35309

AGREEMENT IN PRINCIPLE

Between the United States Department of Energy
and the State of Colorado

THIS AGREEMENT is entered into this 16th day of June, 1989, between the United States Department of Energy (DOE) and the State of Colorado. It reflects the understanding and commitments between the parties regarding DOE's provision to Colorado of additional technical and financial support for state activities in environmental oversight, monitoring, remediation, emergency response and health-related initiatives associated with the Rocky Flats Plant (RFP) and the acceleration of cleanup activities where contamination presents an imminent threat to health or the environment.

This Agreement is designed to assure citizens of Colorado that the health, safety and environment are being protected through accelerated existing programs and substantial new commitments by DOE, and through a vigorous program of independent monitoring and oversight by Colorado officials. These agreements are described in the Attachments hereto and in Amendment No. 4 to the Mutual Cooperation Agreement (MCA) between DOE and the State of Colorado, all of which are incorporated herein by reference. The five Attachments are:

Attachment A:	Monitoring
Attachment B:	DOE Cleanup Initiatives
Attachment C:	DOE Action Items
Attachment D:	Health-Related Initiatives
Attachment E:	DOE Financing for State Environmental Monitoring and Health Related Studies

In order to achieve the objectives of the agreement, the parties hereto agree as follows:

1. Attachment A outlines an expanded environmental monitoring system for the RFP, for which DOE will provide financial support. This additional monitoring is required to assure the safety of citizens in the review of the facility.

2. DOE will pursue accelerated cleanup of certain RFP contamination sites and sources as described in Attachment B, and as required by state and federal law. Such cleanup efforts will commence in 1989, and be accelerated to achieve earlier cleanup pursuant to applicable regulations.

3. DOE will pursue the additional initiatives described in Attachment C. The general intent of these DOE action items is to achieve a more comprehensive and integrated environmental management system at RFP. DOE will report regularly on progress of these items to Colorado.

4. DOE will provide additional funds to Colorado as defined in Attachment D. DOE will provide resources, as defined in Attachments

D and E, to Colorado to implement these initiatives. Colorado will form a Rocky Flats Health Advisory Panel consisting of medical, technical, public health and other representatives of local, state and federal agencies, including the United States Environmental Protection Agency (EPA), Colorado Department of Health (CDH), DOE, Rocky Flats Environmental Monitoring Council (RFMC) and members of the surrounding communities. The Health Advisory Panel will advise the Governor of Colorado and CDH and will recommend to them and to participating agencies the types and methodologies of studies necessary to determine human health effects.

5. DOE agrees to comply fully with all applicable state and federal environmental laws.

6. DOE will provide additional funds to Colorado as defined in Attachment E and in Amendment No. 4 to the MCA. These funds are being provided to allow Colorado to provide a greater level of assurance that compliance with federal and state environmental laws is being achieved and maintained on a continuing basis at the RFP. Such additional independent oversight, monitoring and surveillance is necessary to assure a high degree of protection for citizens and the environment of Colorado.

7. The parties hereto shall enter into good faith negotiations for an Interagency Agreement between themselves and the EPA, pursuant to Section 120 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986. The Interagency Agreement shall not diminish the responsibilities and authorities of the parties as expressed in the July 31, 1986, Compliance Agreement between the parties hereto and EPA or the responsibilities and obligations contained in this Agreement.

8. This Agreement and Attachments hereto will in no way diminish the authority of Colorado to fully carry out its statutory and regulatory responsibilities under state and federal law.

9. Any funds provided to Colorado under this Agreement are federal funds to be administered exclusively by the CDH.

10. Should new federal, state or community issues arise that are necessary to protect public health or the environment, DOE and Colorado will promptly commence discussions to modify this Agreement for their inclusion.

NOW, THEREFORE, the parties hereto have signed this Agreement in recognition of their pledge of mutual best efforts to achieve these ends through cooperation and negotiation in good faith in accordance with the understandings as set forth above.

