

92 RF 7384



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EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

July 8, 1992

92-RF-7384

40117

Terry A. Vaeth
Manager
DOE, RFO

Attn: J. K. Hartman

RESPONSES TO COMMENTS ON THE COMPLIANCE SUMMARY FOR THE 1991 ANNUAL SITE ENVIRONMENTAL REPORT - JMK-0631-92

Ref: J.K. Hartman ltr (6602) to J.M. Kersh, Comments on the Draft Compliance Summary for 1991 Rocky Flats Environmental Report, June 19, 1992

Per your June 19, 1992, request, my staff has compiled responses to comments received from your office on the Compliance Summary for the 1991 Annual Site Environmental Report for the Rocky Flats Plant (RFP). Attached with these responses is replacement text for the Compliance Summary covering the period January - December 1991.

In response to comments from DOE, Headquarters (EH-22), which were attached to your June 19 request, we have added compliance information with respect to: 1) the Safe Drinking Water Act, 2) the Federal Insecticide Fungicide, and Rodenticide Act, 3) National Historic Preservation Act, and 4) Executive Order 11990 (Floodplain Management). Also, we have added a statement on the listing of RFP on the National Priorities List.

If you have any questions regarding this information, please contact D.B. Costain of my Resources Information Management Division (x8528).

J.M. Kersh
J.M. Kersh, Associate General Manager
Environmental & Waste Management

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

DBC:clc

Orig. and 1 cc - T. A. Vaeth

Attachments:
As Stated (2)

T.	CL	ENC
BERNARD, A.		
BERMAN, H.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
COPP, R.D.		
DAVIS, J.G.		
WEBER, J.E.		
FERRERA, D.W.		
GOODWIN, R.		
HANNI, B.J.		
HARMAN, L.K.		
HEALY, T.J.		
HILF, J.G.		
DEKER, E.H.		
KERSH, J.M.	X	X
KIRBY, W.A.		
QUESTER, A.W.	X	X
KRIEG, D.		
LEE, E.M.	X	X
MAJESTIC, J.R.		
MARX, G.F.		
MCDONALD, M.M.		
MORGAN, R.V.	X	X
POTTER, G.L.		
PIZZUTO, V.M.		
SANDLIN, N.B.		
SHEPHERD, R.I.		
SULLIVAN, M.T.		
SWANSON, E.R.		
TALMAN, K.G.		
WIEBE, J.S.		
WILKINSON, R.B.		
WILSON, J.M.		
ZANE, J.O.		
STRUB, J.	X	
FULLER, P.	X	
KENNEDY, C.	X	X
SHAFER, J.	X	X
ARNDT, H.	X	X
CORRES CONTROL	X	X

CLASSIFICATION:

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UNCLASSIFIED			X	X
CONFIDENTIAL				
SECRET				

AUTHORIZED CLASSIFIER
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7/8/92 (200)
DATE

IN REPLY TO RFP/CC NO:

3255-RF-92

AC ITEM STATUS

OPEN CLOSED

PARTIAL

LTR APPROVALS

ORIG & TYPIST INITIALS

DBC:clc

Attachment I

RESPONSES TO COMMENTS ON DRAFT COMPLIANCE SUMMARY FOR THE 1991 SITE ENVIRONMENTAL REPORT

1. *Page 4, 4th para., last line: Reference (see Section 4.2, Air Monitoring) must indicate what document this refers to.*

This reference should be to Section 3.2 and not 4.2. The text has been corrected. The reference here is to a Section 3.2 (as corrected) of the Annual Site Environmental Report. This Compliance Summary is Section 2 of that same report. This is simply a reference to a later section in the same document.

2. *Page 5, 5th & 6th para.: Citation to Code of Federal Regulations is not consistent in this Summary. It should be shown as "40CFR61.93(b)(3), for example and not "CFR Title 40, Part 61," or worse, "EPA 40 CFR 61 Subpart H," as shown in para. 6.*

Citations to Code of Federal Regulations have been changed as requested.

3. *Page 6, Table 2-1, last row: Under Medium column it should read "Hazardous, low-level mixed waste, transuranic mixed waste plus mixed residues." Under Status column it should read "Part A applications for hazardous and low level mixed waste and transuranic mixed wastes and residues are combined."*

The requested changes have been made.

4. *Page 7, Table 2-1, 1st row: Under Status column it should read "Permit issued Sept. 1991, and effective October 1991 for 9 of 20 waste storage areas. Permit modifications pending for remaining 11 areas and additional interim status LLMW or TRU units not included in previous RCRA Part B applications."*

The requested changes have been made.

5. *Page 7, Table 2-1, 2nd row: The "B" is missing from RCRA Part B. Under Status column it should read "Application submitted, permit modifications pending."*

The requested changes have been made.

6. *Page 7, Table 2-1, New row: The Application, Number, and Issuing Agency columns should be the same as row 2. Under Medium column it should read "Mixed Residues." Under Status column it should read "Permit modification request due to CDH 6/29/92."*

This requested change has been made.

7. *Page 9, 1st para., 5th line: The sentence "... (NPDES) permits issued by the EPA" should read: "... (NPDES) permits issued for RFP by the EPA."*

The suggested change has been made.

8. *Page 9, 3rd para., 4th line: The sentence "...CDH has made its assessment" should read: "...CDH has made its assessment and given concurrence for discharge...."*

The suggested change has been made.

9. *Page 9, last para., last sentence: This sentence "...activated carbon treatment systems to process..." should read: "...activated carbon treatment systems for organics removal, and filtration to remove particulates, to process..."*

The suggested change has been made.

10. *Page 11, 1st para., last sentence: The sentence "A final plan incorporating the revised approach was submitted to EPA during March 1992." should read: "A draft plan incorporating the revised approach was submitted to EPA during the second quarter of 1992."*

The suggested change has been made.

11. *Page 11, 2nd para., 3rd sentence: What does the term "certified draft" mean?*

The Spill Prevention Control and Countermeasures/Best Management Practices Plan was certified by a registered professional engineer.

12. *Page 11, 2nd para.: Add the following sentence to the paragraph: "The second draft is expected by July 1, 1992, and a final document by September 30, 1992."*

The suggested change has been made.

13. *Page 12, 4th para., 6th line: What is meant by "...regulatory provisions."? These need to be specifically spelled out.*

The text has been modified to clarify that EPA administered the provisions of Land Disposal Restricted (LDR) wastes in 1991.

14. *Page 13, 1st para., 2nd line: The sentence "The change...approval." should be replaced with: "This request for change to interim status was resubmitted to CDH as permit modifications request #4 in January 1992."*

The suggested change has been made.

15. *Page 13, 1st para., 4th line: The sentence "... (TCLP) EPA codes and two size Reduction Facilities," should read "... (TCLP) EPA codes and requested low-level mixed waste storage and treatment in two existing Size Reduction Facilities."*

The suggested change has been made.

16. *Page 13, 1st para.: The last sentence "This change is also pending EPA approval." should be dropped.*

This suggested change has been made.

17. *Page 13, 2nd para., 3rd line: The sentence "The change to interim status is pending CDH approval." should be changed to "This request for change to interim status was resubmitted to CDH as permit modification #4 in January 1992."*

The suggested change has been made.

18. *Page 13, 2nd para.: The last sentence "This change is also pending EPA approval." should be dropped.*

This suggested change has been made.

19. *Page 13, 5th para., 8th line: The sentence "This permit modification is pending CDH approval." should read "This permit modification request was approved by CDH on April 30, 1992."*

This suggested change has been made.

20. *Page 13, 5th para., 8th line: This sentence should read "Permit Modification...modification submitted to CDH and effective in November 1991...."*

This suggested change has been made.

21. *Page 13, 5th para., last sentence: Add to the end of the last sentence "in anticipation of revising the training section in 1992."*

This suggested change has been made.

22. *Page 13, 7th para., 3rd line: The rest of the paragraph should read "These plans describe measures to eliminate or minimize future maintenance of hazardous waste management units, to control releases of hazardous constituents and to permanently close these units. Post-closure monitoring is required if "clean closure" of a unit under RCRA cannot be achieved."*

This suggested change has been made.

23. *Page 14, 4th para., last line: The reference "Section 4, Remediation" should indicate what report.*

The reference here is to Section 4 of the Annual Site Environmental Report. This Compliance Summary is Section 2 of that same report. This is simply a reference to a later section in the same document.

24. *Page 14, last para., last sentence: The sentence "Before October...water." should be dropped.*

This suggested change has been made.

25. *Page 18: Discussion of the FFCA II should include the fact that a new FFCA must be negotiated with CDH for replacement in 1992.*

New text has been added as suggested.

26. *Page 18: Discussion of the FFCA II document deliverables should include the fact that they are subject to EPA review/approval in certain cases and that CTMP milestones are enforceable by EPA under FFCA II.*

New text has been added as suggested.

27. *Page 22, 2nd para., last sentence: This sentence conflicts with page 15. Petroleum products and trichloroethene are volatile substances.*

The referenced sentence has been deleted.

28. *Page 24, 3rd para., last sentence: The previous sentence defines the all terms for plan status except "scheduled for completion," yet this sentence uses that term. What does it mean?*

The text has been modified to state that 30 plans were verified as "open" (text previously stated this number as 28) and the reference to plans as "scheduled for completion" has been deleted.

