CORRECTIVE ACTION DECISION/RECORD OF DECISION AMENDMENT FOR ROCKY FLATS PLANT (USDOE) CENTRAL OPERABLE UNIT

JEFFERSON AND BOULDER COUNTIES, COLORADO

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Appendix 1 Comment Responsiveness Summary

Abbreviations

ARAR	applicable or relevant and appropriate requirement
CAD	Corrective Action Decision
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CMS	Corrective Measures Study
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
FS	Feasibility Study
IC	institutional control
IHSS	Individual Hazardous Substance Site
NCP	National Contingency Plan
NPL	National Priorities List
OU	Operable Unit
PRG	preliminary remediation goal
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFLMA	Rocky Flats Legacy Management Agreement
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
VOC	volatile organic compound

1.0 Introduction and Purpose

The *Corrective Action Decision/Record of Decision for Rocky Flats Plant Peripheral Operable Unit and the Central Operable Unit* was issued September 29, 2006 (2006 CAD/ROD) (DOE, EPA, and CDPHE 2006). The Peripheral Operable Unit (OU) and the Central OU constitute the land known as Rocky Flats or the Rocky Flats Site, which is owned by the United States Government.

The Offsite Areas at Rocky Flats, also known as OU 3, were addressed under a separate CAD/ROD, dated June 3, 1997 (DOE, EPA, and CDPHE 1997). This CAD/ROD amendment does not affect the OU 3 CAD/ROD.

Under the 2006 CAD/ROD, the response actions selected for the Central OU were institutional controls (ICs), physical controls, and continued monitoring. The Peripheral OU surrounds the Central OU and includes the remaining portions of the Rocky Flats Site. The 2006 CAD/ROD concluded that the Peripheral OU was not impacted by hazardous substance releases, and no response action was required.

The purpose of this CAD/ROD amendment is to document changes to the description of certain ICs required for the Central OU to more accurately reflect the objective and rationale of the ICs, as stated in the 2006 CAD/ROD. The specified objective and rationale for each IC stated in the 2006 CAD/ROD is not changed in this amendment.

The CAD/ROD amendment was proposed in the June 1, 2011, *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision* (DOE, EPA, and CDPHE 2011), which was released for public review and comment on June 3, 2011.

The CAD/ROD amendment is being made to clarify the description of the ICs pertaining to excavation, soil disturbance, and changes to engineered components because they could be misinterpreted to preclude work for management and maintenance of the Central OU property.

The CAD/ROD amendment also formalizes certain implementation requirements for ICs and removes the 2006 CAD/ROD requirement that any modification to ICs may only be made by a formal CAD/ROD amendment. Under this CAD/ROD amendment, future proposed changes to ICs will follow the regulations and guidance in effect at the time of the proposal, but a public review and comment period will always be provided.

1.1 Site Background

The Rocky Flats Plant, later named the Rocky Flats Environmental Technology Site, was a federal facility established in 1951 and produced components for nuclear weapons. Due to releases of hazardous substances to the environment, Rocky Flats was listed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund) National Priorities List (NPL) in 1989.

Rocky Flats is located in the Denver, Colorado, metropolitan area, approximately 16 miles northwest of Denver and 10 miles south of Boulder, Colorado. Nearby communities include the cities of Arvada, Broomfield, and Westminster, Colorado. The majority of the site is located in

Jefferson County, with a small portion located in Boulder County. The U.S. Environmental Protection Agency (EPA) Superfund Identification Number for Rocky Flats is CO7890010526. Figure 1 shows the boundaries of Rocky Flats and the Peripheral OU and Central OU.

The Rocky Flats National Wildlife Refuge (Refuge) encompasses approximately 4,000 acres of the approximately 4,800 acre Peripheral OU. The Refuge is under the jurisdiction and control of the U.S. Fish and Wildlife Service.

The approximately 1,300 acre Central OU and approximately 800 acres in the Peripheral OU that have not yet been incorporated into the Refuge are under the jurisdiction and control of the U.S. Department of Energy (DOE). The DOE Office of Legacy Management is responsible for the long-term stewardship of the property under DOE jurisdiction and control, which includes the implementation of remedy requirements in the Central OU.

The Refuge will eventually be open to the public. A four-strand barbed-wire fence surrounds the Central OU, and pursuant to the 2006 CAD/ROD, the Central OU is closed to public access.

1.2 Regulatory Status

Cleanup and closure of Rocky Flats was completed under the Rocky Flats Cleanup Agreement (DOE, EPA, and CDPHE 1996) (RFCA). RFCA coordinated DOE's obligations and EPA's and the Colorado Department of Public Health and Environment's (CDPHE's) respective statutory authorities for planning, approving, and conducting cleanup work and for selecting and approving the final response action.

The remedy was selected under CERCLA, Sections 117 and 120, as amended by the Superfund Amendments and Reauthorization Act of 1986. The remedy is also the selected corrective action under the Colorado Hazardous Waste Act[1] (CHWA) and the Resource Conservation and Recovery Act (RCRA). Colorado is authorized to implement the CHWA in lieu of RCRA, through CDPHE.

EPA published a Notice of Partial Deletion from the NPL for OU 3 and the Peripheral OU on May 25, 2007. EPA determined that conditions in OU 3 and the Peripheral OU are suitable for unrestricted use and unlimited exposure.[2] The Central OU is the remaining NPL site at Rocky Flats.

On July 12, 2007, most of the Peripheral OU property was transferred to the U.S. Department of the Interior to establish the Refuge, pursuant to the Rocky Flats National Refuge Act of 2001[3] (Refuge Act). EPA certified that cleanup and closure of Rocky Flats were complete, and the Central OU remedy was operating properly and successfully, in accordance with requirements of the Refuge Act for transfer of the land to establish the Refuge.

[1] Section 25-15-101 et seq., *Colorado Revised Statutes*.
[2] See, 72 *Federal Register* 48, 11313 March 13, 2007, and 72 *Federal Register* 101, 29276, May 25, 2007.
[3] Public Law 107-107, Subtitle F.

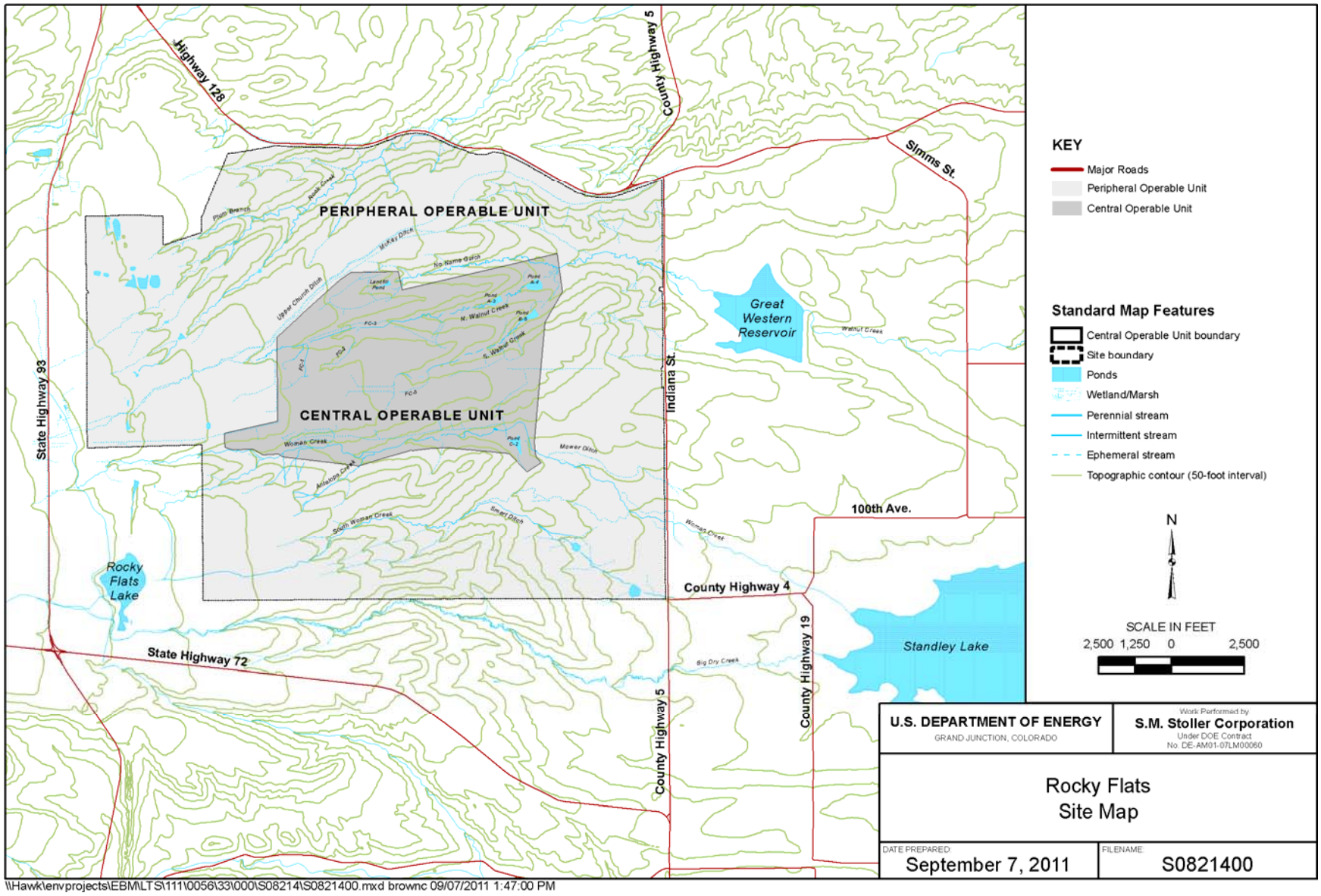

Figure 1. Site Map

As stipulated in the 2006 CAD/ROD, on December 4, 2006, DOE also granted an environmental covenant containing the ICs for the Central OU to CDPHE, pursuant to the CHWA.[4] This modified the environmental covenant granted by DOE to CDPHE on May 22, 2006, prior to the 2006 CAD/ROD. The environmental covenant provides the State with jurisdiction to enforce the ICs independently of the CAD/ROD and RFLMA. The environmental covenant is recorded in the land records for Jefferson County, reception number 2006148295.

1.3 Need for CAD/ROD Amendment

This CAD/ROD is amended in accordance with the National Contingency Plan (NCP), 40 CFR 300.435(c)(2)(ii), and EPA guidance[5]. However, DOE, EPA, and CDPHE have determined that the changes being made in this amendment are not "fundamental changes" to the remedy that would trigger a CAD/ROD amendment as defined in the NCP and EPA guidance.

Nonetheless, this CAD/ROD amendment is necessary because the 2006 CAD/ROD specified that DOE may not modify or terminate ICs without the approval of EPA and CDPHE, and only by formal amendment of the CAD/ROD. The 2006 CAD/ROD is silent on the rationale for this requirement, but DOE, EPA, and CDPHE believe that because a CAD/ROD amendment requires a formal public review and comment period, this provision serves to ensure that public review comments are considered for proposed changes to ICs.

The problem lies with requiring a CAD/ROD amendment when no change to the remedy is being made. Thus, the NCP process for issuing a Proposed Plan and selecting a new remedy, while informative, is not relevant. This is why the NCP and guidance on documenting post-ROD changes provides a process for "minor" and "significant" changes.

Because of the requirement in the 2006 CAD/ROD, DOE, EPA, and CDPHE followed the CAD/ROD amendment process by preparing and issuing a Proposed Plan. The *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision* was issued for public comment on June 3, 2011, and the 60-day public comment period ended August 2, 2011. More details on the public involvement for this CAD/ROD amendment are provided in Section 8.

This CAD/ROD amendment provides that future CAD/ROD changes affecting the ICs will be made consistent with then-existing CERCLA and CHWA requirements and guidance. However, based on consideration of public comments, the CAD/ROD amendment makes clear that future proposed changes to ICs will include public review and comment before approval.

[4] Sections 25-15-317 through 25-15-327., *Colorado Revised Statutes*.

[5] The National Contingency Plan [NCP], Title 40 *Code of Federal Regulations* Part 300, et seq., section 300.435; and, *A Guide to Preparing Superfund Proposed Plans, Record of Decision, and Other Remedy Selection Decision Documents,* OSWER 9200.1-23P, EPA 540-R98-031, July, 1999, Section 7.0, "Documenting Post-ROD Changes; Minor Changes, Explanation of Significant Differences and ROD Amendments.

1.4 Administrative Record

This CAD/ROD amendment will be included in the Administrative Record file in accordance with the NCP, 40 CFR 300.825(a)(2). The Administrative Record file is maintained in accordance with RFLMA Appendix 2, *Legacy Management Public Involvement Plan*, May 2011. The Administrative Record is available on the LM website at www.lm.doe.gov/Rocky_Flats/Sites.aspx?view=1.

2.0 Site History, Contamination, and Selected Remedy

Rocky Flats used significant quantities of plutonium and uranium in manufacturing nuclear weapons components. Other metals used included stainless steel and beryllium. Processes included chemical dissolution, refining, forming, machining, and research and development, which generated numerous solid and liquid waste streams containing radionuclides, metals, and organic solvents. Plant operations, waste management practices, and accidents, such as fires, resulted in the release of radionuclides, metals, volatile organic compounds (VOCs), and semivolatile organic compounds to the environment.

To expedite remedial work and maximize early risk reduction, RFCA adopted an accelerated action approach to cleanup, equivalent to the removal authority in CERCLA. DOE used accelerated actions to remove contaminated soils, decontaminate and demolish contaminated buildings, close two landfills, and install groundwater treatment systems. EPA and CDPHE approved all accelerated action decision documents after public review and comment.

The investigation and cleanup process included a thorough characterization of 421 known or suspected hazardous-substance-release locations. These locations were called Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern, and Potential Incidents of Concern. Generally, all these areas were referred to as IHSSs. Appendix B of the June 2006 *Rocky Flats Site RCRA Facility Investigation–Remedial Investigation/Corrective Measures Study–Feasibility Study* summarizes each IHSS and its disposition under the RFCA.

All Rocky Flats buildings were deactivated, decontaminated if determined necessary, and demolished (except for a remaining equipment shed), and wastes generated by cleanup were removed. Buried waste and infrastructure was investigated, and accelerated actions determined necessary to address actual or threatened releases of hazardous substances or hazardous waste constituents were completed prior to the selection of the remedy for the Central OU in the 2006 CAD/ROD.

These actions included the closure in place of two landfills, construction of three groundwater treatment systems for treatment of VOCs, uranium- and nitrate-contaminated groundwater that is contaminated above maximum contaminant levels for drinking water, and one landfill seep treatment system for VOCs. A network of monitoring wells and surface water monitoring stations is also in place.

The selected remedy for the Central OU is ICs, physical controls, and monitoring. ICs and physical controls protect the engineered components of the remedy. ICs also prevent unacceptable exposure to residual contamination for the Rocky Flats land use. These remedy components help ensure that the remedy will remain adequately protective of human health and

the environment, and that monitoring is conducted to demonstrate the remedy is performing as intended.

A risk assessment determined that the selected remedy was protective of human health and the environment at the lower end of the acceptable risk range for human health, and there are no adverse effects to ecological receptors. Additional details regarding the basis for the determination are provided in Section 2.2.

2.1 Central OU Land Use

The 2006 CAD/ROD includes the following provisions regarding land use:

> Section 9, Current and Potential Future Land and Resource Uses
>
> As of the date of this CAD/ROD, all of Rocky Flats is the property of the United States, with activities there administered by DOE. The site is closed to public access. Per the [Rocky Flats National Wildlife] Refuge Act, the majority of the site is to have jurisdiction transferred to the U.S. Fish and Wildlife Service (Service), for the purpose of becoming a national wildlife refuge. The transfer will occur upon achieving closure as defined in the Refuge Act …
>
> — The lands retained by DOE are expected to be managed consistent with the Refuge, unless the needs of the remedy dictate otherwise…
>
> — The Refuge Act prohibits the United States from transferring any rights, title, or interest in land within the boundaries of Rocky Flats, except for the purpose of transportation improvements on the eastern edge of the site that is bordered by Indiana Street…
>
> — Use of the land for residential, commercial, or industrial purposes will not occur, and surface water and groundwater will not be used for potable water supplies. …
>
> Section 12, Remedial Action Objectives,
>
> This section identifies remedial action objectives (RAOs) and applicable or relevant and appropriate requirements (ARARs) for contaminated groundwater, surface water, and soil in the Rocky Flats Central OU. The RAOs were used in developing and evaluating remedial alternatives. The RAOs are contaminant-specific cleanup goals for the final comprehensive response action and are based on:
>
> — Human and ecological receptor exposure pathway scenarios for each contaminated medium, consistent with the reasonably foreseeable future land use as a National Wildlife Refuge…

No change to land use is made in this CAD/ROD amendment.

2.2 Comprehensive Risk Assessment and Radiation Dose Assessment

The *RCRA Facility Investigation–Remedial Investigation/Corrective Measures Study–Feasibility Study* (DOE 2006a) (RI/FS) included a Comprehensive Risk Assessment (CRA). Details of the CRA are provided in Appendix A of the RI/FS report. The CRA was conducted in accordance

with the regulatory agency–approved *Comprehensive Risk Assessment Work Plan and Methodology* (DOE 2005). The CRA was designed to provide information to help determine a final remedy that is adequately protective of human health and the environment.

The CRA estimated the risks posed by the site if no additional RFCA accelerated actions were taken. It provided the basis for taking additional action and identified the contaminants and exposure pathways that need to be addressed by the remedial action selected in the CAD/ROD.

The CRA Work Plan and Methodology developed screening-level preliminary remediation goals (PRGs) for surface and subsurface soil and groundwater from a human health and ecological perspective. The PRGs are contained in Appendix A of the CRA Work Plan and Methodology. The PRGs were developed based on a Site Conceptual Model, including exposure scenarios, exposure pathways, and receptors. The wildlife refuge worker receptor scenario resulted in the most conservative human health PRG. The PRGs are concentration levels corresponding to a lifetime excess cancer risk of 1×10^{-6} from exposure to carcinogenic compounds and/or a hazard quotient less than 0.1 for noncarcinogenic compounds.

Under CERCLA and the NCP, EPA considers environmental concentrations corresponding to a 1×10^{-6} to a 1×10^{-4} cancer risk range and a total noncancer hazard index less than or equal to 1.0 to be adequately protective of human health. CDPHE defines acceptable human health risk as a lifetime excess cancer risk of 1×10^{-6} from exposure to carcinogenic compounds and/or a hazard quotient less than 1.0 for noncarcinogenic compounds.

For the CRA, the surface soil and subsurface soil PRGs were used to screen the levels of residual contamination on an Exposure Unit (EU) basis to identify contaminants of concern (COCs). COCs are contaminants that may present health risks that require further evaluation to determine if the risk is acceptable under CERCLA and RCRA/CHWA. The EUs, COC screening process, identified COCs, and risk evaluation are documented in the CRA.

COCs were identified for surface soil/surface sediment for 5 of the 12 EUs. However, COCs were not identified for subsurface soil/sediment in any EU.

Contaminated subsurface features remain in the Central OU. While subsurface soil residual contamination was evaluated, these features were not evaluated in the CRA. Consequently, an IC to prevent access to contaminated subsurface features was included in the remedy.

In addition to the CRA, a radiation dose assessment of residual radionuclide contamination in surface soil and subsurface soil was performed to compare the ARARs identified for the remedy. These ARARs are from CDPHE's Radiation Control Regulations (Title 6 *Code of Colorado Regulations* [CCR] 1007-1, Part 4) and are discussed in Section 10 of the RI/FS (DOE 2006a). The dose assessment calculations and results are presented in RI/FS Section 10, Attachment 1.

The calculated dose rates show that the applicable dose limit is met for the wildlife refuge worker exposure scenario. In addition, the dose limit is also met for a rural resident exposure scenario in the areas with the highest surface soil and subsurface soil residual radionuclide concentrations if the land use was no longer restricted. The exposure scenario includes excavation of subsurface soil contaminated with the highest residual concentrations of radionuclides to construct a basement for a rural residence.

3.0 Basis for the CAD/ROD Amendment

While there is no fundamental change to the remedy, this CAD/ROD amendment is being made because the 2006 CAD/ROD specified that DOE may not modify ICs without formal amendment of the CAD/ROD. This CAD/ROD amendment is based on the information in the RI/FS, the *Rocky Flats Environmental Technology Site Proposed Plan* (DOE 2006b) for the 2006 CAD/ROD, and the 2006 CAD/ROD.

The RI/FS provides detailed information regarding released hazardous substances that remain on the site, feasible alternatives for responding to the release to provide a final remedy that is adequately protective of human health and the environment, and an evaluation of the feasible alternatives using the nine CERCLA criteria and the reasoning supporting the preferred alternative. The ICs were developed as a part of the feasible alternatives for the final remedy.

The 2006 CAD/ROD explains the basis for the selected remedy decision, using the information developed in the RI/FS and the Proposed Plan, and considering comments received from public review of the Proposed Plan. The CAD/ROD includes the objective and rationale statements for the ICs, which are consistent with recently issued EPA IC guidance.[6]

3.1 Circumstances Supporting the Need to Clarify IC Descriptions and Implementation

During Rocky Flats Plant operations, earthen dams were constructed to form a series of retention ponds along the creeks for the drainage areas in the industrialized portion of the site. Eleven of these dams remained in the Central OU at the time of the 2006 CAD/ROD. The remedy does not require the retention ponds, and DOE breached six of the dams in the Central OU in 2009. DOE has proposed to breach the remaining five dams to allow stream flows to approximate conditions prior to construction of the Rocky Flats Plant to enhance the aquatic and riparian habitat. DOE's proposed action is described in the *Surface Water Configuration Environmental Assessment and Finding of No Significant Impact* (DOE 2011).

Pursuant to RFLMA consultation provisions, DOE, CDPHE, and EPA consulted regarding soil disturbance and excavation work to breach the remaining dams. Pursuant to its authority under RFLMA, CDPHE approved the proposed work, as it did for the dam breach work done in 2009, based on its review of information that demonstrated the work would not violate the objective and rationale of the ICs prohibiting excavation deeper than 3 feet and soil disturbance that would not return the surface to the pre-existing grade.

The information submitted by DOE, the consultation regarding the proposed work and the CDPHE review and approval for soil disturbance and excavation in the Central OU subject to ICs was conducted in accordance with a protocol established by the RFLMA Parties was also used on a number of occasions for other work prior to this CAD/ROD amendment.

[6] *Institutional Controls: A Guide to Planning, Implementing, Maintaining and Enforcing Institutional Controls at Contaminated Sites,* OSWER 9355.0-89, EPA-540-R-09-001, November 2010, Interim Final, Section 4.1, "Documentation of Use Restrictions and IC Instruments in Decision Documents," and Section 4.2, "Drafting IC Language in the Selected Instruments."

DOE prepared a *Draft Surface Water Configuration Environmental Assessment* (DOE 2010) (Draft EA) pursuant to the requirements of the National Environmental Policy Act for the proposed action. DOE released the Draft EA for public review and comment on April 30, 2010. Some stakeholders expressed opposition to DOE's proposed action, commenting that because the proposed action is not remedy-related, the work would be precluded by the IC that prohibits excavation deeper than 3 feet below the surface unless remedy-related.

CDPHE withdrew approval for DOE to conduct the soil disturbance and excavation work related to the proposed dam breach work on October 15, 2010, to allow the RFLMA Parties to consult regarding clarification of the soil excavation and soil disturbance prohibitions. DOE, EPA, and CDPHE agreed that the ICs as described in the 2006 CAD/ROD could be misinterpreted and that clarification is appropriate to document that the ICs are not intended to preclude DOE from appropriately managing the land comprising the Central OU.

The CAD/ROD amendment also incorporates the amendment of the environmental covenant provisions in the CHWA by Senate Bill 08-037, effective July 1, 2008, to keep the enforcement of remedy-related land use restrictions flexible by also providing for a Notice of Environmental Use Restriction (restrictive notice). The CAD/ROD amendment provides for the use of either an environmental covenant or a restrictive notice.

Under Colorado law, a restrictive notice can be used as an alternative to an environmental covenant. Restrictive notices are particularly useful when an environmental covenant might not provide an enforceable means to bind parties with prior interest in the land, such as utility easements who do not subordinate their interest to the covenant.

A restrictive notice is an action by CDPHE based on the state's police power. It is binding on current and subsequent owners of the affected land and any person using or possessing an interest in the land.

DOE and CDPHE will modify the current environmental covenant but could replace it with a restrictive notice without future changes to the CAD/ROD.

4.0 Description of Changes Made by the CAD/ROD Amendment

The IC descriptions that are changed in this CAD/ROD amendment are listed in Table 1. Consistent with EPA's IC guidance, Table 1 presents a side-by-side comparison of the 2006 CAD/ROD and the CAD/ROD amendment IC description. The 2006 CAD/ROD objective and rationale for each IC remains the same and are included after each IC description. The CAD/ROD amendment requires the objective and rationale of each IC to be incorporated in the environmental covenant or restrictive notice and RFLMA.

Table 2 lists the other remedy descriptions affected by this CAD/ROD amendment. Table 2 also presents a side-by-side comparison of the 2006 CAD/ROD and this CAD/ROD amendment.

Table 1. Clarification of IC Descriptions

Original IC, *Description of the Selected Remedy/Corrective Action* (2006 CAD/ROD pp. 69–70)	**CAD/ROD Amendment IC Description**
IC 2—Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, except for remedy-related purposes and routine or emergency maintenance of existing utility easements, in accordance with pre-approved procedures.	IC 2—Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2.
Objective: Prevent unacceptable exposure to residual subsurface contamination. **Rationale:** Contaminated structures, such as building basements, exist in certain areas of the Central OU, and the CRA did not evaluate the risks posed by exposure to this residual contamination. Thus, this restriction eliminates the possibility of unacceptable exposures. Additionally, it prevents damage to subsurface engineered components of the remedy.	
Original IC, *Description of the Selected Remedy/Corrective Action* (2006 CAD/ROD p. 70)	**CAD/ROD Amendment IC Description**
IC 3—No grading, excavation, digging, tilling, or other disturbance of any kind of surface soils is permitted, except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) approved by CDPHE or EPA. Any such soil disturbance will restore the soil surface to preexisting grade.	IC 3—No grading, excavation, digging, tilling, or other disturbance of any kind of surface soils is permitted, except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) approved by CDPHE or EPA. Soil disturbances that will not restore the soil surface to preexisting grade or higher may not be performed without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2.
Objective: Prevent migration of residual surface soil contamination to surface water. **Rationale:** Certain surface soil contaminants, notably plutonium-239/240, were identified in the fate and transport evaluation in the RI as having complete pathways to surface water if disturbed. This restriction minimizes the possibility of such disturbance and resultant impacts to surface water. Restoring the soil surface to preexisting grade maintains the current depth to subsurface contamination or contaminated structures.	
Original IC, *Description of the Selected Remedy/Corrective Action* (2006 CAD/ROD p. 70)	**CAD/ROD Amendment IC Description**
IC 7—Activities that may damage or impair the proper functioning of any engineered component of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark, are prohibited.	IC 7—Activities that may damage or impair the proper functioning of any engineered component of the response action, including but not limited to any groundwater treatment system, monitoring well, landfill cap, or surveyed benchmark, are prohibited. The preceding sentence shall not be construed to prohibit the modification, removal, replacement or relocation of any engineered component of the response action in accordance with the action determinations in RFLMA Attachment 2.
Objective: Ensure the continued proper functioning of engineered portions of the remedy. **Rationale:** This restriction helps ensure the integrity of other engineered components of the remedy, including monitoring and survey points.	

Table 2. Other Changes in CAD/ROD Amendment

2006 CAD/ROD	CAD/ROD Amendment
***Description of the Selected Remedy/Corrective Action* (CAD/ROD p. 4)** The selected remedy/corrective action will be implemented through a modification to the Rocky Flats Environmental Covenant [the May 22, 2006, Environmental Covenant] to include all of the institutional controls required for the Central OU.	***Description of the Selected Remedy/Corrective Action*** Pursuant to the CHWA (§ 25-15-317, et seq. C.R.S.), the selected remedy/corrective action will be implemented through a modification to the Rocky Flats Environmental Covenant [the December 4, 2006, Environmental Covenant] (environmental covenant) or through an Environmental Use Restriction (restrictive notice) that replaces the environmental covenant to include all of the institutional controls required for the Central OU.
***Description of the Selected Remedy/Corrective Action* (CAD/ROD p. 66)** The requirements of this remedy will be implemented through RFLMA, as well as through an environmental covenant for the Central OU that will be granted by DOE to CDPHE.	***Description of the Selected Remedy/Corrective Action*** The requirements of this remedy will be implemented through RFLMA, as well as through an environmental covenant or a restrictive notice that replaces the environmental covenant for the Central OU.
***Description of the Selected Remedy/Corrective Action* (CAD/ROD p. 71)** These institutional controls will be contained in an environmental covenant for the Central OU that will be granted by DOE to CDPHE. DOE will notify easement holders at Rocky Flats of these controls when the covenant is granted. DOE will also record the covenant with Jefferson County, Colorado, incorporating these institutional controls.	***Description of the Selected Remedy/Corrective Action*** These institutional controls will be contained in an environmental covenant for the Central OU that will be granted by DOE to CDPHE or by a restrictive notice that replaces the environmental covenant for the Central OU. CDPHE may unilaterally issue a restrictive notice if an environmental covenant is not granted, or if CDPHE and DOE cannot agree on a restrictive notice. DOE will notify easement holders at Rocky Flats of these controls when the covenant is granted or when a restrictive notice that replaces the environmental covenant is issued. The covenant or restrictive notice incorporating these institutional controls will be recorded with Jefferson County, Colorado.
***Description of the Selected Remedy/Corrective Action* (CAD/ROD p. 72)** Any property transfer will take place consistent with the terms of the environmental covenant granted to CDPHE by DOE.	***Description of the Selected Remedy/Corrective Action*** Any property transfer will take place consistent with the terms of the environmental covenant granted to CDPHE by DOE or by a restrictive notice that replaces the environmental covenant for the Central OU.
***Description of the Selected Remedy/Corrective Action* (p. 74)** As a requirement of this CAD/ROD, DOE will grant an environmental covenant to CDPHE for the entire Central OU, pursuant to Section 25-15-321, Colorado Revised Statutes. The covenant will incorporate use restrictions for the Central OU, and will run with the Property in perpetuity and be binding on DOE and all parties having any right, title or interest in the Property, or any part thereof, their heirs, successors and assigns, and any persons using the land. The covenant granted by DOE to CDPHE for the Central OU will supersede the covenant already granted by DOE to CDPHE for the Present Landfill, and will subsume applicable requirements of the Present Landfill covenant. The Present Landfill covenant will remain in effect until DOE grants the covenant for the Central OU, at which time the Present Landfill covenant will be terminated.	***Description of the Selected Remedy/Corrective Action*** *Text deleted because the requirements have been met.*

Table 2 (continued). Other Changes in CAD/ROD Amendment

2006 CAD/ROD	CAD/ROD Amendment
***Description of the Selected Remedy/Corrective Action* (p. 71)** For the purposes of this CAD/ROD, DOE may not modify or terminate these institutional controls without the approval of EPA and CDPHE, by formal amendment to this CAD/ROD.	***Description of the Selected Remedy/Corrective Action*** For the purposes of this CAD/ROD, DOE may not modify or terminate the institutional controls without the approval of EPA and CDPHE. Institutional controls will be modified or terminated in accordance with the requirements of CERCLA and CHWA, including CERCLA and CHWA implementing regulations and guidance in effect at that time. The public will also be notified of the modification or termination and be given an opportunity to review and comment, pursuant to RFLMA requirements for public notification and public comment in effect at that time. A minimum 30-day public review and comment period for any proposed modification or termination of ICs is required.

