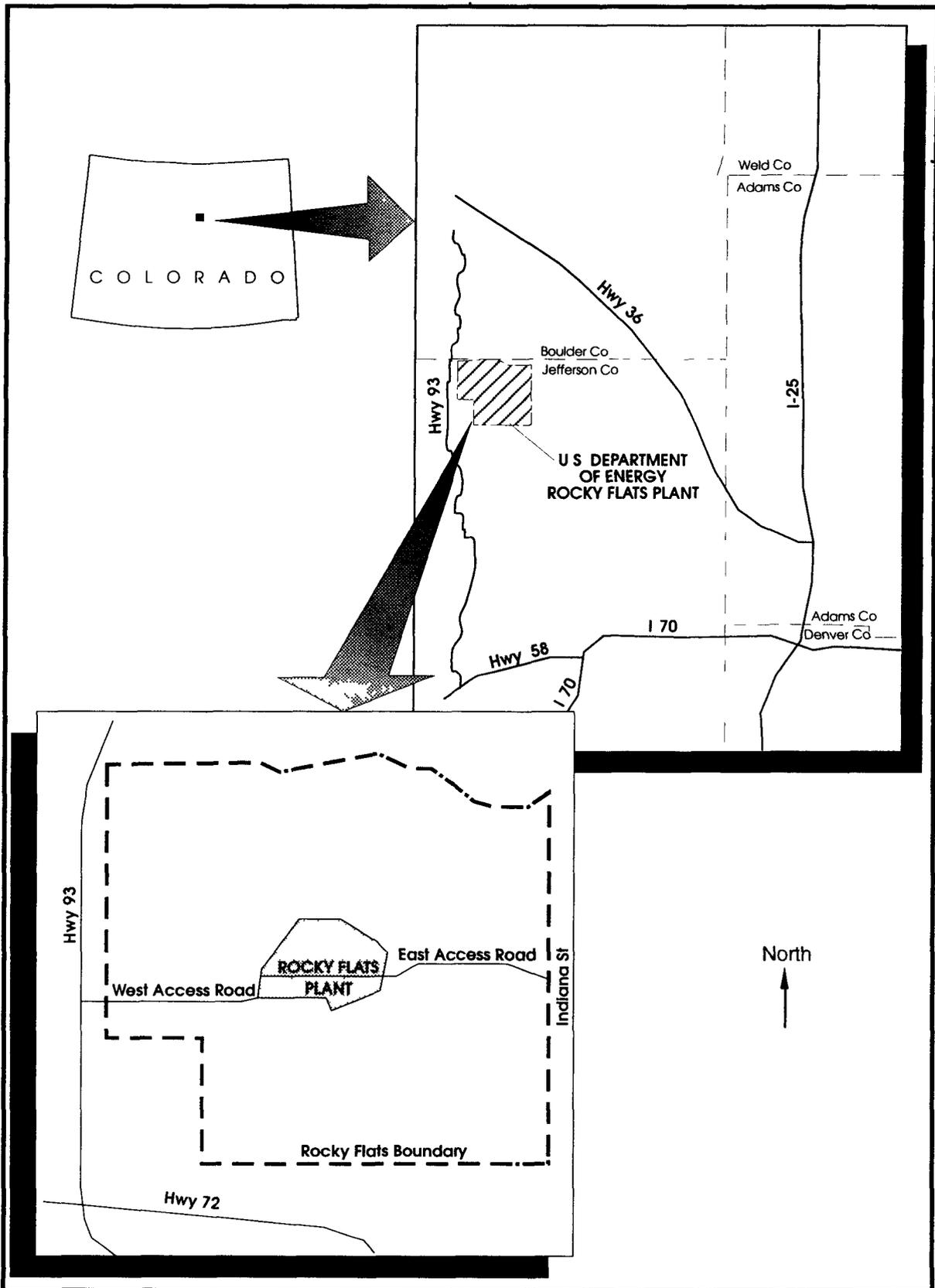


Figure 1 Location of Rocky Flats Environmental Technology Site

---

**Opportunities for Public Involvement  
Mark Your Calendar**

Public Comment Period August 7, 1996 - October 11, 1996  
Public Hearing Wednesday September 18, 1996  
Time 6 00 - 7 00 PM  
Location Arvada Center For the Arts & Humanities  
6901 Wadsworth Blvd,  
Arvada, CO