Roy Romer Governor of Colorado	Admiral James Watkins Secretary of Energy
Date: June 16, 1989	Date: June 16, 1989

Attachment A

MONITORING

These are monitoring activities which are underway or which require immediate action to reassure citizens that their air and drinking water is safe. The state also will convene an independent panel to review monitoring system results and needed improvements. The DOE will support and provide resources for the following independent monitoring and verification activities.

A. Surface Waters and Treated Drinking Waters

1. Municipal Drinking Water

- The Colorado Department of Health (CDH) is working with the four municipalities of Broomfield, Westminster, Thornton and Northglenn, in their ongoing sampling of all organic chemicals (including the 15 unique chemicals found in the November analyses by EPA) and of radionuclides.

- In consultation with local government, CDH will develop a program for increasing the frequency of independent analyses of these drinking waters.

2. Samples of Stream Reservoir Quality

- The CDH is working with the municipalities and EPA in monitoring the quality of the reservoirs used for drinking water (Standley and Great Western reservoirs) by taking periodic samples for all organic chemicals (including the 15 unique chemicals) and for radionuclides.

3. Samples of On-Site Discharges

- Before any discharges from on-site ponds occur, the DOE will provide a full set of samples for organic chemicals and radionuclides. Periodic biomonitoring tests also will be performed. These samples will be split with EPA and/or CDH and will provide the basis for CDH to determine the safety of such discharges.

- The CDH will work with EPA in developing an independent sampling plan for all on-site discharges to surface waters.

B. Ground-Water Monitoring

- The CDH, in cooperation with EPA and the local municipalities, will review the current ground-water monitoring system and will recommend needed improvements. The analysis will include examination of the location, depth, sampling practice and quality of all wells.

- The CDH, in cooperation with EPA and the local municipalities, will continue regular monitoring of ground-water data.

- The CDH will sample existing boundary wells to determine if any contamination has moved to the plant boundaries.

- The DOE will expedite implementation of ground-water monitoring system improvements identified by CDH and EPA. This will include installation of over 50 additional wells in the remainder of 1989.

C. Air Quality Monitoring

- The DOE will submit a comprehensive air emissions inventory for CDH review.

- The DOE will provide a comprehensive materials balance of VOCs for CDH review.

- The DOE will identify all the toxic and radioactive emissions coming from the facility (stacks, vents, ponds, etc.) and will support CDH in the use of an accepted emissions model to predict any areas of off-site impact.

- DOE will conduct promptly the stack testing necessary to verify the amount and type of emissions.

- The DOE will install continuous emission monitors in all appropriate sources to ensure continuous compliance with air pollution requirements.

- CDH will prepare a comprehensive review, in cooperation with EPA and local governments, of the air monitoring system and will implement needed improvements to the air quality monitoring network.

- CDH will deploy VOC ambient monitors offsite, as necessary.

Attachment 3

DOE ACTIONS

- Information on hazardous or radioactive releases: DOE agrees to expeditiously provide all information to the state associated with releases of hazardous substances, pollutants, contaminants and radioactive materials from the facility.

- DOE auditing of the facility: DOE will expand regulatory and safety compliance personnel at the facility. DOE will develop a new Rocky Flats office that increases direct communication with DOE headquarters and substantially increases DOE official oversight, auditing and safety compliance activities at the plant. DOE will report to the Governor with organization strategy by July 1, 1989.

- Q-Clearances: Expedite handling of Q-clearance process for forthcoming applications by state officials.

- Office for State and EPA officials: Establish an office space on the plant grounds for state and federal monitoring personnel. This facility should provide office and communication space for daily use by state officials. A temporary facility should be available in June 1989.

- Environmental compliance audit: DOE is conducting a comprehensive environmental compliance audit of all activities that have environmental impacts and will review performance and compliance with all existing state and federal environmental laws. DOE will report to the Governor, the Colorado Department of Health and the Rocky Flats Monitoring Council by September 1989.