4.1 Soil Disturbance Review Plan

The Soil Disturbance Review Plan was included in the *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision,* Attachment 1, "Proposed Modification to RFLMA Attachment 2" (RFLMA Attachment 2 is titled "Legacy Management Requirements"). Public review and comment included the proposed modification to RFLMA Attachment 2, and consideration of comments is included in the comment responsiveness summary appended to this CAD/ROD amendment.

4.2 Remedial Action Objectives and Expected Outcomes

There is no change to the 2006 CAD/ROD Remedial Action Objectives or the expected outcome of the remedy.

5.0 CERCLA Evaluation Criteria

A summary and an evaluation of the remedy alternatives in relation to the nine CERCLA evaluation criteria are provided in the July 2006 Proposed Plan (DOE 2006b). The 2006 RI/FS and the 2006 CAD/ROD describe the alternatives and the CERCLA criteria evaluation in full.

Table 3 shows the nine CERCLA evaluation criteria for the 2006 CAD/ROD selected remedy and explains the proposed changes for the CAD/ROD amendment. Section 5.1 "Additional Information Supporting the CAD/ROD Amendment," provides additional discussion of some of the CERCLA evaluation criteria.

Table 3. Nine CERCLA Evaluation Criteria for CAD/ROD Amendment[7]

CERCLA Remedy Alternative Evaluation Criteria	2006 CAD/ROD	CAD/ROD Amendment
	The CAD/ROD selected remedy Alternative 2, which incorporated Alternative 1, "No Action with Continued Monitoring," and added "Institutional and Physical Controls."	No change to the selected remedy.
Overall protection of human health and the environment	Protective in the current site land configuration because no unacceptable risks from residual contamination exist after completion of all planned accelerated actions. The CRA shows that the incremental risk to the site worker falls within the acceptable range of 1×10^{-6} to 1×10^{-4} cancer risks and below a hazard index of 1 for noncarcinogenic effects. ICs were added to increase the protectiveness of the remedy, because: • The CRA does not evaluate an unrestricted scenario but instead evaluates potential risk to the anticipated future user. The assumptions used in the CRA human health risk calculations need to be embodied in an IC. • If residual soil contamination is disturbed, erosion could cause the contamination to migrate to surface water, which could result in some surface water sample results above surface water standards at some surface water monitoring locations. • Soil disturbance and excavation actions could adversely affect the engineered aspects of the remedy.	No change in protectiveness.
Compliance with ARARs and Remedial Action Objectives	Alternative 2 complies with all ARARs and meets the remedial action objectives.	No change.
Long-Term Effectiveness and Permanence	Accelerated actions (except the landfills) included the removal of contaminated structures and environmental media, providing a high degree of long-term effectiveness and permanence. Remaining building structures either meet free-release standards or have fixed contamination that is six feet or more below the ground surface. The landfills have been closed with required covers designed to isolate the wastes long-term. ICs are designed to provide the mechanisms that permanently maintain the completed actions consistent with the requirements in all accelerated action decision documents. In the very long term, ICs may fail. The environmental covenant will increase the long-term permanence of ICs.	No change. A restrictive notice in place of an environmental covenant also increases the long-term permanence of ICs.

[7] Source: 2006 CAD/ROD Table 22, "Evaluation of Alternatives CERCLA Criteria."

Table 3 (continued). Nine CERCLA Evaluation Criteria for CAD/ROD Amendment

CERCLA Remedy Alternative Evaluation Criteria	2006 CAD/ROD	CAD/ROD Amendment
Reduction of Toxicity, Mobility, or Volume Through Treatment	Groundwater treatment systems provide for a reduction of volatile organic compounds (VOCs) or uranium and nitrate, reducing the overall volume of contaminants in the groundwater and protecting the adjacent surface water. The Present Landfill seep treatment system provides treatment to remove the VOC contamination from the landfill seep.	No change.
Short-Term Effectiveness	ICs are effective immediately after the controls have been established.	The implementation requirements for regulatory review and approval of excavation and soil disturbance activities, and changes to engineered components will be incorporated into RFLMA and will be effective immediately upon the CAD/ROD amendment's approval.
Implementability	ICs and an environmental covenant are easily implemented.	The implementation requirements for regulatory review and approval of excavation and soil disturbance activities, and changes to engineered components will be incorporated into RFLMA and will be effective immediately upon the CAD/ROD amendment's approval. Colorado's environmental covenant law was amended in 2008 to provide for a restrictive notice. The use of either instrument is provided in the CAD/ROD amendment.
Cost	The present worth cost is $43,170,000 (which includes Alternatives 1 and 2). Capital costs are in 2005 dollars, and operations and maintenance costs are calculated for 30 years at a discount rate of 5 percent.	No change.
State Acceptance	Alternative 2 is acceptable and is the preferred alternative.	The proposed CAD/ROD amendment is acceptable to the State.
Community Acceptance	The public expressed substantial support for Alternative 2, though numerous comments were submitted on individual aspects of this alternative, including environmental monitoring, ICs and physical controls, and public involvement. The responsiveness summary to the public's comments appears as Section 20 of this CAD/ROD.	Comments received during the public comment period were considered in the CAD/ROD amendment decision. A comment responsiveness summary is appended to the CAD/ROD amendment.

5.1 Additional Information Supporting the CAD/ROD Amendment

The following information provides additional details relevant to the proposed CAD/ROD amendment. The information is presented in relation to the particular CERCLA criterion being evaluated.

5.1.1 Overall Protection of Human Health and the Environment

The CAD/ROD amendment is protective of human health and the environment because it ensures through the RFLMA regulatory review and approval process:

- The exposure assumptions in the CRA will be maintained.
- Workers will not be exposed inadvertently to subsurface contaminated features without having taken appropriate precautions.
- Subsurface contamination will not be mobilized and cause unintended exposure to humans or the environment.
- Sufficient soil cover over subsurface features is maintained.
- Engineered components such as treatment systems and monitoring wells will not be damaged.

The investigation and cleanup process included the characterization of every building before its disposal and after decontamination (if required) and demolition. Soil sampling was conducted over the entire Rocky Flats property pursuant to CDPHE- and EPA-approved sampling and analysis plans, using accepted CERCLA methodology for the selection of sampling locations to provide adequate data for the CRA.

Under the accelerated action approach, some portions of building basements and process waste piping infrastructure were left in the subsurface with residual contamination. The contamination is fixed within the building materials or in piping that is grouted (to the extent feasible). The decision to leave these contaminated features rather than remove them was based on an evaluation of the effectiveness, implementability, and cost for removal, pursuant to the RFCA accelerated action protocols. A comparison of these factors resulted in an RFCA regulatory determination that leaving these contaminated features in the subsurface significantly reduced potential risks to workers while maintaining adequate protection of human health and the environment.

Also, some pits and trenches that were used to dispose of contaminated incinerator ash and construction debris did not require accelerated actions. This is because the low levels of contamination remaining and the subsurface depth of the disposed-of materials maintains adequate protection of human health and the environment pursuant to the RFCA accelerated action protocols.

Risk from exposure to residual contamination in surface and subsurface soil and groundwater was evaluated in the CRA, but the remaining concrete and subsurface infrastructure that were not fully decontaminated were not evaluated in the CRA because the exposure pathway for this contamination would be complete only if the items were uncovered. Consequently, the remedy included ICs to prevent access to contaminated subsurface features. The remaining

contamination levels are documented by surveys included in the accelerated action closeout reports.

There is adequate information regarding residual levels of contamination for CDPHE and EPA to evaluate in the review and approval process for soil-disturbing and excavation activities to ensure that the remedy will remain protective after these activities are conducted.

The CAD/ROD amendment provides for an RFLMA Soil Disturbance Review Plan to support the regulatory review and approval of proposed DOE excavation and soil-disturbing work. The RFLMA Soil Disturbance Plan will allow CDPHE, in consultation with EPA, to evaluate whether residual risks to the site user are expected to remain within the CERCLA acceptable risk range.

The Soil Disturbance Review Plan is used in conjunction with the work control requirements in RFLMA that derive from EPA and CDPHE regulation and guidance and DOE regulation and directives. The same work control requirements were used during the extensive cleanup work for remediation and closure of the site. It was effective in controlling hazards and managing risk during investigation and characterization of contamination, soil removal, building and infrastructure decontamination and demolition, and construction of the engineered components of the remedy. The levels of residual contamination are now much lower than during active cleanup work, and the results of characterization of soil and remaining structures are well documented.

5.2 Implementability

The current environmental covenant will be modified to incorporate the changes to the IC descriptions and the objective and rationale for each IC consistent with the CAD/ROD amendment. The environmental covenant may be replaced with a restrictive notice in accordance with state law. Either instrument is easily implementable.

The CAD/ROD amendment also provides for a Soil Disturbance Review Plan in RFLMA Attachment 2, which will provide information for regulatory review and approval. This formalizes the information evaluation and regulatory agency approval process for proposed soil disturbance and excavation work conducted by DOE to maintain and manage the Central OU land that has been applied successfully for several years prior to this CAD/ROD amendment.

The RFLMA consultative process was used for review of the proposed work and the outcome of consultation, and approval of work is documented in RFLMA regulatory contact records. Contact records are posted on the Rocky Flats website. Stakeholders are notified of the posting of contact records in accordance with RFLMA Appendix 2, “Public Involvement Plan.”

For proposed work prior to this CAD/ROD amendment, DOE provided the following information for consideration by CDPHE and EPA to obtain approval:

- Information about any remaining subsurface structures in the vicinity so that the minimum cover assumption will not be violated (or stated that there are none if that was the case).
- Information about any former IHSSs or other known soil or groundwater contamination in the vicinity (or stated that there was no known contamination if that was the case).

- A commitment to survey any new surface established in subsurface soil, unless sufficient existing data were available to describe the new surface.

This is the same information that will be included in the RFLMA Attachment 2 Soil Disturbance Review Plan now required under this CAD/ROD amendment.

Erosion controls for soil disturbance and excavation work are employed in accordance with the CDPHE- and EPA-approved *Erosion Control Plan for Rocky Flats Property Central Operable Unit* (DOE 2007).

The proposed modification to RFLMA Attachment 2 to incorporate the CAD/ROD amendment, including the Soil Disturbance Review Plan requirements, was released for public review and comment as Attachment 1 to the *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision*. The final modification of RFLMA Attachment 2 reflects consideration of public comments by the RFLMA Parties, as documented in the comment responsiveness summary appended to this CAD/ROD amendment and discussed in Section 5.3. The modification of RFLMA Attachment 2 is final on the date the CAD/ROD amendment is approved.

The information to be provided in the Soil Disturbance Review Plan may subsequently be modified in accordance with RFLMA modification requirements without a formal CAD/ROD amendment.

Experience to date indicates that the proposed CAD/ROD amendment can be readily implemented.

5.3 Community Acceptance

Written comments were received from 26 individuals, one private organization, one local municipal reservoir authority, and four local municipalities. Seven persons made verbal comments at the formal public meeting. Five of these persons represented the local municipalities or the municipal reservoir authority that submitted written comments, and the other two persons also submitted written comments.

Five commenters submitted comments that were not relevant to the proposed CAD/ROD amendment because they addressed activities outside of the Central OU.

Responses to all comments are included in the appended comment responsiveness summary. Some comments were similar and are generally reflected in several common concerns, which are also addressed in the appended comment responsiveness summary.

To improve community acceptance, the CAD/ROD amendment and the RFLMA Attachment 2 modification included changes from the proposal related to public involvement. Several common concerns were related to a perceived elimination of public involvement in any proposed changes to ICs that may be made in the future, and implementation of work that is subject to ICs and approval under the Soil Disturbance Review Plan process.

In response to these concerns, the CAD/ROD amendment explicitly includes the requirement for a minimum 30-day public review period for proposed changes (see text in Table 2, “Other

Changes in CAD/ROD Amendment"). DOE would comply with any longer review period required by CERCLA, CHWA, or other guidance.

Also, in the RFLMA Attachment 2 modification, the following was added in relation to DOE proposed work subject to ICs and DOE, EPA, and CDPHE consultation:

> Results of consultation will be documented in contact records or written correspondence. Except for situations where immediate action is warranted, DOE will not implement the activity for which the regulatory determination is required until 10 calendar days after the contact record or written correspondence approving the activity is posted on the Rocky Flats website and notification of the posting is made to stakeholders in accordance with the RFLMA Public Involvement Plan.

This will provide interested stakeholders with the opportunity to obtain more detailed information from the RFLMA Parties according to the Public Involvement Plan regarding the proposed work and the regulatory determination that the objective and rationale of the IC will be met.

6.0 Support Agency Comments

The *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision* was jointly issued by DOE, EPA, and CDPHE.

The comment responsiveness summary appended to this CAD/ROD amendment was also prepared jointly by DOE, EPA, and CDPHE, and the three agencies concur with the responses.

7.0 Statutory Determinations

There is no change to the CERCLA statutory determination in the 2006 CAD/ROD. The CAD/ROD amendment for the Central OU continues to attain the mandates of CERCLA section 120, and to the extent practicable, the NCP.

8.0 Public Participation Compliance

The public participation requirements in the NCP 40 CFR 300.435(c)(2)(ii) have been met.

The *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision* was issued on June 3, 2011, with an original comment due date of July 8, 2011. DOE, EPA, and CDPHE extended this to a full 60-day public comment period upon requests from some stakeholders. Ads were placed in two newspapers of general circulation regarding the release of the proposal and the formal public meeting.

The *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision* and the documents incorporated by reference were posted on the LM website, and the public was

notified of the address in the newspaper ads as well as by e-mail to the Rocky Flats stakeholder list.

A formal public meeting on the proposal was held on June 16, 2011, and two public information meetings to further inform the public to facilitate the submittal of written comments were also held. One was during normal business hours on July 14, 2011, and one in the evening on July 20, 2011.

The formal public meeting was transcribed, and a number of written comments were received by the due date. A transcript of the public meeting was posted on the Rocky Flats website and placed in the Rocky Flats administrative record file. The written comments were placed in the Rocky Flats administrative record file and the responses to written comments are in the appended comment responsiveness summary.

9.0 References

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DOE (U.S. Department of Energy), 2010. *Draft Surface Water Configuration Environmental Assessment*, Draft, DOE/EA-1747, LMS/RFS/S06335, April.

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CORRECTIVE ACTION DECISION/RECORD OF DECISION AMENDMENT FOR ROCKY FLATS PLANT (USDOE) CENTRAL OPERABLE UNIT

Authorizing Signature

THOMAS PAULING

Digitally signed by THOMAS PAULING
DN: c=US, o=U.S. Government, ou=Department of Energy, cn=THOMAS PAULING, 0.9.2342.19200300.100.1.1=89001000652712
Date: 2011.09.19 11:26:58 -04'00'

Thomas C. Pauling
Director
Office of Site Operations
U.S. Department of Energy, Office of Legacy Management

CORRECTIVE ACTION DECISION/RECORD OF DECISION AMENDMENT FOR ROCKY FLATS PLANT (USDOE) CENTRAL OPERABLE UNIT

Authorizing Signature

Carol L Campbell SEP 19 2011

Carol L. Campbell
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation
U.S. Environmental Protection Agency, Region 8

CORRECTIVE ACTION DECISION/RECORD OF DECISION AMENDMENT FOR ROCKY FLATS PLANT (USDOE) CENTRAL OPERABLE UNIT

Authorizing Signature

Gary W. Baughman
Director
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment

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Appendix 1

Comment Responsiveness Summary

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Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision and Modifications to Attachment 2—Legacy Management Requirements of the Rocky Flats Legacy Management Agreement (RFLMA)

Comment Responsiveness Summary

U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and Colorado Department of Public Health and Environment (CDPHE)

A. Common Concerns

Many of the comments received during the public review period expressed concerns regarding similar topics. Such concerns are deemed "common concerns" and are enumerated below. Rather than repeating the full responses to particular common concerns, the responsiveness summary table in Part B references them by number.

1. Public review and comment for any future proposal for modification or termination of institutional controls (ICs)

Under the regulations and guidance for implementing the Comprehensive Response, Compensation, and Liability Act (CERCLA), any Record of Decision (ROD) amendment is subject to formal public review and comment. The Rocky Flats Legacy Management Agreement (RFLMA) Parties—CDPHE, DOE and EPA—proposed removing the *Corrective Action Decision/Record of Decision for Rocky Flats Plant (USDOE) Peripheral Operable Unit and Central Operable Unit*, EPA/541/R-06/197, September 29, 2006 (CAD/ROD) requirement that Institutional Controls (ICs) could only be changed by a formal amendment to the CAD/ROD, because only "fundamental changes" to a remedy require a formal ROD amendment under CERCLA. (See the National Contingency Plan (NCP) regulations at 40 CFR 300.435 (c)).

As explained in the *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision* (Proposed Plan for the CAD/ROD amendment), proposals to modify or terminate ICs may not always amount to fundamental changes to the remedy and thus would not fit within the formal CAD/ROD amendment process framework. Commenters expressed concerns that if the proposal were adopted, it could limit public review and comment regarding any future proposals to modify or terminate ICs.

The intent of the proposed change was not to limit public review and comment opportunities, but to recognize that future proposals to modify or terminate ICs may not always meet the CERCLA implementing regulatory definition of a "fundamental change." To address public review and comment for proposed modification or termination of ICs, the Proposed Plan included the following requirement:

> The public will also be notified of the modification or termination and be given an opportunity to review and comment, pursuant to RFLMA requirements for public notification and public comment in effect at that time.

RFLMA requires public notice of all amendments to RFLMA and any modification of attachments. Public comment is also required for RFLMA amendments or modifications that constitute "significant change from existing requirements." (See RFLMA Paragraphs 65 and 66.) However, commenters were concerned that the RFLMA Parties could limit public review and comment simply by characterizing any future proposals as not significant.

The RFLMA Parties agree that any future proposal for modification or termination of ICs is likely to be of significant interest to the public. In response to these comments, the final amendment to the CAD/ROD includes a requirement for a minimum 30-day public review and comment period for any proposed modification or termination of ICs.

2. Public review and comment for work that is subject to ICs and requires Colorado Department of Public Health and Environment (CDPHE) approval before it can be conducted

To clarify IC implementation and formalize the current procedures used by the RFLMA Parties for CDPHE review and approval, the Proposed Plan for Amendment of the CAD/ROD included provisions for CDPHE review and approval (a RFLMA regulatory determination) before the U.S. Department of Energy (DOE) may perform work subject to the ICs that restrict soil disturbance and excavation or restrict changes to engineered components of the remedy.

The proposed modification to RFLMA Attachment 2 provided that DOE would follow the RFLMA consultative process pursuant to Part 5 of RFLMA for any regulatory determination regarding activities subject to these ICs. The CDPHE review is to determine whether the proposed work will meet the objective and rationale of the IC, as stated in the CAD/ROD and described in the Proposed Plan.

The specific objectives of RFLMA include providing for public information and involvement, and require that DOE maintain and implement the Public Involvement Plan in RFLMA Appendix 2, *Legacy Management Public Involvement Plan*, May 2011 (PIP). (See RFLMA Part 2, "Statement of Purpose," and RFLMA Paragraph 25.)

The RFLMA consultative process is documented in contact records, as described in the PIP, Section 7.0, "Public Participation":

> When site conditions warrant entering the consultative process with the regulatory authorities as described in the RFLMA, LM will initiate a contact record of discussions between LM and the regulatory agencies. Contact records will be made available to the public on the LM website as early in the process as is practicable following signature approval by the parties. Engaged stakeholders will be notified of contact record postings by e-mail. Additional dialogue with the public will also be established as warranted by the nature of the conditions or by the level of interest.

While the RFLMA Parties strive to keep the public informed about ongoing and proposed work through the periodic reporting required by RFLMA, and through meetings and presentations, commenters were concerned that there would be no opportunity for public review and comment regarding DOE's proposed work and the information provided for the regulatory determination. Commenters stated that regulatory determinations related to implementing these ICs should not be made without consideration of public review comments.

The RFLMA Parties believe that the RFLMA public involvement mechanisms provide adequate opportunity for public review and feedback for CDPHE consideration in determining whether to approve, approve with modifications, or disapprove proposed soil-disturbing activities that are subject to ICs.

In some cases, work proposed by DOE may be subject to public review and comment under the National Environmental Policy Act (NEPA) evaluation requirements, so there is no need for a duplicate public review and comment process under RFLMA. In other cases, the work being proposed by DOE for a regulatory determination pursuant to the RFLMA consultative process will not garner significant public interest, because of the nature of the work.

In response to these comments the final modification to RFLMA Attachment 2 includes the following provision:

> Results of consultation will be documented in contact records or written correspondence. Except for situations where immediate action is warranted, DOE will not implement the activity for which the regulatory determination is required until 10 calendar days after the contact record or written correspondence approving the activity is posted on the Rocky Flats website and notification of the posting is made to stakeholders in accordance with the RFLMA Public Involvement Plan.

3. The CAD/ROD amendment and the land use assumptions for the Central Operable Unit (OU) in the CAD/ROD

Some commenters questioned whether the proposed CAD/ROD amendment could allow for changes in the land use assumed in the evaluation of remedy alternatives and would result in a different exposure scenario in the Central OU. Some commenters expressed concern that the proposed amendment could allow for the development and building of public roads that would not be compatible with the remedy.

The RFLMA Parties did not propose any changes to the land use assumptions. The CAD/ROD includes the following provisions regarding land use:

> As of the date of this CAD/ROD, all of Rocky Flats is the property of the United States, with activities there administered by DOE. The site is closed to public access. Per the [Rocky Flats National Wildlife] Refuge Act, the majority of the site is to have jurisdiction transferred to the U.S. Fish and Wildlife Service (Service), for the purpose of

> becoming a national wildlife refuge. The transfer will occur upon achieving closure as defined in the Refuge Act . . .
>
> - The lands retained by DOE are expected to be managed consistent with the Refuge, unless the needs of the remedy dictate otherwise . . .
>
> - The Refuge Act prohibits the United States from transferring any rights, title, or interest in land within the boundaries of Rocky Flats, except for the purpose of transportation improvements on the eastern edge of the site that is bordered by Indiana Street . . .
>
> - Use of the land for residential, commercial, or industrial purposes will not occur, and surface water and groundwater will not be used for potable water supplies.
>
> *—Section 9, "Current and Potential Future Land and Resource Uses"*
>
> This section identifies remedial action objectives (RAOs) and applicable or relevant and appropriate requirements (ARARs) for contaminated groundwater, surface water, and soil in the Rocky Flats Central OU. The RAOs were used in developing and evaluating remedial alternatives. The RAOs are contaminant-specific cleanup goals for the final comprehensive response action and are based on:
>
> - Human and ecological receptor exposure pathway scenarios for each contaminated medium, consistent with the **reasonably foreseeable future land use as a National Wildlife Refuge** . . . (emphasis added)
>
> *—Section 12, "Remedial Action Objectives"*

In accordance with CAD/ROD Section 17, "Selected Remedy/Corrective Action for the Central OU," proposed changes to land use would require approval, as follows: ". . . DOE shall not modify or terminate institutional controls, implementation actions or **modify land use** without approval by EPA and CDPHE" (emphasis added).

4. The relationship of the CAD/ROD amendment to proposed actions outside of the Central OU

Some commenters stated that the amendment would facilitate the construction of the proposed Jefferson Parkway, which may include the transfer of a strip of land on the eastern border of the Rocky Flats National Wildlife Refuge (Refuge) along Indiana St. Some commenters also mentioned the amendment may be related to various development and construction projects south of Rocky Flats.

The proposed CAD/ROD amendment is related only to the land that encompasses the Central OU.

The Offsite Areas at Rocky Flats, also known as OU 3, were addressed under a separate CAD/ROD, dated June 3, 1997, EPA/ROD/R08-97/196. The OU 3 CAD/ROD is not affected by this CAD/ROD amendment. The land comprising the Refuge was part of Rocky Flats formerly listed on the CERCLA National Priorities List (NPL) and known as the Peripheral OU. EPA deleted OU 3 and the Peripheral OU from the CERCLA NPL (see 72 *Federal Register* 48, 11313, March 13, 2007; and 72 *Federal Register* 101, 29276, May 25, 2007) because they meet the criteria for deletion.

The Central OU, to which the CAD/ROD amendment applies, remains on the NPL. The CAD/ROD amendment relates only to the ICs for the Central OU. There are no ICs (or any other remedy requirements) outside of the Central OU. The land slated for possible parkway use, or any adjacent development, is not in the Central OU.

5. NEPA evaluation for work in the Central OU

Some commenters requested that any soil disturbance and excavation work proposed by DOE be evaluated under a NEPA Environmental Impact Statement. These commenters may be confusing the U.S. Fish and Wildlife Service NEPA evaluation for the proposed transfer of land for the Jefferson Parkway (discussed previously) with work done in connection with the proposed CAD/ROD amendment.

Soil disturbance and excavation activities that are conducted to meet the CAD/ROD (i.e., remedy-related) requirements in the Central OU do not require evaluation under NEPA because the already-completed CERCLA remedy selection process is the functional equivalent of the NEPA process.

For non-remedy-related work, NEPA evaluation is required, and DOE will continue to conduct the appropriate level of NEPA review in accordance with DOE NEPA Directives and regulatory requirements in 10 CFR 1021, DOE's NEPA implementation regulation. For example, as discussed in the Proposed Plan for the CAD/ROD amendment, DOE recently prepared a NEPA Environmental Assessment for Surface Water Configuration to evaluate proposed breaching of dams in the Central OU.

The amendment language in IC- 2 clarifies that all actions involving excavation, drilling, and other intrusive activities below a depth of three feet, whether subject to CERCLA or NEPA evaluation, will undergo a regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2 prior to implementation. The objective and rationale for IC-2 remains unchanged from the 2006 CAD/ROD.

6. CDPHE authority for review and approval of proposed work involving ICs

Some commenters questioned CDPHE's authority to approve proposed work.

Three laws govern regulation of cleanup and post-cleanup monitoring of federal facilities like Rocky Flats. Under the federal CERCLA, decisions about cleanup at DOE sites are made by DOE, but require EPA concurrence. Under the federal Resource Conservation and Recovery Act (RCRA), states may regulate cleanups of hazardous wastes (this includes all of the contamination at Rocky Flats with the notable exception of plutonium) at DOE facilities, using state laws that are at least as stringent as RCRA. The Colorado Hazardous Waste Act (CHWA) meets this standard.

In RFLMA, CDPHE, EPA, and DOE agreed to a consultative approach to implementing the agreement. It includes a regulatory structure in which CDPHE has approval/disapproval authority over cleanup and long-term management activities at Rocky Flats. CDPHE consults with EPA in making decisions on DOE proposals. The RFLMA also provides that for matters involving plutonium and other radionuclides, disputes over CDPHE decisions may ultimately be resolved by EPA.

The activities regulated under RFLMA are those required by the response activities in the final CAD/ROD, which include ICs. Under RFLMA, CDPHE exercises its authority—pursuant to the CHWA and RCRA—to approve, approve with modifications, or disapprove activities regulated under RFLMA that are subject to regulation under state environmental law. CDPHE also has authority under RFLMA to approve, approve with modifications, or disapprove activities regulated under RFLMA that involve CERCLA hazardous substances not regulated under state law. (See RFLMA Part 5, "Regulatory Approach.") The purpose of RFLMA is to ensure that the remedy remains protective of human health and the environment. (See RFLMA Part 2, "Statement of Purpose.")

The information that DOE must submit in the Soil Disturbance Review Plan (incorporated into RFLMA Attachment 2, "Legacy Management Requirements") to CDPHE for review prior to approval is to demonstrate that the IC objective and rationale will be met to ensure protection of human health and the environment.

The amendment of the environmental covenant provisions in CHWA—by Senate Bill 08-037, effective July 1, 2008—was incorporated into the proposed CAD/ROD amendment. The CHWA amendment is intended to keep the enforcement of remedy-related land use restrictions flexible by providing for a Notice of Environmental Use Restriction (restrictive notice). The state has jurisdiction to enforce the ICs independent of the CAD/ROD and RFLMA. The CAD/ROD amendment provides flexibility for the use of either an environmental covenant or a restrictive notice in conformance with Colorado law.

7. Risk management for soil disturbance and excavation work

Commenters were concerned that any soil disturbance could mobilize contaminants and create an unacceptable risk. As stated in the Proposed Plan for the CAD/ROD amendment, the requirement for RFLMA regulatory review and approval of proposed soil-disturbing work that is subject to ICs is intended to ensure that:

- Workers will not be inadvertently exposed to subsurface contaminated features without appropriate precautions.
- Subsurface contamination will not be mobilized and cause unintended exposure to humans or the environment.
- Sufficient soil cover over contaminated subsurface features is maintained.
- Engineered components such as treatment systems and monitoring wells will not be damaged.

The CAD/ROD amendment provides for a Soil Disturbance Review Plan in RFLMA Attachment 2 to support the regulatory review and approval of proposed DOE excavation and soil-disturbing work. The RFLMA Soil Disturbance Plan will allow CDPHE, in consultation with EPA, to evaluate whether residual risks to the site user (see Common Concern 3, above, for information regarding the land use assumption used in the CAD/ROD) are expected to remain protective.

The RFLMA consultative process includes, among other things, a means for discussion of the risk management approach for the work. Per RFLMA, Paragraph 11, "[c]onsultation and the consultative process means the responsibility of one Party to meet and confer with another Party and any appropriate contractors in order to reach agreement, the extent possible, regarding a proposed course of action . . . so that there is a clear understanding of the actions or directions to be taken based upon the outcome of the consultative process."

The Soil Disturbance Review Plan works in concert with existing RFLMA consultation provisions and the work control process in RFLMA Attachment 2, "Legacy Management Requirements," Section 4.0, "Institutional Controls," which states:

> DOE will employ administrative procedures to control all site modification, maintenance, or other activities requiring excavation within the Central OU in accordance with the institutional controls to ensure to prevent violation of the restrictions listed in Table 4. DOE shall ensure that all such site activities will not compromise the integrity or function of the remedy or result in uncontrolled releases of or exposures to subsurface contamination, in accordance with the land use restrictions in Table 4.
>
> DOE will utilize work control procedures to help maintain the use restrictions and ensure protection of the integrity of the institutional controls. These procedures derive from EPA and State of Colorado regulation and guidance and DOE Orders and guidance. The DOE Integrated Safety Management System (ISMS) utilizes processes such as the job hazard analysis (JHA) to identify and mediate environmental, health and safety risks to ensure all work is done in a safe and environmentally protective manner.

The DOE work control process was used during the extensive cleanup work for the Site's remediation and closure, and was effective in controlling hazards and managing risk during the investigation and characterization of contamination, the removal of soil, the decontamination and decommissioning of buildings and infrastructure, and the construction of the engineered components of the remedy.

During cleanup and closure work involving active remediation and soil disturbance at the site, thousands of samples were collected to monitor for contamination in airborne dust. The cumulative analytic results showed no exceedances of regulatory standards. In addition, there were no exceedances of radionuclide standards at the points of compliance.

The levels of residual contamination are now much lower than they were during active cleanup work, and the results of characterization of soil and remaining structures are well documented. The RFLMA Parties believe that the same DOE work control approach required by RFLMA Attachment 2 is adequate to identify and manage risks for any work subject to ICs.

The work control process is documented in the *Rocky Flats Site Operations Guide* (RFSOG), which is posted on the Rocky Flats website. Among other requirements, the RFSOG work planning and authorization review for soil-disturbing work includes an inquiry of the potential for mobilizing residual contamination and the appropriate controls (such as implementation of the Rocky Flats Erosion Control Plan) if the work has the potential to negatively impact surface water or groundwater. In addition, work planning includes the development of hazard controls to eliminate the possibility of unacceptable exposures or damage to engineered structures.