**Send Comments to**

DOE External Affairs Office  
P O Box 928  
Golden Colorado 80402-0928  
Contact Mike Konczal  
Phone (303) 966-5993

or

Colorado Department of Public Health & Environment  
of HMWMD-HWC-B2  
4300 Cherry Creek Drive South  
Denver Colorado 80222-1530  
Contact Carl Spreng  
Phone (303) 692-3358

**Information Repositories**

Rocky Flats Public Reading Room  
Front Range Community College, Level B  
3645 W 112th Avenue  
Westminster Colorado 80030  
Phone (303) 469-4435  
Hours of Operation  
Tuesday 11 00 AM - 7 30 PM  
Monday Wednesday, Thursday and Friday  
8 00 AM - 4 30 PM

Colorado Department of Public Health & Environment  
Hazardous Materials & Waste Management Division  
4300 Cherry Creek Drive South  
Denver Colorado 80222-1530  
Phone (303) 692-3312  
Hours of Operation  
Monday - Friday  
8 00 AM - 5 00 PM

U S Environmental Protection Agency  
Superfund Records Center  
999 18th Street 5th Floor  
Denver Colorado 80202-2401  
Phone (303) 312-6473  
Hours of Operation  
Monday - Friday  
8 00 AM - 4 30 PM

Rocky Flats Citizens Advisory Board  
9035 Wadsworth Parkway  
Suite 2250  
Westminster, Colorado 80021  
Phone (303) 420-7855  
Hours of Operation  
Monday - Friday  
9 00 AM - 4 00 PM

Standley Lake Library  
8485 Kipling  
Arvada, Colorado 80005  
Phone (303) 456-0806  
Hours of Operation  
Monday - Thursday  
10 00 AM - 9 00 PM  
Friday and Saturday  
10 00 AM - 5 00 PM  
Sunday  
12 00PM - 5 00 PM

---

**Public Involvement Process**

Community acceptance is one of the criteria that DOE and the regulatory agencies must evaluate during the RCRA/CERCLA process of selecting a final site remedy. Evaluation of community acceptance is accomplished through a formal public involvement program. The DOE program consists of (1) promoting dialogue with citizens on issues of concern, which began with the development of the RFI/RI Work Plan, and will continue by presenting the results of the RFI/RI, and (2) seeking citizen participation in the selection of a final remedy method at the subject site. This Proposed Plan is being issued for public review and comment in response to the second program component.

A public comment period will be held for the OU 3 Proposed Plan from August 7, 1996 to October 11, 1996. A public hearing will be held on September 18, 1996. In addition to the Proposed Plan, the public is encouraged to

review and comment on the Final OU 3 RFI/RI Report, which presents results of the investigation conducted at OU 3 (RFI/RI copies are available for review at each of the Information Repositories) Comments on the Proposed Plan and the RFI/RI Report may be submitted orally or in writing at the public hearing, or mailed directly to either of the two comment mailing addresses listed in the Opportunities for Public Involvement section beginning on Page 1 Written comments must be postmarked no later than October 11, 1996

Upon timely request, the public comment period may be extended Such a request must be submitted in writing to DOE and postmarked no later than October 11, 1996

**FAILURE TO RAISE AN ISSUE OR PROVIDE INFORMATION DURING THE PUBLIC COMMENT PERIOD MAY PREVENT THE PUBLIC FROM RAISING THAT ISSUE OR SUBMITTING SUCH INFORMATION IN AN APPEAL OF THE REGULATORY AGENCIES' FINAL DECISION**

DOE, EPA, and CDPHE will make the final remedy action selection after review and consideration of comments received from the Public A summary of responses to all Public and regulatory agency comments will be presented in the *Responsiveness Summary* section of the OU 3 CAD/ROD document