2. COMPLIANCE SUMMARY

Monitoring data are obtained from routine sampling to measure environmental impacts resulting from RFP activities. Results from this monitoring are reported to local, state, and federal agencies including the Environmental Protection Agency (EPA), DOE, and Colorado Department of Health (CDH), who are responsible for enforcing environmental regulations at RFP. These agencies oversee compliance with applicable standards, issue permits, participate in joint monitoring programs, and inspect facilities. This section covers RFP compliance with environmental regulations.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act (NEPA) is the nation's most widely applied federal environmental statute. Federal regulations administered by the Council on Environmental Quality (CEQ), Washington, D.C., require NEPA documentation as an administrative record showing that agencies have considered environmental impacts of and public commentary on proposed actions, and that this information is included in federal decision-making. NEPA documentation can include either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).

In 1989 Admiral Watkins, Secretary of Energy, issued a ten-point initiative that renewed emphasis by DOE on the letter and spirit of environmental statutes and regulations. Secretary of Energy Notice SEN-15-90 was the fourth point in the initiative, becoming effective on February 5, 1990. The notice called for a revision of DOE Order 5440.1C, *National Environmental Policy Act*, by streamlining and centralizing the DOE line organizations. The responsibilities of the DOE Secretarial Officers were redefined, and in states where DOE facilities are located, the state governors are now able to work more closely with their local DOE representatives.

The Rocky Flats Plant (RFP) established a NEPA Compliance Committee (NCC) in February 1989 to provide an integrated review, guidance, and oversight for plantwide activities. The NCC created an RFP Environmental Checklist (EC) that is required for all proposed actions. The EC provides an initial screening and review of construction and engineering projects to determine whether submission of an Action Description Memorandum (ADM) is required. ADMs are submitted to DOE for a determination of the level of NEPA documentation required.

In 1991 the NCC at RFP provided information and recommendations on approximately 150 projects concerned with constructing, refurbishing, or upgrading RFP facilities.

Notices of Intent

The Notice of Intent (NOI) is a public announcement by a federal agency of plans to prepare an EIS. This announcement is followed by public meetings where suggestions are received on the scope and range of the EIS.

The NOI for the Plutonium Recovery Modification Project Environmental Impact Statement (PRMP EIS) was published in the *Federal Register* on May 30, 1990. Public scoping meetings were held on June 18 and 20, followed by a 45-day comment period. A draft Implementation Plan for the PRMP EIS was completed in November 1991.

The NOI for the Programmatic Environmental Impact Statement (PEIS) on the Integrated Environmental and Waste Management Program, proposed by the DOE, was issued in the *Federal Register* on October 22, 1990. A public scoping meeting to accept comments on the PEIS was held on January 23, 1991. An Implementation Plan is under development. The PEIS will consider programmatic issues (for all DOE-operated facilities) and integrated approaches to the program and will include national program-wide alternatives.

In September 1990 the Secretary of Energy made a commitment to initiate preparation of the RFP Sitewide EIS. The NOI for the Sitewide EIS was published in the *Federal Register* on March 13, 1991. Public scoping meetings were held on April 4, 8, and 11, 1991, and comments were accepted through April 19, 1991.

Environmental Assessments

An environmental assessment (EA) is prepared to determine whether a proposed federal action will require preparation of an EIS. If it is determined that no EIS is required, a Finding of No Significant Impact (FONSI) that documents this decision is prepared. Before preparation of an EA, the proposed federal action is evaluated as a possible Categorical Exclusion (CX). The CX is a category of actions that do not individually or cumulatively have a significant effect on the human environment and do not require either an EA or EIS. Eleven CXs were approved for RFP in 1991.

EAs for the following proposed actions are in various stages of preparation and review.

- Building 374 Liquid Waste Treatment Facility Upgrades
- Construction and Use of a Residue Drum Storage Facility
- Mixed Waste Disposal Operations at the Nevada Test Site
- New Sanitary Landfill
- Proposed Subsurface Interim Measures/Interim Remedial Action Plan/Environmental Assessment and Decision Document for Operable Unit 2

The EA for the Interim Remedial Action/Environmental Assessment for Operable Unit 2 (OU 2) (903 Pad, Mound, and East Trenches areas) was prepared. A FONSI for this proposed action was received on March 7, 1991.

Preparation of an EA for the Dewatering and Resource Conservation and Recovery Act (RCRA) Partial Closure Action on Solar Evaporation Ponds began in 1990. The EA was approved on February 21, 1991, and a FONSI was received on June 17, 1991. A Notice of Availability was published on August 9, 1991.

Mitigation Action Plans

The implementation of NEPA focuses on the pre-decisional aspects of an action. Mitigation is part of the post-decisional phase of NEPA. The Secretary of Energy Notice SEN-15-90, Section H, requires the publication of a Mitigation Action Plan (MAP) before an EIS or EA/FONSI is completed. The MAP documents environmental commitments made in an EIS/Record of Decision (ROD) or an EA/FONSI and reports implementation of those commitments.

An EA for the Supercompactor and Repackaging Facility (SARF), DOE/EA-0432, was published in July 1990; the DOE issued a FONSI in the *Federal Register* on August 10, 1990. The MAP for the SARF was approved in January 1992.

ENDANGERED SPECIES ACT, FISH AND WILDLIFE COORDINATION ACT, MIGRATORY BIRD TREATY ACT, AND EXECUTIVE ORDERS 11990 (PROTECTION OF WETLANDS) AND 11988 (FLOODPLAIN MANAGEMENT)

These federal statutes and executive orders govern the protection of ecological resources at RFP. In 1991 a Public Notice of Wetland Involvement was published in the *Federal Register* as required by 10CFR1022. This notice, made on August 23, 1991, concerned the placement of sediment samplers in the buffer zone surrounding the main facilities area. Biological survey and habitat survey reports were prepared for the South Interceptor Ditch (DOE91a, DOE91b) and 881 Hillside French Drain (DOE91c, DOE91d) in October and November 1991, respectively.

NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Preservation and management of prehistorical, historical, and cultural resources on lands administered by the DOE are mandated under Sections 106 and 110 of NHPA. The NHPA requires a federal agency, before undertaking any project, to adopt measures to mitigate the potential adverse effects of that project on sites, structures, or objects eligible for inclusion in the National Register of Historic Places.

A sitewide archaeological survey of RFP was conducted in 1991. All cultural resources were evaluated against criteria for nomination to the National Register of Historic Places. Results of the survey were reported in "Cultural Resources Class III Survey of Department of Energy Rocky Flats Plant, Northern Jefferson and Boulder Counties, Colorado" (Version 1.0, August 1, 1991). Information from this report is used in planning remediation and other construction activities to prevent damage to, or destruction of, cultural resources at RFP.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

The Federal Insecticide, Fungicide, and Rodenticide Act governs the registration and use of pesticides, herbicides and rodenticides. At RFP, compliance with FIFRA is managed through the Integrated Pest Management Control Plan. This plan identifies the kinds of activities at RFP that are subject to FIFRA and describes the procedures for complying with FIFRA requirements.

CLEAN AIR ACT (CAA)

The Clean Air Act (CAA) sets standards for ambient air quality and hazardous air pollutants. At RFP, compliance programs have been established for radioactive and nonradioactive hazardous emissions and ambient air conditions.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)

National Emission Standards for Hazardous Air Pollutants (NESHAPs) govern both radioactive and nonradioactive pollutants and are administered by the EPA or the CDH. CDH has been granted authority by the EPA to regulate several hazardous pollutants including beryllium, mercury, vinyl chloride, and asbestos; however, authority to regulate radionuclides currently lies

with the EPA. Under regulations promulgated in 1989, NESHAPs limited the radiation dose from airborne radionuclide emissions from DOE facilities to 10 millirems per year (mrem/yr) effective dose equivalent (EDE) to any member of the public. A compliance report with dose calculations is due to EPA by June 30 of each year for the previous calendar year. RFP submitted the required Air Compliance Report and dose calculations for the calendar year 1990 to the EPA in June 1991. This report showed a calculated whole body dose equivalent to the maximally exposed individual from building air emissions of 0.000043 mrem and from soil resuspension of 0.21 mrem. Dose calculations for the 1991 calendar year are given in Section 6, Radiation Dose Assessment.

Colorado Air Quality Control Regulation No. 8

Regulation No. 8 implements NESHAPs for nonradioactive hazardous air pollutants in Colorado. Work standards, emission limitations, and ambient air standards for hazardous air pollutants including asbestos, beryllium, mercury, benzene, vinyl chloride, lead, and hydrogen sulfide are specified in this regulation. Potential hazardous air pollutants at RFP include asbestos and beryllium. Asbestos was used as insulation in the older facilities and is handled according to NESHAPs regulations during demolition, renovation, or disposal. Beryllium is machined at RFP. The emissions standard is 10 grams (g) of beryllium over a 24-hr period. Beryllium emissions did not exceed this standard in 1991 (see Section 3.2, Air Monitoring).

Beryllium compliance tests were to be conducted on five air effluent ducts that have the highest potential beryllium emissions in 1991 upon resumption of plutonium operations at RFP. The tests were to measure beryllium emissions from each of the five locations over a 24-hour period in accordance with EPA Reference Method 104 and serve as the basis of an application for a waiver of emission testing and sampling protocol. Plutonium process operations were suspended in 1989 and did not resume in 1990 or 1991. Anticipated changes in future plant operations may curtail beryllium operations at RFP and render compliance testing unnecessary.