8. Public review and comment for modification of the environmental covenant or any environmental use restriction (restrictive notice) that replaces the covenant

The Proposed Plan for the CAD/ROD amendment included provisions to modify the Rocky Flats Environmental Covenant dated December 4, 2006, to replace the IC descriptions with the IC descriptions in the final CAD/ROD amendment. This also entails including the CAD/ROD objective and rationale for each IC as part of the IC description. The Proposed Plan for the CAD/ROD amendment also recognizes the 2008 amendment to the state's environmental covenant law to allow the environmental covenant to be replaced by a restrictive notice.

Some commenters requested public review and comment of any environmental covenant modification or any restrictive notice that replaces the environmental covenant.

The RFLMA Parties believe the comments could have been based on the concern that any future proposed changes to the ICs might not be subject to public review and comment, as discussed in Common Concern 1, above.

The environmental covenant statute does not provide any independent basis for public comment on creation, modification or termination of covenants or restrictive notices. Rather, any requirement for public comment on these events must arise (if at all) from the environmental law

that governs the remedial action that triggers the need for the environmental covenant or restrictive notice.

However, as noted above, the RFLMA Parties recognize that any future proposal for modification or termination of ICs is likely to be of significant interest to the public, and they have therefore included in the CAD/ROD amendment a specific requirement for public review and comment for any future proposed changes to the ICs. Any modification of the environmental covenant or restrictive notice would be made only after consideration of public review comments in the final approval of IC changes.

9. Deletion of CAD/ROD language that the environmental covenant will run with the property in perpetuity

The Proposed Plan for the CAD/ROD amendment included provisions to delete the following paragraph on p. 74 of the CAD/ROD, "Description of the Selected Remedy/Corrective Action."

> As a requirement of this CAD/ROD, DOE will grant an environmental covenant to CDPHE for the entire Central OU, pursuant to Section 25-15-321, Colorado Revised Statutes. **The covenant will incorporate use restrictions for the Central OU, and will run with the Property in perpetuity and be binding on DOE and all parties having any right, title or interest in the Property, or any part thereof, their heirs, successors and assigns, and any persons using the land.** The covenant granted by DOE to CDPHE for the Central OU will supersede the covenant already granted by DOE to CDPHE for the Present Landfill, and will subsume applicable requirements of the Present Landfill covenant. The Present Landfill covenant will remain in effect until DOE grants the covenant for the Central OU, at which time the Present Landfill covenant will be terminated. (emphasis added)

The RFLMA Parties proposed deleting this paragraph because its intent was to require replacing the Present Landfill environmental covenant. This was completed with the December 4, 2006, environmental covenant.

Some commenters indicated that they believed that the sentence emphasized above meant that the environmental covenant could never be terminated (i.e., in perpetuity). Thus, they are concerned that the ICs could be terminated in the future, which may allow land use that would pose an unacceptable risk. See Common Concern 3. The RFLMA Parties also believe that this concern may be related to Common Concern 1, regarding public review and comment for changes to ICs in the future.

The highlighted sentence basically summarizes some of the key aspects of the state's environmental covenant law, and was not intended to mean the environmental covenant could not be terminated. The duration of the environmental covenant is authorized and controlled by state law.

terminate or modify it pursuant to section 25-15-319(1)(h) or unless terminated by a court of competent jurisdiction." (emphasis added) The statute also requires that each environmental covenant and restrictive notice include specific provisions for modification and termination. § 25-15-319(1)(h).

The December 4, 2006 environmental covenant states that it "runs with the land and is perpetual, unless modified or terminated . . . ."[1] The 2006 covenant also includes the termination and modification provisions required by § 25-15-319(1)(h) of the covenant statute. So, absent termination or modification, the covenant provisions are binding in perpetuity. But inclusion of the words "in perpetuity" does not negate the modification and termination provisions. Like the 2006 covenant, the covenant that will be created pursuant to these amendments will also state that it "runs with the land and is perpetual, unless modified or terminated . . . ."

To approve a request to terminate an environmental covenant or restrictive notice, the Department must find that termination would still protect human health and the environment. Further, § 25-15-320(2) of the covenant statute specifies the conditions when a covenant is required:

> …(2) …an environmental covenant shall be required for any environmental remediation project … that would result in either or both of the following:
>
> (a) Residual contamination at levels that have been determined to be safe for one or more specific uses, but not all uses; or
>
> (b) Incorporation of an engineered feature or structure that requires monitoring, maintenance or operation or that will not function as intended if disturbed. …

Before it could approve a proposal to terminate an environmental covenant or restrictive notice, the Department would have to conclude that conditions in § 25-15-320(2)(a) and (b) above no longer existed. And because Rocky Flats is regulated under both CERCLA and RCRA, EPA would also have to agree that these conditions were met. Given the existence of landfills and buried contaminated structures such as building foundations and process lines, the costs to remove such structures and landfills, and the assessment of residual risks in the CAD/ROD and supporting documentation, it is extremely unlikely that the conditions outlined in §25-1-320(2)(a) and (b) would ever be met. So while it is legally possible that the Rocky Flats environmental covenant could be terminated, as a practical matter, it remains "perpetual."

[1] This language is essentially identical to language in most, if not all, of the other environmental covenants that CDPHE has accepted.

B. Comment Response Table

The following table provides responses to the written comments received during the formal public comment period. Comments from each individual were tabulated by the general or specific subjects contained in the written comment. The tabulation numbers are for easy identification and do not represent an assigned hierarchy. Also, for formatting and clarity within this table, the numbering, text styles, text effects and bullets shown within the comment column may be different from the numbering, text styles, text effects and bullets in the written comment submitted, but the specific text provided in the written comment is not changed.

No.	Comment	Response
Drew Watson		
1	It is my opinion as a home owner in Westminster and in relatively close proximity to Rocky Flats that the disturbance of the soil below 3 feet should not take place to protect the environment or surrounding area without significant public comment and not just left up to the Colorado Department of Public Health and Environment alone.	While the comment mentions “significant public comment,” the RFLMA Parties believe the comment suggests that a formal public review and comment period should be included as part of the CDPHE review and approval process for any work that entails excavation below 3 feet. See the responses to common concerns 2 and 5.
Betty LoSasso		
1	It is my opinion as a home owner in Westminster and in relatively close proximity to Rocky Flats that the disturbance of the soil below 3 feet should not take place to protect the environment or surrounding area without significant public comment and not just left up to the Colorado Department of Public Health and Environment alone.	See the responses to common concerns 2 and 5.

No.	Comment	Response
Brenda Fosmire		
1	I am writing to add my public comment regarding ANY proposal that would allow for disturbing soils at Rocky Flats. I strongly oppose any plan which would involve exposing sub-surface soils which may, and most likely are, contaminated with nuclear material. The DOE has just spent millions in efforts to make this site safe. The surrounding community must not be exposed in any way to further danger from Rocky Flats. In the past decade, since so-called clean-up has been completed new development has occurred close to this land. These new communities were built thinking that Rocky Flats was now a wildlife refuge, that Rocky Flats would not be a threat to them. But now, with these new proposals for roads and such, what was once thought to be safe is a new threat to our safety. Our communities peace of mind is lost. If the Rocky Flats area is disturbed and a variety of possible horrible scenarios occurs then many, many homeowners will be harmed. Perhaps the harm will be slow and insidious - as nuclear pollution tends to be, but harm is done. It is your job to protect the public. Your responsibility is to the greater public, not to the few who will profit and run.	See the responses to common concerns 4, 6, and 7. The RFLMA Parties agree that the site is safe, and the purpose of RFLMA is to ensure that the remedy implemented in the Central Operable Unit (Central OU) remains adequately protective of human health and the environment. The Soil Disturbance Review Plan must be approved by CDPHE before the soil-disturbing activities covered by the institutional controls (ICs) may be conducted. The CDPHE review entails a determination that the soil-disturbing work being proposed complies with the objective and rationale of the ICs, which are intended to ensure adequate protection.
Gage Fellows		
1	Speaking as a resident of Jefferson County as well as a business owner in both Broomfield County and Jefferson County, I urge your Department to not make policy changes to allow soil disturbance below three feet at the Rocky Flats site. I urge the Department to require a new, intensive Environmental Impact Statement prior to considering allowing any type of development on or immediately surrounding the Rocky Flats site.	See the responses to common concerns 3, 4, and 5.

No.	Comment	Response
2	To dig deeply into the land surrounding Rocky Flats is a risky proposition at best. We all know the history of the area and what dangerous compounds were utilized and stored at the Rocky Flats site. To use this email to delve deeply into the history of the area is not necessary. I am sure you are well aware of the lasting damage to the area due to the plutonium employed at Rocky Flats for decades. There are several recent, credible studies that indicate the plutonium contamination at Rocky Flats still poses a significant health risk for the public. The Department of Energy should re-examine this significant health risk with today's available more modern scientific methods and equipment before green-lighting any development and on near the Rocky Flats site.	See the responses to common concerns 4 and 7.
3	Today, the Department of Energy should reject a proposal to allow soil disturbance below three feet without further public comment. To dig deeply in the soil on and around Rocky Flats is risking the airborne release of plutonium particles on a large scale to the detriment of all communities downwind from the site. The result could be catastrophic for those persons who live and work within 10 miles of the site. We would likely close our Broomfield office if large scale construction is to take place on this section of land. Our Broomfield office is due east and roughly four miles from Rocky Flats. I consider the recent catastrophe of the Japanese nuclear plant and its devastating impact on miles of surrounding land to be of relevance in the weighing of proposals related to development on and in the immediate vicinity of Rocky Flats. Further study and a new Environmental Impact Statement are required before considering development on and immediately next to the Rocky Flats site. A slight delay to any construction is a small price to pay to be able to truly understand the environmental impact and probable consequences of such construction. Given the potential for catastrophe, it is wisest to be patient and make an informed decision rather than a haphazard guess when weighing construction projects on and near Rocky Flats.	See the responses to common concerns 2, 3, 4, and 5.

No.	Comment	Response
Jackie Feulner		
1	My husband and I are both very worried about possible Plutonium contamination at Rocky Flats, and this worry is based on several credible studies. I have lived in the shadow of Rocky Flats most of my life, as has much of my family. (I am 62 years old). As long as I can remember, the government has claimed that Rocky Flats is "clean", and we all know that hasn't been true, and it still may not be. The government's past standards may have been, and still may be inappropriate, which would mean that conclusions regarding risk may be backed by poor science. The DOE needs to re-examine the risk by adopting more modern scientific methods to determine risk.	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 121(c) requires periodic review of the continuing protectiveness of the remedy. Review of the response action selected and approved in the Corrective Action Decision/Record of Decision (CAD/ROD) is required at least every 5 years. See RFLMA Part 11. EPA approved the second 5-year review report for the Rocky Flats Site on September 19, 2007, and DOE will conduct the next (third) 5-year review in fiscal year 2012.
2	DOE should reject a proposal to allow soil disturbance below 3 feet without further public comment.	See the response to common concern 2.
3	We also request that the DOE conduct an Environmental Impact Statement (EIS) to protect public health. Rocky Flats could be a time bomb waiting to explode if soil is disturbed. Why risk citizens' health?	See the response to common concerns 4 and 5.
David Panzer		
1	As a local homeowner, I ask that the DOE reject a proposal to allow soil disturbance below 3 feet without further public comment.	See the response to common concern 2.
2	While substantial remediation and testing work has been done for the Rocky Flats site, the public health risks are still too great to proceed on major construction projects without careful consideration of the risks. Credible studies have identified the risks. This is a situation where DOE should NOT choose expediency over careful consideration. The health and economic viability of northwest Jefferson County (and entire communities) are at stake.	See the response to common concern 7. Numerous credible studies performed over the past several decades have identified the risks posed by residual contamination at Rocky Flats. These studies included thousands of data points with careful analysis by scientists from several government agencies and universities. See, for example, the Agency for Toxic Substances and Disease Registry (ATSDR), *Public Health Assessment for the Rocky Flats Environmental Technology Site, U.S. Department of Energy, Golden, Colorado, EPA Facility ID: CO7890010526*, May 13, 2005, available on the ATSDR website: http://www.atsdr.cdc.gov/HAC/pha/RockyFlats(DOE)/RockyFlatsPHA051305a.pdf

No.	Comment	Response
		The 2005 ATSDR report, Section VII "Conclusions", states: The conclusions for past exposures are based largely on the extensive dose reconstruction study conducted by expert scientists and critically reviewed by CDPHE and an independent health advisory panel. The conclusions for current and future exposures are based largely on ATSDR's interpretation of sampling data recently collected by multiple parties. Overall, ATSDR did not identify any environmental exposures at levels of public health concern for past and current exposures ….
3	Furthermore, it is essential that the DOE conduct an Environmental Impact Statement (EIS) to protect public health.	See the response to common concern 5.
Edward Hagen		
1	We urge government officials to accept Golden's proposal to build a bike path. This plan will have less impact on the Refuge, protecting important habitat and wildlife. Golden's plan also offers the federal government more revenue than the competing proposal. A bike path also supports a more sustainable community by lessening carbon emissions, limiting noise, slowing sprawl and limiting water use. A bike path also serves as alternative transportation, which is needed in our community. Biking promotes recreation and health. Addition of the bike path will ultimately save lives. I am amazed that no one has died while on a bike while riding on Indiana as many bikes ride it every day and there is not adequate room for cars and bikes to safely ride on Indiana. Building the toll road will not remove any traffic from Indiana street as the majority of the traffic on it travels either to the Rocky Mountain airport, FlatIrons mall area, Louisville or to Boulder.	See the responses to common concerns 3 and 4.
2	Also before any construction takes place, the USFW should conduct a full environmental impact statement (EIS) to protect public health as currently we do not know what risk the previous plutonium and other radioactive pollution poses to the surrounding development and surrounding water reservoirs.	See the response to common concern 5.

No.	Comment	Response
Deborah Trout		
1	I generally support the Proposed Plan for Amendment of the CAD/ROD and RFLMA Attachment 2 Proposed Modifications, with one language change. From the public presentation of July 20, 2011, my understanding is that the proposed modifications would reduce non value-added bureaucratic red tape that can pose impediments to safe maintenance practices at the site. The language change I support, offered by another participant at the meeting, is to delete the phrase “in effect at that time” from the proposed language that pertains to RFLMA requirements for public notification and public comment regarding future modification or termination of institutional controls, as the public has substantial interest in any modification or change to the ICs.	See the response to common concern 1.
Richard J. Bluhm		
1	The work of Dr. LeRoy Moore has brought up numerous misgivings about disturbing the land that the Jefferson Parkway is intended to cross. The proposed path would go through some of the most contaminated areas of the site. Disturbing this plutonium which undoubtedly exits would endanger the health of workers on the project as well as the public that lives downwind of this site. An adaptation of his article appeared in "Yourhub" on May 5th, 2010. His original article can be found at: http://www.boulderblueline.org/2010/12/16/rocky-flats-section-16-and...osed-jefferson-parkway-decision-day-for-boulder-and boulder-county/	See the responses to common concerns 4 and 7.
2	In the short run it may be profitable to dig up this contamination, but it certainly is not good for public health. How is it even possible to deal with this contamination in a responsible way? Is this one more example of short term business interests trumping the well being of society? It will be done because it can be done but not because it should be done.	See the responses to common concerns 4 and 7.

No.	Comment	Response
Laura Wade		
1	I am a realtor for Re/Max and have lived in the NW quadrant of the City of Arvada for 15+ years. I do not think that changes should be made to the original Rocky Flats clean up plan that lessen the original requirements and final clean up.	The CAD/ROD amendment clarifies the ICs and their implementation to meet the objective and rationale in the CAD/ROD but does not change the remedy.
2	I'm very disturbed that the West connector piece of C-470 may disturb soils in order to put that road in and that it will go through the Rocky Flats parcel. I'm also concerned about the Candelas development bordering the south side of the parcel.	See the response to common concern 4.
LeRoy Moore, Ph.D. (submitted in two separate emails)		
1	I'd like to make a few comments on the Rocky Flats Site Proposal Plan, otherwise referred to as the proposed changed in CAD/ROD language or otherwise again as a change in soil disturbance requirements at Rocky Flats. Having attended two public meetings on this topic and having read the pertinent I continue to be confused by what is happening. Listening to all the words about nothing being really changed seems like fixing something that doesn't need to be fixed. First, the process has been the reverse of what it should have been. Suddenly we were hearing of the need to modify the CAD/ROD language in a way that came to us like a done deal, that is, a deal already struck between DOE and CDPHE with an OK from EPA. By the time there's public discourse, we in the public are expected to say yes to what the agencies, including the Colo. State Attorney General's office, have already worked out. This is very similar to the process by means of which a decision to breach dams on holding ponds was made; a done deal, later announced as DOE moving forward with what it had announced to the public. Attending public meetings on these issues, it has seemed to me that the level of distrust in the room was palpable. There has to be a better way to do things.	By law and because this action is being jointly proposed, the RFLMA Parties must reach agreement to the extent possible on proposed language in advance of presenting it for public review and comment. However, such agreement on a proposal does not constitute a "done deal." All such proposed actions are subject to public review and comment, and are often changed as a result of comments received. The proposed amendment at issue here was issued in the Proposed Plan for public review and comment on June 3, 2011. Information about the proposed clarification of the ICs was also made available prior to release of the Proposed Plan to the public using the means specified in the Public Involvement Plan (PIP) in RFLMA Appendix 2, *Legacy Management Public Involvement Plan*, May 2011. The RFLMA Parties considered all public comments received before making any final determination on the proposed CAD/ROD amendment and modification of RFLMA Attachment 2. In previous proposals for modifications to RFLMA, the RFLMA Parties, the parties have responded to input from the public with numerous changes to original proposals incorporated into the final approved modifications.

No.	Comment	Response
2	Second, am I correct to remember that in the future certain actions related to soil disturbance that now require some public process will no longer do so? This seems very unwise.	See the responses to common concerns 1 and 2.
3	Third, it is my understanding that nothing will be done to disturb areas of known contamination, such as the process waste lines and other areas that are identified on maps. This pleases me, but it implies that DOE and the regulators really know where contamination is. Of course, the agencies know a great deal about contaminants and their location. But to suggest that the characterization done for the remediation really located all contaminants, including heavily contaminated areas, within the roughly 1300 acres now managed by DOE is a bit of a stretch. For example, was a comprehensive effort made to find all the plutonium released into soil in the industrial area that had been mapped by AEC scientists P. W. Krey and E. P. Hardy in 1970. If there is a record that demonstrates that this was purposefully and fully done, I would like to see it. I am attaching to this message Krey and Hardy's map. (NOTE – The map submitted with this comment is included at the end of the responsiveness summary.)	The Krey and Hardy map is the result of one of several studies done to identify the extent of radiological contamination. Other comprehensive studies added more detail, but the Krey and Hardy map agrees well with the subsequent reports. The characterization of the Rocky Flats Site is documented in the June 2006 *Rocky Flats Site RCRA Facility Investigation–Remedial Investigation/Corrective Measures Study–Feasibility Study* (RI/FS). The investigation was thorough and included all areas in the former Industrial Area where known or suspected releases of plutonium (and any other hazardous substances) occurred.
4	Is it true that the Environmental Covenant between DOE and the State of Colorado that was put in effect in Dec., 2006, is now being replaced by a restrictive notice? Why has not the full text of the revised covenant or restrictive notice not been made available? Please make the actual full text available to all parties that have made comments on the Site Proposal Plan or have otherwise expressed interest in it. It was the impression of all who were involved in the public process during completion of the Superfund cleanup at Rocky Flats that what was being created then was to last in perpetuity. This however appears now to be changing. Please explain in plain words what is happening and why the rule of "in perpetuity" seems now about to be discontinued.	See the responses to common concerns 8 and 9.

No.	Comment	Response
	It appears that the public is being shortchanged and that CDPHE is going along and that the voice of affected people will be less heard in the future, with CDPHE's consent. If anything in the preceding paragraph is incorrect, please explain with documentation.	
Elizabeth L. McBride		
1	I want to vehemently oppose any road construction on the east side of Rocky Flats along Indiana. As a resident of Westminster I fear this disturbance of the soil will affect the water and air all around the area. The purpose of this land was to remain undisturbed and as a wild life reserve. My spouse worked at Rocky Flats and he and several friends who also worked there became ill, several of them having since died of cancer. The authorities did not know how much was too much of the contaminants. I understand that a clean up has occurred, but with the initial idea of letting the land lay fallow. This is what should be done -- No construction. I think also that the phrasing of this issue is confusing and prevents the necessary discussion that should happen by all affected. Many people who will be most affected by this are unaware of the consequences. Should a toll road be built here, the only beneficiaries will be the developers and the foreign company building the road. The rest of us will be left holding the bag of paying for the project and subjected to potential contamination due to disruption of the soil because of road construction. Please do NOT approve this. Leave this the beautiful vista and home for animals.	See the response to common concern statement 4.
D. Dutcher		
	We believe that the proposed project would be OK as long as the drainage in Walnut Creek and Woman Creek are monitored further upstream as you stated would be. When the bare areas are overgrown with vegetation there should be less concern with the ground water run off. The proposed amount of soil deeper than 3 feet does not amount to an enormous amount or of a large area so dust and contamination to surrounding areas should not be a	RFLMA-required groundwater and surface water monitoring will continue to be conducted. The location of any removed soil would be subject to the RFLMA consultative process, in accordance with the modification to RFLMA Attachment 2 for review and approval of the Soil Disturbance Review Plan. See the response to common concern 4.

No.	Comment	Response
	problem. It was not explained to us about the handling of the removed soil and where it is going. It sounds like it is more an interpretation of language. We have read many of the responses and there is a wide area of concern of which many do not address the issue at all. I have not heard any concerns about all the soil that is being moved and disturbed further south on Indiana St. I guess there are money and future taxes involved so it is overlooked.	
Jennifer A. Thompson, PhD		
1	I would like to register my strong opposition to the currently Proposed Amendments to the CAD/ROD for the Rocky Flats Environmental Technology Site. Public comment must be sought in the event that any of the institutional controls for the agreement are amended. Specifically, in the event that there are any proposals to disturb the soil below 3 feet, public comment must be considered.	See the response to common concern 2.
2	I strongly believe that CDPHE must not be able to unilaterally make decisions with respect to soil disturbances.	See the response to common concern 6.
3	I have serious concerns about possible plutonium contamination at Rocky Flats and believe that no land should be available for a toll road or bicycle path. Any intended construction could stir up clouds of plutonium-laden dust potentially harmful to construction workers, nearby residents, and others.	See the responses to common concerns 3 and 4.
Donald L. Anderson		
1	I would like to register my strong opposition to the currently Proposed Amendments to the CAD/ROD for the Rocky Flats Environmental Technology Site. Public comment must be sought in the event that any of the institutional controls for the agreement are amended. Specifically, in the event that there are any proposals to disturb the soil below 3 feet, public comment must be considered.	See the response to common concern 2.

No.	Comment	Response
2	I strongly believe that CDPHE must not be able to unilaterally make decisions with respect to soil disturbances.	See the response to common concern 6.
3	I have serious concerns about possible plutonium contamination at Rocky Flats and believe that no land should be available for a toll road or bicycle path. Any intended construction could stir up clouds of plutonium-laden dust potentially harmful to construction workers, nearby residents, and others.	See the response to common concern 4. The CAD/ROD amendment relates only to the ICs for the COU. There are no ICs (or any other remedy requirements) outside of the COU. The land slated for possible parkway use is not in the COU.
Maureen McClatchey		
1	I am against proposed changes to the soil disturbance requirements at the former Rocky Flats site. Amendments to the site closure requirements that would allow soil disturbance if first approved by Colorado Department of Public Health and Environment are not acceptable. The changes proposed would allow soil disturbance below 3 feet without further public comment - this is absurd. I agree with the City of Westminster that the soil below 3 feet deep should not be disturbed without public comment.	See the response to common concerns 2 and 3.
Carolyn Schierkolk		
1	I'm stating my opposition to the Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision (CAD/ROD) and Rocky Flats Legacy Management Agreement (RFLMA) Attachment 2 Proposed Modifications. I will address a few of the proposed changes. Proposed CAD/ROD Amendment IC-7 Proposed Clarification – "Activities that may damage or impair the proper functioning of any engineered component of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark, are prohibited. The preceding sentence shall not be construed to prohibit the modification removal, replacement of relocation of any engineered component of the response action in	The proposed amendment does not eliminate, or propose future elimination of, the engineered controls of the remedy. The CAD/ROD amendment clarifies the implementation of IC-7 such that any proposed soil-disturbing activities must meet the objective and rationale of the IC. Decisions regarding proposed removal of engineered components (monitoring wells and treatment systems) because the monitoring/treatment objectives have been met will depend on evaluation of the criteria for discontinuing operation in accordance with the RFLMA Attachment 2 flowcharts, Figures 6 through 12.

No.	Comment	Response
	accordance with the action determinations in RFLMA Attachment 2." About the proposed "Clarification" Amendment IC-7, my understanding is that DOE considers engineered components of the response action to be up for debate, rather than having already been determined. My interpretation is the proposed "clarification" does not modify current regulation, but negates it. The DOE insists there are many levels of control preventing this change from being interpreted loosely now or in the future. I cannot trust this as truth. What I read is "give them an inch—this is their footstep to take a mile"	
2	I attended the Public Information Meeting held on July 20, 2011. The DOE was not going to hold this Meeting, because they said the Public would not be interested. Local Municipalities stepped in to let them know it must be held.	DOE offered to hold the additional public information meetings as part of its response to requests for extending the public review and comment period beyond 60 days. The two subsequent meetings were provided as a means to reach as many members of the public interested in Rocky Flats as possible.
3	The past history of DOE actions requires that there cannot be any room left for interpretation of regulations. It's documented that in the past DOE falsified laboratory data and manipulated monitoring processes. It took an FBI investigation and raid in 1989, to get DOE to reveal their activities at the Rocky Flats site. Waste disposal and contamination documents were seized by the FBI during this raid. These documents now remain sealed in the Rocky Flats Grand Jury vault. These documents are being prevented from release to the public. To local observers, it appears as if DOE feels that regulation over them has relaxed, as it appears it has returned to their pre-raid method of operation. In spite of being forced to accountability, DOE takes every opportunity to hide the truth from the Public and disregard Public safety. The proposed clarifications come under the heading of the DOE, the Colorado Department of Public Health, and the Environmental Protection Agency. There is also the appearance that the regulated and regulators have become too close. I'm concerned the Public Information Meeting for these modifications/clarifications are a formality, rather than respect for	Information about the background, cleanup, and closure history of Rocky Flats is in the RI/FS. The characterization data used in the RI/FS were all collected beginning in 1991 and were collected using protocols consistent with CERCLA guidance. EPA and CDPHE reviewed and approved the data. DOE believes that the commenter's statements regarding past practices are not accurate. See the response to common concern 6. By law and because this action is being jointly proposed, the RFLMA Parties must reach agreement to the extent possible on proposed language in advance of presenting it for public review and comment. However, such agreement on a proposal does not constitute a "done deal." All such proposed actions are subject to public review and comment, and are often changed as a result of comments received. The proposed amendment was issued in the Proposed Plan for public review and comment on June 3, 2011. Information about the proposed clarification of

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	the legal process that includes consensus of a 4th agency—the Public. Normally I would find it reassuring that governmental agencies are working together for the common good. In this case my concern is that it took the Federal Bureau of Investigation (FBI) to force the activities of the DOE into light. There should never have been a need for such action, but clean up would never had happened without it. DOE says they are now transparent; that isn't what I see or hear. What I see now is DOE returning to an attitude of disrespect for the Public and other Federal and State Agencies.	the ICs was also made available prior to release of the Proposed Plan to the public using the means specified in RFLMA Appendix 2, *Legacy Management Public Involvement Plan*, May 2011. In previous proposals for modifications to RFLMA made by the RFLMA Parties, the parties have responded to input from the public with numerous changes to original proposals incorporated into the final approved modifications. This is also the case for the final approved CAD/ROD amendment and RFLMA Attachment 2 modification. The RFLMA Parties considered all public comments received before making any final determination on the proposed CAD/ROD amendment and modification of RFLMA Attachment 2.
4	At the Public Information Meeting on July 29, 2011, Scott Surovchak with DOE Legacy Management stated to me and the room, "Plutonium is just a metal." Scott Surovchak's job is daily monitoring on the Rocky Flats site. When I said, "You're talking about plutonium as though it's the same as gold or silver." His response was, "Gold and silver have radioisotopes, too." When I asked him if he thinks it is hazardous on the Site or if it ever had been, he turned away from me. He did not answer my question. He and his employer the DOE agree that plutonium is just a metal. I stated to Mr. Surovchak at the meeting, "What I hear you saying is that you want to modify the language, because you see it as a move to common sense. You're on-site each day and you can see when a soil erosion ditch needs to be dug and you know these ditches go below 3' and it is only common sense to you that you should be able to dig a ditch without going for approval every single time." He wholeheartedly agreed that I understood his view. He has already done such digging on the Site. I could understand implementing Mr. Surovchak's view of common sense work practices if the Rocky Flats Site was a farm or a construction site, but it's not. Prevailing common sense here is that	This statement is taken out of context. The subject under discussion was the transport mechanisms and geochemistry of residual plutonium contamination in the environment. The point being made was that because plutonium is a metal, the fate and transport of this substance depends on the chemical properties of the metal. DOE recognizes that plutonium is a radioactive metal. Radioactive materials pose hazards that are subject to control under federal and state laws. The remedy is designed to ensure adequate protection from these hazards.

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	Public health and safety are the priority, not circumventing regulation because workers on-site find it inconvenient. This is especially true when on-site workers believe plutonium is just a metal and when pressed will not say there is any hazard.	
5	Environmental Covenant Law, bullet point 4 "Termination when ICs no longer needed because site meets criteria for unrestricted use/unlimited exposure – CHPHE and EPA approval required." Given the half life of plutonium, the extent of past contamination and the proximity to populated areas, the Rocky Flats Site should be in Institutional Control (IC) in perpetuity with no possibility of release. Scientists are clear that the Site should be in IC in perpetuity with no possibility of release. I agree with the Scientists.	See the response to common concern 9.
Tom Hoffman, President, Friends of the Foothills		
1	These comments are on behalf of Friends of the Foothills, a Colorado non-profit. We were actively involved in the process to designate the site as U. S. Wildlife Refuge. The soil disturbance limits at the Rocky Flats Wildlife Refuge must not be changed unless new testing and a full and transparent study is done to assure that any such changes are completely safe and prudent.	See the response to common concerns 4 and 7.
2	I have consulted with a number of people who are currently or were formerly in responsible positions at the Rocky Flats facility or in staff positions with state and local agencies directly involved in the cleanup operation or monitoring in the area. They all tell me one thing, DO NOT DISTURB THE SOIL, even off site on the east side of Indiana Street.	See the response to common concern 4.