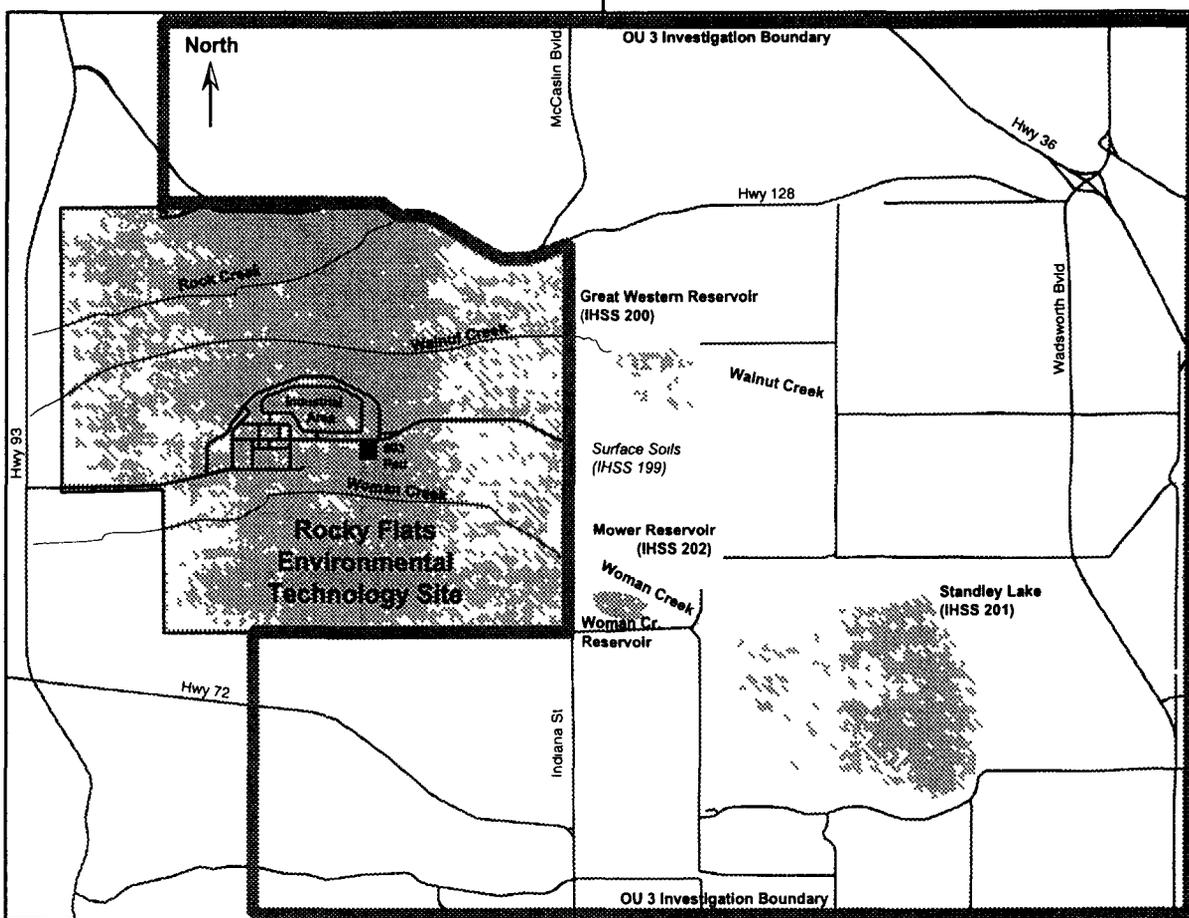


Figure 2 Operable Unit 3 Location Map

## Site Background

The Site is located in northern Jefferson County, Colorado (see Figure 1). The Site occupies approximately 6,550 acres of Federal land and is a government-owned and contractor-operated facility that is part of the nationwide nuclear weapons production complex. DOE's former mission at the Site was to produce components for nuclear weapons. Its current mission is to manage wastes and materials and to cleanup and convert the Site in a manner that is safe, environmentally and socially responsible, physically secure, and cost-effective.