Colorado Air Quality Control Regulation No. 3

The State of Colorado has primacy for regulating nonradionuclide air pollutant emissions as defined under the CAA. As a result, enforcement, maintenance, and implementation of the air regulations have been delegated by the State to the CDH. Under the provisions of Colorado Air Quality Regulation No. 3, the CDH must receive an Air Pollutant Emission Notice (APEN) for all potential sources of air pollutants resulting from construction or alteration of any facility, process, or activity from which air pollutants are to be emitted. The air pollutants are defined as criteria, hazardous, or toxic. APENs are required for any process or activity that has the potential of (1) an uncontrolled emission greater than 1 pound per day for any hazardous or toxic air pollutant, (2) an uncontrolled emission greater than 1 ton per year for any criteria, hazardous, or toxic air pollutant, or (3) emissions arising from specific operations as defined in Regulation No. 7. Each APEN must be filed with the CDH before initiation of operations.

Air emission permits are required for sources that have the potential for significant impact on air quality unless specifically exempt by law. Table 2-1 lists current air quality permits for RFP as well as surface water and hazardous waste permits and permit applications.

Under the June 1989 Agreement in Principle (AIP) between the DOE and the CDH, RFP was required to complete an air emission inventory of plant operations and submit inventory data to the CDH by June 1991. Between June 1989 and June 1991, RFP conducted an air emission survey of plant activities, evaluated process operations, and prepared APENs and supporting documenta-

tion for submittal to the CDH. The buildings and operations for which APEN documents were submitted in 1991 are listed in Table 2-2.

Colorado Air Quality Control Regulation No. 7

Under provisions of Regulation No. 7, all existing sources that generate volatile organic compounds (VOCs) are required to submit to the CDH a report that provides an inventory of all VOC point sources, operation source descriptions, actual and potential annual emissions, and discussions of reasonable available control technology (RACT). In response to this requirement, RFP submitted the *Volatile Organic Compound (VOC) Emission Report* (EG91a) to CDH in October 1991. The basis of this report was the RFP air emission inventory documentation that provided VOC point-source information.

Compliance Issues

Radioactive Effluent Sampling Protocol. Several studies were initiated in 1990 to determine RFP's compliance with EPA's radioactive effluent sampling protocol, described under 40CFR61, Subpart H, which was promulgated on December 15, 1989, and made effective that same date. These studies involve preparing "as built" duct drawings, duct effluent velocity profiling, effluent particle size and composition, and isokinetic sampling. The "as built" duct drawing study was completed in 1991. The other projects will be completed in 1992-1993. RFP is pursuing upgrades to those sampling systems that do not comply with the intent of the EPA effluent sampling protocol. Effluent monitoring systems that do not meet EPA protocol but meet the intent of the regulations will be reviewed for exemption under "alternative methods," provisions of 40CFR61.93(b)(3). Attempts in 1991 to enter into a Federal Facilities Compliance Agreement (FFCA) with EPA Region VIII to establish a schedule for achieving compliance were unsuccessful when it was determined by EPA that such an agreement would be inappropriate. EPA issued a Section 114 (CAA) letter on November 27, 1991, requesting information on RFP compliance with NESHAP provisions. Responses were submitted by RFP on December 16, 1991, and January 27, 1992. EPA Region VIII issued EG&G Rocky Flats, Inc., a Compliance Order on March 3, 1992, requiring RFP to be in compliance with the effluent monitoring requirements of 40CFR61.93(b) within 1 year and to complete four specified projects within 270 days.

CLEAN WATER ACT (CWA)

The Clean Water Act (CWA) requires the EPA to set national effluent limitations and water quality standards and establishes a regulatory program to ensure enforcement. In Colorado, discharge permits for federal facilities such as RFP are issued by the EPA. The State of Colorado sets water quality standards for receiving streams and bodies of water. These standards are applied through National Pollution Discharge Elimination System (NPDES) permits issued for RFP by the EPA. Table 2-1 lists the current NPDES permit for RFP.

National Pollutant Discharge Elimination System (NPDES) Permit

The NPDES permit program controls the release of pollutants into waters of the United States and requires routine monitoring and reporting of results. The NPDES permit for RFP (#CO-0001333) identifies seven monitoring points for control of discharge; three of these discharge points, Ponds A-4, B-5, and C-2, are capable of discharging water offsite. The NPDES permit terms were

Table 2-1
Environmental Permits and Permit Applications

<u>Permit/ Application</u>	<u>Number</u>	<u>Medium</u>	<u>Issuing Agency</u>	<u>Status</u>
NPDES (12/26/84)	CO-0001333	Water	EPA	Application for revision pending
Building 122 Incinerator (3/25/82)	C-12,931	Air	CDH	Active permit (inactive source)
Building 771 Incinerator (8/28/85)	12JE932	Air	CDH	Active permit (inactive source)
Building 776 Incinerator (3/25/82)	C-13,022	Air	CDH	Active permit (inactive source)
Fugitive Dust Renewed (12/28/89)	87JE084L	Air	CDH	Active permit
Pondcrete Shelter #5 Pad #750	90JE045-1	Air	CDH	Initial approval
Pondcrete Shelter #6 Pad #750	90JE045-2	Air	CDH	Initial approval
Pondcrete Shelter #10 Pad #904	90JE045-3	Air	CDH	Initial approval
Pondcrete Shelter #11 Pad #904	90JE045-4	Air	CDH	Initial approval
Urinalysis Laboratory Fume Hood - Bldg. 123	86JE018	Air	CDH	Active permit
Building 776 Supercompactor and Repackaging Facility (SARF)/transuranic Waste Shredder-HEPA filter	91JE047	Air	CDH	Initial permit issued in December 1991
Building 333 Paint spray booth and grit blaster	91JE300	Air	CDH	Initial permit to be issued when permit fees are paid
Building 910 Three forced evaporation units and two natural gas fired heaters	91JE316	Air	CDH	Initial permit will be issued when permit fees are paid
Building 995 Sanitary waste water treatment plant belt filter press and indirect natural gas fired sludge dryer	91JE430	Air	CDH	Initial permit will be issued when permit fees are paid
Building 440 Paint spray booth	91JE537-1	Air	CDH	Initial permit issued in November 1991
Building 440 Paint spray booth	91JE537-2	Air	CDH	Initial permit issued in November 1991
RCRA Part A	CO-7890010526 and Revisions	Hazardous, low-level mixed waste, transuranic mixed waste plus mixed residues	CDH	Part A applications for hazardous and low-level mixed waste and transuranic mixed wastes and residues are combined
RCRA Part B	CO-7890010526	Hazardous, low-level mixed waste	CDH	Permit issued September 1991, and effective October 1991 for 9 of 20 waste storage areas. Permit modifications pending for remaining 11 areas and additional interim status LLMW or TRU units not included in previous RCRA Part B applications
RCRA Part B	CO-7890010526	Transuranic mixed waste	CDH	Application submitted, permit modifications pending
RCRA Part B	CO-7890010526	Mixed Residues	CDH	Permit modification request due to CDH June 29, 1992

Table 2-2

Buildings for Which Air Pollutant Emission Notices Were Submitted in 1991

<u>Building Reference Number(s)</u>	<u>Building/Operation Description</u>	<u>Date Submitted To CDH</u>
443	Heating Plant	01/09/91
776	Manufacturing Building	01/11/91
777	Assembly Building	01/11/91
223	Nitrogen Supply Facility	01/17/91
218	Acid Tank Farm	01/18/91
226	Salt Tank (910)	01/18/91
227	Acid Tank (910)	01/18/91
231A	Process Waste Water Tank	01/18/91
231B	Process Waste Water Tank	01/18/91
221	Central Fuel Oil Storage	01/30/91
224	Fuel Oil Storage	01/30/91
373	Cooling Tower (374)	01/30/91
262	Diesel Fuel Storage Tank	01/30/91
126	Dosimeter Calibration	02/21/91
381	Subcontractor Storage	02/21/91
774	Waste Treatment Plant	03/15/91
127	Emergency Generator Building	03/15/91
427	Emergency Generator Building (444)	03/15/91
562	Emergency Generator Building (561)	03/15/91
715	Emergency Generator Building (771, 774)	03/15/91
715A	Emergency Generator Building	03/15/91
727	Emergency Generator Building (782)	03/15/91
827	Emergency Generator Building (865, 875, 883, 886)	03/15/91
881G	Emergency Generator Building	03/15/91
989	Emergency Generator Building (991)	03/15/91
125	Standards Laboratory	03/29/91
333	Paint Shop & Sand Blast Facility	03/29/91
442	Filter Test Laboratory/Storage	03/29/91
705	Coating Laboratory	03/29/91
885	Paint & Oil Storage	03/29/91
714	HF Storage Building	03/29/91
714A	HF Storage Shed	03/29/91
865	Material & Process Development Lab.	03/29/91
867	Filter Plenum (865)	03/29/91
868	Filter Plenum (865)	03/29/91
879	Filter Plenum (883)	03/29/91
883	Rolling & Forming Facility	03/29/91
374	Process Waste Treatment Facility	04/03/91
910	Solar Pond - Evaporation Project	04/03/91
207A-C	Solar Pond	04/03/91
449	Oil & Paint Storage	04/26/91
T371J	Subcontractor Radiography Trailer	04/27/91
875	Filter Plenum Building (886)	04/30/91
886	Nuclear Safety Facility	04/30/91
886A	Trailer	04/30/91
T690J	Trailer - Laboratory	04/30/91
T690K	Trailer - Laboratory	04/30/91
T690L	Trailer - Laboratory	04/30/91
T690A	Trailer	04/30/91
453	Oil Storage	05/13/91
460	Non-Nuclear Manufacturing	05/13/91
701	Maintenance Building	05/13/91
780	Flammable Storage	05/13/91
866	Process Waste Transfer Building	05/13/91