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3	I was unable to attend your meeting last Tuesday, but did receive reports from supporters who did attend. One report indicated that the site manager said,"Pu is just a metal." I hope this is not true, if so it appears this process has no credibility.	This statement is taken out of context. The subject under discussion was the transport mechanisms and geochemistry of residual plutonium contamination in the environment. The point being made was that because plutonium is a metal the fate and transport of this substance depends on the chemical properties of the metal. DOE recognizes that plutonium is a radioactive metal. Radioactive materials pose hazards that are subject to control under federal and state laws. The remedy is designed to ensure adequate protection from these hazards.
Judy Kissinger		
	Knock Knock is there anyone there that remembers back to 1989? Rocky Flats was declared a Super Fund Site. This ground is one of the most radioactive plutonium and tritium contaminated places on the face of the planet! Rockwell was to remove the nuclear waste off site. Then in the dead of night under bright lights they scrapped off the buildings and buried them on site. Tore out the access road. All traces are gone. The problem is the dust. These radio active particles are the size of dust particles. All living and breathing beings inhale and ingest dust on a daily bases. Maybe if the particles were the size of marbles and bowling balls it wouldn't be so easy to inhale or ingest. But they aren't. It's just dust. The stuff we wipe off our window sills and furniture. Do you think anyone can really clean up all the dust in one area? Why are we even having this debate? Do you think that the Russians living around Chernobyl are planning a playground, recreation area, and roads around their concrete capped nuclear plant? I doubt it. But here we are planning a playground, building roads, setting up a recreation area. Is it just because our nuclear waste dump in buried underground, floating around in the wind? Is this your out of sight, out of mind formula thinking?	See the response to common concerns 4 and 7.

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	We have got to be the dumbest creatures on the face of the earth. We don't learn. We create these horrific problems for ourselves. Then our solutions are to ignore them and hope they just fade away somewhere or leave them for someone else to deal with. Please please someone with authority, find some fortitude, step up, do the right thing. Stop this insanity before it is irreversible. Table this discussion for a couple hundred thousand years. That is just the ½ life of radioactive plutonium. Let us think rationally about what we are really doing here. What is the price tag for life?	
Lynee Zajac Beck		
1	I am very concerned about the proposal to build anything on the Rocky Flats area. Not only will this kick up hazardous dust but it will create an eyesore in a very serene and beautiful area. Please accept the City of Golden's request to build a bike path through the area.	See the response to common concern 4.
Mary (Mickey) Harlow		
1	During my years of working on the Cleanup and Closure of Rocky Flats I have witnessed many unusual communications from the Department of Energy. This current proposal, which modifies the CAD/ROD, RFLMA and the Environmental Covenant, certainly sets a new precedent for major language changes to important documents being decided in advance before being presented to the public. The three entities, DOE, CDPHE, DOE and the Attorney General's Office all agreed to the proposed new language in the referenced documents before the information was presented to the public.	By law and because this action is being jointly proposed, the RFLMA Parties must reach agreement to the extent possible on proposed language in advance of presenting it for public review and comment. However, such agreement on a proposal does not constitute a "done deal." All such proposed actions are subject to public review and comment, and are often changed as a result of comments received. The proposed amendment was issued in the Proposed Plan for public review and comment on June 3, 2011. Information about the proposed clarification of the ICs was also made available prior to release of the Proposed Plan to the public using the means specified in RFLMA Appendix 2, *Legacy Management Public Involvement Plan*, May 2011. The RFLMA Parties considered all public comments received before making any final determination on the proposed CAD/ROD amendment and modification of RFLMA Attachment 2.

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		In previous proposals for modifications to RFLMA, the RFLMA Parties have responded to input from the public with numerous changes to original proposals incorporated into the final approved modifications. This is also the case for this final approved CAD/ROD amendment and RFLMA Attachment 2 modification.
2	The Department of Energy has been digging below three feet for the past five years. The original Environmental Covenant States that Property restrictions against digging below three feet do not apply to authorized response actions, including monitoring and maintenance activities. DOE now wants to change the language to allow digging, soil disturbance below three feet if first approved by CDPHE. All this to occur without input from the public.	See the response to common concern 2. Consultation and CDPHE approval of soil disturbance and excavation activities subject to ICs, whether remedy related or not, performed after the 2006 CAD/ROD, were documented in RFLMA contact records posted on the Rocky Flats website. The Proposed Plan for the CAD/ROD amendment was developed to formalize the approval process and clarify the ICs for soil disturbance and excavation and is intended to meet the IC objective and rationale, whether the work is remedy related or not. The ICs were not intended to prohibit DOE from performing land management and maintenance work.
3	The DOE reply to common concerns statement on proposed 2010 Mods Control to Institutional Controls requirements of the RFLMA Agreement raised at the first public meeting to obtain comments states that: **DOE Interpretation**: "The Objective of IC-2 regarding excavation that exceeds 3 feet is to maintain the current depth to surface contamination or contaminated structures. This IC also results in achieving compliance with the CDHE risk management policy of ensuring that residual risks to the site user are at or below a 1x10-6 excess lifetime cancer risk. **Objective as it exists**: The written objective of this institutional control was to prevent unacceptable exposure to residual subsurface contamination. The community interpretation of this objective is that digging below 3 feet can result in exposure to workers, downwind communities from airborne resuspension of contamination during digging as well as opening up new pathways of contamination to surface water. Although the water leaving the site is not a source of	See the response to common concern 7. We assume the commenter meant to refer to the 2011 proposed amendment. The subject of the 2010 RFLMA Attachment 2 proposed modification was to change certain monitoring locations. The "DOE Interpretation" is derived from the following provision in CAD/ROD Section 17, "Selected Remedy/Corrective Action for the Central OU": In addition to the specific rationales set forth in the text for the various use restrictions, imposing the institutional controls discussed in the text also results in achieving compliance with the CDPHE risk management policy of ensuring that residual risks to the site user are at or below 1×10^{-6}. CDPHE guidance requires evaluation of contaminant concentrations on a [Solid Waste Management Unit] or release site basis. This was implemented at Rocky Flats on an [Individual Hazardous Substance Site (IHSS)] -by-IHSS basis during the accelerated action process, when hazardous constituents were remediated to a residual risk level of 1×10^{-5} to the anticipated future user. Imposing the institutional controls obviates the need to conduct a post-remediation analysis of residual risk on a release site basis.

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	drinking water it does go downstream where it is used by farming communities. There is a big disconnect between the DOE and the citizens definition of the purpose of this Institutional Control. The control needs to stand as written, it is not broken, don't fix it.	The foregoing provision and the objective and rationale for the ICs are not changed from the 2006 CAD/ROD in the CAD/ROD amendment.
4	Environmental covenants for Rocky Flats as they currently exist: covenant summary for RFETS Summary www.cdphe.state.co.us/hm/covenant/summary lists surface water, groundwater as media of concern. Air, soil are not listed. Property restrictions do not apply to authorized response actions, including monitoring and maintenance activities. Contaminants of concern listed in this summary are asbestos and benzene. *I downloaded the entire original 2006 document to see if it was as lacking in important information as the Summary. I was disappointed and amazed at the lack of attention to detail in this important document.* The entire document consists of a description of the central operating unit with a legal land survey map attached. There is no mention of contaminants of concern. However, there is an attachment that modifies the covenant to remove the current landfill. Contaminants of concern for the landfill are asbestos and benzene. It further states that the landfill may contain low levels of Plutonium and Depleted Uranium. The two contaminants listed as a concern for Rocky Flats on the summary document came from a change to the original covenant for removal of the current landfill. Plutonium, Americium, Uranium VOC,s etc. are not listed as contaminants of concern for Rocky Flats. Digging Drilling, tilling, grading, excavation, construction and vehicular traffic are prohibited. However, the Rocky Flats Industrial Park Environmental	The specific information in the environmental covenant complies with the requirements of the state's environmental covenant law, which is part of the Colorado Hazardous Waste Act (CHWA). Requirements under CHWA for hazardous wastes and asbestos in the closed Present Landfill are also included in the environmental covenant. The contaminants of concern are listed in the CAD/ROD, which is clearly referenced in the environmental covenant.

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	Covenant under control of the Union Pacific Railway lists groundwater and soil as a concern. The contaminants of concern are VOC's. The industrial park prohibits residential use and public use as well as agriculture. Protection of remedy is also included. Question: Why is there more detail included in the Rocky Flats Industrial Park Covenant than there is in the former nuclear trigger factory Rocky Flats? Why aren't the contaminants of concern listed for Rocky Flats? Isn't it appropriate for future generations to have knowledge concerning the contamination and risks posed at the nuclear weapons site? Institutional Controls fail over time. It is critical to provide a thorough CRS Restrictive Notice document that is detailed with the risks. This document must ensure perpetuity for the Institutional Controls. The public needs to be part of the process for any proposed changes to this document requested by DOE or other entities.	
5	ENVIRONMENTAL USE RESTRICTION PROPOSAL UNDER 25-15-321.5, CRS NOTICE OF ENVIRONMENTAL USE RESTRICTIONS Revised 2-25-11 Page 2. 1) Use Restrictions: The language reads …To the extent possible, the restrictions must be finite, subject to change only by modifying the Restrictive Notice (cannot be changed with division approval alone) The division is attempting to write boilerplate restriction language. Question**:** Has the boiler plate been written or is this something that will happen in the distant future? This statement does not assure me that the State Statute will be enforced properly. Page 2, 2) Modifications: This Restrictive Notice runs with the land and is perpetual unless modified or terminated pursuant to this paragraph. OWNER may request that the Department approve a modification or termination of the Restrictive Notice. The request shall contain information showing that the proposed modification or	The contents of any restrictive notice must meet the requirements of state law. In the interest of efficiency, CDPHE may from time to time develop suggested standardized language for restrictive notices that are acceptable for this purpose. Suggested standardized language does not affect the State's powers to enforce the statutory requirements. See the responses to common concern statements 8 and 9.

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	termination shall, if implemented, ensure protection of human health and the environment. Information to support a request for modification or termination may include one or more of the following. a) A proposal to perform additional remedial work. b) New information regarding the risks posed by the residual contamination c) Information demonstrating that residual contamination has diminished d) Information demonstrating that the proposed modification would not adversely impact the remedy and is protective of human health and the environment and e) Other appropriate supporting information. Question: Does the State Health Department and the Attorney General's office believe that allowing removal of Institutional Controls, deleting the word perpetual and using perpetual unless modified will protect the downwind communities and future generations? I agree that inserting the institutional controls into this document and the purpose for those controls is important but I also believe future generations need to know that this site should never be built on and that long lived radioactive contamination is a permanent resident. Plutonium is just a metal was stated by a DOE representative at the last public meeting to discuss the proposed changes.	

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6	I agree that inserting the institutional controls into this document and the purpose for those controls is important but I also believe future generations need to know that this site should never be built on and that long lived radioactive contamination is a permanent resident. Plutonium is just a metal was stated by a DOE representative at the last public meeting to discuss the proposed changes.	The "Plutonium is a metal" statement was taken out of context. The subject under discussion was the transport mechanisms and geochemistry of residual plutonium contamination in the environment. The point being made was that because plutonium is a metal, the fate and transport of this substance is dependent on the chemical properties of the metal. DOE recognizes that plutonium is a radioactive metal. Radioactive materials pose hazards that are subject to control under federal and state laws. The remedy is designed to ensure adequate protection from these hazards.
7	Any changes to the Restrictive Notice should go to the local governments and the public for input prior to any decisions and agreements being made by the controlling parties.	See the response to common concern 2.
8	PROPOSED CHANGES TO THE RFLMA Proposed language modification: "Proposed activities that may damage or impair the proper functioning of any engineered components of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark are prohibited. The preceding sentence shall not be construed to prohibit the modification removal, replacement or relocation of any engineered component of the response action in accordance with the action determinations in RFLMA. This modification is unacceptable. It gives DOE the freedom to re-design, modify, remove or relocate engineering components without public input. The present locations of engineering components contain and treat contaminants that would otherwise end up in the environment. Removal or replacement with cheaper treatments could result in unknown or uncalculated risks to the community and the environment. DOE Office of Legacy Management Goals and Objectives for 2011 include reducing operating and monitoring costs.	Under CERCLA, "cost-effectiveness" is a remedy selection criterion, but a selected remedy must also meet CERCLA protectiveness criteria. The CERCLA 5-year review evaluates whether, among other things, advances in technology could help to reduce the reliance on ICs. If technological advances help to reduce costs while still providing adequate protection, this would improve the cost-effectiveness of the remedy. See the response to common concern 2.

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9	CONTACT RECORD LANGUAGE The current CDPHE contact record language relies on DOE to provide information for any digging or remedy replacement. It asks for information related to remaining subsurface structures and information on IHSS's/PAC's. It requires DOE to resurvey any new surface established on subsurface soil unless sufficient existing data is available to characterize the surface, or state soil will be replaced and original contour restored. DOE provides the required IHSS's/PAC information. DOE further states on every contact record that I have reviewed for 2011 that "Grade of the surrounding soil will be generally consistent with currently existing grade." Does this statement meet the CDPHE requirement as stated above?	Yes, the statement mentioned meets the CDPHE requirement. The remedial investigation included the results of the comprehensive environmental media sampling program, which includes soil sampling, conducted during cleanup and closure of the Rocky Flats Site. The RI/FS includes all of the environmental data and describes the nature and extent of contamination for surface and subsurface soil and sediment, groundwater, surface water, and air. The investigation and cleanup process included a thorough characterization of 421 known or suspected hazardous-substance-release locations. These locations were called Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern, and Potential Incidents of Concern. Collectively, all these areas were referred to as IHSSs. Appendix B of the RI/FS summarizes each IHSS and its disposition under the Rocky Flats Cleanup Agreement. The results of soil samples after remediation of soil contamination are included in the RI data set. The soil data set includes approximately 7,230 surface soil sampling locations, 12,250 subsurface soil sampling locations in the depth interval from 0.5 foot to 12 feet, and 3,640 subsurface sampling locations at depth intervals from 12 feet to below 50 feet. Approximately 820,000 data records constitute the soil data set for the RI. Thus, sufficient process knowledge and sampling data exist to characterize the soil. CDPHE considers the proximity to subsurface structures and former IHSSs when reviewing proposed activities. See the response to common concern 7. Depending on the characterization information, additional sampling or field monitoring may be required to ensure worker safety.

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10	NEW CHECKLIST PROPOSAL CDPHE needs to add additional language to the three items currently required from DOE on the Contact Record: 1. Provide Documentation of the final survey to ensure the three foot cover is maintained 2. If work is in known area of contamination provide Rad tech. to monitor radiation levels. 3. Provide CDPHE a record of dpm, Rad tech name, map of location upon completion. 4. Provide notation whether this action is an upgrade, downgrade of engineered structure equipment, or replacement of original equipment. 5. Provide proposed date of excavation, time required to perform action. DOE is required to provide a section in the annual report noting actions taken in each contact record with a map of the location, contamination encountered, depth of dig, so as to keep the public informed.	The RFLMA Parties use the consultative process to evaluate the proposed work, and the items required for documenting the proposed work in the Soil Disturbance Review Plan are not intended to limit the scope of the evaluation. See the response to common concern 7.
11	Institutional Controls were supported by this community with the commitment that they would be enforced in perpetuity. Regulations related to CERCLA/RCRA are continually being modified. It would be important to include language in the RFLMA that regulations in force at the time of the CAD/ROD cannot be made less restrictive but can be more restrictive.	Changes to CERCLA/Resource Conservation and Recovery Act (RCRA) regulations are made in accordance with the rulemaking requirements pursuant to the Administrative Procedures Act (APA). Sometimes, these changes could make requirements less restrictive or could eliminate requirements entirely. The basis for the changes is documented in accordance with the APA requirements. The RFLMA Parties do not believe that a CAD/ROD prohibition on adopting less restrictive requirements promulgated in accordance with the law is prudent or needed. At CERCLA and RCRA sites, monitoring requirements as well as ICs can be changed from time to time in response to changing conditions, reductions in contamination levels, and achieving the remedial action objectives.

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Susan D. Elofson-Hurst		
1	This is in response to the request for public comment on proposed changes to the soil disturbance requirements at the former Rocky Flats site. The U.S. Department of Energy finalized several changes to planned future activities at the site, some of which require disturbance of soil below 3 feet deep. The DOE's proposed amendments to the site closure requirements that would allow such soil disturbance if first approved by Colorado Department of Public Health and Environment – Seriously, what or WHO is the CDPHE protecting?	See the response to common concern 6.
2	The changes proposed by DOE would allow soil disturbance below 3 feet without further public comment. The City of Westminster believes that the soil below 3 feet deep should not be disturbed without significant public input and comment. I agree that public comment on this DOE "check off" should be objected to.	See the response to common concern 2.
3	As the Publication Director of Environmental Information Network (EIN), I submit the following documents that still pertain to the Rocky Flats site. Below was an article that my sister Paula Elofson-Gardine and I co-authored in April 1992 ~ never dreaming that it would someday become a reality. At that time we proposed a "Liability Disclaimer" that should be adopted for "informed consent". (NOTE – The documents submitted with this comment is included at the end of the responsiveness summary.)	The Central OU is not open to the public, so this comment is not relevant to the proposed CAD/ROD amendment. See the response to common concern 4.
4	Woman Creek Reservoir, constructed in 1996 and located east of Indiana Street, continues to ensure the city's raw water supply in Standley Lake is permanently and physically isolated from Rocky Flats. As a result, no water from the former Rocky Flats Site can reach Standley Lake. Wow, I am always surprised that the soil/sediment is not mentioned. An aerial gamma survey showed elevated reading for Am in the exposed sediment around Standley Lake many years ago. Past contamination from dust settling on the surface of the lake still remain in the sediment, and it has NOT been remediated and will continue to be problematic.	The statement in this comment appears to be taken from a City of Westminster Fact Sheet, and not from documents related to the proposed CAD/ROD amendment. See the responses to common concerns 3 and 4.

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5	In 1993, weapons production at the site ceased due to environmental concerns. A massive accelerated effort to clean up the site was completed in 2005. It was a massive effort alright, too bad it was a “down and dirty” cleanup that left the leaking Pu process lines in place, astronomically contaminated concrete, bulldozers, machinery, the “infinity room” and don’t forget the landfills, all buried – that leach into the shallow water table contaminating Standley Lake, any underground spring, creek, canal and the Arapahoe Aquifer. Please read the Rocky Flats Steel Worker’s Meeting transcript where undocumented buried waste is discussed. (NOTE – The transcript excerpt submitted with this comment is included at the end of the responsiveness summary.)	The statement regarding events in 1993 in this comment appears to be taken from a City of Westminster Fact Sheet, and not from documents related to the proposed CAD/ROD amendment. The RFLMA Parties disagree with the conclusion regarding leaching, as it is not supported by the results of RFLMA groundwater and surface water monitoring. In response to the statements regarding the results of the cleanup: • No “leaking Pu process waste lines” are left in place—all lines were verified to be empty of any process waste and removed or filled with grout; • No “infinity rooms” remain - remaining subsurface contaminated concrete that does not meet DOE’s conservative free-release criteria was mechanically decontaminated to the extent practical and the contamination is considered non-removable; • Bulldozers and machinery are not buried; and • The Present Landfill and the Original Landfill were closed in place under hazardous waste and solid waste disposal facility standards legally applicable or relevant and appropriate to such sites to protect human health and the environment. The investigation and cleanup process included a thorough characterization of 421 known or suspected hazardous-substance-release locations. These locations were called Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern and Potential Incidents of Concern. Collectively, all these areas were referred to as IHSSs. Appendix B of the RI/FS summarizes each IHSS and its disposition under the Rocky Flats Cleanup Agreement. All buried waste was investigated and accelerated actions determined necessary to address actual or threatened releases of hazardous substances or hazardous waste constituents were completed prior to the selection of the remedy for the Central OU in the CAD/ROD.

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6	Now the Cattle Study -- If I could write a summary of this, any of you can read it and follow it EASILY. A thank you to Wes McKinley for explaining what "road stress" does to cattle. (NOTE – The text of the study submitted with this comment is included at the end of the responsiveness summary.) No Hunting or Hiking - Radioactive Vegetation and Wildlife! A No Access – Nuclear Reserve status for this site would still be appropriate, The cattle herds that grazed at the Nevada Test site all year, an area considered to have radioactive contamination levels far greater than at Rocky Flats (RF); were discovered to have smaller concentrations in their cattle, than those from the Rocky Flats herd. The study shows the cattle herd that grazed in the North Rocky Flats Buffer Zone had higher concentrations for Plutonium, Americium and Uranium – which grazed at Rocky Flats for 5 - 6 months a year. The rest of the year (6 - 7 months) the RF cattle grazed near Brighton, Colorado, on wheat, alfalfa and cornfields. This area is inappropriate for a Wildlife Reserve, Hunting or Hiking! It's not too late to assign a "No Access – Nuclear Reserve" status to this area.	See the responses to common concerns 3 and 4.
7	Any disruption at and around RF is dangerous, there is NO RELIABLE air monitoring programs, as there was not during the excavation for the "off site" reservoir. I will NEVER forget driving by that HUGE mountain of dirt, with the wind whipping dust from it in every direction, and the feeling of absolute DREAD at what I knew was in that mixture of contaminated dirt. I have that same feeling when I see all the new businesses and housing that is now within the former CHD "Blue Line" of NO CONSTRUCTION. The individuals responsible for developing this area, that used to have a HUD Notice of Contamination, will surely get their greedy, money grubbing souls seared from the hell they rained down on the	See the responses to common concerns 3 and 4.

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	community in the form of health issues, medical treatments, followed by the sweet release of death. Shame on you all.	
John Lodenkamper		
1	I have serious concerns about possible plutonium contamination at Rocky Flats based on several credible studies that have come to my attention (see www.GoTheBetterWay.org <http://GoTheBetterWay.us1.list-manage1.com/track/click?u=0020d0502e58bfe080811f297&id=e992584ea3&e=3062521b21>). While the government contends that Rocky Flats is "clean", it may not be. It is more than possible that the government's past standards were inappropriate, and the conclusions regarding risk were backed by poor science. The DOE needs to re-examine the risk by using the best available current technology.	As required by CERCLA, a review at least every 5 years is performed in accordance with EPA guidance and policy to evaluate whether the remedy specified in the CAD/ROD remains adequately protective of human health and the environment. This review includes changes that may have occurred to regulatory standards and risk parameters since the previous 5-year review. The next 5-year review is scheduled to be completed by September 14, 2012.
2	The DOE should reject any proposal to allow soil disturbance below 3 feet without further public comment.	See the response to common concern 2.
3	I also strongly urge that the DOE conduct an Environmental Impact Statement (EIS) to protect public health, since Rocky Flats could be a serious hazard if soil is disturbed. Digging anywhere at Rocky Flats could release contaminated dust into the air, endangering public health. With any risk of a deadly substance like plutonium the Precautionary Principle should govern, and a thorough re-evaluation conducted prior to approval of any project which disturbs the soil below 3 feet.	See the response to common concerns 5 and 7.
Hildegard Hix		
1	As a citizen, I attended the RFCLOG meetings for as long as they met, as well as some CAB meetings, and committee meetings. I know how hard citizens worked to be sure that the public would be kept safe from the toxic cocktail which remains on, and around the Rocky Flats site. I also watched as slowly, the RFMCA changed their minds and eliminated safe guards that they had previously agreed to. A good example of this was when it was announced that the fence around	The RFLMA Parties appreciate the efforts of stakeholders throughout the cleanup and closure of the Rocky Flats Site as well as during this post-closure period. A fence currently surrounds the Central OU to demarcate the Refuge property boundary. There are no plans to remove the fence. The RFLMA Parties disagree with the statements regarding lowered standards, questionable modeling, and "manipulation" of the rules by DOE.

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	the COU would be removed, even though we were promised that it would remain. The reason given was that USF&WS felt that the animals would be harmed by having such a small area to roam. Strange, the deer population was out of control when the fence was up. They were doing just fine. Then, there was the matter of cleaning up the old and new landfills. DOE tried to manipulate the rules to clean up under non hazardous waste guidelines. I could go on and on and on. Standards were lowered, as the government used questionable modeling and poor science to determine the cleanup levels. Finally, all of the parties agree to continual environmental covenants and use restrictions in the COU, in perpetuity. Now, it appears that all of these very important safe guards are to disappear. It appears to me, that DOE wants to have free reign to dig where and as deep as they please, whenever they please. Not only shall they save money, but will not have to deal with that tiresome group known as citizens. When it is announced that the parties to RFMCA were all in agreement with the new plan, it was evident that the decision was already made and the public meeting organized simply to satisfy some irksome requirement. The fact of the matter is that to most citizens their health is more important than the government trying to save us a few of our tax dollars, which later will grow into larger dollars as we have to treat people, find clean water to drink, and wear masks to be sure that we are not inhaling worse air. Please keep in mind the original institutional controls were put in place because there is a general recognition that harmful substances	The cleanup and closure meets all CERCLA and RCRA/CHWA requirements, and is protective of human health and the environment at the lowest end of the acceptable CERCLA risk range. See the responses to common concerns 7 and 9. By law and because this action is being jointly proposed, the RFLMA Parties must reach agreement to the extent possible on proposed language in advance of presenting it for public review and comment. However, such agreement on a proposal does not constitute a “done deal.” All such proposed actions are subject to public review and comment, and are often changed as a result of comments received. The proposed amendment was issued in the Proposed Plan for public review and comment on June 3, 2011. Information about the proposed clarification of the ICs was also made available prior to release of the Proposed Plan to the public using the means specified in RFLMA Appendix 2, *Legacy Management Public Involvement Plan*, May 2011. The RFLMA Parties considered all public comments received before making any final determination on the proposed CAD/ROD amendment and modification of RFLMA Attachment 2. In previous proposals for modifications to RFLMA, the RFLMA Parties have responded to input from the public with numerous changes to original proposals incorporated into the final approved modifications. This is also the case for this final approved CAD/ROD amendment and RFLMA Attachment 2 modification.

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	would/do remain on site for thousands of years; and ON site is where we wish to keep them! The present controls MUST remain in perpetuity. Please do not tamper with a system that was designed to protect human health. Is it any wonder that that most Americans do not trust their government?	
2	Their blatant disregard for the wishes of most of the cities, citizens groups, and individual citizens was made very evident at the CAD/ROD meeting in 2006. It was repeated again on June 20, 2011. When the site manager makes a statement declaring, “Plutonium is just a metal,” followed by a declaration that the site is clean; one has to wonder just where and how our money is being wasted. How can it be clean and safe when this year, both uranium and plutonium 239/240 was found in surface water and both exceeded the standard level for safety?	The “Plutonium is a metal” statement was taken out of context. The subject under discussion was the transport mechanisms and geochemistry of residual plutonium contamination in the environment. The point being made was that because plutonium is a metal, the fate and transport of this substance is dependent on the chemical properties of the metal. DOE recognizes that plutonium is a radioactive metal. Radioactive materials pose hazards that are subject to control under federal and state laws. The remedy is designed to ensure adequate protection from these hazards.
Karen Kormos		
1	As a citizen of Jefferson County I believe we have a right to our input when it comes to disturbing the soil and surrounding lands of Rocky Flats. Contamination within the “production area” is well documented, and includes sub-structures and miles of pipe lines that contain contaminated materials. Digging anywhere at or around Rocky Flats could release contaminated dust into the air, endangering public health.	See the responses to common concerns 2 and 7.
2	We have serious concerns about eliminating public comment and transparency. DOE should NOT make this rule change and should continue to allow citizen participation.	See the response to common concern 2.

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Anita Wilks		
1	This letter is regarding the blatant lack of transparency about contaminated soils at the site of the old Rocky Flats Weapon Facility in Colorado. Comments Contamination within the "production area" is well documented, and includes sub-structures and miles of pipe lines that contain contaminated materials. Digging anywhere at or around Rocky Flats could release contaminated dust into the air, endangering public health.	See the responses to common concerns 4 and 7.
2	I have friends and family living near this site and already Kelley Trucking is moving mass amounts of soil adjacent to this area (for Arvada) and a new private elementary school just opened across the street from the Candelas Parkway. The children at Goddard School are no doubt being exposed to plutonium particles in the air and a class action lawsuit could be filed due to the negligence of DOE and all parties involved.	Years of air monitoring, even during the periods of cleanup and closure when buildings were being demolished and large scale soil removal activities were being conducted, demonstrated that airborne activity levels were well below EPA's National Standards for Hazardous Air Pollutants applicable to radionuclides. The source areas were remediated during cleanup and closure, further mitigating the potential for airborne exposure. See the 2006 CAD/ROD, Section 7. *The Nature and Extent of Environmental Contamination at Rocky Flats*, "Air Contamination." Also see, See, for example, the Agency for Toxic Substances and Disease Registry (ATSDR), *Public Health Assessment for the Rocky Flats Environmental Technology Site, U.S. Department of Energy, Golden, Colorado, EPA Facility ID: CO7890010526*, May 13, 2005, available on the ASTDR website: http://www.atsdr.cdc.gov/HAC/pha/RockyFlats(DOE)/RockyFlatsPHA051305a.pdf The 2005 ATSDR report, Section VII "Conclusions", states: The conclusions for past exposures are based largely on the extensive dose reconstruction study conducted by expert scientists and critically reviewed by CDPHE and an independent health advisory panel. The conclusions for current and future exposures are based largely on

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		ATSDR's interpretation of sampling data recently collected by multiple parties. Overall, ATSDR did not identify any environmental exposures at levels of public health concern for past and current exposures ….
3	We have serious concerns about eliminating pubic comment and transparency. DOE should NOT make this rule change and should continue to allow citizen participation.	See the responses to common concerns 1 and 2.
Doris Minor		
1	I propose that you do not change the current requirement that all soil disturbance below 3 feet require public comment. The public needs to know what goes on the Rocky Flats site. The government has done a poor job in the past of protecting area residents from plutonium contamination. Now you want to starting digging in areas were the plutonium is buried and you feel that area residents have no right to know this or do anything to stop it? I found out about this proposal in the July 28th issue on YourHub. It appears that you do not like giving much notice on you proposals so nobody has much time to respond.	There is no requirement in the 2006 CAD/ROD or RFLMA that soil disturbance below 3 feet require public comment. See the response to common concern 2. Notice that the Proposed Plan for the CAD/ROD amendment was released for public review and comment was published in the Broomfield Enterprise and the Boulder Camera. Notice was also sent via e-mail to all stakeholders who have indicated an interest in receiving notices regarding Rocky Flats. A public meeting was held on June 16, 2011, and DOE offered to hold two additional public information meetings as part of its response to requests for extending the public review and comment period beyond 60 days. The two subsequent public information meetings held on July 14 and July 20, 2011, were provided as a means to reach as many members of the public interested in Rocky Flats as possible.
2	I am sure the JPPHA is very happy with you guys so they can start digging and not let anybody know about. Please do the responsible thing and do not allow soil disturbances on the Rocky Flats site without the opportunity of public comment. Better yet, do not allow any digging on the Rocky Flats site at all so as not to contaminate the surrounding area with plutonium.	See the responses to common concerns 2 and 4.
Peter Papazian		
1	I am opposed to the proposed rule change at Rocky Flats in Colorado which would allow digging below 3' depth without public comment.	See the response to common concern 2.

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2	Unless the DOE can prove that there is no radioactive contamination in these areas this should not be allowed. The DOE needs to conduct a comprehensive soil sampling program and make the results public before any rule change should be contemplated. I am concerned about the release of radioactive dust particles in the area and downwind from the site in Arvada and Golden.	The remedial investigation included the results of the comprehensive environmental media sampling program, which includes soil sampling, conducted during cleanup and closure of the Rocky Flats Site. The RI/FS includes all of the environmental data and describes the nature and extent of contamination for surface and subsurface soil and sediment, groundwater, surface water, and air. The investigation and cleanup process included a thorough characterization of 421 known or suspected hazardous-substance-release locations. These locations were called Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern and Potential Incidents of Concern. Collectively, all these areas were referred to as IHSSs. Appendix B of the RI/FS summarizes each IHSS and its cleanup under the Rocky Flats Cleanup Agreement. The results of soil samples after remediation of soil contamination are included in the RI data set. The soil data set includes approximately 7,230 surface soil sampling locations, 12,250 subsurface soil sampling locations in the depth interval from 0.5 foot to 12 feet, and 3,640 subsurface sampling locations at depth intervals from 12 feet to below 50 feet. Approximately 820,000 data records constitute the soil data set for the RI.
City of Northglenn		
1	The City of Northglenn (Northglenn) cannot support the proposed amendments to the Rocky Flats Corrective Action Decision/Record of Decision *(CAD/ROD)* and RFLMA Attachment 2. As part of their proposed plan to modify the *CAD/ROD*, the Department of Energy (DOE) proposed the following modifications: 1 Clarification of the description of certain Institutional Controls (lCs) and inclusion of a regulatory review and approval process to implement ICs in the *CAD/ROD* 2 Amendments to the current environmental covenant or issuance of a restrictive notice to incorporate the proposed *CAD/ROD* ICs changes	See the responses to common concerns 1, 2, and 7.