Most plant structures are located within the Rocky Flats Industrial Area, which occupies approximately 400 acres. This area is surrounded by a buffer zone of approximately 6,150 acres. Until 1992, the Site was used to fabricate nuclear weapon components from plutonium, uranium, beryllium, and stainless steel. Support activities included chemical recovery, purification of recyclable transuranic radionuclides, and research and development in metallurgy, machining, nondestructive testing, coatings, remote engineering, chemistry, and physics.

The production processes at Rocky Flats resulted in the generation of radioactive and non-radioactive wastes. Onsite storage and disposal of these wastes has contributed to hazardous and radioactive contamination in onsite soils, surface water and groundwater. Due to the complex nature of the Site, *Individual Hazardous Substance Sites (IHSSs)* within the Site were defined and grouped into sixteen OUs based upon one or more common features. This included the type of contaminant, the environmental media, or the previous use of the contaminated areas.

OU 3 is defined as offsite areas. Although this definition is inclusive of areas north, east, south, and west of the Site boundary, a working definition (study area) of OU 3 was developed to include suspected contaminated areas and to focus the RFI/RI on areas where the evaluation of previous data has indicated the presence of measurable contamination. Therefore, OU 3 consists of four areas identified as IHSSs (see Figure 2).

### **IHSS 199 — Contamination of Land Surface**

IHSS 199 is composed of surface soils located outside the RFETS boundary that are contaminated by historical releases from the Site. Included in IHSS 199 are 350 acres of land located east of Indiana Street. This acreage was the subject of remediation efforts by DOE that involved disking and plowing the soil in an effort to more widely disperse or dilute the concentration of plutonium identified in the soil. Approximately 100 acres of land was tilled and revegetated in alternating strips, however the process of reestablishing vegetation after tilling has been extremely difficult due to the rocky soil, and the semi-arid climate. Current plutonium concentrations in the soils subject to these remediation efforts are reflected in the RFI/RI. Subsequent to the revegetation efforts, no further remedial action involving plowing and disking has been undertaken on this acreage. Additional information on this acreage can be referenced in the Final Past Remedy Report, Operable Unit No. 3 IHSS 199 (DOE, 1991) and the Remedy Lands Semi-Annual Report, Summer 1996, (DOE, 1996), available at each of the Information Repositories.

**IHSS 200 — Great Western Reservoir** IHSS 200 consists of Great Western Reservoir, the associated drainages east of Indiana Street flowing into the reservoir, and their respective sedi-

ments Great Western Reservoir is located approximately 1/2 mile east of the Site, and currently provides drinking water for the City of Broomfield

**IHSS 201 — Standley Lake** IHSS 201 includes Standley Lake, the associated drainages east of Indiana Street flowing into the reservoir, and their associated sediments Standley Lake is located approximately 2 miles southeast of the Site Standley Lake provides drinking water for several local communities, including the Cities of Westminster, Northglenn, Thornton, and Federal Heights

**IHSS 202 — Mower Reservoir** IHSS 202 consists of Mower Reservoir, the associated drainages flowing into and out of the reservoir, and their respective sediments Mower Reservoir is located approximately 1,500 feet east of the eastern Site buffer zone boundary

The primary sources of contamination to OU 3 resulted from windborne releases from the 903 Pad in the late 1960's early 1970's These releases resulted in the contamination of surface soils in IHSS 199 The other primary source of contamination in OU 3 was the re-engineering of the A series detention ponds on North Walnut Creek during 1972 and 1973 This activity resulted in the release of contaminated sediments into Great Western Reservoir

### Other Activities Affecting OU 3

Other activities, affecting OU 3, outside of the IAG, CERCLA, and RCRA that are funded directly or indirectly by DOE include