Table 2-2 (continued)

Buildings for Which Air Pollutant Emission Notices Were Submitted in 1991

<u>Building Reference Number(s)</u>	<u>Building/Operation Description</u>	<u>Date Submitted To CDH</u>
990	Sanitary Wastewater Treatment	05/13/91
990A	Sanitary Wastewater Treatment	05/13/91
995	Sewage Treatment Facility	05/13/91
988	Storage Vault	05/13/91
228A	Drying Beds (910)	05/13/91
228B	Drying Beds (910)	05/13/91
566	Protective Clothing Decontamination -	05/16/91
556	Metal Cutting Building	05/20/91
772	Fluorine Storage Building	05/20/91
965	Storage Building	05/20/91
331	Garage & Fire Station	05/30/91
334	General Shop (Maintenance)	05/30/91
439	Mod Center/Machine Shop	05/30/91
788	Cementation Process Building	05/30/91
881	Research & General Support	05/30/91
889	Waste Packaging/Decontamination	05/30/91
985	Filter Plenum Building (996, 997, 999)	05/30/91
991	Product Warehouse	06/27/91
440	Modification Center	06/28/91
778	Service Building	06/28/91
980	Subcontractor Metal Shop	06/28/91
124	Water Treatment Plant	07/17/91
129	Raw Water Strainer	07/17/91
RFP - Sitewide	Natural Gas Combustion Units	07/17/91
111	Administration	07/31/91
708	Compressor Building	08/07/91
709	Cooling Tower (707)	08/07/91
711	Cooling Tower (707)	08/07/91
120	Emergency Generator	08/07/91
124	Emergency Generator	08/07/91
372A	Emergency Generator	08/07/91
662	Emergency Generator	08/07/91
708	Emergency Generator	08/07/91
729	Emergency Generator	08/07/91
762A	Emergency Generator	08/07/91
779	Emergency Generator	08/07/91
792A	Emergency Generator	08/07/91
920	Emergency Generator	08/07/91
122	Medical	10/11/91
122S	Storage Shed	10/11/91
123 (Revision 1)	Health Physics	10/16/91
123S (Revision 1)	Hazardous Waste Storage Shed Hot Water Heaters	10/16/91
207A-C (Revision 1)	Solar Pond Project	12/09/91

modified by the NPDES FFCA to eliminate two discharge points that were inactivated (the Reverse Osmosis Pilot Plant and the Reverse Osmosis Plant) and to include new monitoring parameters at the other discharge locations (see below). Changes to the NPDES permit terms are summarized in Appendix B (Table B-4) and went into effect in April 1991. The current permit expired in 1989 but was administratively extended until renewed. An application for renewal was filed in a timely fashion with EPA, and an updated renewal application (which will include the application for a storm water discharge permit) is scheduled to be submitted in mid-1992. No Notices of Violation

(NOVs) were received in 1991 for violation of NPDES requirements. NPDES permit exceedances are summarized in Section 3.3, Surface Water Monitoring.

The AIP established a procedure whereby RFP would provide CDH with split samples of water proposed for discharge from the terminal ponds. This allows CDH to assess water quality before a discharge. Samples are split for analysis by CDH, EG&G Rocky Flats, Inc., and independent EPA-registered laboratories. Presently, once CDH has made its assessment and given concurrence for discharge, pond waters are discharged directly to the Broomfield Diversion Ditch.

The NPDES permit requires the maintenance of terminal pond water levels at 90 percent of capacity to allow sufficient storage volume for spill containment. However, because of inherent delays caused by concurrent sampling and analysis (before receiving CDH concurrence for discharges) and continuing storage of inflows, Ponds A-4, B-5, and C-2 have operated with less than 90 percent spill capacity.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, specifies radionuclide concentration guides for water discharged from RFP as follows: "Implementation of the Best Available Technology (BAT) process for liquid radioactive wastes are not required where radionuclides are already at low levels, i.e., the annual average concentration is less than the Derived Concentration Guide (DCG) level. In that case, the cost consideration component of BAT analysis precludes the need for additional treatment, since any additional treatment would be unjustifiable on a cost-benefit basis." Impounded waters at RFP met these DCG standards; therefore, per DOE Order 5400.5, further treatment was unjustified on a cost-benefit basis. Nevertheless, because of CDH guidance, RFP used activated carbon treatment systems for organics removal, and filtration to remove particulates, to process approximately 118 million gallons discharged before October 1991 as an added level of protection. Treatment was not used for discharges after October 1991 per concurrence with CDH. Approximately 45 million gallons were discharged from October through December 1991.

NPDES Federal Facility Compliance Agreement (FFCA). The NPDES FFCA was signed on March 25, 1991, between DOE and EPA Region VIII. The FFCA incorporated changes to NPDES monitoring requirements. These changes included relocating the point of compliance for outfall 001 from Pond B-3 to the Sewage Treatment Plant (STP) discharge for most parameters. Monitoring requirements for total chromium and whole effluent toxicity (WET) at the terminal ponds, and for metals, volatile organic compounds, and WET at the STP discharge site were also added.

The FFCA also required submittal of three compliance plans that address planned administrative and physical changes to the plant: the Groundwater Monitoring Plan for the STP Sludge Drying Beds, the STP Compliance Plan, and the Chromic Acid Incident Plan and Implementation Schedule. The FFCA also requires submittal of Quarterly Progress Reports to the EPA that update the status and schedule of projects within each compliance plan.

(1) Groundwater Monitoring Plan for the Sanitary Treatment Plant Sludge Drying Beds. A draft Groundwater Monitoring Plan was submitted to EPA in July 1990. The plan proposed a method for characterizing groundwater beneath the sludge drying beds located east of the STP. The EPA subsequently recommended a phased approach beginning with monitoring and characterization of soil and water in the vadose zone. The Vadose Zone Monitoring Plan was submitted to EPA and approved in June 1991. An addendum to the monitoring plan was submitted for two additional sludge drying beds located east of Building 910. Field work at both locations will be initiated during 1992.

(2) **STP Compliance Plan.** The STP Compliance Plan was submitted to EPA in July 1990. This plan described planned improvements to the STP necessary to meet NPDES water quality standards and FFCA criteria. Completed work includes implementation of recommendations from diagnostic studies of treatment plant operations, installation of an autochlorination/dechlorination system, and additional influent and effluent instrumentation. Other planned improvements are included in a treatment plant upgrade project, which consists of three phases:

- Phase I includes construction of a mechanical sludge drying system and modifications to existing sludge beds to improve the efficiency of the sludge drying process. Construction is expected to be completed during 1992.
- Phase II includes electrical improvements for improved reliability and additional capacity, emergency electrical power provisions, construction of an addition to the existing laboratory building, addition of equipment and controls at the equalization basins, upgrades to existing structures and equipment within the STP including the polymer feed system and sand filters, and additional chemical storage. Construction is expected to begin during 1993.
- Phase III includes construction of additional influent and effluent storage for the STP, modification of the existing plant to provide for nitrification, and construction of a new denitrification system. The final scope of Phase III is being refined through continuing negotiations with EPA.

(3) **Chromic Acid Incident Plan and Implementation Schedule.** A draft Chromic Acid Incident Plan was submitted to EPA in November 1990. The plan was prepared in response to recommendations made following a DOE investigation of an unplanned release of chromic acid solution from Building 444 during 1989. The plan addressed physical and administrative changes to reduce the possibility and impact of future spill events. A number of proposed actions have been completed, and EPA has agreed to refocus the remaining scope of the plan to emphasize issues relevant to surface water protection and source control. A draft plan incorporating the revised approach was submitted to EPA during the second quarter of 1992.

Spill Prevention Control and Countermeasures/Best Management Practices Plan (SPCC/BMP)

The Spill Prevention Control and Countermeasures/Best Management Practices Plan (SPCC/BMP) is a compilation of existing facility improvements, operational procedures, policies, and requirements for control of hazardous substances and oil spills. A certified draft of the SPCC/BMP was generated in October 1991. The second draft is expected by July 1, 1992, and a final document by September 30, 1992.

Storm Water Permit Application

The RFP, as a site with industrial activity, is required to submit an NPDES storm water permit application under regulations promulgated in November 1990. The original application deadline of November 17, 1991, was changed to October 1, 1992. A network of six storm water monitoring locations was established during 1991 (with the approval of EPA), which will provide storm water quality information for run-off that leaves the core area of Rocky Flats. Automated sampling equipment will allow the collection of flow-composited samples to characterize the run-off, while data loggers will collect and store flow information at each monitoring location.