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	3 Modification of text in the current *CAD/ROD* such that any future modification or termination of ICs will not require formal amendment to the *CAD/ROD*. Northglenn asserts that the proposed changes go beyond the stated purposes and, if adopted, will undermine the safeguards embodied in the Institutional Controls (lCs), eliminate the formal *CAD/ROD* amendment requirement for any future modifications to ICs, discourage and limit public involvement, and unnecessarily expand allowable activities. In summary The selected Site remedy/corrective action includes environmental monitoring, institutional controls, and physical controls, as a layered, defense-in depth type remedy. All three controls must remain intact to ensure that the remedy is protective of human health and the environment for both current and future generations. Northglenn believes that the proposed changes could create opportunities for movement of contaminant sources and limit the public process, eroding the protective foundation that the ICs provide. Institutional controls address the uncertainties inherent in accelerated closure, uncertainties that will exist for many years to come. The proposed language does not, in our view, simply clarify the original intent. As such, the proposed plan cannot be supported by Northglenn.	

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2	The accelerated cleanup at Rocky Flats (or Site) was made possible, in part, by development of physical and ICs as part of the remedy. These controls made it possible to leave residual contamination in place, while still making the closure protective of human health and the environment. Institutional Controls limiting activities that could expose or influence residual contaminant sources were carefully developed and incorporated into the CAD/ROD. Additionally, land use limitations were captured in an Environmental Covenant (EC). The ICs are a critical component of the long-term remedy that stops or substantially reduces a release or threat of a release of hazardous substances that remain on site. The ICs work in tandem with physical controls providing an additional layer of protection. Monitoring evaluates whether the remedies are functioning properly as well as the effectiveness of the ICs. Employing multiple mechanisms (lCs, physical controls, monitoring, and an EC) provides a higher degree of certainty that the remedy will remain protective-a protectiveness that Northglenn believes exists under the current *CADIROD.*	The RFLMA Parties agree that ICs are an important component of the selected remedy to provide an additional layer of protection. The CAD/ROD amendment does not change the remedy. The ICs will continue to be implemented to meet the objective and rationale as stated in the CAD/ROD, and will continue to provide the same degree of protectiveness.
3	The City of Northglenn has no interest in preventing DOE from implementing the remedy and maintaining the Site. To that end we would like to work with DOE on language that addresses our concerns and permits DOE to conduct required site maintenance.	See the response to common concern 2.
4	The following section outlines the rationale for Northglenn's concerns: Proposed "Clarifications" of IC Descriptions: Following accelerated site closure, residual contamination remains in the surface and subsurface of the site. IC 2 and IC 3 both address remaining uncertainties about the exact distribution of remaining contamination on a fine scale. Soil disturbance activities have the	See the responses to common concerns 1 and 2.

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	potential to expose residual contamination, expose buried utilities/ infrastructure, create new surface water and ground water pathways, and/or create unstable soil and slope conditions. The current version of IC 2 reads -*Excavation, drilling and other intrusive activities below a depth of three feet are prohibited, except for remedy-related purposes and routine or emergency maintenance of existing utility easements, in accordance with pre-approved procedures.* Proposed changes would allow soil moving activities below 3 feet, regardless of whether the activity is remedy related, upon review and approval by CDPHE. If adopted, the proposed changes would relegate IC2 to RFLMA party review and approval pursuant to the Soil Disturbance Review Plan. In this process, the public is notified via Contact Record as to the proposed action. Also, in this process not all of the supporting documents used to make the decision are fully disclosed and the supporting documents are not made part of the administrative record (AR). This process effectively puts the public in response mode while limiting access to background documents relevant to CDPHE's decision. Under the ROD, the initiation of a formal public comment period is required only in the case of a "fundamental" update (i.e., formal ROD Amendment). However, most remedy updates, regardless of their significance, have a substantial community involvement component (see NCP §300.435(c)(2)(i) and (ii)). Memorializing the discussion and decision processes through the AR provides a foundational understanding of the decision making process, so that future generations can use what was learned and possibly do better. Actions that reduce public involvement raise concerns for Northglenn. Concerns relate to fairness, openness, transparency, trust, and the ability to address uneven impacts to communities.	

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	Furthermore, Northglenn believes that public participation leads to more informed and better decisions by DOE and the regulators.	
5	Additionally, intrusive actions at this depth can create new flow paths for ground water. Ground water on the Site is known to be hydrologically connected to surface water. Digging below 3 feet could impact surface water quality by changing gradients in areas of contaminated ground water, reducing slope stability, or moving contaminated soil to surface water through runoff. No risk analysis was conducted for digging deeper than 3 feet. Exposing subsoil that is not fully characterized to erosion is not protective of surface water quality.	See the response to common concern 7. The Comprehensive Risk Assessment (CRA) evaluated subsurface soil and sediment (as well as surface soil and sediment and groundwater) residual contamination in accordance with the *Comprehensive Risk Assessment Work Plan and Methodology*. The CRA was performed after completion of all Rocky Flats Cleanup Agreement (RFCA) accelerated actions. Details of the CRA are found in RI/FS Appendix A. The remaining concrete and subsurface infrastructure that were not fully decontaminated were not evaluated in the CRA because the exposure pathway for this contamination would occur only if the items were uncovered. Consequently, the remedy included ICs to prevent access to contaminated subsurface features. The remaining contamination levels are, however, documented by surveys included in the accelerated action closeout reports.
6	Northglenn's primary concern is protection of surface water. All of the proposed IC changes pose increased risks to surface water quality.	See the response to common concern 7.
7	Removal, replacement, or relocation is unnecessarily broad language that goes beyond the original intent of IC7 by expanding allowable activities beyond the need to maintain the remedy.	The clarification to IC-7 was made to clarify that it was not intended to prevent adjustments to engineered components may be made based on the results of monitoring the performance of the remedy. This clarification is consistent with the RFLMA Attachment 2 flowcharts in Figures 5–13 for evaluation of surface water and groundwater monitoring results and modifying or discontinuing monitoring based on the evaluations.
8	The current version of IC 3 reads -*no grading, excavation, digging, tilling, or other disturbance of any kind of surface soil is permitted except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) approved by CDPHE or EPA. Any such soil disturbance will restore the soil surface to preexisting grade.* The Rationale for IC3 includes the sentence: "Restoring the soil surface to preexisting grade maintains the current depth to	See the response to common concern 7. The Soil Disturbance Review Plan information allows CDPHE to determine whether there would be a reduction in depth to buried contaminated structures. The vast majority of the area within the Central OU is not in the vicinity of such structures. The Soil Disturbance Review Plan information also allows CDPHE to determine whether a proposed activity might result in a change in elevation

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	subsurface contamination or contaminated structures." By allowing activities that may reduce the depth to subsurface soil contamination or buried contaminated structure, the IC is weakened and the assumptions incorporated into the risk assessment are invalidated. Uncertainty remains about the fine-scale distribution of contaminants at the site. Unintended consequences of modifying soil surface grade could include: Alteration of water flow paths which may: • Redirect water over potentially contaminated surface soil • Increase the erosive power of runoff through consolidation of multiple flow paths Alteration of infiltration zones which may: • Direct infiltration over ground water contamination plumes • Introduce contaminants to surface water, which is hydrologically connected to ground water sources	over such structures, or a change in topography that would not meet the objective and rationale of the IC.
9	Other Proposed Changes to the *CADIROD* Language in this table pertains to removal of the requirement to formally amend the CAD/ROD in the event of future changes to the ICs and replacing the formal process with what amounts to an internal, RFLMA-party-only review and approval process. Removal of the formal amendment process would: • Make it easier to further erode the protection afforded by the ICs • Limit public involvement These changes appear to be an expansion of regulatory powers and are a radical departure from the collaborative approach used during accelerated closure. Adoption of the proposed language would remove the checks and balances intentionally set in place by the design of the remedy as described in the original CAD/ROD. This includes the current requirement to review the nine CERCLA criteria evaluated for a formal CAD/ROD amendment. The formal	See the response to common concerns 1 and 2.

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	CAD/ROD amendment process also requires public comment, promoting dialog and creating an administrative record that can serve to guide future decisions.	
10	Northglenn has not offered any alternative language at this time, preferring to meet with DOE, EP A, and CDPHE staff, and other interested parties to discuss the issues and reach a solution. We believe there is a solution that would allow DOE to perform Site maintenance without violating the CAD/ROD and address Northglenn's and other affected communities concerns. DOE has recently worked with Northglenn, Thornton, Westminster, and Broomfield on an adaptive management plan related to the Surface Water Reconfiguration Environmental Assessment, this was a productive and meaningful effort that bodes well for a similar effort on new Proposed Plan language. Now is the time to engage in thoughtful discussion, exchange of ideas, and careful consideration of those ideas before amending a document that presumably went through an equally or more rigorous process.	The RFLMA Parties appreciate the communities' feedback and willingness to discuss issues and reach solutions and believe that the process has been productive and meaningful. See the response to common concern 2.
City of Thornton		
1	The City of Thornton (Thornton) submits the following comments for consideration by the Department of Energy (DOE), Colorado Department of Public Health and Environment (CDPHE), and the Environmental Protection Agency (EPA) in the final decision regarding the Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision (CAD/ROD) for the Rocky Flats site. In addition, as a member of the Woman Creek Reservoir Authority (Authority), Thornton fully endorses the comments, concerns and requests of the Authority regarding the proposed amendments. According to the DOE, CDPHE, and EPA, the proposed amendments accomplish the following: 1. Clarifies the description of certain Institutional Controls (ICs) and provides a regulatory review and approval process to	Comment noted.

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	implement ICs. Requires amending the current environmental covenant or issuance of a restrictive notice to incorporate the CAD/ROD amendment ICs clarifications. 2. Provides that any future modifications or termination of ICs follow regulations and guidance in effect at that time. Thornton is concerned that if this proposal is approved as presented it will significantly degrade the protections that were put in place in the original 2006 CAD/ROD.	
2	The proposed amendment removes the requirement for a formal amendment process for future changes to the ICs and replaces it with a process that requires only regulatory approval through the CDPHE and EPA. Thornton opposes this approach; regulatory approval is not the same as allowing the public the opportunity and process to voice concerns prior to decisions being made that could potentially weaken existing protections. Any future modifications to the ICs should be undertaken in an open and transparent process that allows the public to remain involved to ensure that our resources and citizens remain safe. Currently, the Rocky Flats Legacy Management Agreement (RFLMA), which establishes the regulatory framework for implementing the response action in the CAD/ROD, requires public comment for amendments only if the change is deemed to be "significant". Under RFLMA, the approach to defining whether or not a change is significant is not detailed and is presumably left strictly in the hands of the RFLMA parties. Thornton believes that the proposed process is circular and flawed. It is inconsistent with the spirit of the original CAD/ROD, and the recently implemented DOE Adaptive Management Plan (AMP), both of which emphasize transparency and cooperative engagement of stakeholders.	See the response to common concern 1.

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3	In closing, Thornton is requesting that DOE, CDPHE, and EPA revise this Proposed Plan to limit the clarifying language to the stated and intended purpose: implementation and performance of necessary site maintenance activities. Further, we request that the DOE, CDPHE, and EPA retract the portion of this Proposed Plan that would remove requirements for formal amendment to the CAD/ROD in the event of future changes to ICs.	The amendment is needed to clarify that DOE may conduct non-remedy related site management activities. See the response to common concern 1.
City and County of Broomfield - General Comments		
1	The City and County of Broomfield (Broomfield) is providing comments to the Proposed Plan for Amendment (Propose Plan Amendment) of the Corrective Action Decision/Record of Decision (CAD/ROD), dated June 3, 2011. In addition to the CAD/ROD amendment, the parties to the Rocky Flats Legacy Management Agreement (RFLMA), comprised of the Colorado Department of Public Health and the Environment (CDPHE), Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) proposed Attachments 1 and 2 to the Proposed Plan that would modify the language in the RFLMA, revise the existing Environmental Covenant, and formalize the Soil Disturbance Review Plan for the site. Broomfield's comments also include justification for our opposition to the proposed modifications to the additional documents as provided in Attachments 1 and 2 of the Proposed Plan.	Comment noted.
2	When waste is left on site after remediation and is present above levels that would not be protective in an unrestricted use/unlimited exposure scenario, institutional controls are needed to control the integrity of the remedy by preventing or limiting exposure to remaining hazardous waste and constitutes. Because waste was left at Rocky Flats, Institutional Controls (ICs) are a necessary component of the completed and chosen remedy. The selected remedy, Alternative 2, included legally enforceable and administrative land use restrictions identified within the CAD/ROD and the RFLMA to ensure no new pathways for contaminants would be established by excavating at depths greater than three feet within the Central Operable Unit (COU). Excavation would	There is no change to the requirement for ICs as a component of the remedy, and the objective and rationale for the ICs does not change. See the responses to common concerns 1, 7, 8, and 9.

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	potentially complete pathways that could negatively impact surface water quality via fate and transport or increase health risks to the worker through acute or chronic inhalation exposures. The proposed amendments to the CAD/ROD and RFLMA would have the following effects: • remove the additional layer of protection that currently minimizes digging at depths greater than three feet within the COU; • eliminate the public process for input in any future revisions to the institutional controls or modifications, removal, replacement or relocation of any engineered component of the response action; • eliminate the commitment to maintain the ICs in *perpetuity*, and; • eradicate the final site configuration that ensures a minimal three foot layer of protection above residual contamination within the COU by eliminating the requirement to restore the soil surface to pre-existing grade or higher.	
3	Broomfield worked in good faith to support the site closure and ensure long-term stewardship controls were in place to protect the impacted downstream communities. Specifically, we worked diligently and directly with the RFLMA parties to: • develop a vigorous long-term vision and stewardship plan to ensure contamination would remain on-site by means of a contingency plan and utilizing terminal ponds to contain and/or treat on-site migration; • develop a decisive monitoring plan to ensure the remedy is functioning per design to prevent off-site migration of contamination; • ensure institutional controls were established for perpetuity to prevent unacceptable exposure to human health and prevent	The RFLMA Parties appreciate Broomfield's participation as an important stakeholder in the many important issues related to Rocky Flats cleanup and closure and implementation of post-closure activities. See the response to common concern 1.

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	migration of residual subsurface contamination and/or contaminated subsurface features to protect surface water quality; and • ensure after excavation for remedial purposes that the final soil surface grade is restored to preexisting grade to maintain the current depth to subsurface contamination or contaminated features. (The requirement to return the excavated site to the final grade feature serves as a protective cap to contain buried residual contamination and infrastructures.) One of Broomfield's key concerns is that the proposed language will eliminate a formal CAD/ROD amendment process requiring a public process for comment prior to any taken action. The current language simply requires the RFLMA Parties to notify the community after an action as been approved. We do not support unlimited action that potentially negates the goals, objectives, and rationale of the CAD/ROD and RFLMA without future public input.	
4	The proposed modifications to the ICs would: • remove the requirement to maintain an environmental covenant that binds the DOE and incorporates use restriction for the COU in perpetuity; • allow excavations for purposes other than remediation in areas where residual contamination, subsurface infrastructure, and/or buried trenches are located; • eliminate the requirement to restore the ground surface to pre-existing grade following excavation and soil disturbance activities; • give the DOE the freedom to re-design, modify, remove, or relocate any engineered components (i.e. groundwater treatment units, landfill caps, etc.) at the site without future public input; and • remove the public process to comment on formal amendments to	The RFLMA Parties do not agree that the Proposed CAD/ROD amendment would result in the effects stated. However, after considering public comments, the RFLMA Parties made a number of changes in the final CAD/ROD amendment. See the responses to common concerns 1, 6, 7, and 9.

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	the CAD/ROD that may modify or terminate ICs or amend RFLMA Attachment 2, Legacy Management requirements to implement the CAD/ROD. For reasons stated above, the proposed changes to the CAD/ROD are considerably less protective than the restrictions that Broomfield supported during closure.	
5	Broomfield has the following concerns, comments, and requested clarifications on the changes to the CAD/ROD and RFLMA. We request a formal response to our general comments and the numbered items that follow.	A response to each comment is provided.
City and County of Broomfield - Specific Comments		
1	1. Information Incorporated into this Proposed Plan The following statement is included on Page 4 of 16 under the heading, "Information Incorporated into this Proposed Plan": *Because there is no change to the remedy, this Proposed Plan incorporates by reference the July 2006 Proposed Plan and the September 2006 CAD/ROD.* Broomfield disagrees with this statement based on two fundamental issues. First, the selected remedy was chosen based on the addition of ICs to prohibit excavation, use of groundwater, drilling and other intrusive activities below a depth of three feet that were not remedy-related. Second, the objective of the CAD/ROD was to prevent unacceptable exposure to residual subsurface contamination that would generate potential new pathways and risk to the worker. 1. Provide the risk assessment process that will be performed to evaluate acceptable exposure or unacceptable exposure. 2. How will risk assessments to groundwater and surface water be evaluated? 3. How will excavations be evaluated to determine impact to	The CAD/ROD amendment does not eliminate the IC component of the remedy, but clarifies the ICs to meet the IC objective and rationale. Questions 1–5 appear to presume an additional “risk assessment” is required for proposed soil disturbance or excavation activities. While the evaluation of proposed work includes determining appropriate risk management requirements, the CRA evaluated exposure to environmental surface and subsurface media in accordance with the *Comprehensive Risk Assessment Work Plan and Methodology*. The CRA was performed after completion of all RFCA accelerated actions. Details of the CRA are found in RI/FS Appendix A. The remaining concrete and subsurface infrastructure features that were not fully decontaminated are to be addressed through risk management for worker protection rather than through a risk assessment. The exposure pathway for this contamination would occur only if the items are uncovered. Consequently, the remedy included ICs to prevent unauthorized access to contaminated subsurface features. The remaining contamination levels are, however, documented by surveys included in the accelerated action closeout reports.

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	the remedy? 4. How will excavations be evaluated for impact to ecosystems? 5. How will risk assessment be documented? 6. If there is a failure of the ICs, what is the process to reevaluate the remedy?	The information in the CRA and information on residual contamination in subsurface structures is adequate for proper risk management and to determine whether the rationale and objective of the IC is met. For questions 1–4, see the response to common concern 7. For question 5, see the response to common concern 2. For question 6, evidence of violation of an IC or discovery of a situation that may interfere with the effectiveness of an IC are reportable conditions that would follow the action determination process in RFLMA Attachment 2, Section 6.0, "Action Determinations."
2	2. Table 1. Clarification of IC Descriptions IC-2 Prohibiting excavation that is not associated with the remedy below three feet reduces the potential for worker exposure and negative impacts to surface water via fate and transport of contaminants remaining at the site. The rationale for IC-2 is stated as: *Contaminated structures, such as building basements, exist in certain areas of the Central OU, and the CRA did not evaluate the risk posed by exposure to this residual contamination. Thus, this restriction eliminates the possibility of unacceptable exposures. Additionally, it prevents damage to subsurface engineered components of the remedy.* Since the language in the Proposed Plan Amendment removes the prohibition, it increases the potential for generating new pathways both short-term and long-term. A risk assessment of potential migration of contamination from structures, mainly constructed of concrete, after degradation of the concrete material was never performed. To comply with the objective and rationale of the Remedial Investigation/Feasibility Study (RI/FS), Broomfield	See the preceding comment response regarding the need for risk assessment. Potential migration of contamination is evaluated through the monitoring required under RFLMA. However, migration of contamination is not a new pathway of exposure. The risk management for potential levels of exposure from soil disturbance or excavation activities is considered in the evaluation of the Soil Disturbance Review Plan. The fate and transport of residual contamination is evaluated in the RI/FS. Qualified health and safety personnel perform reviews of planned activities. The RFLMA Parties disagree with the comment that the amendments remove the prohibitions in the ICs.

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	requests DOE evaluate the risk posed by exposure to this new pathway that will increase risk to human health and the environment both short-term and long-term through degradation of the concrete in the future. 1. Clarify that a risk assessment will be performed short-term by an Industrial Hygienist or Safety Manager for each excavation. 2. As groundwater erodes the remaining concrete or other structural material, provide the risk assessment both short-term and long-term for complete pathways for the contaminant of concern and potential contaminant of concern before there are any modifications to the ICs.	
3	The current process CDPHE and DOE has in place for Contact Records does not replace or constitute a formal risk assessment. Broomfield requests that future Contact Records for soil disturbance or excavations include, as minimum, the items listed below. Additionally, all of this information should also be included in the Rocky Flats Administrative Record. 1. Identification of remaining subsurface structures, trenches, and potential for subsurface contamination in the area; 2. Historical information about any former IHSS, Area of Concern (AOC), groundwater depth, identity of contaminants of concern within the area of excavation; 3. Document current site survey of the area and final site survey of the area to ensure a three-foot cover is maintained; 4. A completed Job Safety Analysis (JSA) with the following information shall accompany the Contact Record: a. Personnel Protective Equipment needed; b. Criteria and procedures for requesting a radiation technician; c. Identification of equipment readings, if applicable;	Contact records are in the Administrative Record. The Soil Disturbance Review Plan requirements included in the modification to RFLMA Attachment 2 addresses items 1–3 and 4-f in this comment. The information requested in item 4, if required based on the scope of work, is developed as part of the work planning and control process and is maintained in the project records. The JSA is reviewed by qualified health and safety personnel in accordance with work planning and control procedures. See the response to common concern 7.

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	d. Waste disposal criteria; e. Information and analytical results required during the activity; f. Identification/Documentation as to why the excavation is required; and g. Review of the JSA by a certified Industrial Hygienist and/or qualified Safety Professional. Provide the rationale if the above-requested information is not included in the Contact Record or the Administrative Record.	
4	IC-3 - The language of the existing IC-3 reads, in part: *No grading, excavation, digging tilling or other disturbance of any kind..... is permitted, except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) .....Any such soil disturbance will restore the soil surface to preexisting grade.* The language in the Proposed Plan Amendment allows for soil disturbances that will not restore the soil surface to pre-existing grade or higher. The intent behind the three-foot depth was to ensure that a minimum cover of three feet would be maintained to prevent contamination surfacing over time, due to the life expectancy of the contaminants and potential impact to human health and the environment. The Actinide Migration Report stated soil contamination at 10 picocuries per gram (pCi/g) would negatively impact surface water quality. The proposed language contradicts the rationale in the RI/FS to restore the soil surface to preexisting grade. The rationale for IC-3 states: *Certain surface soil contaminants, notably plutonium -239/240, were identified in the fate and transport evaluation in the RI as having complete pathways to surface water if disturbed. This restriction minimizes the possibility of such disturbance and resultant impacts to surface water. Restoring the soil surface to*	One example of when DOE would need to excavate to below 3 feet and not return the surface to the pre-existing grade is to breach retention pond dams in the Central OU by constructing notches in the earthen dams. Note that the dams for 7 retention ponds have been breached to date and this has not resulted in any water quality issues that would negatively impact the performance of the remedy. Another example is the recontouring of the eastern end of Berm 7, for erosion control purposes, to remove the end that sloped into the east perimeter channel. The point of the CAD/ROD amendment is to clarify that some work by its nature is intended to change the surface grade. The Soil Disturbance Review Plan and RFLMA Party consultation regarding proposed work determine whether the proposed work, when completed, would not maintain the depth to subsurface contamination or contaminated structures or would be expected to negatively impact surface water quality. The location of contaminated structures and characterization of subsurface contamination is documented in the RI/FS.

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	preexisting grade maintains the current depth to subsurface contamination or contaminated structures. Please provide Broomfield with an example of when DOE would have to excavate more than three feet and not be able to restore the surface to pre-existing grade.	
5	Restructuring of the channels and ditches are all associated with erosion control to protect the remedy and contain contamination migration. There is no justification for the proposed change to IC-3 other than the proposed dam breaching. Provide us previous examples of excavations at depths greater than three feet for ditches and culverts post-closure.	See the response to Broomfield's comment 4, above. An example was provided in the Proposed Plan for the CAD/ROD amendment. In 2007, the eastern portion of the bottom of the soil borrow area that became Functional Channel-1 during grading for closure was excavated from three to five feet deep to provide additional fill material to fill some low spots around groundwater wells south of the former B371 area. The excavated area was contoured after fill material was removed, so that the water flowing in a ditch on the east side of the bottom of Functional Channel-1 would flow across the bottom of the excavated area to promote the formation of additional wetlands. See, RFLMA Contact Record 2007-03.
6	In the event the surface is not restored to existing grade, an additional IC should be added to address this maintenance activity. Clarify why the RFLMA Parties would not simply add an IC for maintenance for erosion control or for protection of the remedy and maintain the current ICs?	The RFLMA Parties determined that it would be more efficient to clarify the description of the ICs and formalize the regulatory review procedure already established by the RFLMA Parties to implement the ICs as intended to meet the objective and rationale stated in the CAD/ROD.
7	Removing this restriction altogether increases the potential for actinide migration and potential worker exposure via inhalation. Will air monitoring equipment or other forms of monitoring be used to characterize soils being brought to the surface from subsurface depths?	This restriction is not removed. Field monitoring may be implemented based on the work planning and control procedures. See the response to common concern 7. The RI/FS evaluated the nature and extent of airborne contamination based on monitoring data that included the periods of contaminated soil removal actions and building decontamination and demolition work during cleanup and closure. The monitoring data demonstrated that residual contamination does not present a risk of airborne contamination levels that would trigger monitoring.

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8	Broomfield does not understand how a worker would know if he or she were protected without exposure data from either air monitors or technician's radiation equipment. What type of air monitors or technician support will be required during excavation? How will this information be documented or recorded into the Administrative Record?	See the response to common concern 7. As discussed previously, the work planning and control procedures are used to evaluate hazards and controls for work. Controls may include requirements for field monitoring to determine whether contamination levels require a radiological area to be established and a Radiological Work Permit (RWP) issued for control of the work area. Provisions for field monitoring and issuance of an RWP, including required radiological training for workers under the RWP, are included in work planning and authorization documents. These documents are retained in the project specific files.
9	If soil is not restored in the COU to existing grade, how will the three-foot cover be maintained for the life of the contaminant within the COU?	For work that is subject to the Soil Disturbance Review Plan requirements, the review and approval process includes evaluation of the expected depth to any contaminated subsurface features and subsurface contamination that may be in the area affected by the excavation or soil disturbance. RFLMA Attachment 2 includes requirements for annual monitoring of the Central OU to look for signs of significant erosion or precursors to significant erosion in the proximity to subsurface features. Monitoring of the landfills and engineered components occurs more frequently under schedules specified by RFLMA. Maintenance and repairs are conducted as needed, based on the monitoring of site conditions. RFLMA-required surface water and groundwater monitoring is designed to provide data to evaluate whether migration of contamination that could be associated with soil disturbance may be occurring. The continuing protectiveness of the remedy is also periodically evaluated in CERCLA 5-year reviews. Five-year reviews are required until remaining contamination is at levels that would allow for unrestricted use and unlimited exposure under CERCLA. To ensure continuing protectiveness, a 5-year review can result in adjustments to the implementation of the remedy or adjustments to maintenance and repairs.

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10	IC-7 - The current language for IC-7 states: *Activities that may damage or impair the proper function of any engineered component of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark are prohibited.* The Proposed Plan Amendment adds the following sentence to IC-7: *The preceding sentences shall not be construed to prohibit the modification, removal, replacement or relocation of any engineered component of the response action in accordance with the action determinations in RFLMA Attachment 2.* As proposed by the RFLMA parties, changes to the ICs may be made without the public comment process. IC-7 proposed language would allow the RFLMA parties to potentially relocate, remove, or cease treatment of contaminated groundwater. Broomfield clearly sees these types of actions as a fundamental change (emphasis added) to the remedy and would therefore require a change to the Proposed Plan and the CAD/ROD. As defined in the EPA guidance document titled, *A Guide to Preparing Superfund Proposed Plans, Record of Decision, and Other Remedy Selection Decision Documents*, examples of a fundamental change would include a change to a primary treatment method. This would entail the issuance of a revised Proposed Plan and the RFLMA that highlights the change. The amended portion of the CAD/ROD is evaluated using the nine criteria. Broomfield is very concerned the RFLMA Parties are undermining the language identified in their rationale for the proposals. Clarify how the RFLMA Parties can propose language that would not require a formal modification to the CAR/ROD or RFLMA if guidance defines a change to the remedy as a fundamental change. Treatment units are being modified as of this quarter to meet surface water standards.	See the responses to common concerns 1 and 2. An example of when a treatment system might be removed is when the groundwater being treated meets the Remedial Action Objectives for groundwater specified in the CAD/ROD. This would not constitute a change to the remedy, but rather would be remedy implementation. Operation and maintenance of a required treatment system (which can include modifications over time, such as to improve performance or cost-effectiveness or to meet a new required standard) is not a fundamental remedy change under current CERCLA implementing regulations and guidance. See Title 40 *Code of Federal Regulations* Part 300, et seq., section 300.435; and, *A Guide to Preparing Superfund Proposed Plans, Record of Decision, and Other Remedy Selection Decision Documents*, OSWER 9200.1-23P, EPA 540-R98-031, July, 1999, Section 7.0, "Documenting Post-ROD Changes; Minor Changes, Explanation of Significant Differences and ROD Amendments." Any proposed changes will be evaluated against the CERCLA implementing regulations and guidance in effect at the time of the proposal, and will follow the prescribed CAD/ROD amendment process.