- The Standley Lake Protection Project is in the final stages in implementation It will use the Woman Creek detention reservoir and other surface water management fea-

tures that will physically isolate Standley Lake from stream runoff originating on the Site (Figure 2) Construction of the Woman Creek Reservoir was completed in the Fall 1995 to detain and divert Woman Creek flows and protect Standley Lake The Woman Creek Reservoir was constructed upstream of Standley Lake to store Woman Creek stream flows before release Woman Creek Reservoir is designed to contain flows associated with a 100-year storm event

- The Great Western Reservoir Replacement Project replaces the drinking water supply currently provided by Great Western Reservoir A raw-water pipeline has been constructed from Carter Lake to a new water treatment facility that will be connected to the City of Broomfield's existing potable water distribution and storage system Additionally, the City of Broomfield has purchased water rights to provide this new supply When the Great Western Reservoir Replacement Project is complete, Great Western Reservoir will no longer be used as a drinking water supply
- The Rocky Flats Nuclear Weapons Plant Dose Reconstruction Project is currently working to reconstruct potential doses of chemicals of concern to offsite individuals that may have been received as a result of past Site operations The Health Advisory Panel, responsible for directing the investigation, was appointed by the State and the project is being managed by CDPHE
- The Citizens Environmental Sampling Committee (CESC) was created by the Health Advisory Panel in December 1992, to augment the sampling programs of the Health Advisory Panel Rocky Flats Health Studies The CESC developed and imple-

mented a soil and sediment sampling program for offsite areas

- In 1986 tilling activities began in the Remedy Lands on approximately 100 acres. Revegetation and stabilization efforts were difficult to effectively implement due to the extremely rocky soils, intense competition from weeds, and an expanding prairie dog population. An aggressive revegetation program, initiated in 1991, consisted of mechanical mowing of weeds, harrowing for seedbed preparation, reseeding, mulch application, and herbicide application for noxious weed control. This program allowed the tilled areas to become reestablished with native grass populations, and effectively complete the remediation of the tilled portion of these lands. Because of the difficulties in reestablishing the vegetation base, it has been recommended that tilling operations not be resumed (see Remedy Lands Semi Annual Report, Summer 1996)

### Summary of Site Risks

The risks to human health and the environment associated with OU 3 are characterized within the OU 3 RFI/RI Report. The RFI/RI Report was completed in accordance with requirements presented in the IAG and specifically identified in the OU 3 RFI/RI Work Plan and addenda. The objectives of the RFI/RI are as follows:

- Define physical features and ecological characteristics of OU 3
- Define sources of contamination
- Characterize the nature and extent of contamination in each media of each IHSS

(i.e., soil, sediment, surface water, groundwater, and air)

- Describe contaminant fate and transport mechanisms
- Collect data to support the quantitative Baseline Risk Assessment which includes the Human Health Risk Assessment (HHRA) and the Ecological Risk Assessment

These objectives have been met by reviewing historical information, completing sampling and laboratory analyses of surface soils, subsurface soils, sediments, groundwater, surface water, and air to support the HHRA, and completing sampling and laboratory analyses of terrestrial and aquatic biota to support the Ecological Risk Assessment. The results of an evaluation of human health and ecological risks at OU 3 are presented in the RFI/RI report. Risks are evaluated and quantified for each media of each IHSS by applying the specific risk characterization guidance agreed upon by EPA, CDPHE, and DOE. The results of the risk assessment process are compared with regulatory agency guidelines that are developed for the purpose of protecting human health.

The HHRA evaluated health risks and radiation dose from surface water and sediments in Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202) as well as from the soils surrounding these bodies of water (IHSS 199). Tables 1, 2, and 3 summarize the plutonium and americium activities found in the OU 3 surface waters, soils, sediments, and subsurface sediments. For the reservoir sediments, the only *chemical of concern (COC)* identified during the RFI/RI investigation was plutonium-239/240 in the surface sediments of Great Western Reservoir. There were no other

COCs found in the sediments, and no COCs identified in the surface water. For surficial soils, the COCs identified were plutonium-239/240 and americium-241. No COCs were found in Mower Reservoir, or Standley Lake in any media.