Colorado Water Quality Control Commission (CWQCC) Water Quality Standards

In September 1991, the Colorado Water Quality Control Commission (CWQCC) agreed to hear a petition by DOE to reconsider the classification of Segment 5 of Big Dry Creek. Segment 5, which includes tributaries from source to Ponds A-4, B-5 and C-2, is currently subject to "goal" standards, a qualifier that indicates that the waters are presently not fully suitable but are intended to become fully suitable for the classified use. The CWQCC must take action on the goal standards before February 1993, or the standards now established for Segment 4 (from pond outlets to Standley Lake and Great Western Reservoir) will apply to Segment 5. The hearing is scheduled for October 1992. DOE and EG&G Rocky Flats, Inc., also obtained party status to statewide radionuclide standards hearings held in March 1992.

Compliance Issues

The EPA conducted a Compliance Evaluation Inspection on June 21, 1991, to review the findings of the Compliance Sampling Inspection of February 27-28, 1990. The Summary of Findings attached to the inspection report states that no deficiencies were found at the time of the inspection.

SAFE DRINKING WATER ACT (SDWA)

The SDWA establishes primary drinking water standards for water delivered by a public water supply system, defined as a system that supplies drinking water to either 15 or more connections or 25 individuals for at least 60 days per year. The RFP water supply system meets these criteria and is termed a non-community, non-transient system because persons who use the water do so on a daily basis but do not live at the site.

RFP periodically evaluates plant drinking water for various water quality parameters including primary and secondary water contaminants, inorganics, volatile organic compounds, and radionuclides. Results of these analyses are reported to the CDH weekly, monthly, quarterly, and annually depending on the type of analyses performed. A complete description of the drinking water monitoring program at RFP is given in the 1991 *Rocky Flats Plant Environmental Monitoring Plan* (EG91m).

TOXIC SUBSTANCES CONTROL ACT (TSCA)

The Toxic Substances Control Act (TSCA), administered by the EPA, authorizes testing and regulation of chemical substances that enter the environment. TSCA supplements sections of the Clean Air Act (CAA), the Clean Water Act (CWA), and the Occupational Safety and Health Act (OSHA). Compliance with TSCA at the RFP is directed at management of polychlorinated biphenyls (PCBs) and asbestos.

Compliance Issues

In 1991 one 55-gallon drum of nonradioactively contaminated PCB waste was shipped offsite for disposal. Disposal sites for radioactively contaminated PCB wastes are unable to receive RFP waste at this time. RFP is storing radioactively contaminated PCB waste beyond the 1-year storage time limit imposed by TSCA regulations. DOE notified the EPA that storage would be

necessary until a commercial or DOE treatment and disposal facility capable of receiving this waste could be identified.

Nonradioactively contaminated asbestos waste is shipped offsite for disposal in a permitted landfill. Radioactively contaminated asbestos waste is being stored onsite until disposal at the Nevada Test Site or a commercial facility is approved.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The Resource Conservation and Recovery Act (RCRA) provides cradle-to-grave control of hazardous waste by imposing management requirements on generators and transporters of hazardous wastes and on owners and operators of treatment, storage, and disposal facilities. The State of Colorado, under authority of EPA, regulates hazardous waste and the hazardous component of radioactive mixed waste at RFP. EPA retains authority for regulation of Land Disposal Restricted (LDR) wastes. Solely radioactive wastes are regulated by the Atomic Energy Act of 1954 as administered through DOE orders.

RCRA Part A and Part B Permit

The RCRA Part A permit application identifies (1) facility location, (2) owner and operator, (3) hazardous and mixed wastes to be managed, and (4) hazardous waste management methods. A facility that has submitted a RCRA Part A permit application is allowed to manage hazardous wastes under transitional regulations known as interim status pending issuance of a RCRA Operating Permit. The RCRA Part B permit application consists of a detailed narrative description of all facilities and procedures related to hazardous waste management. The RCRA Operating Permit is based on the RCRA Part B permit application and contains specific detailed operating conditions for the waste management units addressed by the permit. RCRA Parts A and B permit applications for RFP cover hazardous waste treatment and storage operations. RFP does not perform hazardous waste disposal.

Part A Permit. Since the early 1980s, a series of RCRA Part A permit applications have been submitted to the CDH. During 1991, the Part A permit application for hazardous and low-level mixed waste was revised twice. Revision 7 was submitted to CDH in June 1991 requesting a change to interim status to operate certain Non-Destructive Assay (NDA) areas and to correct several EPA waste code listings. This request for change to interim status was resubmitted to CDH as permit modifications request #4 in January 1992. Revision 8 of the Part A permit application for hazardous and low-level mixed waste was submitted in July 1991 and included the new Toxicity Characteristic Leaching Procedure (TCLP) EPA codes and requested low-level mixed waste storage and treatment in two existing Size Reduction Facilities.

The RCRA Part A permit application for transuranic (TRU) mixed waste was revised twice during 1991. Revision 5 was submitted to CDH in June 1991 requesting a change to interim status to operate certain NDA areas and to correct several EPA waste code listings. This request for change to interim status was resubmitted to CDH as permit modification #4 in January 1992. Revision 6 was submitted in July 1991 and included the new TCLP EPA codes.

A major development for the Part A applications occurred in August 1991 when the Part A permit application for hazardous and low-level mixed waste (Revision 8) and the Part A permit application for TRU mixed waste (Revision 6) were consolidated and submitted to CDH as the Combined Hazardous Waste, Low-Level Mixed Waste and TRU Mixed Waste Part A permit application

(Revision 1). This consolidation simplified the Part A application interim status process. Among the items included in the Combined Part A application were four new storage areas for wastes generated by environmental restoration activities. CDH approved some of the changes requested in the Combined Part A in August 1991; however, other requested changes are pending CDH approval.

Two other changes to interim status were requested in a letter during 1991 and did not include a revised Part A permit application. These changes included requests to supercompact low-level mixed waste (August 1991) and to enhance evaporation at the solar ponds (September 1991).

Part B Permit. A significant milestone in RFP's RCRA history occurred in September 1991 when CDH issued the Part B Operating Permit for 9 of 20 hazardous and low-level mixed waste storage units. The permit became effective in October 1991. Three permit modification requests were subsequently submitted to CDH in 1991. Permit Modification Request No. 1 was a Class II modification submitted in October 1991 for changes to the permit's contingency plan, waste analysis plan, and unit descriptions. CDH granted temporary authorization for this permit modification in October 1991, and a public comment meeting was held in December 1991. This permit modification request was approved by CDH on April 30, 1992. Permit Modification Request No. 2 was a Class I modification submitted to CDH and effective in November 1991 and corrected several administrative errors in the permit. Permit Modification Request No. 3 was a Class I modification submitted in December 1991 and removed an interim compliance date from the training section of the permit in anticipation of revising the training section in 1992.

In October 1989, CDH issued a Notice of Intent to Deny (NOID) for the remaining 11 hazardous and low-level waste storage units. RFP submitted a revised Part B permit application on March 1990 to address these units. This additional information is under review by CDH. Likewise, the Part B permit application for TRU mixed waste continues to be under review by CDH.

RCRA Closure Plans

RCRA closure plans identify procedures for decontaminating/decommissioning hazardous waste management units from service to prevent both short- and long-term threats to human health and the environment. These plans describe measures to eliminate or minimize future maintenance of hazardous waste management units, to control releases of hazardous constituents and to permanently close these units. Post-closure monitoring is required if "clean closure" of a unit under RCRA cannot be achieved.

Hazardous waste management facilities that operate under interim status (40CFR265) and facilities that will operate under a permit (40CFR264) must be addressed in RCRA closure plans (40CFR 264 and 265, Subpart G). Closure plans for facilities that begin or continue operation following the interim status period must be addressed in the RCRA Part B permit. Land disposal hazardous waste management facilities that discontinue operation during the interim status period and that cannot be "clean closed" in accordance with applicable RCRA regulations, must submit RCRA Part B post-closure care permit applications for interim status units. These are units that have been removed from service but require post-closure monitoring and maintenance.

Closure plans for the Solar Evaporation Ponds (Operable Unit 4 [OU 4]), Present Landfill (OU 7), Original Process Waste Lines (OU 9), and West Spray Field (OU 11) were submitted to CDH in 1986 and 1988. These closure plans have been superseded by the January 1991 Inter-Agency Agreement (IAG). The IAG requires all interim status closure units to use a combination of RCRA and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

criteria. The IAG requires RCRA Facility Investigations/Remedial Investigations (RFI/RI) work plans as a function of characterizing the source of the contamination and the soils of an interim status closure unit. Draft Phase I RFI/RI work plans were submitted to CDH and EPA in 1990 for the Solar Evaporation Ponds, Present Landfill, Original Process Waste Lines, and West Spray Field and for Other Outside Closures (OU 10) in 1991.

RFP continued groundwater monitoring of OU 4, OU 7, and OU 11 in 1991. Major activities included groundwater and surface water monitoring and installation of new groundwater monitoring wells. The 1990 RCRA annual groundwater monitoring report for OUs was submitted to CDH and EPA on March 1, 1991 (EG91b), and the 1991 RCRA report was submitted on March 1, 1992 (EG92a). The CWQCC held hearings in February 1991 to determine whether the groundwater at RFP should be subject to site-specific standards and classifications. This action was followed by promulgation of standards and classifications on March 15, 1991, becoming effective on April 30, 1991. All unconfined groundwater was made subject to the most stringent surface water standards at RFP. The alluvial aquifers were classified as Domestic Use - Quality, Agricultural Use - Quality and Surface Water Protection. The Arapahoe and Laramie-Fox Hills aquifers were classified Domestic Use - Quality and Agricultural Use - Quality.