- Waste minimization audit: DOE is conducting a facilitywide waste minimization audit that recommends how existing hazardous and radioactive materials can be reduced in use, volume or eliminated from plant operation. DOE will report to the Governor by December 1989.

- Source Reduction and Zero Discharges Study: Conduct a study of all available methods to eliminate Rocky Flats discharges to the environment including surface waters and ground water. This review should include a source reduction review.

- Background Studies: DOE is conducting a "background characterization" of ground water and soils on and near the plant site to determine the base level of naturally occurring radioactive and hazardous constituents. It will submit a draft water report, based on available data, to the Colorado Department of Health by the November 1, 1989, and a draft soil report by December 30, 1989.

- Increase Waste Characterization: Update and revise the plant's current waste-characterization plan. Expand and provide more detail on the nature, quantities and hazard associated with all

hazardous, mixed [illegible] radioactive wastes in use on the plant site. Provide a status report to the Colorado Department of Health by September 30, 1989, and completion of a draft report by September 1990 with periodic updates.

- Low-level mixed waste disposal plan: Develop a plan for low-level mixed waste treatment and disposal. Currently, DOE has no plan for the ultimate treatment or off-site disposal of low-level mixed wastes. This report should recommend how the facility intends to manage this type of wastes and provide a draft report to the Colorado Department of Health by November 30, 1989.

- Supercompactor: Expedite delivery and operation of the proposed supercompactor. DOE should prepare the necessary permit information to expedite approval by the State of Colorado.

- Document Availability: Make available all DOE or Rockwell documents or reviews that address safety and environmental compliance concerns. Such documents should be provided promptly to the Rocky Flats Environmental Monitoring Council, the Colorado Department of Health and other organizations.

- Access for state inspectors: State officials with a Q-clearance should be granted access to records and buildings to determine environmental compliance, without prior announcement, except in cases where safety precautions are necessary. Implement new policy by July 1, 1989.

- Need to Know policy: Clarify and provide written explanation to the Governor's Office and the Colorado Department of Health the current "need-to-know" security information policy that precludes state and local access to certain types of information at the plant.

- Incinerator Restart: Inform the state in advance of plans to restart the 771 incinerator or other major sources of incineration. DOE should provide state officials with access to the incinerator prior to startup and during operations.

- Incineration Data: Provide the state will all information pertinent to the operation of incinerators including a daily log of all material being placed in them.

- Emissions Data: Provide monthly data of all emissions from vents and stacks.

- Compliance with cleanup milestones: Cleanup and closure plans for all past contaminated sites should be in compliance with state and EPA milestones and deadlines.

- Regular Progress Reports: Provide monthly reports to the State of Colorado regarding the status of the facility.

Amendment D

ROCKY FLATS HEALTH STUDIES

The following are the elements of Rocky Flats health-related studies:

1. Toxicological review
2. A dose reconstruction
3. A quantitative risk assessment
4. Other epidemiological/health studies
5. Activities of the independent panels
6. Support for cancer and birth defects registries

In general, the state believes the following activities are needed:

I. STEP ONE

A. Assemble Panel I, write Request For Proposals (RFP) and select contractor:

The first step will be the formation of a panel (Panel I) to establish the parameters of a toxicologic review and dose reconstruction study to be accomplished by the RFP. Panel I will consist of:

1. Scientists from radiation epidemiology, radiation dosimetry, health physics, environmental toxicology, statistics, environmental transport, and risk assessment backgrounds;

2. Representatives from the Colorado Department of Health;

3. Other individuals/agencies representing these areas of expertise. Panel I will consist of seven members of which two will be from Colorado. The panel will be selected in consultation with DOE.

Product: A panel representative of national and local expertise and local interests, an RFP that adequately describes the scope of work to be accomplished and selection of a contractor capable of completing the tasks defined in the RFP.