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11	Provide the classification per the above guidance for replacing, relocating, reengineering or removing a treatment unit or point of compliance.	See the response to Broomfield's comment 10, above.
12	Clarify why the RFLMA Parties do not consider the major reengineering of the Solar Ponds or changes to remedy at the Mound Treatment unit as fundamental change.	The Solar Ponds Plume Treatment System (SPPTS) work involves evaluation of pilot scale components for biological treatment of nitrate along with treatment to remove uranium upstream of the nitrate treatment. The original biological treatment and uranium removal components of the SPPTS have not changed. It is not yet known whether the outcome of the pilot scale evaluation will result in a proposal for a fundamental change to the remedy. A small solar-powered air stripper has been installed at the Mound Plume Treatment System, which treats groundwater contaminated with volatile organic compounds (VOCs) to "polish" the effluent from the zero valent iron treatment media. This is in response to levels of some VOC breakdown daughter product VOCs in the effluent that are slightly above RFLMA standards. The following documents and regulations fully support the conclusion that neither of these projects constitutes a change to the primary treatment method, and therefore are not fundamental changes: • Title 40, *Code of Federal Regulations* (CFR), Section 300.435, "Remedial Design/Remedial Action, Operation and Maintenance" • *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (EPA 540-R-98-031, July 1999), Section 7.0, "Documenting Post-ROD Changes: Minor Changes, Explanations of Significant Differences, and ROD Amendments," Highlight 7-1, "Examples of Post-Record of Decision Changes"

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13	Per the 2006 CAD/ROD: *Imposing the institutional controls obviates the need to conduct a post-remediation analysis of residual risk on a release site basis.* If the RFLMA Parties move forward with their proposals, Broomfield will ask to have a post remediation analysis of residual risk on a release site basis performed for the site. A formal contingency plan should be part of the risk analysis to ensure contamination remains on-site and measures are in place to control contaminated surface water from leaving the site. 1. Provide a schedule for DOE to complete a post-remediation analysis. 2. Provide the details of the public process for such an important risk analysis of the site.	ICs are still imposed as stipulated by the quoted statement from the CAD/ROD, and there is no need for analysis on a release-site basis. The statement is related to CDPHE's determination that the remedy meets the State's risk management policy for hazardous waste sites. There is no requirement under the CDPHE policy for a formal contingency plan for risk analysis. RFLMA Attachment 2, Section 6.0 "Action Determinations", provides for evaluation of site conditions based on required remedy monitoring and surveillance. It provides for development of mitigating action plans for reportable conditions, if such actions are determined necessary. CDPHE approves action mitigation plans in consultation with EPA, but DOE is not precluded from undertaking timely mitigation once a reportable condition has been identified.
14	Broomfield is very apprehensive about the removal of the language in the environmental covenant that states: *... use restriction for the COU will run with the Property in perpetuity and be binding on DOE and all parties having any right, title or interest in the Property, or any part thereof, their heirs, successors and assigns, and any person using the land.* This text is being deleted as part of the Proposed Plan Amendment based the opinion that the requirements have been met for the Present Landfill and the modified ICs would incorporate the ICs for the entire COU for perpetuity. Once again, with the life expectancy of the contaminants at the site, the word perpetuity should remain within the document. With the language proposed by the RFLMA parties to exclude the surrounding communities from the public process to comment on such issues, there is no commitment that the ICs will remain in place on a long-term basis.	See the responses to common concerns 1, 2, and 9.

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	Broomfield requests that the word "perpetuity" be included in the final modification to ensure that the layered controls remain in place to protect downstream communities. 1. Provide the justification for not including the word "perpetuity" in the modifications. 2. Define the process for modifying any of the ICs. 3. To ensure the public is involved early in any decision process pertaining to the remedy, will the public be apprised of any proposed modification prior to final approval? Broomfield understands the importance of the ICs and had a reassurance in the 2006 CAD/ROD language that DOE would not be able to modify or terminate the institutional controls without the approval of EPA and CDPHE, by formal amendment to the CAD/ROD. Broomfield supported the closure and the then-identified long-term stewardship criteria and obligations. We are now at opposing junctures with the revised language and cannot support the proposed changes.	
15	3. Proposed Changes to Public Comment and Review We ask for clarification of the following proposed language that diminishes our ability to provide input to future changes to the IC, which are a vital aspect of the remedy. Proposed language: *Institutional controls will be modified or terminated in accordance with the requirements of CERCLA and CHWA, including CERCLA and CHWA implementing regulations and guidance in effect at that time. The public will also be notified of the modification or termination and be given an opportunity to review and comment, pursuant to RFLMA requirements for public notification and public comment in effect at that time.* Once again, Broomfield is very concerned with the above open-ended language. Based on the definition in the EPA Guide to Preparing Superfund Proposed Plans etc., communities will be	See the response to common concern 1.

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	notified of the modification after they have been approved. The public would be allowed to review and comment, pursuant to RFLMA requirements for public notification and public comment in effect at that time. Broomfield is very concerned the RFLMA Parties have the latitude to deem a modification as a minor change and the public process would be circumvented. Based on the modified language, all future changes to the ICs will not require a change to the CAD/ROD, therefore future changes will be either non-significant (minor) or significant. Both of these types of changes would not require a public comment and review process and would thus exclude the impacted communities from providing input. 1. Clarify what the Parties envision the RFLMA requirement for public notification and public comments. 2. Provide an example of when the communities would have an opportunity to participate and comment prior to approval of modifications to ICs. The current process for Contact Records does not allow for public input and removes the public from discussions related to such an integral part of the remedy. 3. The language is silent on requirements for public notification and public comment for the CAD/ROD. Are you assuming there will be no further need to modify the CAD/ROD? Provide us with the rationale for your assumptions.	
16	4. Nine CERCLA Evaluation Criteria for CAD/ROD Table 3 We ask that the RFLMA Parties expressly consider the Nine CERCLA Evaluation Criteria Community Acceptance. The importance of community approval promotes open communication and the success of long-term stewardship activities. The modified Proposed Plan that was adopted during regulatory closure states:	See the responses to common concerns 1 and 9. Alternative 2 is still the selected remedy and the objective and rationale for the ICs included in the remedy decision have not changed. The change to the description of some ICs does not change the expected performance of the remedy to remain adequately protective of human health and the environment.

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	The public expressed substantial support for Alternative 2, though numerous comments were submitted on individual aspects of the alternative, including environmental monitoring, ICs and physical controls, and public involvement. Broomfield supported Alternative 2 knowing the ICs would be in place for perpetuity to ensure enhanced protection of the remedy and protection of downstream communities' water quality. Based on the comments from the community, we do not see how the RFLMA parties can justify the proposed modifications to the CAD/ROD and the RFLMA. 1. Please provide the process the RFLMA Parties used to evaluate the nine CERCLA criteria during their review process. 2. If the majority of the community is opposed to the modifications, how can the regulators justify moving forward with the proposal?	The evaluation of the nine criteria is included in the 2006 Proposed Plan and CAD/ROD. The *Proposed Plan for the Amendment of the Corrective Action Decision/Record of Decision*, which was issued for public review and comment on June 3, 2011, includes a comparison table of the criteria to the 2006 CAD/ROD. CERCLA does not require "a majority of the community" to favor a proposed alternative under the community acceptance evaluation criteria. Rather, the decision maker must evaluate the level of community acceptance among the remedy alternatives as a modifying criteria to the threshold and primary balancing criteria. See 40 CFR 300.430(f), "Selection of remedy." DOE, EPA, and CDPHE believe the changed IC descriptions are necessary so that the land in the Central OU can be properly managed and maintained.
16	5. Justification and Examples of Work Performed by DOE to Abandon the Three-Foot Excavation Prohibition During the public meetings for the Proposed Plan Amendments, DOE provided the following examples to justify the need to modify the ICs: 1. DOE excavated soil in a borrow area to use fill material for low spots around groundwater wells south of building 371. This was not a necessary action for excavation; DOE could have imported soil to fill the low spots around the wells. a. Justify how the regulators would approve an activity that did not meet the objectives and rationale for the current ICs? b. Clarify why borrow material was not imported and the regulators allowed the ICs to be violated?	Question 1 a. and b. The purpose of using soil from the FC-1 area was to promote wetland formation. This is an example of excavation that is done in support DOE's management and maintenance of the land in the Central OU. The details are provided in Contact Record 2007-03, which is posted to the Rocky Flats website. Question 2. The details are provided in Contact Record 2007-05, which is posted to the Rocky Flats website. The Contact Record includes the 8-page set of construction drawings showing the depth of excavation to remove slumped material (varied over the hillside, but maximum was about 12 feet) and final grades. As stated in Contact Record 2007-05, approximately 7,000 cubic feet of soil was moved to the south and spread in the former 903 Pad area (which was poorly vegetated) and was used to establish native vegetation (i.e., revegetated). The revegetation of the regraded area and the former 903 Pad area has fully met the success criteria as required by the *Erosion Control Plan for the Rocky Flats Property Central Operable Unit*, DOE-LM/1497-2007.

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	2. The 991 hillside slumped and DOE had to regrade the hill for safety and erosion controls. The work had to be performed to protect Sentinel well 45605 and adjacent Mound treatment unit. Please provide the depths to which the soil was disturbed in order to regrade the hillside to its previous configuration. Provide the final grade for this activity and the amount of material that was excavated below three feet of grade. 3. DOE breached Dams B-1, B-2, B-3 and B-4. This activity was not warranted by DOE. It was not remedy-related and did not add any value to the protection of the remedy. Breaching the dams violated the ICs. Provide justification for this violation. Clearly the objectives and rationale were not met. To ensure against future failures in the process, how will the regulators prevent future violations? 4. Road repairs and maintenance work identified in the Proposed Plan did not require excavation of more than three feet. However, the project did not restore the area to preexisting grade as is required by the current ICs. Provide an example of an excavation of more than three feet depth for a road repair. Of the four examples cited by DOE, only two activities were warranted to protect the remedy. In cases, the 991 hillside and road maintenance were implemented for erosion controls to protect the remedy and safety reasons to stabilize the 991 hillside. Broomfield does not understand the need to make such drastic changes for activities that are associated with erosion controls, protection of the remedy, and control of contaminant migration. We propose language be modified in the CAD/ROD to include erosion control measures as an additional IC if excavations are at depths greater than three feet. DOE would have to provide examples of some activities that would meet the new IC category.	Question 3. The dam breach was conducted to implement the preferred alternative in the *Pond and Land Reconfiguration Environmental Assessment, Comment Response and Finding of No Significant Impact* (DOE/EA-1492), issued by DOE in October 2004. The review and approval of the soil disturbance and excavation for the dam breach by CDPHE is documented in Contact Record 2008-02. The work meets the objective and rationale of the ICs. The ICs were not intended to preclude DOE from activities to implement long-term stewardship responsibilities in the Central OU. A major purpose of the proposed IC modifications is to clarify how DOE can meet its maintenance and management obligations while preserving the intent of the ICs. Question 4. See the response to Broomfield's specific comment 4, above. Installing and cleanout of rock crossings and culvert installation and maintenance are two examples of possible work that could require excavations deeper than 3 feet. DOE, EPA, and CDPHE disagree with the comment that the changes in IC descriptions for clarification are a change to the remedy. With these clarifications, a new IC is not needed. The requirement for erosion controls is already included in IC-3. This requirement is met by DOE's *Erosion Control Plan for the Rocky Flats Property Central Operable Unit*, DOE-LM/1497-2007, July, 2007, which was approved by CDPHE.

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17	6. Proposed Modification To RFLMA Attachment 2, "Legacy Management Requirements" Attachment 1 Please clarify why the word "shall" was changed to "will" in section 4.0 Institutional Controls. Broomfield request the word "shall" be maintained in the language as listed below: *DOE shall employ administrative procedures to control all site modification, maintenance, or other activities requiring excavation within the Central OU in accordance with the institutional controls to prevent violation of the restrictions listed in Table 4. DOE shall ensure such site activities will not compromise the integrity or function of the remedy or result in uncontrolled releases of or exposure to subsurface contamination, in accordance with the land use restrictions in Table 4.*	"Shall" will be retained.
18	Under the same heading, we have the following requests for clarification and questions regarding the administrative procedures to control all site modification, maintenance, and other activities requiring excavation: 1. Please clarify what the administrative procedures are, how they will be controlled, how they will be evaluated, and how often they will be reviewed. 2. What professions or experts will evaluate the risk to the worker and/or monitoring criteria for a specific activity? 3. How will this information be captured in the Administrative Record? 4. Who will evaluate the activity to determine if the restriction is violated? 5. How will the public be informed of the proposed activity prior to approval and implementation of the activity?	Question 1. Administrative procedures are contained or referenced in the *Rocky Flats Site Operations Guide* (RFSOG) (LMS/RFS/S03037), which is reviewed and updated as necessary (but at minimum annually). The RFSOG is posted on the Rocky Flats website. Question 2 and 3. See the responses to Broomfield's specific comments 3 and 8 above. Question 4. See the response to common concern 6. Question 5. See the response to common concern 2. Question 6. See the response to common concern 7 and the responses to Broomfield's specific comments 8 and 9 above.

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	6. What measures will DOE employ to determine whether uncontrolled releases are occurring for inhalation, wind dispersion, and contaminant migration to the surface that would potentially impact surface water on a short-term or long-term basis?	
19	7. Information in Soil Disturbance Review Plan Broomfield has several concerns with the language that is being proposed for the Soil Disturbance Review Plan. Specific language taken directly from the Soil Disturbance Plan is listed in italics below followed by Broomfield's comments, concerns, and requests for clarification. *CDPHE will approve the proposed activity only if it determines that the proposed activity will not result* ***in an*** *unacceptable release or exposure to residual subsurface contamination and will not damage any component of the remedy.* 1. Please clarify how subsurface soils that may be contaminated are going to be characterized when excavations occur. The majority of the COU subsurface was not characterized. Areas where buildings, valve vaults, or direct remediation occurred such as the 903 Pad have extensive characterization. The remaining areas did not have associated contamination levels identified for specific remediation depths greater than three feet. 2. Provide the process EPA and CDPHE will implement if unknown subsurface contamination, containers, structures or other unexpected items are encountered during the excavation. 3. How will groundwater be addressed, contained and dispositioned during and after such occurrences?	Question 1. The investigation and cleanup process included a thorough characterization of 421 known or suspected hazardous-substance-release locations, which included subsurface locations. These locations were called Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern and Potential Incidents of Concern. Collectively, all these areas were referred to as IHSSs. Appendix B of the RI/FS summarizes each IHSS and its disposition under the Rocky Flats Cleanup Agreement. The results of soil samples after remediation of soil contamination are included in the RI data set. The targeted approach to investigation and extensive characterization of sources of contamination, as well as aerial and ground based in-situ radiation surveys and the results of extensive groundwater and surface water monitoring and independent verification surveys provide a high degree of confidence that the existing characterization data of the subsurface soil provides adequate process knowledge to plan and safely conduct work. In addition to targeted soil characterization, additional samples were collected over the entire site based on a random grid approach, in order to improve the spatial representativeness of the soil characterization data and reduce uncertainty. The results of this sampling did not indicate any previously undocumented sources of contamination. Field radiological surveys have been conducted during several projects involving soil excavation since closure as a part of the hazard identification and control process in planning and conducting work. The results of these field surveys are consistent with process knowledge. The soil data set includes approximately 7,230 surface soil sampling locations, 12,250 subsurface soil sampling locations in the depth interval from

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	4. Provide the documented process for determining and defining "unacceptable" by CDPHE. 5. Will reviewing of the rationale and objectives of the ICs be the only factors evaluated to determine if the activity is unacceptable or not?	0.5 foot to 12 feet, and 3,640 subsurface sampling locations at depth intervals from 12 feet to below 50 feet. Approximately 820,000 data records constitute the soil data set for the RI. Thus, sufficient process knowledge and sampling data exist to characterize the soil. CDPHE considers the proximity to subsurface structure and IHSSs when reviewing proposed activities. CDPHE and EPA would determine if the characterization information submitted with the Soil Disturbance Review Plan for work in any particular area was sufficient to make a determination that the objective and rationale of the IC would be met. Also see the response to common concern 7. Depending on the characterization information, additional sampling or field monitoring may be required to ensure worker safety. Question 2. Work control procedures include stop-work requirements so that unexpected conditions are fully evaluated. The work restart process includes resolving the unexpected conditions and implementing any new hazard controls that may be required. This would include approval from CDPHE if the information supporting the original approval was changed by the unexpected condition. This is similar to the procedures in place during cleanup and closure. Question 3. When proposed soil excavation work might encounter groundwater, the work planning and control process addresses this on a case-by-case basis. The RFLMA consultative process includes discussion of all aspects of the work that might require regulatory approval, and the results of consultation are documented in Contact Records. Question 4. “Unacceptable” means any circumstances that are not expected to be adequately protective of human health and the environment. The basis for determinations related to workers and the environment is provided by the exposure parameters and exposure scenario assumptions documented in the CRA. RFLMA-required monitoring and evaluation of monitoring results is

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		also designed to provide the information needed to evaluate the continuing protectiveness of the remedy at the specified monitoring locations. Question 5. The factors to be evaluated are in the work planning and control procedures. Implementation of these procedures by DOE is required by RFLMA Attachment 2. The determination by CDPHE and EPA that the objective and rationale will be met will be based on all pertinent information related to the work planning and control process.
20	*Contaminated soils may be returned to the excavation, provided the rationale and objectives of the institution controls are still met.* When excavating at depths greater than three feet, there is an increased risk of bringing higher levels of contamination to the surface and exceeding the 50 pCi./g cleanup standard. 1. Please clarify how the soils will be characterized to ensure there is a mechanism in place to protect surface water quality. 2. If CDPHE allows contaminated soils above the cleanup standard to remain on the surface, will a map of the location and description of the site be included in the site's Annual Report or other document? 3. Will accumulative risk analysis be performed of the additional residual contamination on the surface short-term or long-term? 4. How will this information be captured in the Administrative Record?	Question 1. CDPHE and EPA would determine if the characterization information submitted with the Soil Disturbance Review Plan for work in any particular area was sufficient to make a determination that the objective and rationale of the IC would be met. The mechanism to protect surface water is evaluation of monitoring results in relation to the RFLMA surface water standards, and implementing mitigating actions if deemed necessary. See the response to Broomfield's specific comment 13, above. Question 2 and 3. The cited language does not refer to, or allow contaminated soils to remain on the surface. Question 4. Documentation will be as described in the Contact Record regarding the proposed work.
21	*Contaminated soils not returned to the excavation must be managed in accordance with regulatory requirements.* Provide the current regulatory citations discussed in the modification being evaluated by the regulators to ensure contaminated soils do not remain on the surface.	The management of contaminated soils will be in accordance with applicable DOE, CHWA, and CERCLA requirements for the contaminants in question. There are no specific regulatory citations discussed in the modification. The applicable or relevant and appropriate requirements (ARARs) for on-site actions taken to implement the remedy are provided in the CAD/ROD, Table 21.

No.	Comment	Response
22	*DOE will document the elevation created by any soil-disturbance activities that does not return soil surface to preexisting grade or higher in order to ensure that the minimum three-foot cover thickness above any contaminated structure is maintained.* Broomfield wants to emphasize that the three-foot cover needs to be maintained within the COU after all excavations. Other forms of contamination remain within the COU such as residual contamination in the soils, buried trenches, evaporation solar pond materials, abandoned process lines, and valve vaults. To focus solely on remaining structures gives a false sense of allowing excavation throughout the COU and increasing the risk for carrying residual contamination to surface. 1. Provide the process to determine the levels of contamination within the excavation areas and how they will be measured. 2. Identify the documents that DOE will use to identify activities that do not return soil surface to preexisting grade or higher. 3. How often will the information be provided to the public? 4. How will all of this information be captured in the Administrative Record? 5. Will maps of the locations become part of the Contact Record and the Administrative Record?	The RFLMA Parties agree that a clarification would be helpful. The final modification includes reference to RFLMA Attachment 2, Figure 3, "Subsurface Features—Remaining Infrastructure," and Figure 4, "Subsurface Features—Representative Pits and Trenches." Question 1. See the response to Broomfield's comment 19, above. Question 2. The review and approval process for work that is subject to the Soil Disturbance Review Plan requirements includes evaluation of the expected depth to any contaminated subsurface features and subsurface contamination that may be in the area affected by the excavation or soil disturbance. Depending on the scope of the work, the work planning documents may include engineering design documents, such as those included with Contact Record 2007-05, as discussed in the response to Broomfield's comment 16, above. Questions 3 and 4. The information is provided in the Contact Record, which is posted to the Rocky Flats website. Information requirements for the closeout of the Contact Record are also included in the Contact Records, and the status of all Contact Records is discussed in the RFLMA Annual Reports. These documents are also included in the post-closure Administrative Record. Question 5. A description of the work location is required in the Soil Disturbance Review Plan. A map might not be included if the location description is sufficient, but maps or construction drawings are generally provided as part of the Contact Record documentation for clarity and simplicity.
23	*This Soil Disturbance Review Plan also applies to any onsite borrow source.* Broomfield strongly opposes using onsite borrow for fill material. There is an adjacent site DOE can use for borrow material. This approach and proposal contradicts the rationale and objectives of the City and County of Broomfield's Comments on ICs. This language	See the examples provided in response to Broomfield's specific comment 16, Questions 1-a, 1-b, and 2, above. DOE has also used fill materials from off-site. The RFLMA Parties believe it is best to decide on the source of borrow material when a specific project is proposed in a Soils Disturbance Review Plan.

No.	Comment	Response
	gives DOE the ability to excavate at depths greater than three feet throughout the COU. Justify why the regulators would increase the risk for complete pathways by allowing increased excavations at a depth greater than three feet? Broomfield requests the use of borrow material on site be prohibited. The modified language needs to be removed from the proposed language.	
24	Broomfield is very concerned about the lack of details in the Soil Disturbance Review Plan. If there is not agreement among the regulators, how will the process proceed? To ensure transparency and address public concern about the process, Broomfield requests the following actions be included in the proposed language for the Soil Disturbance Review Plan: 1. Provide interested public members with a copy of the proposed activities in conjunction with CDPHE and EPA prior to approval; 2. Provide the adherence to complying with the objectives and rationale of the ICs; 3. Once the Contact Record and Soil Disturbance Review Plan have been approved, ensure all documentation becomes part of the Contact Record and Administrative Record, and the information is provided to the local communities; 4. Ensure that DOE provides a map to the local communities, no less than annually, that identified all ICs activities, final surface contamination levels, if any, and final surface grade, and …(paragraph ends here in original).	Items 1–3. See the responses to common concerns 2 and 6. Items 3 and 4. See the response to Broomfield's specific comment 22, Questions 3–5, above.

No.	Comment	Response
25	The additional information requested above does not place any additional burden on DOE and would dramatically increase and enhance the public process between the communities and the RFLMA Parties. Per RFLMA, *Public participation is an important part of the CERCLA process. DOE invites the general public, special interest groups, and local government to participate early in the discussion Rocky Flats activities and the decision-making process.* We are not asking to be part of the decision-making process for the Contact Records; we are only asking to be informed of upcoming proposed activities prior to approval. Clarify if the above mentioned proposed language will be included in the final modification to the CAD/ROD and the RFLMA. Provide justification if the language is not incorporated in the modifications.	See the response to Broomfield's comment 24, above.
26	8. Institutional Controls for the Central Operable Unit Table 4 Rather than duplicate our comments of the proposed changes to the ICs for the Proposed Plan, Broomfield's comments for the proposed language in Table 4 of the RFLMA are identical to the Regulatory Status Table 1. Clarification of IC Descriptions section of this letter above.	Comment noted.
27	Closing Remarks Institutional controls are a necessary part of the remedy at the Rocky Flats site due to the complexity of contaminants and the site features. Leaving residual contamination onsite as part of the remedy involved uncertainties associated with the contaminants future form and migration. Broomfield supported Alternative 2 of the 2006 Proposed Plan based on the additional layering of protection from residual contamination in the soils, underground features, and trenches.	Comment noted.

No.	Comment	Response
28	Codifying the ICs, which identified prohibited activities within the CAD/ROD and the RFLMA, ensured the remaining risks via completed pathways from subsurface to surface would not be allowed. The language in the CAD/ROD and the RFLMA provided additional protection for downstream communities to protect surface water quality in addition to the terminal ponds which could contain contaminated water. The RFLMA Parties are now proposing to remove the two key layers of protection for our community. Broomfield is concerned since closure, plutonium 239/240 and uranium contaminants have been observed intermittently in surface water above the surface water standard upstream of the terminal ponds. To increase excavation below depths of three feet would increase the potential for risk and exposure to human health and the environment.	ICs continue to provide additional layers of protection. The clarifying changes to IC descriptions for clarification is protective of human health and the environment because it ensures, through the RFLMA regulatory review and approval process, that: • Workers will not be inadvertently exposed to subsurface contaminated features without appropriate precautions. • Subsurface contamination will not be mobilized and cause unintended exposure to humans or the environment. • Sufficient soil cover over these features is maintained. • Engineered components such as treatment systems and monitoring wells will not be damaged.
29	Institutional controls are only as reliable as the legal and management system that support them. The proposed language is too vague and there are uncertainties associated with the implementation of the ICs. Broomfield considers this modification as a step that increases the potential risks rather than providing greater protection. Broomfield has still not seen a formal contingency plan to contain contaminated water on site and the current modification to the ICs increases our concerns regarding the long-term stewardship at the site.	The RFLMA Attachment 2 modification is more than sufficient to implement the clarifications to the ICs in the CAD/ROD amendment. The “legal and management system” to ensure that requirements are met is robust and layered by the CAD/ROD, RFLMA, the CERCLA 5-year review and the environmental covenant mechanisms.
30	We appreciate the opportunity to comment on these two important documents. Broomfield has been actively involved with Rocky Flats activities for decades and will continue to be involved as a directly impacted community. We request that you address our comments individually and address our questions in response to comments for both the CAD/ROD and the RFLMA. We look forward to working together for a unified vision of long-term protection of human health and the environment.	The RFLMA Parties appreciate the active involvement of Broomfield during the cleanup and closure of the Rocky Flats Site as well as during this post-closure period. The RFLMA Parties also intend to continue working with Broomfield regarding activities at Rocky Flats.

No.	Comment	Response
Woman Creek Reservoir Authority (WCRA)		
1	The Woman Creek Reservoir Authority (WCRA), comprised of representatives from the Cities of Westminster, Thornton, and Northglenn, has serious concerns about the DOE Proposed Plan to amend the Rocky Flats Corrective Action Decision/Record of Decision (CAD/ROD) institutional controls (ICs). Specifically, we believe these proposed changes drastically weaken cornerstone protections put in place by careful design in the process of accelerated site closure. WCRA believes the proposed changes go beyond the DOE-stated need to allow for implementation of the remedy and site maintenance activities. WCRA made a statement to this effect at the public meeting on June 16, 2011. This letter provides WCRA's written comments for consideration by DOE, CDPHE, and EPA in the final decision regarding this proposed amendment. On June 3, 2011, DOE released a Proposed Plan for Amendment of the CAD/ROD (Proposed Plan) and corresponding sections of the Rocky Flats Legacy Management Agreement (RFLMA).	Comment noted.
2	This plan detailed the following three proposed modifications to the original CAD/ROD: 1. The Proposed Plan would relax specific limits defined in the ICs by adding an option for a regulatory review and approval process for actions outside the limits. Specifically, the following current CAD/ROD IC limits could be circumvented through a regulatory review process: a. Prohibition of excavation, drilling, and other intrusive activities below a depth of three feet, b. Requirements to restore soil to pre-existing grade for any soil disturbances, and c. Protection of engineered components of the remedy.	See the response to common concern 1. The CAD/ROD amendment does not relax limits, but provides clarification by changing the description of certain ICs to meet the objective and rationale of the IC. It formalizes a review process that has been applied since the CAD/ROD and RFLMA were issued. Previous approved work subject to ICs, such as described in the four examples provided in the Proposed Plan for the amendment of the CAD/ROD, has been conducted safely. The work has not resulted in any conditions that negatively impact the protectiveness of the remedy while effectively accomplishing the goals of the work to properly manage the land in the Central OU.

No.	Comment	Response
	2. The Proposed Plan would amend the current environmental covenant to reflect these changes or replace that environmental covenant with a restrictive notice. 3. The Proposed Plan would remove the current *CAD/ROD* requirement for a formal amendment process for any future modifications to ICs in the *CAD/ROD*. DOE indicates in the Proposed Plan that these changes are necessary to implement the remedy and maintain the site, and that these changes are merely clarifications of the original intent of the *CAD/ROD* document. To illustrate the need for these changes, DOE cites four specific examples of necessary site maintenance activities that have been performed that could be strictly interpreted as having violated the current *CAD/ROD* ICs. WCRA has no interest in preventing DOE from implementing the remedy and maintaining the Rocky Flats Site; however, these proposed modifications loosen IC protections well beyond the stated need. In the following subsections, WCRA presents its specific concerns with the planned modifications to the original *CAD/ROD* and associated changes to RFLMA and the environmental covenant.	
3	Weakened Cornerstone CAD/ROD Protection The selected remedy/corrective action selected for the Rocky Flats Site in 2006 was Alternative 2, which consists of three parts: 1. Environmental Monitoring, 2. Institutional Controls, and 3. Physical Controls. As such, the institutional controls are one part of a three part remedy selected for Site closure and are therefore an integral part of the remedy.	The CAD/ROD amendment does not weaken any cornerstones of the remedy—the remedy is not changed. See the responses to common concerns 6, 7, 8, and 9. The RFLMA Attachment 2 modification is more than sufficient to implement the ICs as clarified in the CAD/ROD amendment. The legal and management system to ensure requirements are met is robust and layered by the CAD/ROD, the RFLMA, the CERCLA 5-year review and the environmental covenant mechanisms.

No.	Comment	Response
	The institutional controls and the environmental covenant were put in place in the *CAD/ROD* as strong, clear, and permanent protections, recognizing the contamination and uncertainties remaining at the Site following the accelerated cleanup and closure. Specifically, the *CAD/ROD* states: "ICs were added to increase the protectiveness of the remedy, because: • The Comprehensive Risk Assessment (CRA) did not evaluate an unrestricted scenario but instead evaluates potential risk to the anticipated future user. The assumptions used in tile CRA human health calculations need to be embodied in an IC. • If residual soil contamination is disturbed, erosion could cause the contamination to migrate to surface water, which could result in some surface water sample results above surface water standards at some surface water monitoring locations. • There are no prohibitions on affecting the engineered aspects of the remedy." The considerations described by these three bullets quoted from the *CAD/ROD* remain unchanged, yet the specificity and strength of the ICs would essentially be removed by the proposed changes and replaced by a case-by-case review by CDPHE. CDPHE review is not a guaranteed protection. All review agencies are inherently imperfect; funding changes occur; priorities change; staff changes, etc. The original ICs were drafted with specificity to be a strong line of protection. To this end, language from the institutional controls was used to create a binding and permanent restrictive covenant document that was recorded in the records of the Jefferson County Clerk and Recorders Office at Reception No. 2006148295. This action created servitude on the property for the benefit of the State and the public it serves including downstream entities such as the Woman Creek Reservoir Authority. The original ICs were not designed to allow for any action as long as approved by regulators. Rather, they were designed to permanently preclude certain activities on the property.	

No.	Comment	Response
	The CAD/ROD states: “IC's are designed to provide the mechanisms that permanently [emphasis added] maintain the completed actions." The CAD/ROD further recognizes that: “In the very long term, ICs may fail. The environmental covenant will increase the long-term permanence of the ICs.” The WCRA primary concern is that there is no long-term and permanent protection in allowing any action, as long as it is approved by another entity.	
4	Relaxed Requirements for Future IC Modifications in CAD/ROD In addition to the proposed changes to IC lanb'1.Iage in the CAD/ROD, the proposed plan also specifies removal of the current requirement to formally amend the CAD/ROD in the event of future changes to the ICs. WCRA does not see any basis for this proposed additional weakening of the ICs in the CAD/ROD. The EPA guidance on amending RODs (NCP (*300.435(c)), in EPA's ROD Guidance, Section 7) has been in place since 1999 and was therefore in place at the time of completion of the CAD/ROD in 2006. That guidance indicates that formal amendment of the ROD is only required for post-ROD changes classified *fundamental changes*, the most drastic change category of the three categories. Therefore, the specific provision in the CAD/ROD requiring formal amendment to modify ICs was purposefully written to be more restrictive than the existing guidance and provide additional protection of the ICs, recognizing their important role as part of the remedy. From the Proposed Plan, it is not clear why DOE is proposing to remove this requirement for formal amendment of the CAD/ROD for future changes to ICs. When asked at the public meeting on June 16, 2011, DOE indicated they did not currently anticipate any future changes to ICs beyond the specific edits discussed in the previous section.	See the response to common concern 1.