A discussion of 1991 compliance activities for remediation of contaminated sites at RFP, including the preparation of remedial investigation work plans, interim remedial action decisions, and project management plans, is provided in Section 4, Environmental Remediation Programs.

RCRA Contingency Plan

The RCRA Contingency Plan (Part VI of the RCRA Permit) is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. RFP implements the Contingency Plan for the following situations.

- A hazardous waste incident results in an injury requiring more than first-aid.
- A spill, leak, or other release of a hazardous waste to the air, soil, or surface water (i.e., outside a building) if the release is greater than 1 pint or 1 pound.
- A spill, leak, or other release of hazardous waste inside a building results in (1) a release that exceeds a reportable quantity equivalent volume as defined in Title 40CFR302, or (2) a spilled material from a hazardous waste tank system not removed from secondary containment within 24 hours.
- A fire and/or explosion in which a hazardous waste release or an active hazardous waste management unit is involved.
- Situations other than those outlined above at the discretion of the Emergency Coordinator.

In 1991 RFP filed 35 RCRA Contingency Plan Implementation Reports with CDH. These reports described the nature and magnitude of releases, an assessment of actual or potential hazards to human health or the environment, and actions taken to remediate contaminated areas.

Twenty-four Contingency Plan reports documented the release of hazardous substances that were not hazardous wastes before the release. After October 30, 1991, this type of release will not automatically result in implementation of the RCRA Contingency Plan. Of these 24 releases, one

release was of mercury (which was contained within a building), one possible release was Di-n-octyl phthalate (analysis confirmed that Di-n-octyl phthalate was not released), and 22 releases were petroleum or antifreeze products (10 of these releases were from private vehicles).

Of the remaining 11 Contingency Plan reports, only two involved the release of a hazardous waste outside a building: (1) approximately 3 quarts of battery acid were released to a paved area from an overturned, used Ni-Cd battery, and (2) approximately 5 gallons of decontamination water containing a minute concentration (< 20 micrograms per liter [$\mu\text{g/L}$]) of a listed substance (trichloroethene) were released to paved roads from a tanker during transport. The nine remaining reports were for the following incidences.

- Release of approximately 154 gallons of Kathene solution (which contained toxic levels of chromium) from four different events. All of the Kathene releases were contained within Building 707 (four separate reports were filed).
- Release of approximately 750 gallons of process aqueous waste from a RCRA-regulated tank into the secondary containment of Building 731.
- Release of approximately 40 gallons of TRIM™SOL lubricant mixed with waste oil into a secondary containment pan inside a cargo container within RCRA storage Unit #1.
- Exceedance of the 24-hour requirement to remove a released material (< one pound of caustic solids) from the secondary containment system in Building 883.
- Compensatory actions taken while operating RCRA units (the process waste transfer system, Units # 40.50 through 40.69, and laundry waste collection tank, Unit 40.16) without adequate secondary containment (two separate reports were filed).

EPA National Response Center Notifications

In 1991, per the requirements of 40CFR302.6, RFP notified the National Response Center (NRC) of four releases to the environment of a hazardous substance that equaled or exceeded the reportable quantity. All of these releases involved small quantities (<2 gallons) of ethylene glycol/water mixtures. The releases were immediately cleaned up, minimizing impact to the environment. No notifications were made to the Local Emergency Planning Committees (LEPC) or State Emergency Response Commission (SERC) because exposure was limited to persons within the boundaries of the plant.

Waste Minimization

A Waste Minimization Program Plan and Pollution Prevention Awareness Plan was submitted to EPA and CDH on September 10, 1991. This plan included projects and building waste minimization and pollution prevention goals.

Radioactive and Mixed Waste. Primary waste generation sources for 1991 involved resumption activities for Buildings 559 and 770, saltcrete production from process waste water treatment, construction projects, and routine maintenance requirements. TRU waste production increased slightly from 77 m³ in 1990 to 79 m³ in 1991. TRU waste production in 1989 was 806m³. Low-level waste production declined from 3,541 m³ in 1989 and 1,830 m³ in 1990 to

1,534 m³ in 1991. This represents a decline of over 15 percent in radioactive waste production from 1990 to 1991.

Activities to reduce generation of radioactive wastes continued in 1991. Specific projects included the evaluation of a carbon dioxide pellet-blasting system for decontamination work, testing of a hydrocyclone for the removal of particulate in liquid process lines, and the study of more efficient alternatives to current inline liquid filters. Engineering design began in 1991 for the installation of a uranium chip washer/dryer that will replace the current method of "chip roasting" and land disposal with a method that will allow the chips to be cast into ingots for recycle.

Hazardous Wastes. Hazardous nonradioactive waste generation decreased from 73 m³ in 1989 and 69 m³ in 1990 to 53 m³ in 1991, representing a 23 percent reduction from 1990 to 1991. Waste oil contamination, solvent contamination, and heavy metals (mainly mercury from crushed fluorescent light bulbs) accounted for 45 percent, 22 percent, and 20 percent, respectively, of the hazardous waste generated.

An oil conservation project was initiated in 1991. The intent of the project was to combine oil testing, filtration, and recycling to prevent the generation of oils that will be considered hazardous wastes. Another project initiated in 1991 was aimed at the abatement of releases of ozone depleting chlorofluorocarbons to the atmosphere from plant refrigeration and air conditioning systems. Following are quantities of solvents, garage oils, and coolants that were reclaimed and recycled in 1991.

- 168 kilograms (kg) of RCRA hazardous cleaning solvents
- 1,497 kg of hazardous garage oil
- 4,374 kg of solvents
- 8,836 kg of machine coolant

The garage oil, solvents, and machine coolant were recycled for fuel blending during 1991.

Solid (Nonhazardous) Wastes. The amount of recycled paper increased from 104,420 kilograms (kg) in 1989 and 105,219 kg in 1990 to 170,295 kg in 1991, representing a 62 percent increase from 1990 to 1991. The amounts of garage oil and unregulated machine coolants recycled for fuel blending were 10,927 kg and 6,432 kg, respectively. A moratorium on offsite shipments of scrap metals decreased sales of these metals in 1991. However, 14,733 kg of stainless steel turnings and 55,594 kg of mild steel were sold in 1991.

Two activities to reduce solid waste generation were implemented during 1991. Water saving shower heads were installed in many of the plant's showers, with a goal of reducing water usage by approximately 7.8 million gallons per year. The replacement of disposable serviceware in several of the plant's cafeterias began in 1991. These items continue to be replaced by washable items in an effort to reduce cafeteria waste disposal in the sanitary landfill.

Compliance Issues

Settlement Agreement and Compliance Order on Consent No. 89-10-30-01 (commonly referred to as "Residue Compliance Agreement"). On November 3, 1989, the DOE, CDH, and EPA signed the Settlement Agreement and Compliance Order on Consent No. 89-10-30-01 regarding alleged violations of the RCRA hazardous waste regulations pertaining to proper waste management of residues. RFP submitted a series of documents in compliance with this Consent Order, the last of which was the Mixed Residues Compliance Plan (September 28, 1990).

The Mixed Residues Compliance Plan was prepared to meet the requirements of the Settlement Agreement and Compliance Order on Consent, as well as to provide a schedule for compliance with the conclusions of the United States District Court for the District of Colorado in the Civil Action No. 89-B-181, Sierra Club, Plaintiff, vs. United States Department of Energy, and Rockwell International Corporation, a Delaware Corporation, Defendants. The Mixed Residues Compliance Plan included actions to bring residues into compliance with the Colorado Hazardous Waste Regulations found in 6 CCR 1007-3 Parts 100, 262 and 265, methods to minimize generation of RCRA regulated residues, and actions to reduce the amount of RCRA-regulated residues in storage.

In May and June 1990, the Sierra Club amended its 1989 complaint (Civil Action No. 89-B-181) requesting that the court place a permanent or preliminary injunction against the DOE prohibiting the restart of Rocky Flats. This amended complaint alleged that the DOE was not managing hazardous waste at Rocky Flats in accordance with the RCRA. On August 13, 1991, the United States District Court for the District of Colorado decided in partial favor of the Plaintiff for a permanent injunction in Civil Action No. 89-B-181, Sierra Club, Plaintiff, vs. United States Department of Energy, Defendant, stating that if the DOE does not obtain a permit for the mixed residues currently being stored without a permit or interim status within 2 years of the court judgement, the DOE shall conduct no operations (except for maintenance and safety activities to maintain the safety of Rocky Flats in a non-operational status) that generate any hazardous waste or mixed radioactive and hazardous waste.

On July 31, 1991, the CDH issued to RFP Compliance Order No. 91-07-31-01, which indicated that the Mixed Residues Compliance Plan was inadequate and therefore violated the November 1989 order. In addition, on August 1, 1991, the CDH filed a complaint in court, alleging that the DOE had submitted an inadequate plan in violation of the November 1989 order and directing the DOE to meet the terms of the Compliance Order. Compliance Order No. 91-07-31-01 specifies a schedule for removing all backlog mixed residues from RFP by January 1, 1999, and specifies a schedule by which mixed residues will be brought into physical and administrative compliance with the Colorado Hazardous Waste Regulations. Activities are in progress to meet the requirements of the Compliance Order and to negotiate a Consent Order for the management of mixed residues.