Timeframe: Three months, beginning August 1989.

B. Assemble Panel II.

Purpose: The purpose of this panel is to provide oversight for all Panel I contractor activities. This second independent panel, consisting of approximately 15 people, will be formed by the DOH in consultation with the Colorado Department of Energy, the Rocky

Flats Environmental Monitoring Council and others to review the findings of the toxicological review, dose reconstruction and quantitative health risk assessment, to verify the credibility of the information, and to determine the feasibility of further health-related studies. The panel will consist of: (a) scientists from radiation epidemiology, radiation dosimetry, health physics, environmental toxicology, statistics, environmental transport and risk assessment backgrounds, (b) representatives from the Colorado Department of Health, (c) other individuals/agencies representing those areas of expertise, and (d) community representatives.

Product: A panel heavily dependent upon the diverse expertise represented by Colorado citizens but also others in the areas described above, a series of meetings through that panel members become informed about and have the opportunity to discuss/critique activities of the Panel I contractor, a document summarizing the panel's critique of contractor work to date.

Timeframe: Entire length of process, beginning October 1989.

II. STEP TWO

These studies will be carried out by the Panel I independent contractor and, hence, all cost estimates are very approximate. Funding will be sufficient to cover costs as proposed by the Panel I contractor.

A. Studies to be done by contractor

1. Toxicologic review

Purpose: A toxicologic review is required to provide a basic level of knowledge about the variety of hazardous substances that have been used at the plant and to which residents may have been exposed.

This step will consist of an investigation of the radionuclides and chemicals of interest and will include:

(a) Identification of radionuclides and chemicals that have been on the plant site since 1952, and/or have been identified on or off-site to ensure that a complete inventory has been compiled;

(b) Ascertainment of the quality and the quantity of the available sampling data.

(c) Preparation of a literature review of the toxicologic information on the substances of interest. The Panel I contractor will be responsible for reporting progress of this work on a regular and timely basis to Panel II.

Product: A series of meetings during which Panel II is informed about the work of the Panel contractor as work is progressing and an opportunity to discuss/critique these findings, a document summarizing the Panel I contractor's findings, a second document summarizing Panel II's comments on the work done and findings of the Panel I contractor.

Timeframe: One year, beginning November 1989.

2. Dose reconstruction

Purpose: This study will determine the levels of and potential avenues by which hazardous substances (both radionuclides and chemicals) could have been or can be released from the boundaries of the plant.

The reconstruction would include exposure doses, exposure pathways and the demography of the surrounding area. The time span to be studied is 1953 to the present. The dose reconstruction would be used later to conduct a quantitative health risk assessment for Rocky Flats and the surrounding area and would help determine the feasibility of future studies.

Product: A series of meetings with Panel II, in which the panel members are updated on dose reconstruction activities and have an opportunity to discuss/critique Panel I contractor's work, a document summarizing the findings of the dose reconstruction activities, and a document summarizing the panel's critique of Panel I contractor activities and findings.

Timeframe: One and one-half years, beginning in May 1990.

III. STEP III

A. Reassemble or reconstitute Panel I to write a second RFP that will propose a quantitative health-risk assessment.

B. Studies to be conducted through the second RFP:

1. Quantitative health risk assessment.

Purpose: A quantitative health-risk assessment is important to determine the potential risks posed by the plant to the surrounding population. The quantitative health risk assessment will be based in part on the data compiled during the toxicologic review and dose reconstruction. The risk assessment will ascertain the level of risk of residents in the area surrounding the plant. This would include health risks from both radionuclides and chemicals identified on-site and off-site.

Product: A quantitative, level 3 risk assessment, including hazard identification, dose response, exposure assessment and risk characterization, based in part on the toxicologic review and dose reconstruction completed previously, a series of meetings with Panel II to describe health risk assessment activities in progress, and a document that summarizes the panel's critique of the health-risk assessment activities conducted under the second RFP.