No.	Comment	Response
	Removal of the requirement for a formal amendment process will not only make it easier to further weaken the ICs, but will also limit the requirements for public involvement in the process. Specifically, a public comment period is only required in the case of a formal amendment to the ROD. Changes to the ROD not categorized as *fundamental changes* do not require a public comment period. DOE does indicate that they will follow RFLMA requirements for public comment "in effect at that time." Currently, RFLMA requires public comment for amendments to RFLMA only if the change is deemed to be "significant" (RFLMA, Part 10, Item 66). The approach to defining whether or not a change is significant is not detailed in RFLMA and is presumably in the hands of the RFLMA parties (DOE, CDPHE, and EPA), the same parties who have jointly proposed these IC changes and may propose future changes.	
5	In Summary, WCRA does not believe that the proposed changes to the CAD/ROD (and associated changes to RFLMA and the environmental covenant) merely clarify the original intent of the ICs, as DOE suggests. Instead, we see these proposed changes as drastically weakening cornerstone protections put in place by careful design in the process of accelerated site closure. The WCRA is well-informed on Site technical and regulatory issues and has been actively engaged in the public involvement process since the Woman Creek Reservoir was constructed nearly 15 years ago. WCRA continues to work collaboratively with DOE, CDPHE, and EPA, and we have no desire to prevent DOE from implementing the remedy and maintaining the Rocky Flats Site; however, we feel these modifications are unnecessarily broad and go beyond "clarification of original intent." WCRA requests that DOE, CDPHE, and EPA revise this Proposed Plan to limit the clarifying language to the stated intended purpose: implementation of the remedy and performance of necessary site maintenance activities.	The RFLMA Parties appreciate the active involvement of the WRCA during the cleanup and closure of the Rocky Flats Site as well as during this post-closure period. The RFLMA Parties also intend to continue working with the WCRA regarding activities at Rocky Flats.

No.	Comment	Response
6	Further, WCRA strongly requests that DOE, CDPHE, and EPA retract the portion of this proposed plan that would remove requirements for formal amendment to the *CAD/ROD* in the event of future changes to ICs. In addition to these specific requests, to facilitate response to the comments, WCRA would appreciate response to the following questions: 1. Given the DOE-stated need for this *CAD/ROD* amendment: to implement the remedy and manage the Rocky Flats Site, why is it necessary to also remove the requirement for formal amendment to the *CAD/ROD?* 2. Can DOE develop language for the *CAD/ROD* amendment that is more specific about only allowing activities that relate to implementing the remedy and safely managing the Site" 3. What future activities are currently planned/anticipated that would follow this proposed process? 4. How will the determination be made as to whether a proposed activity is significant under RFLMA and would therefore trigger public involvement? 5. How is this merely a clarification of the original intent of the ICs when it removes almost all specificity in the ICs, in exchange for a regulatory review process?	Questions 1, 2, and 4. See the responses to common concerns 1 and 2. Question 3. The only activity currently planned/anticipated is the dam breach work to notch the dams for Pond A-3 and the Present Landfill. This work is described in the *Surface Water Configuration Environmental Assessment and Finding of No Significant Impact* (DOE/EA-1747-LMS/RFS/S06335, June 2011) and in Contact Record 2010-02, both of which are posted to the Rocky Flats website. Question 5. The RFLMA Parties disagree that specificity is removed. In fact, the CAD/ROD amendment and RFLMA Attachment 2 modification formalize the detailed process that has been used since the CAD/ROD and RFLMA were issued. Also see the response to WCRA comment 2, above.
City of Westminster		
1	The Rocky Flats Legacy Management Agreement (RFLMA) Parties comprised of the U.S. Department of Energy (DOE), the Colorado Department of Public Health and Environment (CDPHE) and the U.S. Environmental Protection Agency (EPA), jointly released the proposed modification for public comment on June 3, 2011 with the expressed intent to "clarify the ICs (institutional controls) in a CAD/ROD amendment because of public comments questioning the implementation of ICs related to soil disturbance and excavation activities."	Comment noted.

No.	Comment	Response
	In addition to CAD/ROD modification, the proposal also includes actions to modify RFLMA, formalize the Soil Disturbance Review Plan and revise the Environmental Covenant for the Rocky Flats Central Operable Unit (COU). Collectively, the proposed actions are referred to herein as the "Proposed Plan." Westminster remains in opposition to the Proposed Plan modifications and provides the following comments:	
2	The Proposed Plan relies on certain objectives and rationales found in the *CAD/ROD* as the justification for revising the specific wording of several ICs. In doing so, the RFLMA Parties place greater weight on previously obscure objective and rationale language than on the specific IC language itself. Westminster is frankly troubled by this approach and notes that by DOE's prior admission, the objectives and rationale were added only as non-significant details (footnote - Rocky Flats Stewardship Council Board Meeting Minutes -Monday, October 2, 2006 Briefing/Discussion on CAD/ROD and Post-Closure Regulatory Agreement John Rampe from DOE-Rocky Flats ... reported that there are no significant differences between the Proposed Plan and the CAD/ROD, but additional details were added in some areas. The document is posted on the Rocky Flats website. Some of the additional details include objectives, rationale and implementation of institutional controls) in the approved *CAD/ROD* without any opportunity for public comment. Moreover, this same "objective and rationale" language was completely omitted from other legally enforceable documents -namely RFLMA and the Environmental Covenant (EC). The Parties now propose to update all three documents *(CAD/ROD*, RFLMA and EC) to include revised language for three ICs along with the objective and rationale for all seven ICs. Even more troubling is the admission that, since closure, DOE and CDPHE have been relying on the same objective and rationale language to perform Site activities that violate the specific IC language.	DOE, CDPHE, and EPA are not changing the objective and rationale of any IC or the weight given to these aspects of IC implementation. These details were added to the CAD/ROD after each IC because they underpin the intent. The objective and rationale for each IC was distributed throughout the documents leading up to the CAD/ROD. The CAD/ROD simply consolidated them to assist in the interpreting the language of each restriction. The RFLMA Parties did not prepare the minutes mentioned, and do not agree with the commenter's characterization of the objective and rationale as "non-significant details". The CERCLA IC guidance, *Institutional Controls: A Guide to Planning, Implementing, Maintaining and Enforcing Institutional Controls at Contaminated Sites* (OSWER 9355.0-89, EPA-540-R-09-001, November 2010), Interim Final, Section 4.2, "Drafting IC Language in the Selected Instruments," states: "Vague or inappropriate IC language can lead to confusion and conflict in establishing effective ICs, and in some cases, may result in the creation of unintended rights and/or obligations. [EPA] Regions generally should ensure that the IC language in the instrument clearly states the IC objectives (e.g., restrict well drilling) and their relationship to the response action (e.g., prevent human consumption of contaminated ground water)." (The version of this guidance at the time of the CAD/ROD had the same recommendation.) DOE, EPA, and CDPHE agree that the CAD/ROD clarification is appropriate to resolve the potential for misinterpretation of the ICs in the future.

No.	Comment	Response
3	Westminster agrees with EPA's recommendations (OSWER 9355.0-74FS-P) regarding the need for layering of institutional controls in order to protect human health and the environment at sites where cleanup did not result in unlimited use and unlimited exposure. Rocky Flats is clearly one such site. In fact, the ICs selected for the Site following accelerated cleanup were intended to be permanent and protective and apply to the entire COU in perpetuity. The ICs at Rocky Flats overlap by design and were intended to be implemented in series to ensure both short-and long-term effectiveness of the remedy. Restrictions on soil disturbance on the entire COU, whether surface or subsurface, eliminate the possibility of opening new pathways for transmission of site contamination to groundwater and eventually to surface water. While it is a fact that contaminated structures remain three feet or more below the surface, so do contaminated soils and groundwater. All sources of contamination must remain isolated from potential pathways to surface water.	ICs continue to be an integral component of the remedy, and they will be in place unless conditions in the Central OU change, such that the controls may be removed. As noted in the response to common concern 9, it is unlikely that will ever happen. See the response to common concern 9. The CAD/ROD amendment provides clarification by changing the description of certain ICs to meet the objective and rationale of the IC. It formalizes the process that has been in place since the CAD/ROD and RFLMA were issued. Previous approved work subject to ICs, such as described in the four examples, has been conducted safely, has not resulted in any conditions that negatively impact the protectiveness of the remedy, and has effectively accomplished the goals of the work to properly manage the land in the Central OU.
4	As a neighboring community, Westminster has relied on the specific ICs and the related Environmental Covenant as added protection since closure. To now learn that specific language found in the ICs and related Environmental Covenant prohibiting specific activities at the Site has been ignored or interpreted away using certain objectives and rationale is flatly unacceptable. The exact wording of the ICs that were included in the original version of the Proposed Plan in 2006 following appropriate public comment were put there for a reason and the RFLMA Parties' attempt to dismiss the specific IC language in favor of more flexible objective and rationale language is simply unacceptable. At a minimum, Westminster believes the RFLMA Parties must first engage the public in a formal process for addressing the specific wording of all seven ICs, objectives and rationales before adopting any changes to the ICs.	As discussed in the *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision*, the need for the clarifying changes to the IC descriptions and for formalizing the Soil Disturbance Review Plan review and approval process was triggered by DOE's proposal to do non-remedy-related work in the Central OU. The ICs were not intended to preclude non-remedy-related work, but to ensure such work would not impact the protectiveness of the remedy. The RFLMA Parties do not believe there is a need to address specific wording of all seven ICs at this time to make the IC clarifying changes.

No.	Comment	Response
5	*Public Participation* In addition to modifications to the ICs, the RFLMA Parties are proposing more changes to the CAD/ROD that would effectively eliminate future public comment. Specifically, the proposal to eliminate the requirement for a formal CAD/ROD amendment for any future modifications to the ICs is deeply troubling to Westminster. In basing the requirement for public review and comment on the RFLMA requirements, the public will be virtually eliminated from most changes that currently would require an amendment to the CAD/ROD. In fact, the vast number of changes and importance of the issues included in this Proposed Plan would not rise to the level of requiring a CAD/ROD amendment if this proposal is approved. Westminster, along with other engaged stakeholders, has been actively participating in Rocky Flats working groups and technical review committees for well over a decade. We have contributed countless hours toward providing the regulatory agencies with a secondary perspective on proposed site activities. Eliminating cooperative discussions and the opportunity to provide comment on future changes to an essential component of the remedy will erode the collective credibility of the regulators. CDPHE and EPA will be held fully accountable for any site activities they approve as a result of implementation of this proposal as the plan states: "The proposed IC clarification is protective of human health and the environment because it ensures [emphasis added] through the RFLMA regulatory review and approval process: ... subsurface contamination will not be mobilized and cause unintended exposure to humans or the environment." Westminster encourages the RFLMA parties to withdraw the proposed change to eliminate the requirement for a formal CAD/ROD amendment for all future changes to the ICs.	See the responses to common concerns 1 and 2. The RLMA Parties appreciate the efforts of Westminster and the other engaged stakeholders in working with them on issues related to activities at Rocky Flats.

No.	Comment	Response
6	*Long-term Stewardship* The Proposed Plan amendments clearly relax the protections for long-term stewardship of the Site, permitting activities that would violate the original ICs as long as there is regulatory approval. These proposed changes go far beyond DOE's need to implement the remedy and maintain the Site. Coupled with the Colorado Water Quality Control Commission regulations that allow for "less stringent" water quality standards at CERCLA sites, surrounding communities are concerned about future actions. Budget constraints drove the accelerated cleanup actions and now dictate the attempts to reduced operations and maintenance commitments. Without a contingency plan in place in the event "assurances" fail, public health and the environment are at risk. Westminster asserts that the language in the *CAD/ROD* was intended to be specific and restrictive and, thereby, protective of the remedy. A great deal of thought and many well-respected scientists, engineers, attorneys and lay people provided input to craft the original Proposed Plan in 2006 to truly ensure that the uncertainties that remain from the accelerated cleanup were adequately addressed in institutional controls. DOE has indicated in public meetings that they cannot recall the basis for crafting the original IC language or the inclusion of the requirement for a formal *CAD/ROD* amendment for changes to ICs. This failure to recall speaks volumes and clearly demonstrates the need and importance to fully document decisions going forward. Regulations and guidance change, regulatory staff change, interpretations change, standards change, memories fade, yet the contamination and the risk remain.	See the response to common concerns 1 and 6. The RFLMA Parties disagree with the observation that budget constraints drove the accelerated cleanup actions and dictated reduced operations and maintenance. The accelerated action approach was a responsible, cost-effective project to reduce and eliminate the many risks posed by hazardous substances at Rocky Flats. The approach resulted in site conditions that provide adequate protection of human health and the environment at the lowest end of the CERCLA acceptable risk range. Alternative 2, which added ICs and physical controls to Alternative 1, was selected because it added an extra layer of protection to prevent land use that could impact the protectiveness. The CAD/ROD amendment and RFLMA Attachment 2 modification do not change the remedy and continue to provide the extra layer of protection in the selected remedy. Regarding a contingency plan, RFLMA Attachment 2, Section 6.0 “Action Determinations”, provides for evaluation of site conditions based on required remedy monitoring and surveillance. It provides for development of mitigating action plans for reportable conditions, if such actions are determined necessary. CDPHE approves action mitigation plans in consultation with EPA, but DOE is not precluded from undertaking timely mitigation once a reportable condition has been identified.

No.	Comment	Response
City of Westminster—Specific Comments		
1	IC-2 - The current version of IC-2 reads: *"Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, except for remedy related purposes and routine or emergency maintenance of existing utility easements, in accordance with pre-approved procedures."* This language for the IC statement was carefully crafted by the authors for a number of reasons, one of which is stated in the rationale for the IC: contaminated structures remain in certain areas of the COU. However, the ICs apply to the entire COU and there are additional reasons why the specific language was selected: • Subsurface contamination other than structures remains; • The Comprehensive Risk Assessment did not evaluate risk below three feet; • The allowable soil action limits vary based on depth, and • Non-remedy related components on the COU were not characterized. The proposal to change the specific IC-2 language will allow excavation below three feet for any purpose provided CDPHE approves the action. Westminster strongly opposes broadening of IC-2 to allow for excavation below 3 feet for non-remedy related purposes.	See the response to common concern 7. The CAD/ROD amendment does not relax limits, but provides clarification by changing the description of certain ICs to meet the objective and rationale of the IC. It formalizes the process that has been in place since the CAD/ROD and RFLMA were issued. Previous approved work subject to ICs, such as described in the four examples in the *Proposed Plan for Amendment of the Corrective Action Decision/Record of Decision*, has been conducted safely, has not resulted in any conditions that negatively impact the protectiveness of the remedy, and has effectively accomplished the goals of the work to properly manage the land in the Central OU. Risk from exposure to residual contamination in surface and subsurface soil and groundwater was evaluated in the CRA, but the remaining concrete and subsurface infrastructure that were not fully decontaminated were not evaluated in the CRA. There was no way to model this exposure pathway for the CRA, and the exposure would occur only if items are uncovered in the course of performing management and maintenance activities. This is subject to DOE's work planning and authorization procedures, which includes hazard evaluation and work controls.
2	IC-3 - The current version of IC-3 reads: *"No grading, excavation, digging, tilling, or other disturbances of any kind of surface soils is permittee/except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) approved by CDPHE or EPA. Any such soil disturbance will restore the soil surface to preexisting grade."* The proposal to change the specific IC-3 language will allow for surface excavation (06 inches) provided it is in accordance with an	Approval would be required for excavation that does not restore the surface to pre-existing grade or higher. The *Erosion Control Plan for the Rocky Flats Property Central Operable Unit*, DOE-LM/1497-2007, requires (1) evaluation of runoff that could impact surface water and (2) implementation of controls that must be maintained until success criteria are met.

No.	Comment	Response
	approved erosion control plan. The change could be interpreted to mean that CDPHE approval using the Soil Disturbance Review Plan is only required if the soil disturbance will not restore the soil surface to the preexisting grade. Westminster requests clarification of this interpretation. Is there a limit on the height that the surface could be elevated above preexisting grade? There is a concern about the potential for rerouting surface water flows.	The RFLMA Parties recognize that rerouting run-on and runoff to achieve the goals for erosion control have the potential in some circumstances to cause migration of contamination. Potential migration of contamination due to any changes in surface elevations is evaluated through the monitoring required under RFLMA.
3	IC-7 - The current version of IC-7 reads: *"Activities that may damage or impair the proper functioning of any engineered component of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark, are prohibited. "* The proposal to change the specific IC-7 language will allow DOE the freedom to essentially re-engineer the engineered components of the remedy without public comment. The proposed language allows for "modification, removal, replacement or relocation" of any engineered component of the remedy, which includes groundwater treatment systems, monitoring wells, landfill caps and surveyed benchmarks. The requirement for regulatory review of such actions was not added to this IC in the proposed plan as it was for the other ICs. As such, why is consultation and approval by CDPHE and EPA not required for these actions?	The CAD/ROD amendment clarifies that the decisions regarding proposals for soil disturbance or excavation might involve or have an impact on engineered components that must meet the objective and rational of IC-7. Also, the change to the description of IC-7 recognizes that decisions related to modification, removal, replacement, or relocation of engineered components is subject to RFLMA Attachment 2 action determinations, which means they require regulatory review and approval. RFLMA consultation is required for proposed work that is subject to ICs. See the response to common concern 2.
4	4) Soil Disturbance Review Plan - The RFLMA Parties are proposing to codify the Soil Disturbance Review Plan (SDRP) in revision to RFLMA Attachment 2. DOE and CDPHE have been utilizing this review process to permit actions that violate institutional controls since closure. The SDRP applies to excavations related to IC-2 and IC-3. Westminster contends the plan is inadequate as currently written. Please provide responses to these issues: 1. Define vicinity.	Question 1. “Vicinity” is the general location of the proposed work to determine what features are in the proximity. This allows for review of the work in relation to former IHSS’s and RFLMA Attachment 2, Figure 3, “Subsurface Features—Remaining Infrastructure,” and Figure 4, “Subsurface Features—Representative Pits and Trenches.” Question 2. CDPHE’s evaluation and approval is documented in the Contact Record and/or correspondence documentation.. Question 3. It is not necessary because RFLMA Attachment 2, Table 4, provides the IC language. CDPHE has enforcement authority for requirements in RFLMA Attachment 2.

No.	Comment	Response
	2. Does the SDRP document CDPHE's assessment that the project meets the rationale and objects of all institutional controls? 3. Why is the specific IC language not included in CDPHE's assessment of the project? 4. Exactly how does the SDRP "ensure" the statement on page 11 that reads: "Subsurface contamination will not be mobilized and cause unintended exposure to humans and the environment." 5. Explain the need to characterize subsurface areas that "are or may be contaminated" if the previous bullet is true. Explain the characterization procedure. 6. Will non-RFLMA monitoring of soils and/or water be included following projects which require characterization and/or modify the existing surface material or grading? 7. Why is surface water not considered when applying the SDRP for IC-3? 8. Will the SDRP documentation include pre-and post-activity elevations?	Question 4. See the response to common concern 7. Question 5. Sufficient process knowledge and sampling data exist to characterize the soil. CDPHE considers the proximity to subsurface structure and IHSSs when reviewing proposed activities. See the response to common concern 7. Depending on the characterization information, additional sampling or field monitoring may be required to ensure worker or environmental safety. Question 6 and 8. Non-RFLMA monitoring and follow-up evaluation requirements after the projects could be (and has been) an outcome of the RFLMA consultative process. Question 7. It will be considered. It is the objective of IC-3.
5	Public dissemination of an ongoing summary table of elevation changes would be beneficial for both the regulators and public to track the historical Site changes relative to new proposed projects. The 3 foot minimum depth will become a moving target over time. Westminster believes the SDRP must be standardized for consistent application of the process. Further, Westminster believes complete documentation of the SDRP, including the basis for approval actions, must be included in the Contact Record to ensure CDPHE can defend the decision to approve proposed activities. Westminster requests that activities requiring SDRP be delayed for two business days following notification to the public prior to start of the activity to allow the public the opportunity to review the approved activity.	See the response to common concern 2. Information regarding the changes in grade is provided in the Contact Record (or attachments thereto), which is posted to the Rocky Flats website. Information requirements for the closeout of the Contact Record are also included in the Contact Records, and the status of all Contact Records is discussed in the RFLMA Annual Reports, at a minimum. The annual site inspection also evaluates whether significant erosion or precursors to significant erosion are evident, and the results are included in the RFLMA Annual Reports. These documents are also included in the post-closure Administrative Record.

No.	Comment	Response
6	Regulatory Inconsistencies - CDPHE, through the Soil Disturbance Review Plan, is responsible for ensuring that the proposed project meets the rationale and objectives of the institutional controls. Westminster believes that based on the proposed changes to the ICs, those assurances are inherently weakened, putting the public and the environment at risk. In the current CAD/ROD, per IC-2, excavation, drilling, and other intrusive activities below a depth of three feet are prohibited. The CAD/ROD rationale for this is to eliminate the possibility of unacceptable exposure. Changing the IC to allow for activities below three feet with regulatory approval no longer "eliminates" the possibility of unacceptable exposure, and instead hinges on the definition of "unacceptable" as well as remaining uncertainties about the exact presence and extent of subsurface contamination. Similarly, the rationale for IC-3 indicates that the specific CAD/ROD prohibition of permanent modifications to pre-existing grade was designed to minimize the possibility of such disturbances impacting surface water. Opening this IC to allow for new soil grades with regulatory approval increases the potential for new contaminant migration pathways.	The CAD/ROD amendment does not weaken limits, but provides clarification by changing the description of certain ICs to meet the objective and rationale of the IC. It formalizes the process that has been in use since the CAD/ROD and RFLMA were issued. Previous approved work subject to ICs, such as described in the four examples, has been conducted safely, has not resulted in any conditions that negatively impact the protectiveness of the remedy, and has effectively accomplished the goals of the work to properly manage the land in the Central OU.
7	Conclusion - For the reasons set forth above Westminster remains in opposition to the Proposed Plan modifications. The City understands that ongoing maintenance and repair of the engineered systems may be required; however the proposed amendments could permit changes to the Site well beyond remedy maintenance needs and also severely restrict public input about those decisions. The current version of the CAD/ROD is more protective of human health and the environment by ensuring long-term effectiveness of the remedy and restricting irreversible disturbances of the Site that could have unintended consequences.	See the responses to common concerns 1, 2, and 7.

No.	Comment	Response
8	We encourage oversight agencies to remain accountable to the public and carefully reconsider the proposed changes to the CAD/ROD, RFLMA and EC. Further technical discussions of the potential impacts of the proposed actions are needed. We welcome the opportunity to participate in development of revised language that will meet the intended and limited purpose for the proposed amendments.	Comment noted.

Information submitted in comments by Susan D. Elofson-Hurst

ROCKY FLATS PARK AND RECREATION DISTRICT?
BUFFER ZONE/OPEN SPACE: A WALK ON THE WILD SIDE An Environmental Information Network (EIN), Inc. Position Paper

The U.S. Department of Energy (DOE) and the new Rocky Flats Plant (RFP) contractor Kaiser-Hill are promoting the premature release of 2,000 acres of the North and South Rocky Flats Buffer Zone lands for open space/public use (the buffer was intended to protect the public, not be used by the public) and development which includes: proposed golf course, open space with trails "an environmental camp", industrial or commercial use, and possibly residential housing (City of Arvada). There have been claims of illegal dumping and clandestine waste burial by RFP employees in these areas for many years. Little assessment or cleanup has occurred thus far to characterize these areas, and may never happen. The following excerpts from the 1986 RFP Radioecology & Airborne Pathway Report illustrate some of these RFP contamination problems:

"…Major wind storms of 100 to 130 mph apparently broke up the soil crust and resulted in plutonium (Pu) dust resuspension increases of one & two orders of magnitude respectively…" (Environmental Sciences Group 1984) Constant high winds buffet the RFP area regularly between 40 - 100 mph. "…The major sources of Pu was not areas of bare soil (5% of the total), but rather areas of prairie grass. A laser beam was used in the form of a wide ribbon skimming the soil surface to study Pu dust resuspension from bare soil…" "Resuspension of soil/dust started at 30 to 35 mph wind speed. Grass was found to release Pu down to wind speeds of 22 mph, whereas bare, rather crusty soil only released Pu particles at wind speeds of 40 mph or more. It was felt that grass blades contributed more to airborne Pu activity than litter, since litter is not always accessible to wind…" (Environmental Sciences Branch 1981a) "…Periods of low winds and extended periods of rain did not reduce Pu resuspension. Pu resuspension only stopped with complete snow cover…" (Application Technology 1986).

The Dust Transport-Wind Blown and Mechanical resuspension study has shown that "respirable (Pu) dust particles…do not settle appreciably…70 - 80% of Pu-239 is attached to larger dust particles and statically attracted to litter…grass plus litter has seven (7) times the activity of grass only…Based on laser light beam observation of resuspension processes…Pu in soil was resuspended by wind, from grass, litter, and rain splash." This poses an inhalation health risk (i.e.: lung cancer) from Pu alpha particles to anyone nearby, or in the path of particle transport.

In May of 1991, a haystack fire burned for several hours across the street from the RFP's east entrance - 1,500 feet east of Indiana Street. During this fire, heavy black smoke drifted into nearby Walnut Creek (over the hill) and Countryside residential neighborhoods. After being prompted by citizen concerns, the Colorado Department of Public Health and Environment (CDPHE) tested the ash from this fire, then issued a CDPHE Special Report concluding the ash from the fire had Pu concentrations that were 217.5 times "natural" background. No medical follow-up was done on the children that set the fire, or the fire fighters, and the City of Broomfield would not return calls. This fire occurred off of the Rocky Flats site on public lands impacted by radioactive contamination that has migrated and redistributed in the environment.

Aerial Gamma Surveys have been conducted with low-flying aircraft and helicopters with High Purity Germanium Detectors (HPGe) mounted. The 1989 survey revealed high levels of gamma radioactivity emanating from the buildings on both the "cold" and "hot" sides of the Rocky Flats Plant. This is shown by the heavy lined contours with letters marking ranges of gross gamma radioactivity measured between 4,379 disintegrations per minute (dpm) to 106,560 dpm. The Americium (Am) [Note: Plutonium "daughter" decay product] specific isotope measurement window showed 27 to 20,460 dpm. The Am is seen migrating off the 903 Pad (Pu contaminated lathe oil barrel burial site) to east toward Indiana Street. Contaminated waste areas on land in and around the RFP also show radiation hot spots. Complete testing and identification for alpha, beta, and gamma emitting hot spots or dumping areas has not occurred. See Illustrations Below:

ROCKY FLATS LIABILITY DISCLAIMER

Environmental Information Network (EIN) suggests that the USDOE, USEPA, CDPHE, Bureau of Land Management (BLM), and US Department of Fish and Wildlife adopt this format to ensure informed consent for the public to limit liability for possible illness that could result from exposure to Rocky Flats generated contaminants. The Rocky Flats Nuclear Weapons Facility a/k/a "Rocky Flats Environmental Technology Site" has used, and/or will continue to use, or release the contaminants listed below to the immediate "downwind" area where it is picked up by high winds and redistributed (as illustrated on side one) until all plutonium reserves have been stabilized, daily maintenance operations have ceased, all radioactive and chemical product and waste have been removed, buildings have been dismantled, and cleanup is complete. Note: Lists are not all inclusive:

Radionuclide
Hazard
Target Organs for Absorption Effect
Plutonium (Pu)
238, 239, 240, 241 isotopes

Alpha, Gamma, Neutron radiation types
Soluble: Bone
Insoluble: Lung, GI tract, Gonads; Cancer, Blood Dysplasia, & Bone Marrow damage (Leukemia) Americium (Am) 241 Alpha, Gamma, Neutron Bone, Liver, Kidney; Cancer Uranium (U) 233, 234, 235, 238 isotopes Alpha, Beta, Gamma Lungs, Bone, Kidney; Cancer Tritium (H3) Beta, Gamma Bone, Thyroid; Cancer Cesium (Cs) 137 - (Recall critical mass experiments) Beta, Gamma Bone, Thyroid; Cancer Strontium (Sr) 90 (Ditto) Beta, Gamma Bone, Thyroid, Cancer

Alpha Particle Emitters: Poor body penetration; inhalation and ingestion health risk greatest.
Beta Emitters: External penetration; prolonged or chronic external or internal exposure dangerous.
Gamma & Neutron: Complete external & internal penetration; acute or chronic exposure very dangerous.

Chemicals
Usage & Main Hazard
How Absorbed;àHealth Effects
Atrazine
Herbicide; mutagen; (Birth Defects)
Lung, Dermal absorption; nervous system damage Carbon Tetrachloride Solvent, degreaser; carcinogen.(Ca) Lung, Dermal; Liver, Kidneys, Cancer, Birth Defects Methylene Chloride Solvent, Degreaser; carcinogen (Ca) Lung, Dermal; Liver, Brain, Cancer, Pulmonary Edema Methyl Ethyl Ketone (MEK) Solvent, Teratogen (Birth Defects) Lung, Dermal; Liver, Brain, Central Nervous System Trichloroethane (TCA) Solvent, Carcinogen (Cancer) Lung, Dermal; Lung, Liver, CNS, Ca, Birth Defects Trichloroethylene (TCE) Solvent, Carcinogen (Cancer) Lung, Dermal (SKIN) Abs.; Lung, Liver, CNS damage Toluene Solvent, Paint Stripper (B.Defects) Lung, Dermal; Bone Marrow, Leukemia, Brain Ca Ethylene & Propylene Oxide Plasticizer, Eqpt.Sterilization Carcinogenic, Mutagen, Teratogen; Ca & Birth Defects Asbestos Building insulation, Lab vessels, etc. Lung; Cancer, Asbestosis (fibers & inflammation-lung) Polychlorinated Biphenyls-PCB's Electrical Insulator (Birth Defects) Lung, Dermal; Lung, Liver, Fatty Tissue (Ca&B.Defects) Diatomaceous Earth Pu Filter Media & Mixed Waste Lung; Asthma Sx & scarring (silicosis) Many Tons Used Dioctyl Phthalate (DOP gas) HEPA Filter Testing, Plasticizer Lung, Dermal; Lung, Kidneys, Birth Defects Hydrogen Fluoride (HF) Pu Processing (Pulmonary Edema) Lung, Dermal, Teeth/Bone; Bone, Lung, Kidney, Liver, Skin, Immune System Compromised Hydrogen Peroxide (H2O2) Pu Precipitation & waste Lung; Pulmonary Edema, Birth Defects, Corrosive, Ca. Hydrogen Sulfide (H2S)
Pu Acid Leaching & waste
Lung, Teeth, Bone; P.Edema, CorrodesTeeth, BDefects Nitric Acid Pu Separation, Anion Exch.Columns Lung, Dermal; Pulmonary Edema, Corrodes Teeth Sodium Hydroxide (NaOH) Caustic for Pu/Mxd Waste Incinerator Lung; Pulmonary Edema, Corrosive Beryllium (Be) Pu Electroplating, Machining (allergy) Lung, Dermal; Lung

(Berylliosis), skin ulcers, Cancer Cadmium (Cd) By-Prod. from plastics, misc. process Lung, Dermal; Lung, Kidney, Anemia, Cancer, BDefects Chrome/Chromic Acid Electroplating, corrosive (carcinogen) Lung, Dermal; Skin rashes, Vision and Memory loss, Ca Lead (Pb) Shielding, Gloves, By-Prod, Radiation Degradation Ingestion, Inhalation; Memory Loss, Moodiness, Birth Defects Mercury (Hg) Electrorefining, ElectricSwitches, incineration By-Prod.
Lung, Dermal; Lungs (Edema), Kidneys, CNS, Memory, Birth defects Nickel (Ni) Electroplating, Incineration By-Prod.
Lung, Dermal; Lung-Asthma, Kidney, Skin Allergies, Ca Dioxins & Furans Plastics Incin., Thermal processes Lung, Dermal; Liver, CNS, Hormones, Birth Defects

Having reviewed the above:
_____ I Release Liability X I Do Not Release Liability - for the United States Department of Energy, United States Environmental Protection Agency, Colorado Department of Public Health and Environment, Kaiser-Hill (any GOCO contractor), U.S. Forest Service, U.S. Bureau of Land Management, or Colorado Dept. of Fish and Wildlife from liability for illnesses that could result from exposure to the contaminants listed above that may be present from Rocky Flats operations, accidents, and releases.