Federal Facility Compliance Agreement (FFCA) for Land Disposal Restricted Waste. A compliance order on consent was signed on September 19, 1989, by DOE, EPA Region VIII, and the State of Colorado to provide a 1-yr period for DOE to work towards compliance with the land disposal restrictions of the Hazardous and Solid Waste Amendments of 1984 for mixed wastes. The FFCA covers radioactive wastes that were prohibited as of the FFCA effective date, which includes wastes containing solvents and dioxins that do not meet the treatment standards specified by EPA, or "California List" wastes containing hazardous constituents above the applicable allowable levels for land disposal. During the period of the original agreement, DOE

was to take all feasible steps to ensure the accurate identification, safe storage, and minimization of restricted waste prohibited from land disposal.

A new agreement, commonly referred to as FFCA-II, was signed on May 10, 1991, by representatives from EPA and DOE. This new agreement is an expansion of the original September 1989 agreement, and again provides the mechanism for DOE to achieve compliance with the LDR portion of the RCRA regulations. FFCA-II is valid for a period of 2 years, during which DOE will continue to put in place those physical and administrative controls necessary to demonstrate compliance with LDR. Specific milestones and schedules will be prepared to demonstrate that proposed activities are planned to bring RFP into compliance with LDR regulations.

During 1991, the State of Colorado received authority from EPA to administer portions of the land disposal restriction regulations. Accordingly, a new agreement between DOE and the CDH will be negotiated to replace the existing FFCA II. This negotiation process is expected to be complete prior to expiration of the FFCA II (May 1993).

As with the original agreement, FFCA-II requires submittal of a variety of reports and plans that outline the development and implementation of various treatment technologies to treat mixed wastes before disposal at offsite locations. Submittal of the reports and plans constitutes the primary milestones under the current agreement. Under the terms of the agreement, most of these document submittals are subject to review and/or approval by EPA. These reports and plans are briefly described as follows.

- *Comprehensive Treatment and Management Plan* - This document will describe the justification, selection, and applicability of treatment technologies to LDR wastes at RFP and will include schedules and milestones for developing and implementing chosen technologies. The milestones set forth in the Comprehensive Treatment and Management Plan become enforceable milestones upon approval of the document by EPA.
- *Waste Minimization Plan* - This annual document will discuss current and future initiatives undertaken by RFP to eliminate or minimize the generation of mixed waste.
- *Annual LDR Progress Report* - This document will provide an update and status on the scope and magnitude of LDR mixed waste issues at RFP including quantities of waste in storage, storage locations, progress in LDR determinations and characterization efforts, and treatment technology implementation.
- *Residue Management Report* - This document will describe the plans for bringing the management of mixed residues into compliance with the LDR requirements as a companion document to the Residue Management Plan being prepared under terms of the Residue Compliance Order.
- *Non-Radioactive Hazardous Waste Shipping Schedule* - This document will identify the mechanisms and schedules by which existing non-radioactive hazardous wastes can be shipped offsite for disposal.
- *Waste Stream and Residue Identification and Characterization (WSRIC) Report* - This annual document will be a revision to the existing WSRIC prepared in 1990.

The Waste Minimization Plan was submitted in September 1991. All other reports are scheduled for completion in 1992.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)

The CERCLA and its major amendments (Superfund Amendment and Reauthorization Act [SARA]) provide funding and enforcement authority for restoration of hazardous waste sites and for responding to hazardous substance spills. Sites contaminated by past waste activities must be investigated and remediation plans developed and implemented. The intent of these actions is to minimize the release of hazardous waste or other hazardous materials, thereby protecting human health and the environment. CERCLA requirements are addressed in a series of sequential phases designed to identify, design, and complete restoration of contaminated sites. CERCLA activities at RFP are dictated by the IAG.

RFP was added to the National Priorities List (NPL) on October 4, 1989. The NPL is an ordered ranking of CERCLA sites evaluated using the Hazardous Ranking System. If a site scores above a certain threshold level set by EPA, the site is placed on the NPL.

INTER-AGENCY AGREEMENT (IAG)

The IAG was renegotiated early in 1990 following receipt of public and agency comments on the draft agreement submitted for review in December 1989. A revised agreement was published on August 17, 1990. The final agreement, reached in January 1991 and signed by EPA, CDH, and DOE, included the following revisions.

- OUs were re-ordered to emphasize priority of offsite areas (i.e., areas located east of Indiana Street).
- The number of OUs was increased from 10 to 16 to better focus on the unique characteristics of different restoration areas (Table 2-3).

Table 2-3
Former and Current Prioritization of Operable Units
by the Inter-Agency Agreement

<u>Former Operable Unit (OU) Number</u>	<u>OU Number Under Final IAG (effective 1-11-91)</u>	<u>Description</u>
01	01	881 Hillside Area
02	02	903 Pad Area
10	03	Offsite Areas
03 Solar Ponds	04	Solar Ponds
04 Woman Creek	05	Woman Creek
04 Walnut Creek	06	Walnut Creek
03 Present Landfill	07	Present Landfill
05	08	700 Area
03 OPWL	09	Original Process Waste Lines
03 OOC	10	Other Outside Closures
03 West Spray Field	11	West Spray Field
06	12	400/800 Area
07	13	100 Area
09	14	Radioactive Sites
03 Inside Building Closures	15	Inside Building Closures
08	16	Low-Priority Sites

The IAG clarifies EPA, CDH, and DOE regulatory roles, coordinates oversight efforts and corrective actions, standardizes requirements, and ensures compliance with orders and permits. The agreement also specifies delivery of major reports, project management activities and milestones, and includes community involvement and decision making responsibilities. The IAG establishes a procedural framework and schedule through which response actions are developed, implemented, and monitored in accordance with CERCLA, RCRA, and the Colorado Hazardous Waste Act.

Documents prepared in accordance with the IAG cover a range of topics including remedial investigation work plans, interim remedial action decisions, community survey plans, project management plans, and health and safety plans. A series of monthly and quarterly Environmental Compliance Action reports document progress against IAG milestones (DOE91e, DOE91f). Table 2-4 lists IAG milestones completed in 1991. Section 4, Environmental Remediation Programs, describes remediation activities accomplished at RFP during 1991.

Table 2-4
IAG Milestones Completed in 1991

<u>IAG Milestone</u>	<u>Operable Unit</u>
Final RS ^a and Final IM/IRA ^b Decision Document	02
Final Community Relations Plan	00
Draft Phase II RFI/RI ^c Work Plan (Bedrock)	02
IM/IRA Implementation Document	01
Final Standard Operation Procedures	00
Final SOPs Addendum for OU 1 Phase II RFI/RI Work Plan	00
Final Quality Assurance Project Plan	00
Final SOPs Addendum for OU 2 Phase II RFI/RI Work Plan	00
Begin Phase II-A IM/IRA Construction	01
Final Past Remedy Report	03
Draft Work Plan for Discharge Limits for Radionuclides	00
Draft Phase I RFI/RI Work Plan	05
Final Historical Information and Preliminary Health Risk Assessment Report	03
Draft Phase I RFI/RI Work Plan	06
Field Treatability Test System Installation Complete	02
Final Treatability Study Plan	00
Community Relations Plan Responsiveness Summary	00
Final Phase II RFI/RI Work Plan (Bedrock)	02
Draft Phase I RFI/RI Work Plan	03
Final Plan for Prevention of Contaminant Dispersion	00
IM/IRA Testing	01
Final Phase I RFI/RI Work Plan	07
Final Phase I RFI/RI Work Plan	05
Begin Phase II-B IM/IRA Construction	01
Final Work Plan for Discharge Limits for Radionuclides	00
Final Phase I RFI/RI Work Plan	06
Responsiveness Summary on PPCD	00
Final Phase I RFI/RI Work Plan	04
Final Phase I RFI/RI Work Plan	09
Draft Phase I RFI/RI Work Plan	10
Final Phase I RFI/RI Work Plan	03

- a Responsiveness Summary
- b Interim Measures/Interim Remedial Action
- c RCRA Facility Investigation/Remedial Investigation

Remediation Goals

The CERCLA requires that remediation goals comply with applicable or relevant and appropriate requirements (ARARs) of federal laws or more stringent promulgated state laws in relation to cleanup standards. ARARs are generally dynamic in nature in that they evolve from general to very specific during the CERCLA Remedial Investigation/ Facilities Study (RI/FS) process. Final remediation objectives are comprised of both ARARs and risk assessment information and will be determined in the Record of Decision (ROD). The development of cleanup standards at RFP follow the general procedures described below.

Initially, during the RFI/RI work plan stage, potential chemical-specific ARARs are identified, usually based on a limited amount of data. Chemical-specific ARARs at this point have meaning only in that they may be used to establish appropriate detection limits so that data collected during the RFI/RI may be compared to ARAR standards. As more information becomes available during the RFI/RI stage, chemical-specific ARARs may become more refined as constituents are added or deleted. Detailed location-specific ARARs are proposed in the RFI/RI report as the result of the RFI/RI process. This is followed by action-specific ARARs and remediation goals that are identified through the Corrective Measures Study/Feasibility Study (CMS/FS). A discussion is provided in the CMS/FS report for each remedial alternative regarding the rationale for all ARAR determinations. Once a preferred remedial action alternative is formally selected in the ROD, all chemical-, location-, and action-specific ARARs are also defined in final form. CERCLA requires that remediation programs attain ARARs and are protective of human health and the environment.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)

EPCRA was enacted as a freestanding provision of the Superfund Amendments and Reauthorization Act (SARA) in 1986. EPCRA, also known as SARA Title III, requires facilities to notify state and local emergency planning entities of the presence of potentially hazardous substances in their facilities and to report on the inventories and environmental releases of those substances. The intent of these requirements is to provide the public with information on hazardous chemicals in their communities, enhancing public awareness of chemical hazards and facilitating development of state and local emergency response plans.