Timeframe: One year, beginning May 1991, to June 1992.

2. Other studies as determined by Panel II

Purpose: After three years of studies, Panel II will conclude its review of the findings of the toxicologic review, dose reconstruction, and quantitative risk assessment and will make recommendations on whether to proceed with health-related studies. It must be understood that there are reasons other than scientific reasons for a recommendation in support of further health studies.

Product: A document summarizing the Panel's recommendations concerning health-related studies.

Timeframe: Six months, beginning June 1992.

IV. ONGOING RESEARCH

In addition to the above-mentioned studies, the state must maintain an ongoing level of involvement in assessing the impact of the plant on the surrounding populations. The state and DOE must show that they are fully apprised of the potential health effects during the period the plant continues to operate. Toward this end, the following activities are necessary:

B. Contribution to the state's cancer/birth defects databases.

Colorado currently operates a database for cancer and birth defects for comparison with levels found in the general population. DOE will contribute funds to support the databases for studies in the vicinity of the facility.

Product: Maintenance of statewide cancer and birth defects registries at levels that are capable of supporting quality health investigations.

Timeframe: Five years, beginning October 1989.

B. Risk communication.

CDH will perform an extensive health-risk communication initiative based on the results of the toxicologic review, dose reconstruction and quantitative health risk

Product: A mechanism through which information concerning the toxicologic review, dose reconstruction, risk assessment and recommendations concerning further health-related studies can be effectively communicated to the general public.

DOE FINANCING FOR
STATE ENVIRONMENTAL MONITORING
AND OVERSIGHT AND HEALTH
RELATED STUDIES

I. INITIAL UPFRONT EXPENSES

A. SPECIAL PROJECTS

-Update emergency response plan	$100,000
-Evaluate environmental monitoring program	30,000
-Review maximum credible accident	20,000
TOTAL	$150,000

B. EQUIPMENT AND SUPPLIES

-Air quality control	$ 10,000
-Radiation Control	10,000
-Hazardous materials and waste management	20,000
-Water quality Control	10,000
-Laboratory equipment	425,000
-Emergency response	105,000
TOTAL	$580,000

TOTAL UPFRONT EXPENSES $730,000

II ONGOING ANNUAL EXPENSES FY 90-94

A. AIR QUALITY CONTROL DIVISION

-Onsite inspections, ambient monitoring of VOC's, compliance evaluation, modelling verification of VOC's emissions impacts, oversight of DOE stack tests and CEM installation and operations	$135,000
-Offsite ambient air monitoring of VOC's at three locations plus split VOC tests of stack emissions	230,000
-Equipment and travel	10,000
TOTAL	$375,000

B. ENVIRONMENTAL EPIDEMIOLOGY AND DISEASE CONTROL DIVISION

-Environmental toxicology support for all environmental activities in regulatory and cleanup decisions	$ 85,000
-Management and coordination of all health related activities per attachment D	65,000
TOTAL	$150,000

of 881 Hillside, 903 Pad, Mound and Trenches, and Solar Evaporation Ponds	$170,000
-Review of RCRA activities - waste treatment and storage inspections, compliance, corrective actions, environmental audit, etc.	260,000
-Groundwater monitoring program - both onsite and offsite locations	70,000
TOTAL	$500,000

D. RADIATION CONTROL DIVISION

-Monitor and analyze radioactive emissions and generation, use, haulage, storage, and disposal of radioactive plant and review WIPP and low level radioactive waste disposal initiative.	$ 75,000
-Increased radiation monitoring of air, surface water, groundwater and soils	115,000
TOTAL	$190,000

E. WATER QUALITY CONTROL DIVISION

-Perform oversight data analysis, stream classification evaluations, permit review, and 401 certification	$ 75,000
-Drinking water - confirm quality in public water systems	15,000
-Equipment and travel	15,000
-Surface water monitoring and data analysis	60,000
-Groundwater modelling and data management	55,000
TOTAL	$220,000