_____
Signature
Date

References: 1986 RFP Radioecology & Airborne Pathway Summary Report, By Rockwell International, Environmental Management (George Setlock, Manager & Frank Blaha, Report Coordinator); Haystack Fire May 21, 1996 --Dosimetry & Hazard (Cancer Risk) Assessment for Firemen Responding on Location; Environmental Sciences Branch, Progress Report for January-June, 1980, July 10, 1981a; Applications Technology Branch, "Progress Report, July 1982-July 1983" - RFP-3689 (11/29/84a), and July - December 1984 - RFP-3950 (6/25/81) Rockwell International; Boyns, P.K. 1990. An Aerial Radiological Survey of the USDOE's Rocky Flats Plant. Date of Survey: July 1989. Report No. EGG-10617-1044, UC-702. Las Vegas, NV: EG&G/EM (Remote Sensing Lab); Gerhard Langer, Dust Transport-Wind Blown and Mechanical Resuspension, July 1983 to December 1984, RFP-3914, UC-11 Environmental Control Technology and Earth Sciences, DOE/TIC-4500, Rockwell International, Rocky Flats Plant, Golden, CO, September 20, 1986. CRC Handbook of Chemistry and Physics, 63rd Edition. New Jersey Department of Health Right To-Know Hazardous Substance Fact Sheets.
Paula Elofson-Gardine and Susan Elofson-Hurst; Original Publication Date: April, 1992,

EIN Church Lawsuit Presentation for the CDPHE Rocky Flats Dose Reconstruction Project Health Advisory Panel - Attachments for EIN Church Lawsuit Presentation Prepared By Susan Elofson-Hurst and Paula Elofson-Gardine - September 10, 1997

Attachments to the Marcus F. Church v. United States of America, DOW Chemical Company, Rockwell International Corporation July 1978 Pre-Trial Statement, Plaintiff File

EIN Summary Key Points presentation (30pp) included the following:

- Rocky Flats Worker Union Meeting Transcript Excerpts
- EIN Minutes of Dr. Iggy Litaor presentation on Pu remobilization
- EIN NEWS article reprints: Findings of the Church Lawsuit
- Actinide Concentrations in Cattle Grazing Around the Rocky Flats Plant
- Rocky Flats and the Haystack Fire
- E-mail on depleted Uranium effects on Gulf War Vets
- Rocky Flats Worker Meeting Transcript Re: Buffer Zone Burial of Waste
- Attachment to EIN Key Points Summary Document of Church Lawsuit

(The following is an exact reproduction of pp 176 - 195 of the litigation file.)

Excerpts from the transcript of the Miscellaneous Plant Problems Meeting No. 94

Part I - April 3, 1970 between representatives of the Company and the Union also disputes Calkins' claim and provides a rare glimpse of DOW's attitude toward the burials and public disclosure of their activities (Exhibit 621).

Freuhauf: I have asked Jim (Willging) [Director of RF Research and Development] and Bill Lee to come in primarily to answer questions you may have concerning the burial of waste. I would like to ask that we keep these discussions confidential.

J. Kelly: [James (Jim) Kelly, President of the Rocky Flats local union]...We do want a record...

Fruehauf: I don't think we ought to tape it…

J. Kelly: We would like to have it taped; and Roberta make the minutes of the meeting; and then you and Bradley take that tape to security to be held, and no copies will be made. Is that satisfactory?
Fruehauf: That's fine. No objection. Our prime concern is we don't want information taken out of context. We (Joint Committee) are more knowledgeable about what it is all about. We want to be careful.

Kelly: ...We would like to know if it's here, what is in it and why it was put there. We do think from what we have heard that it's in violation of State, Federal statutes, and the AEC standards themselves. And this does bother us….

J. Ray: I guess what I've heard is that you've got a couple of mounds down by 91, two or three trenches inside the fence and one or two trenches outside the fence near the east guard shack…

Ray: The problem is in the mounds.

Lee: And whether that's a problem, I don't know, but I think politically, we should ----O.K. Any other questions on these? Now there may be four over here; they only show three, but there may be four. Somebody asked me about the planking. That planking is either buried in one of these troughs or ditches or in here; I'm not sure; but the planking from the evaporation plant is indeed buried in here.

J. Kelly: Well, speaking for damn sure at the moment in ignorance, but for the first time, Bill, and I'm not trying to be critical, for the first time since I've been at this plant, if there is Pu there-----

Lee: There is no Pu right here.

Ray: In the mound.

Lee: Let's get back to the mound in a minute. Are there any other questions on the stuff inside the cattle fence but outside the security fence? All right. Now, we have a mound here inside the limited area fence which is roughly located between the east security gate and 91, in which are the 1400 barrels --30-gallons and 55-gallon barrels. In that was coolant, the same kind of machine tool coolant that was stored on the pad around the storage area. I think there was--was it 80 barrels of that? Something like that; I think there were about 80 of the 1400. The majority of the barrels that were stored over there--are coolant and liquids-----.

Willging: Most is D38 chips. (EIN Note: D38 is Depleted Uranium 238 - DU is a radioactive metal)

Lee: Yeah, most of it was D38 chips which accounted for damned near a thousand of them, and there was 12 barrels of liquid from 71, (Pu) 89 barrels of liquid from 76, (Pu) and 40 barrels of liquid from 81 (EU). The balance was made up of solid waste from 41, two barrels--Labs, you know the Labs. This is old 41. And the rest was 91. You know when we were assembling the nickel carbonyl stuff. It was just the wipe off and waste paper, kimwipes and things like that mixed with concrete, you know, because we thought we were to ship them to Arco--a lot of you remember this-about 98% concrete and 2% paper. (EIN Note: Location numbers refer to RF Buildings numbered 771, 776, 881, 441, and 991. EU refers to enriched Uranium 235).

J. Kelly: How about many barrels, now, of this stuff that was on the pad?

Lee: We could say about roughly a hundred because some of it came from 71 when we were machining down there so you've got to combine the two.

J. Kelly: How deep is it?

Lee: What they did, they scooped it out, pushed the dirt over the top. They are all--I would think what--two feet deep, three feet deep? Something like that.

Willging: Well, there's two feet of cover over the top.

Lee: I saw a picture of it. I think we have the world's barrel capitol in Rocky Flats. Our plans are that we are going to dig this up, if weather permits, very carefully.

Willging: We are going to dig into it and see what the situation is. There's a problem. Is it better--Suppose those barrels have leaked, one of recovering some barrels or digging up a lot of contaminated dirt. Let me speak to another point here. This is not against any regulations. It's in a Federal Reserve. Now if you were going to bury contaminated waste as a private individual in the state, then you run into all the regulations; but the AEC licensed itself for burial grounds. So it isn't against regulations. Whether or not it's a good idea is another subject.

J. Kelly: I thought the regulations called that they had to be buried at Arco.

Willging: No, I asked Putzier this morning, and he said there were no guidelines or anything like this.

Lee: He has been hunting for them, Jim, and he can't find anything that would prohibit us from burying at Rocky Flats.

Willging: If we wanted to.

Lee: If we wanted to.

P. (Pat – brother of Jim) Kelly: This is why I made the statement yesterday that we better hope that everybody is pretty closed mouth because this one private outfit is getting into trying to establish a dump over by Lyons, plus we also know what the political climate is--…

P. Kelly: We don’t want a big razzmatazz deal, because I think we all know what would happen if this Environmental Committee (CCEI) got their fingers on this…

Willging: ...Suppose we go out and start throwing dirt every which way. There are two possibilities --one is that you’ve got to be very careful that some doesn’t fly over the fence while you’re doing that, and second you’re going to attract a lot of attention as to what the heck you’re doing there. The thing that we better do is to go down there with some monitors and dig in there and see what’s in there...

Walko: You know where they are?

Lee: Yeah, well, pretty close, and there’s roughly 141 out of the 144 that have liquid.

Willging: The darn thing’s right by the road, too, and anyone going up and down that road can see us messing around with that mound. Right now, we can claim it was Indians in there.

P. Kelly: Was there any calculations made about how long it would take these barrels to rust out?

J. Kelly: Not very long.

Lee: It depends on the contents.

J. Kelly: I know what some of the contents are, not very long.

Willging: We would have to guess that most of them probably leaked; that would be my guess.

Ray: Why were they buried?

Willging: It started in 1954, is that right?

Lee: Correct, and finished in ‘58. And we didn’t know what else to do with them, John.

Willging: You are not the only people surprised that we’ve got that there.

Ray: You know, Jim, I guess what kind of aggravates me more than anything is during the interim period of all the arguments with the CCIE (sic) and everything that was going on and there were people on the plant that know this thing was down there, why in the hell didn’t they at least let us know at the Committee

level and the AEC and probably you people that did know so at least we would all have an understanding that there was something here that we shouldn’t talk about. ***

Willging: ...Do you suppose we ought to sneak an article in the paper saying recovery operations have started if that is what we decide to do? Or should we wait until they found out and then admit we’re up to something? Which would be the smartest? The first thing we’ve got to do is to get in and see what the hell the situation is.

Lee: You brought up a point, Johnny that has concerned a lot of us; why in the hell didn’t we know about this. Well I’ve asked this several times, and the answer was--and I’m sure a very honest answer: "We thought that you knew. I thought everybody knew." Well maybe everybody did, but we didn’t realize what-

Walko: We probably don’t even know who it was who made the decision to bury the God damned stuff.

Lee: We can always blame it on Venable--he’s in Chile…

J. Kelly: Well this is the information we got; they were supposed to recover it and it started leaking on the concrete pad that they had down there and this forced them to burial, which I guess----

Ray: I don’t know where they were stored, but one of the barrels leaked from what I understand, and this was the problem at that time from what I understand, that they had quite a time decontaminating the area. And then they put them under the ground....

Bowman: The thing is, that as far as people would look from a purely technical standpoint, it was a good safe place to put it. It’s a political problem.

Willging: You don’t want to spend the rest of your life burying drums around here; you’ll have no place to put buildings.

J. Kelly: You are saying because of the knowledge then or the knowledge now? Are you saying it would still be a good decision, or it could be a good decision if it wasn’t for the political impact? Because I’m trying to listen to both sides--and I don’t mean Martell and Metzger (sic), but to the other, I think knowledgeable people. Let me put it this way, for whatever good it does me, I’m a member of the National Health Physics Society, which has their Journal--and look at the names of Carl Morgan and Taylor and people like this--and I read it. I read it every month; and they would not agree with what you just said. In fact in the last two or three issues----…

Willging: We are only doing what they are doing at Arco. If they disagree with what they are doing at Arco then they disagree with this. If they agree that Arco is a safe place to bury things---…

J. Kelly: I guess they have got their problems at Arco, but because of the sophistication of the burial there and location, and all of the surveys and studies that went into locating a burial sight at Arco--perhaps there is other reasons there; but I am sure that none of those studies went into it down by 91. So this is a little bit important to me here that if you would still take that position, I think there are people---

Bowman: Still take what position?

J. Kelly: That it's just a political thing that would dictate that it's not safe and not a good thing now, I think that the people--I just say I'm listening to you, but I'm listening to them. They don't agree with that, that this would have been good then or now. Environmentally safe, no. It would still not be. This is what I'm saying. I think I can show you issues of the Health Physics Journal and papers and things like that dictate the ------

J. Kelly: Yeah, but these people are not Metzkers (sic) and Martells. That's what I'm trying to get at. These are Health Physicists--people who are Oak Ridge.

Willging: No problem.

J. Kelly: Ok, the reason I'm bringing this out. My house is seven miles down the street from this place, and for the first time since I've worked out here, I'm a little bit shook up, if there is a problem…

Willging: You see if you start using a place for a burial ground, you can't ever use that place again for anything else. You want to find some place that stands no chance of ever becoming a city or a populated area for 24,000 years, at least. We are close to a population center. That's the principle reason why this shouldn't be here. And we have more water here. We should find a real dry place. That's why Arco--it hardly ever rains and the nearest water----

Ray: What is the water level here at Rocky Flats? Do you have any idea?

Willging: I don't know. In 71, there are springs underneath it.

Claridge: There was in 81 also….

Willging: This was a rude shock to a hell of a lot of people; and I wish it wasn't there. I sure don't think it's a health hazard; the problem is, we would create a health hazard by digging it up.

Ray: What would happen to Carbon Tet that had been enclosed in a drum like this a period of years and then exposed to the air.

Willging: It might burst in the drum….

J. Kelly: This is one that whoever did it - did a masterful job. There's not too much that they have ever kept away from Monitors; but, by God, this is one that they got by.

Willging: Yeah, there was a bulldozer out digging a hell of a hole in the ground, and you missed that. (Emphasis in the original)

J. Kelly: That's probably why we didn't find it out.

Kennedy: You are treating that lightly now; but a while ago you said something about, should you let something out. There's 20 people here that's pretty involved; and it's going to get out.

Willging: I think so; and that's why Mike Carroll, for instance, is advising us we ought to think about this and put some kind of an article in the most inconspicuous fashion…

J. Kelly: ...I've listened to very knowledgeable people from Joshel down and from Giller down that -- don't get into a running fight with Martell and Metzger; don't even talk about them; defend the Plant where it's right--where you think it's right--which I think we've tried to do; but don't give these people any more publicity than they have already had; this is what they want. Then comes the DOW Corral with pictures of Martell and Metzger; and I've heard it said that they want to present both sides of this story - This confused me there because we all think they are public sensation seekers--at least this is what I heard from the Company; this is what we feel -- that they don't really know what they are talking about or do they have the right information. We all feel this way on the Plant site; and we don't even like to see them on TV; don't mention their names except in our own circles here. Then they make I don't know how many thousand issues and want us to take them home and distribute them...(Emphasis added)

The April 3, 1970 meeting was reported in a Rocky Mountain News article on March 31, 1975, by Mr. H. Peter Metzger which said, in part: Last week, the current ERDA attorney for the plant, James Stout, looked over

the minutes of that meeting. Afterward, he sharply disagreed with Willging’s 1970 view that the burials were legal. "If Willging believes that DOW could do what Arco could do, he’s wrong," he said.

High level AEC members and members of the Joint Committee on Atomic Energy (JCAE) first learned of burials at the plant about a week after the April 3, 1970, meeting. (Exhibit 18 to the First Claim).

· In a meeting April 10, 1970, at the offices of the JCAE, James Kelly, President of the Rocky Flats local union; the JCAE’s ranking majority and minority members, Chet Holifield (Democrat of California) and Craig Hosmer (Republican of California); A.E.C. General Manager Robert Hollingsworth; Assist General Manager for Operations John A. Erlewine; and JCAE staff member Captain Edward J. Bauser discussed burials at Rocky Flats.

The following was said:

Holifield: ...I would like to understand what this burial ground and stream pollution problem is. Will you please tell us? This is something new to me....

Kelly: The Company told us a week or so ago, Mr. Chairman, that it was determined some 10 or 15 years ago to place some 55 gallon drums of hot waste, oils and what have you in trenches inside the perimeter of the plant and cover it with dirt. I didn’t know this, and I guess a lot of people didn’t know it....

Holifield: Let me as John Erlewine about this. Do you know anything about this?

Erlewine: I first heard about it in getting ready to come to this meeting.

Holifield: If your Mr. Abbott (the A.E.C. area representative) knew about this situation boiling out there, why didn’t he tell you? Why does it have to come to this Committee to Bob Hollingsworth and then to you if there is trouble brewing out there? Maybe this is not putting one milligram of radiation above ground, but you know the problem this sort of thing can create from a public relations standpoint....

Erlewine: I am not sure I can answer precisely, Mr. Holifield....

Bauser: Mr. Chairman, I don’t think we know right now whether it was an authorized burial or not. It was a very poorly supervised thing.

Holifield: ...I understand you don’t know whether it is uranium or plutonium. (Rocky Flats knew where burials were but was uncertain what was in them.) This would be a very serious thing if DOW was taking upon itself the burial of plutonium waste without going through the established procedures. I would assume if

this is low-level waste that there would be probably a prohibition against this convenient burial and that it should have been put in some permanent high-level waste burial ground like we have at Hanford.

Bauser: I don’t know but I doubt if that site is an authorized burial site for any level of waste.

Erlewine: We are certainly not using it (now) and it hasn’t been used in recent years for burying any waste. We ship waste, as you know to the Idaho plant. The nature of these wastes, I think from the information I now have, is that it is a matter of contamination of oils or materials and not a lot of high level materials. It has some contamination, but we need to investigate more....

Holifield: If there is a situation that is bad out there and the local man out there knows about it but he hasn’t conveyed it to the Commission, he hasn’t done right.

Kelly: Mr. Holifield, I can’t speak for him but I hardly believe the present Area Manager knew about it.
Holifield: What is your understanding--and I am asking for information now--about the location of the material you think is buried out there? Is it inside the fence?

Kelly: Some inside and some just outside....

Holifield: Then they had better build a new fence if there is some outside the fence...You can fence it in both from the inside and outside so that nobody wanders over it. Another thing is that you should very carefully go over it with geiger counters or other measuring devices to find out if it is buried deeply enough. The next thing is to find out if there is any seepage going into the streams or anything like that...How long would it take you to get the facts about walking over that with a measuring device to find out if there is any seepage from the ground into the atmosphere that would be in any way unsafe or alarming?

Erlewine: It probably simply requires a phone call. I am confident they have done this. I can’t tell you they have done it.

Holifield: Am I going to have to get on a plane and go out there and walk over it myself with a measuring device and try to read it as a layman?

Kelly: (after further discussion) The company took the position as I left there last Friday that if it were not for the political situation, it would still be safe to bury there...(Emphasis added)

Less than a week after this meeting, on April 14, 1970, the removal of materials from the mound began despite J.F. Willging’s concern that "the problem is, we would create a health hazard by digging it up."

The last of the drums were removed April 29, 1970, according to Exhibit 800, a 6/2/70 letter from R.M. Vogel to E.A. Putzier which stated also that: Although about 10 percent of the drums had holes, no detectable alpha contamination was found in the soil. {EIN comment: Quite frankly, this is NOT logical that NOTHING escaped from the holes in the barrels.} The holes, apparently caused by rust and corrosion were found in both the liquid and the solid waste drums. Many of the liquid drums developed leaks during handling or after exposure to air and sun. We do not know what methods were used to monitor the soil radioactivity, and have seen no reports of soil analysis results from the mound. There are no indications that a safety analysis of this operation was carried out prior to digging up the mound or that any steps were taken to minimize environmental release during the disturbance of the buried waste. This report claimed that only 12 30-gallon drums had Building 771 markings and none had come from 776.

This is in contradiction to the statements made by W. H. Lee (DOW manager of environmental control)...It is difficult not to become hardened and blase to these reports of hundreds of tons of waste containing thousands of times the state standard for soil. We hope the court can resist.

In Exhibit 621 we get some idea of the reaction of knowledgeable DOW workers when they were first told of this kind of material. The figure told them was not 250 million d/m/kg, but 30,000 to 40,000 d/m/kg:

J. Kelly: Will you let us know on this other 30,000 or 40,000 thing?

Lee: Forty thousand count on North Woman’s Creek and the holding pond, huh?

Bowman: What was it--sediment sample, or---

Lee: Yeah, so it doesn’t come as a shock to you. You know we do have sludge from the sewage plant---

Ray: That’s thrown in the trenches and mounds, too.

Lee: It was, Johnny. They started putting it in the sanitary landfill; but based on the nitrate content more than because of contamination of radioactivity, etc., that we are now going to barrel it and send it offsite. But just so that doesn’t come as a shock----

Guffy: You just scared the hell out of me. Barreling it out?

Lee: Yeah, we figured with drying, Dave---

Guffy: Yeah, I know; I do the drying out.

Willging: You figure 30 or 40 barrels a month?

P. Kelly: They are going to send you and Newberry down there…

Guffy: Well Bill, when we discontinued No. 1 digest and took the sludge out of it, and that was high count--or part of it was--and that was buried, right?

Lee: That was buried in one of those trenches, Dave, I believe.

Guffy: That was buried out north of the Plant.
Lee: Oh boy.

Guffy: We also had a commercial vendor come in and pump--I think Austin buried it out there--and we were waiting for it to dry to recover it. Now I'm not sure if it's ever been covered or not. I assume that it has been. I know Voight was keeping his eye on it.

Walko: North of the Plant?

Guffy: Yeah, out toward the dump, I think.

J. Kelly: Out there where the flight suits are.

Walko: Where?

Guffy: They dug a trench and put it in the trench and it was supposed to be when it became possible--they were going to bury it.

Ray: Small amounts wouldn't bother me, either, but I am saying that if there are more major portions that contain 30,000 counts per minute, you damned right it bothers me.

(END OF RF WORKER TRANSCRIPT EXCERPTS ATTACHMENT)

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ACTINIDE CONCENTRATIONS IN CATTLE GRAZING NEAR THE RFP
By Susan Elofson-Hurst and Paula Elofson-Gardine Reprint: EIN NEWS 1991

The U.S. Atomic Energy Commission Rocky Flats Area Office (USAEC-RFAO) funded this study published in 1975. The cattle were sacrificed in November of 1973. Concentrations of Uranium (U), Plutonium (Pu) and Americium (Am) were measured in various tissues from ten (10) cattle collected from a herd which grazed on a pasture northeast of the Rocky Flats Plant (RFP). The Plutonium concentrations were equivalent to those found in other herds grazing in areas where Pu in soil was above the U.S. average. The cohort Am was ¼ to ½ of the Pu-239 concentrations in the same tissues. Commercial cattle herds graze the natural vegetation immediately outside the fence around the RFP and drink water from streams draining from the RFP. Ten cattle were used as biological monitors to measure the uptake of Pu and other radionuclides in the tissue.

The history of this herd as related by the original owner is as follows: Since their purchase 5 or 6 years ago, each cow grazed from mid-May to the end of October in the RFP area of concern (5-6 months per year). One of the streams used by the cattle carried effluent from the RFP system, which included low-level radioactive process wastewater until December 1973 when this wastewater was diverted to holding ponds on-site. They received no supplemental feed and their drinking water came primarily from Walnut Creek. The rest of the year the cattle grazed near Brighton, Colorado, on wheat alfalfa and cornfields. Calves were born on the pastureland near the RFP during late May to early June of 1973. Study cattle from the Nevada herds grazed year round at their sites. The history and vital statistics of the cohort cattle studied from the Roller Coaster, Searchlight. The Nevada Test Site (NTS) pastures near the NTS are as follows: The Roller Coaster herd had access to a range contaminated with Pu during the 1963 Roller Coaster series of above ground nuclear tests. The NTS herd grazed on ground zero areas where several atmospheric nuclear tests had been conducted in the early 1960's. Both areas in Nevada were thought to have radioactive contamination levels far greater than that at Rocky Flats or for that matter, what is considered "background".

Despite contradictory results, the data suggests that the RFP cattle had higher exposure to Pu than the cattle from the Nevada areas. Most of the uranium (U) concentrations found in the bovine tissues were in the range of those found in previous studies. A major exception was in the tracheo-bronchial (throat & lung area) lymph nodes. Possibly be due to plutonium and americium dust resuspension in the area, and adsorption to grasses they ate. This suggests a higher uranium inhalation exposure for the RFP cattle than for other herds in the study. The average U-238 concentrations in soil sampled in an arc 5 miles from the RFP, was 0.77 pCi/g dry soil. This was approximately three times the world wide average of 0.25 pCi/g. There are natural uranium (U) deposits in the general area. The RFP has of course, processed and released large amounts of uranium (open pit burning). The Pu-239 data suggests inhalation exposures in the tracheo-bronchial lymph nodes were higher in the RFP adult samples than in the Nevada herds studied. Some of the Pu

detected in the lung and tracheo-bronchial lymph nodes in the RFP herd may have come from resuspended dust inhaled during grazing.

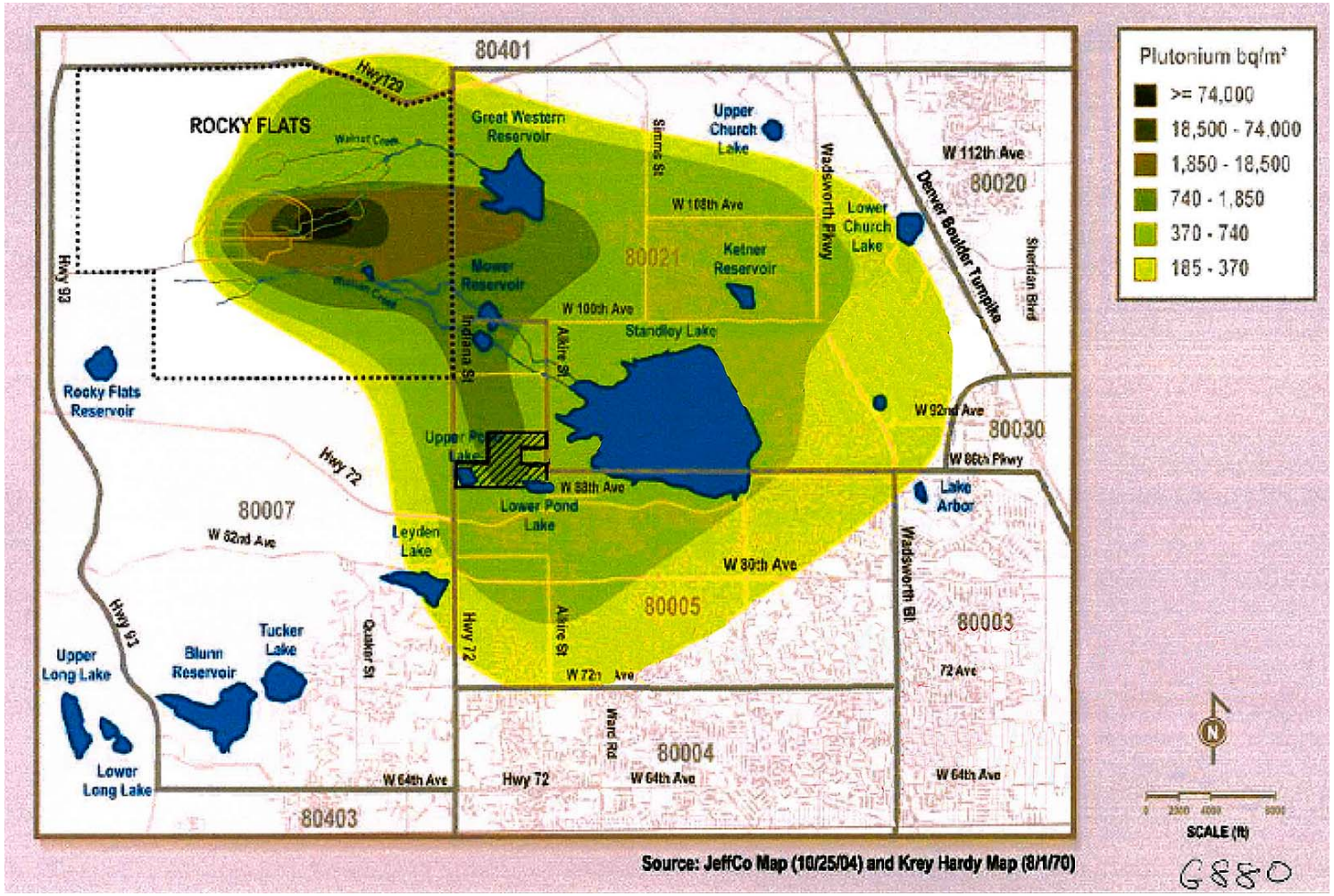
Vegetation was collected from various locations as remote as 15 miles from the RFP. There is no comparative data for concentrations of americium (Am). The other herds were not tested for this plutonium daughter radioisotope. Pu concentrations for water samples taken from Walnut Creek were 8 times greater than that for Americium.

The authors stated that the results would have been higher for the RFP cattle if they had not been subjected to a 3-day delay for removal from pasture and transfer to Nevada for sacrificing. The totals for radionuclide concentrations for the RF herd would have been even higher than that of the other cattle herds. This three-day delay in addition to the stress of transfer induced greater clearance of radionuclides due to diarrhea and dehydration. The clearance half time from the naso-pharyngeal (nose and upper throat) and tracheo- bronchial (lower throat and lungs) regions of the lung may be less than 24 hours for insoluble Pu; 40% of that is deposited in the pulmonary region, and has a clearance time of one day.

The cattle groups from Nevada were sacrificed within 24 hours of removal from pasture. The range for Strontium-90 levels detected in the femur (bone) samples of the RFP cattle ranged from 2.0 - 5.8 pCi/g of ash with an average value of 3.4 pCi/g of ash. This is the mid-range found in cattle from Nevada during 1972. (The highest readings have been obscured by this "averaging"). Tritium levels detected in the blood of the RFP cattle ranged from 2,040 - 6,080 pCi/liter. The mid-range value was 3,320 pCi/L. These tritium levels resulted primarily from the ingestion of water from Walnut Creek, which was contaminated with tritium during April and May of 1973. CDH tested samples during November of 1973 from Walnut Creek at Indiana Street that ranged from 2,400 pCi/L to 12,600 pCi/L with a mid-range value of 7,800 pCi/L. The use of mid-range values obscures the impact of the higher values.

Dr. Carl J. Johnson, MD, MPH presented "Contamination of Municipal Water Supplies in the Denver Metropolitan Area by the Rocky Flats Plutonium Plant" at: Annual Meeting of the American Association for Advancement of Science in San Francisco, CA in January 3-8, 1980. Dr. Johnson reported "A major tritium release reached a peak of nearly 3 million pCi/L in May of 1973. Broomfield tap water reached a high of 18,780 pCi/L. Tritium levels in the urine of Broomfield residents measured as high as 8,100 pCi/L." Dr. Johnson stated that Am would be of greater concern in time due to Am in-growth from Pu, along with greater bio-availability. Dose calculations from the consumption of liver from the Nevada cattle compared with the RFP cattle was 4 times greater for uranium and 6 times lower for Pu-239. Plutonium translocates to specific radiosensitive organs (uneven distribution). Uranium disperses and distributes uniformly within the tissues of the body. Therefore, the liver is a poor indicator for a comparison of uranium-to- plutonium bio-accumulation.

The concentrations of uranium in the tracheo-bronchial lymph nodes (TBLN) in the five (5) young cattle was 2.3 times greater than that of the five (5) mature cattle. The gonads were tested on the RFP cattle only. Conversely, the uranium concentration in the gonads of the mature cattle was approximately 2.9 times higher than that of the younger cattle. The difference in gonadal concentrations may be due to the mature cattle having active hormone systems that may enhance uptake. The RFP cattle had high readings for Am in TBLN and gonads. Four of the five mature RFP cows were found to be barren. Gonadal tissue had higher concentrations of all actinides when compared to muscle. The results were high in addition to the TBLN. The plutonium concentration was greater in the RFP cattle than that for the Nevada herds in this study. The Nevada cattle were not tested for Americium.

"Actinide Concentrations in Tissues from Cattle Grazing near the Rocky Flats Plant." Published in February 1975 by D.D. Smith & S.C. Black-Science Advisor, Immediate Office, Director, NERC-LV, Farm and Animal Investigation Branch, U.S. EPA-Las Vegas. [This research was performed as a part of the Animal Investigation Program under a Memorandum of Understanding No. AT (26-1) - for the U.S. Energy Research & Development Administration 539.] All Rights Reserved, Copyright 1993, 2000, 2002.

Map submitted with comments by Leroy Moore, Ph.D.