Sections 301 and 302

Under Sections 301 and 302, the EPA requires the establishment of state emergency response commissions (SERCs), which are responsible for the formation of emergency planning districts, and local emergency planning committees (LEPCs). Also under these requirements, facilities that produce, use, or store listed extremely hazardous substances above the threshold planning quantity must notify the SERC and the local planning committees. RFP participates in the activities of the LEPCs established under these sections for emergency planning at the county level of government. RFP also maintains an emergency preparedness document for the plant and conducts annual mock emergency response scenarios to determine the effectiveness of the plan and the ability of plant directorates to respond.

Section 304

Section 304 applies to releases of extremely hazardous substances that exceed their reportable quantities and have the potential for impact beyond the plant's boundaries. If the release is determined not to pose a potential impact beyond the plant's boundaries, then reporting is not required under SARA Section 304; however, since a chemical may be listed on both the Extremely Hazardous Substances list under SARA and the CERCLA Hazardous Substances list, reporting may still be required under CERCLA Section 103(d) to the National Response Center, EPA, and CDH. When a release occurs that is subject to Section 304, the facility owner or operator must notify the state and local emergency planning committee immediately by phone and again in writing as soon as practicable. Section 304 requirements apply specifically to facilities such as RFP that produce, use, or store one or more hazardous chemicals as defined by the OSHA Hazard Communication Standard. The Permitting and Compliance group of RFP's Waste Programs Department makes these notifications if such releases occur.

In 1991, there were no reportable releases of extremely hazardous substances or CERCLA hazardous substances that posed a potential impact beyond RFP boundaries.

Section 311

Under Section 311, facilities must submit to the SERC, LEPC, and the fire department, copies of Material Safety Data Sheets (MSDSs) or a list of all chemicals above certain thresholds that are defined as hazardous by the OSHA Hazard Communication Standard. After the initial submittal, Section 311 requires the submittal of updates within 3 months for new chemicals that become subject to the OSHA Hazard Communication Standard or after discovering new information. This information was provided to the SERC, LEPC, and the fire department by RFP's Industrial Hygiene Department in 1987 to meet the original requirements; MSDS updates were provided to these agencies when required.

Section 312

Section 312 of EPCRA requires facilities to prepare an annual report titled "Tier II Emergency and Hazardous Chemical Inventory Forms," listing the quantities and locations of hazardous chemicals, or a "Tier I" chemical list report. This section covers hazardous chemicals under OSHA's Hazard Communication standard (with limited exceptions) that are stored at a facility in excess of 10,000 pounds or in excess of a chemical-specific listed Threshold Planning Quantity. Any facility required to prepare or have available an MSDS for a hazardous chemical under OSHA's Hazard Communication standard must submit Tier I information on a form or, if requested or in lieu of Tier I submittal, Tier II information to the SERC, LEPC, and the local fire department. The Tier I or Tier II information must be submitted annually, beginning on March 1, 1988. RFP submitted this report to the following agencies for the calendar year 1990 report: Colorado Emergency Planning Commission, Jefferson County Emergency Planning Committee, Boulder County Emergency Planning Committee, and the Rocky Flats Fire Department (jurisdictional fire department).

Section 313

Section 313 of EPCRA requires that facilities prepare an annual report titled "Toxic Chemical Release Inventory, Form R," if annual usage quantities of listed toxic chemicals exceed certain thresholds. Following were the threshold chemical usage quantities for 1991.

- 25,000 pounds for listed chemicals either manufactured or processed
- 10,000 pounds for listed chemicals otherwise used

Facilities must report quantities of both routine and accidental releases of listed chemicals, maximum amount of the listed chemical stored onsite during the calendar year, and amount contained in waste transferred offsite. The owner or operator of the facility on the reporting date, July 1 of each year, is primarily responsible for reporting the data for the previous year's operations at that facility. Any other owner or operator of the facility from January 1 of the data generation year to June 30 of the reporting year may also be held liable. RFP submitted this report to the EPA and to the State of Colorado in 1991 detailing the chemicals used in 1990 (Table 2-5). Chemical usage for 1989 is also reported in Table 2-5 for comparison purposes.

Table 2-5
Chemicals and Quantities (lbs) Used in 1989 and 1990
as Reported on Form R Reports

<u>Chemical</u>	<u>1989</u>	<u>1990</u>
Nitric acid	223,387	10,244
Sulfuric Acid	58,300	-
Carbon tetrachloride	48,212	-
1,1,1-trichloroethane	45,634	-
Phosphoric acid	44,195	-
Hydrochloric acid	27,575	12,785
Ethylene glycol	13,423	-
Freon 113	12,545	-

Carbon tetrachloride and Freon 113 were used in decreasing quantities at RFP between 1988 and 1990 as a result of waste minimization efforts and the curtailment of plant operations and were used in quantities less than 10,000 pounds in 1990. Many chemicals reported in 1988 and 1989 do not appear on the 1990 list as the result of declining use because of the suspension of plutonium operations.

AGREEMENT IN PRINCIPLE (AIP)

An Agreement in Principle (AIP) was executed between DOE and the State of Colorado on June 28, 1989. This agreement identified additional technical and financial support by DOE to Colorado for environmental oversight, monitoring, remediation, emergency response, and health-related initiatives associated with the RFP. The agreement also addressed RFP environmental monitoring initiatives and accelerated cleanup where contamination may present an imminent threat to health or the environment. The agreement is designed to ensure citizens of Colorado that public health, safety, and the environment are being protected through accelerated existing programs and substantial new commitments by DOE, and through vigorous programs of independent monitoring and oversight by Colorado officials.

Programs and projects put into place under this agreement include the air emissions inventory (see Clean Air Act above) and concurrent sampling of pond discharges (see Clean Water Act above) and the Rocky Flats Toxicological Review and Dose Reconstruction study. This latter study, being conducted by CDH, is intended to examine chemical and radionuclide emissions from RFP and assess what health impacts, if any, may have occurred to the public. A draft report on the history of operations at RFP was completed in February 1992 as part of this study (CDH92).

SPECIAL ASSIGNMENT TEAM

On June 6, 1989, DOE mobilized a Special Assignment Team (Tiger Team) to provide an independent audit of operations and practices at RFP. This followed initiation of a search warrant by EPA based on an affidavit alleging regulatory and criminal violations of environmental law at RFP. The United States Department of Justice is conducting the investigation, and a federal grand jury has been convened to review RFP compliance with applicable environmental laws.

The environmental audit was completed on July 21, 1989, and results were reported in the *Assessment of Environmental Conditions at the Rocky Flats Plant* (DOE89). EG&G Rocky Flats, Inc., responded to findings of the Special Assignment Team in *Corrective Action Plan in Response to the August 1989 Assessment of Environmental Conditions at the Rocky Flats Plant* (EG90). This document outlines 93 separate action plans that contain descriptions of measures to be taken by RFP to address findings and includes schedules, milestones, associated costs, and parties responsible for implementing planned actions. Many of the activities described in this plan overlap or are similar to actions specified in the AIP and IAG described above and to the RFP Five-Year Plan (FYP) for environmental and waste programs (EG91c). Progress concerning these action plans has been described in quarterly reports titled *DOE Quarterly Environmental Compliance Action Report* (DOE91f). The Commitments Tracking System operated by EG&G Rocky Flats, Inc., monitors the status of action plans. Plan status may be "open," meaning that work continues on one or more tasks within an action plan; "in verification," meaning that the plan manager has certified that plan activities are complete and this is being verified; "reopened," meaning that not all plan tasks were verified as complete and further work is required; and "verified complete," meaning that all tasks have been completed and verified. As of December 1991, 34 action plans were verified as complete, 29 plans were in verification, and 30 plans were open.

SETTLEMENT AGREEMENT (Church vs. DOE, et. al.)

A settlement agreement among DOE, The Dow Chemical Company, Rockwell International, local governments, and private landowners was reached in July 1985, requiring remediation actions to reduce plutonium contamination on areas adjacent to the eastern boundary of RFP. Contamination originated from the area now designated as the 903 Pad and occurred through airborne dispersion of plutonium particles. Soils analyses revealed offsite plutonium levels that exceed the Colorado standard of 2 disintegrations per minute per gram (dpm/g) (0.9 picocuries per gram [0.9 pCi/g]) although the EPA screening level of 44.4 dpm/g (20.0 pCi/g) was not exceeded. Court-ordered remedial action was designated for 350 acres through plowing and revegetation to prevent resuspension of the plutonium. Legal ownership of these contaminated lands was transferred to Jefferson County and the City of Broomfield for reservoir expansion and open space (no public access is permitted). Approximately 120 acres of Jefferson County land have been treated by plowing, tilling, and seeding. Plutonium levels for these areas are now within state limits. Revegetation measures, including seeding and mulching, were conducted on plowed areas during 1991. Evaluation of revegetation success and weed control to encourage growth of desirable plant species will be conducted during 1992.