F. LABORATORY DIVISION

-Staff support	$ 50,000

G. EMERGENCY RESPONSE ACTIVITIES (Department of Health and Division of Disaster Emergency Services)

-CDH - enhance coordination and capabilities for response to possible incidents involving hazardous or radioactive material from Rocky Flats Plant	$ 60,000
DODES - update the emergency response plan for RF, improve communications, public information, training and exercises	85,000
TOTAL	$145,000

H. COORDINATION AND INFORMATION EXCHANGE

-Increase public understanding of waste management and cleanup activities at the plant and coordinate various CDH activities related to Rocky Flats	$160,000
-Update environmental monitoring program annually	15,000
TOTAL	$175,000
TOTAL ANNUAL EXPENSES	$1,805,000

III HEALTH RELATED INITIATIVES - First Year (See Attachment D)	$700,000

0312k/2212k/20-21

6/15/89

AMENDMENT NO. 4 TO MUTUAL COOPERATION
AGREEMENT BETWEEN THE STATE OF
COLORADO AND THE UNITED STATES
DEPARTMENT OF ENERGY FOR THE
ROCKY FLATS PLANT
(NO. DE-FC04-79AL11209)

This AMENDMENT NO. 4, entered into effective June 16, 1989, is by and between the United States of America represented by the United States Department of Energy ("DOE"), and the State of Colorado, represented by the Colorado Department of Health ("CDH").

WHEREAS, DOE and CDH entered into the above-referenced Mutual Cooperation Agreement ("Agreement") effective May 16, 1979 for a period of three years and extended the Agreement for additional three-year periods effective May 16, 1982; May 16, 1985; and May 16, 1988; and

WHEREAS, the parties desire to extend the term of the Agreement through September 30, 1994.

WHEREAS, the parties desire to amend the Agreement to provide additional DOE funds to CDH for its increased level of effort for the following: (1) environmental monitoring and oversight of the air, water, and soil on or around the Rocky Flats Plant; (2) increased State activity and DOE financial support for emergency preparedness activities; (3) increased CDH efforts in the areas of coordination, public education and information exchange and (4) environmental epidemiology and other health related initiatives.

WHEREAS, as a result of such increased level of financial support, CDH agrees to provide: (1) reports to DOE on the results of such monitoring and analysis; (2) advice and recommendations to DOE in emergency response matters; and (3) periodic reports to DOE on CDH's public education and information exchange efforts and other health related initiatives, and

WHEREAS, the parties desire to amend the Agreement in certain other particulars as noted herein.

NOW THEREFORE, the parties agree as follows:

ARTICLE I - "SCOPE OF AGREEMENT" IS AMENDED BY THE ADDITION OF THE FOLLOWING ITEMS

5. Colorado Department of Health (CDH) and Division of Disaster Emergency Services (DODES) shall: (1) update the emergency response program for the Rocky Flats Plant; (2) conduct training jointly with DOE for local governments which could be affected by an emergency at the Plant; and (3) assist local and statewide emergency response authorities with respect to possible incidents involving hazardous or radioactive materials from the Plant. DODES shall provide periodic reports to CDH and DOE on these activities and, from time to time, advice to DOE on Plant operations which may have an impact on the State's emergency response program.

6. CDH shall: (1) establish a Rocky Flats Coordinator within CDH whose function shall be to coordinate activities of the various CDH divisions with regard to the Plant; (2) increase its efforts for better public understanding of issues involving the Rocky Flats Plant, including coordination with local governments; (3) evaluate and interpret health information associated with environmental releases at the Rocky Flats Plant by providing personnel with expertise in environmental epidemiology and public health; (4) increase overall coordination; and (5) review material and documents relating to the update or revision to the Maximum Credible Accident defined for the plant. CDH shall provide periodic reports to DOE of its activities in these areas.