A residential exposure scenario and a recreational exposure scenario were used to assess the potential health risks and radiation dose in OU 3. The exposure assessment develops scenarios under which exposure to COCs may take place and takes into consideration the exposure routes, potential receptors, durations of exposure, transport media, and exposure source areas. The residential exposure scenario is the most conservative exposure scenario and the recreational exposure scenario is the least conservative scenario considered in the OU 3 HHRA.

#### **IHSS 199**

For residential exposure to the surface soils (IHSS 199), direct contact with plutonium and americium is assumed to occur as a result of ingestion and inhalation. Indirect contact is assumed to occur through limited vegetable, beef, and milk consumption, and through external radiation exposure. Exposure to sensitive populations (i.e., children) were considered in the residential scenario. Using these exposure parameters, and the highest level of plutonium identified in the soils east of Indiana Street (6.47 picocuries per gram [pCi/g]), the health risk calculated for the soils is 3 in 1,000,000. That is the risk posed by this maximum level of plutonium in the soil may result in, at most, three additional incidences of cancer in a lifetime per one million people. The highest radiation dose calculated for a residential receptor at IHSS 199 is 0.19 millirem per year.

Using the highest values found in the surface

soils (6.47) for recreational exposure, the risk values are even lower than for residential exposure. In the recreational scenario the exposure area is larger, the exposure duration is shorter, and the exposure is limited to soil ingestion, inhalation, and external radiation. The exposure pathways of vegetable, beef, and milk consumption are not included as in the residential scenario. The estimated excess lifetime cancer risk is 0.05 in 1,000,000 for exposure to soils during a lifetime of recreational use. The radiation dose calculated for a recreational receptor is 0.0057 millirem per year.

Recreational exposure to surface soils in IHSS 199 is the most realistic present and future exposure scenario. This open-space area located south of Great Western Reservoir and immediately east of Indiana Street is projected to remain as open space, with less restricted access to the area for recreational/open-space purposes. This land is controlled through zoning limitations and perpetual land-use restrictions included in the existing City of Broomfield and City of Westminster deeds of ownership.

#### **IHSS 200**

While not currently plausible, residential exposure to sediments in Great Western Reservoir (IHSS 200) was evaluated by assuming that a resident will occupy a drained Great Western Reservoir, and be exposed to surface sediments.

In this scenario, residences would be built within the natural drainage area directly on top of the exposed sediments (no foundation backfill material would be used before constructing the house), with no flood-control construction.

A residential scenario was evaluated because of the uncertain future use of Great Western Reservoir. In this scenario, the exposure para-

meters for the sediments of this reservoir are the same as for the surface soils of IHSS 199, and include sediment ingestion, inhalation, external radiation exposure, and ingestion of vegetables, beef, and milk. The estimated excess cancer risk associated with these exposures is 0.9 in 1,000,000. The radiation dose calculated for a residential receptor at IHSS 200 is 0.011 millirem per year.

For recreational conditions in which exposure is intermittent and of short duration, risk from exposure to the sediments in Great Western Reservoir is 0.01 in 1,000,000. The radiation dose for the recreational receptor is 0.00014 millirem per year.

A comparison of the Human Health Risk Assessment results with regulatory agency guidelines indicates that all of the risk values for residential and recreational exposure scenarios are within or below the EPA guidelines for a risk range that is considered to be protective of human health (100 in 1,000,000 to 1 in 1,000,000). These values illustrate that under the most conservative residential exposure assumptions the risk in OU 3 from Site contaminants is very low, and is below the levels that warrant additional investigation or clean-up.

The conclusion that OU3 does not warrant additional investigation or clean-up is supported by the radiation dose analysis. EPA has proposed a radiation site cleanup standard of 15 millirem for unrestricted release which is considered to be protective of human health. The results of the radiation dose assessment indicate that radiation doses for the residential and recreational exposure scenarios are well below the EPA radiation site cleanup standard, and well below the levels outlined in the Action Levels Framework attachment to the Rocky Flats Cleanup Agreement.