7. CDH shall: (1) prepare a plan for the state's environmental monitoring and analysis of hazardous and radiological materials which may be present in the air, water and soil on or around the Rocky Flats Plant; such plans shall be provided to DOE for review and consultation; (2) provide DOE the opportunity to split samples taken; and (3) provide periodic reports to DOE on the results of said plan.

8. DOE will provide funding to CDH to purchase equipment described in Attachment E. CDH may determine that in lieu of such funding it is more appropriate for DOE to loan such equipment to CDH. The parties agree that any new field instruments and emergency response supplies and materials which may be loaned by DOE to CDH shall be maintained and safeguarded in accordance with the Article III, entitled "Government Property" hereto.

ARTICLE II - 'PAYMENT' IS AMENDED BY THE ADDITION OF THE FOLLOWING SECTIONS:

1.a In consideration of the performance by the State of its responsibilities hereunder and in support of its increased cooperative assistance programs, DOE will pay the State the sum of one million eight hundred five thousand dollars ($1,805,000) per year over the term of this Amendment No. 4. The allocation of such total funds shall be as described in Attachment E, DOE Financing for State Environmental Monitoring and Oversight and Health Related Studies. The total amount shall be paid in monthly installments, without invoice, on the first day of the month commencing July 1, 1989 and continuing through June 30, 1994, unless this agreement is amended or terminated by mutual agreement. The parties agree that these funds are in addition to the $8,333.33 allocated in Amendment No. 3.

1.b Additionally, DOE will pay seven hundred thirty thousand (dollars) ($730,000) to CDH for one time costs described in Attachment E. Such payments will be made in two installments of two hundred dollars ($200,000) on July 1, 1989 and five hundred thirty thousand ($530,000) on October 15, 1989.

1.c Additionally, DOE will provide $700,000 to CDH to begin the activities described in Attachment D, Health Related Initiatives. Such payments will be made in four quarterly installments per year beginning July 1, 1989. DOE will provide continuing annual funding for the term of this agreement for the birth defects and tumor registries, operations of the health advisory panel and risk communication initiatives in the amount of three hundred thousand ($300,000) per year in quarterly installments as described above. DOE will also provide additional resources to conduct the health related initiatives defined as necessary by the Health Advisory Panel, of which DOE will be a member.

3. CDH and DODES agree: (a) to use and apply the funds provided hereunder for the purpose of helping to defray: (i) their personnel operating, travel and support costs for those employees who engage in the performance of work required by this Agreement; (ii) their cost to purchase or maintain the equipment utilized under this Agreement; and (iii) the costs of any consultants employed who are required to perform some of the work hereunder; and (b) that such costs shall include salary and benefits of such employees including related administrative costs.

ARTICLE III - "GOVERNMENT PROPERTY" IS AMENDED BY THE ADDITION OF THE FOLLOWING ITEMS:

4. The Government property shall be used only in connection with this agreement and, upon written approval by DOE, other state programs; said approval shall not be unreasonably withheld.

NOTE: ALL OF THE FOLLOWING IS ADDED:

6.a CDH shall not be liable for any loss of or damage to the Government property, or for expenses incidental to such loss or damage, except that CDH shall be responsible for any such loss or damage (including expenses incidental thereto):

(1) Which results from the willful misconduct or lack of good faith on the part of any of CDH's directors, managers, supervisors, or other equivalent representatives who have supervision or direction of all or substantially all of CDH's operations relating to the activities described in this Agreement; or

(2) Which results from a failure on the part of CDH, due to the willful misconduct or lack of good faith on the part of any of CDH's directors, managers, supervisors or other equivalent representatives mentioned in (1) above, (a) to maintain and administer, in accordance with standard practice, the program for utilization, maintenance, repair, protection, and preservation of Government property, as required above, or to take all reasonable steps to comply with any appropriate written directions of DOE, as required above, or (b) to establish, maintain and administer, as indicated above, a system for control of the Government property.