A Baseline Ecological Risk Assessment (ERA) was performed to assess the effects of chemical stressors, in the form of COCs selected for the site, on the terrestrial and aquatic ecosystems. Abiotic and biotic samples from each location were collected concurrently to allow correlations between natural abiotic parameters and the ecological measures selected for evaluating environmental stress. The ERA did not identify any significant ecological effects on terrestrial or aquatic ecosystems in OU 3.

### Summary of Radionuclide Analytical Results for Surface Water

No COCs were identified in surface water samples collected from Standley Lake, Great Western Reservoir, and Mower Reservoir. For informational purposes, Table 1 summarizes the maximum and mean concentrations of plutonium and americium detected in surface water from these reservoirs. Table 1 includes CDPHE standards, the National Drinking Water Standards, and the Rocky Flats Site Specific Standards for plutonium-239, -240 and americium-241 in surface water.

### Summary of Radionuclide Analytical Results for Soil

Plutonium-239, -240 and americium-241 were identified as COCs in surficial soils of IHSS 199. For informational purposes, Table 2 provides a summary of the analytical results for plutonium and americium in soils sampled for the OU3 RFI/RI and background data for plutonium and americium concentrations in surface soils in the Rock Creek area (Background Geochemical Characterization Report, September 1993) which can be found in the Public Information Repositories.

**Table 1 Summary of Plutonium and Americium in OU3 Surface Water**

Surface Water	Maximum	Mean	CDPHE Standard	National Drinking Water Standard	Site Specific Standard
<b>Plutonium-239, -240 (pCi/L)</b>					
Great Western Reservoir (IHSS 200)	0.005	0.002	15	a	0.03
Standley Lake (IHSS 201)	0.009	0.002	15	a	0.03
Mower Reservoir (IHSS 202)	0.030	0.005	15	a	0.05
<b>Americium-241 (pCi/L)</b>					
Great Western Reservoir (IHSS 200)	0.017	0.005	b	a	0.03
Standley Lake (IHSS 201)	0.026	0.006	b	a	0.03
Mower Reservoir (IHSS 202)	0.017	0.006	b	a	0.05
<b>Legend</b>					
pCi/L = picocuries per liter					
a = No National Drinking Water Standard Has Been Established for This Constituent					
b = No CDPHE Standard Has Been Established for Americium-241 in Surface Water					

**Table 2 Summary of Plutonium and Americium in OU3 Soils**

Soil	Minimum	Maximum	Mean	Background Minimum	Background Maximum	Background Mean
<b>Plutonium-239, -240 (pCi/g)</b>						
Contamination of Land Surface (IHSS 199)	-0.00574	6.468	0.357	0.026	0.1	0.054
<b>Americium-241 (pCi/g)</b>						
Contamination of Land Surface (IHSS 199)	-0.002	0.52	0.063	-0.003	0.04	0.02
<b>Legend</b>						
pCi/g = picocuries per gram						

**Summary of Remedial Alternative**

Based on the results of the Human Health Risk Assessment and the Ecology Risk Assessment, the remedial alternative proposed in this

Proposed Plan for OU 3 is No Action. The results of the Human Health Risk Assessment show that OU 3 risks do not exceed human health-based standards set by the EPA and the CDPHE. Further investigation or remedial action in OU 3 is not warranted to be protective of human health and the environment. DOE

Table 3 Summary of Plutonium and Americium in OU 3 Sediments

Surface Sediments	Minimum	Maximum	Mean
<b>Plutonium-239, -240 (pCi/g)</b>			
Great Western Reservoir (IHSS 200)	0	3.3	0.267
Standley Lake (IHSS 201)	0.02	0.55	0.033
Mower Reservoir (IHSS 202)	0.03	0.49	0.291
<b>Americium-241 (pCi/g)</b>			
Great Western Reservoir (IHSS 200)	0.01	0.21	0.043
Standley Lake (IHSS 201)	0	0.11	0.017
Mower Reservoir (IHSS 202)	0.01	0.09	0.049
<b>Subsurface Sediments</b>			
<b>Plutonium-239, -240 (pCi/g)</b>			
Great Western Reservoir (IHSS 200)	0	4.03	0.73
<b>Americium-241 (pCi/g)</b>			
Great Western Reservoir (IHSS 200)	0	1.02	0.24

believes that no irreversible damages to natural resources will occur as a result of implementing the preferred alternative of no action, owing to the small amounts of contamination found in OU3. Concentrations of plutonium and americium in downstream reservoirs (Great Western Reservoir, Standley Lake, and Mower Reservoir) consistently remain within existing water quality standards, and therefore water quality (at least as regards these constituents) is suitable for any use. The highest amounts of plutonium detected in either surface soils or sediments result in risk estimates well within EPA's acceptable risk range for CERCLA sites, using a conservative, residential land use exposure scenario. Since other potential land use scenarios would result in lower exposures and therefore lower risk estimates, implementation of a no action alternative will not compromise future land use options. Finally, the results of the Ecological Risk Analysis demonstrate that none of the COC's

pose a risk to ecological receptors as a result of exposure to any of the media considered.

### Glossary

**Chemicals of Concern (COCs)** Chemicals identified in a particular medium which originated from the Site that, based on concentration and toxicity, contribute significantly to risks calculated for exposure scenarios involving that medium.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund)** A law passed in 1980 that established a program to identify abandoned hazardous waste sites, ensured that they were cleaned up, and evaluated damages to natural resources.

**Corrective Action Document/Record of Decision (CAD/ROD)** A public document that describes the cleanup alternative(s) selected for a RCRA/CERCLA site. The CAD/ROD is prepared based on information acquired through the RFI/RI, the Corrective Measures Study/Feasibility Study (CMS/FS) (if performed), and community participation.

**Individual Hazardous Substance Site (IHSS)** An area that may be contaminated as a result of previous operations and disposal practices.

**Operable Unit (OU)** A term defined by CERCLA used to describe a certain portion of a CERCLA site. An OU may be established based on a particular type of contamination, contaminated media (e.g., soils and water), source of contamination, and/or geographical location.

**Preferred Alternative** The preliminary recommendation that is judged to provide the best balance of tradeoffs with respect to long- and short-term effectiveness, implementability, cost and the reduction of contaminant toxicity, mobility, or volume through treatment.

**Proposed Plan** The public document that first introduces the preferred alternative for site remediation. The Proposed Plan is produced through the cooperation of the regulatory agencies and is reviewed by the public.

**RCRA Facility Investigation/Remedial Investigation (RFI/RI)** An investigation to collect and analyze information to determine the nature and extent of contamination that may be present at a site. The objectives of the OU 3 RFI/RI included characterizing the physical features and ecological characteristics of the site, defining sources of contamination, describing contaminant fate and transport, and collecting data to support a quantitative baseline risk

assessment.

**Record of Decision (ROD)** A public record that documents and explains the cleanup decisions for a CERCLA site. The ROD is based on information from the Remedial Investigation and Feasibility Study (if performed), public comments, and community concerns.

**Resource Conservation and Recovery Act (RCRA)** A law passed in 1976 by the U.S. Congress to require the "cradle-to-grave" management of hazardous wastes. CDPHE, through the Hazardous Materials and Waste Management Division, implements RCRA in Colorado.

**Responsiveness Summary** The section of the CAD/ROD that summarizes public and regulatory agency comments and provides responses to those comments.

**Rocky Flats Cleanup Agreement** Provides the regulatory framework and vision under which the Rocky Flats Environmental Technology Site will be cleaned up and that will set enforceable milestones on an annual basis. The draft agreement was released for public comment on March 14, 1996. It was signed by DOE, EPA, and the State of Colorado on July 19, 1996.

**Risk** The likelihood of an adverse effect on the health of a human or ecological population as a result of exposure to chemical and/or radiological constituents.