6.b Upon the happening of loss or destruction of, or damage to, the Government property, CDH shall notify DOE thereof and shall take all reasonable steps to protect the Government property from further damage, separate the damaged and undamaged Government property, put all the Government property in the best possible order, and furnish to DOE a statement detailing:

(1) the lost, destroyed and damaged Government property;

(2) the time and origin of the loss, destruction, or damage; and

(3) all known interests in commingled property of which the Government property is a part.

6.c Unless CDH is responsible for the loss, destruction or damage to the Government property, DOE shall make repairs, renovations, or replacements of the damaged Government property or take such other action as DOE deems proper.

6.d If CDH is responsible for the loss, destruction or damage to the Government property, DOE shall make repairs, renovations, or replacements of the damaged Government property or take such other action as DOE deems proper, provided CDH bears the cost of such repairs, replacements or renovations.

6.e If CDH is indemnified, reimbursed, or otherwise compensated for any loss or destruction of or damage to the Government property, CDH shall use the proceeds to repair, renovate or replace the Government property involved or shall otherwise reimburse DOE.

6.f CDH shall do nothing to prejudice the Government's right to recover against third parties for any such loss, destruction, or damage, and upon request of DOE, shall, at DOE's expense, furnish to DOE all reasonable assistance and cooperation (including assistance in the prosecution of suits and the execution of instruments of assignment in favor of the United States) in obtaining recovery.

ARTICLE VII - "APPROPRIATED FUNDS" IS AMENDED BY THE ADDITION OF THE FOLLOWING:

The parties agree to the extent provisions of this Agreement call for the expenditure of appropriated funds, that such provisions shall be subject to the availability of funds appropriated by the Congress which DOE may legally spend for such purposes.

ARTICLE VIII - "TERMS AND AMENDMENTS" IS AMENDED BY THE ADDITION OF THE FOLLOWING ITEMS:

1. The Agreement, as amended, shall continue in effect through September 30, 1994 and may be extended if mutually agreed by the parties.

2. The parties agree that they will review the terms, activities and funding levels of the Agreement on an annual basis to determine if any modifications are necessary.

3. The parties agree that the purpose of this agreement is to establish and implement a monitoring program as set forth herein. Nothing in this Agreement shall affect the rights, obligations or duties of the parties as may be provided by law and nothing in this Agreement shall be construed to prohibit the parties from using the information developed under this Agreement in furtherance of their statutory duties, rights and obligations.

ARTICLE IX - CONCENTRATION GUIDES

Monitoring activities and analyses shall be governed by applicable state and federal standards and practices and by the concentration guides and levels set forth in paragraph 4 of the Memorandum of Understanding between the state and DOE and all amendments to said Paragraph 4 and the attached "Concentrations in Air and Water above Background."

All other terms and conditions of the Agreement shall be and remain in effect.

IN WITNESS WHEREOF, the parties have executed this Agreement this _____ day of June, 1989.

THE UNITED STATES OF AMERICA
BY: U.S. DEPARTMENT OF ENERGY

BY: _____
W. Henson Moore
Deputy Secretary of Energy

STATE OF COLORADO, ACTING BY AND
THROUGH THE DEPARTMENT OF HEALTH

BY: _____
Thomas M. Vernon, M.D.
Executive Director
Colorado Department of Health

0323k

DRAFT

Attachment
Concentrations in Air and Water
Above Natural Background

In July 1988, the Department of Energy (DOE) published tables of internal and external ionizing radiation dose conversion factors to be used by its facilities in calculating potential radiation dose to the public and in determining compliance with current DOE radiation protection standards for the public (USDOE, USDOE). These dose conversion factors are based on the recommendations of the International Commission on Radiological Protection (ICRP) in their publications numbers 26, 30, and 48. The incorporation of ICRP publication number 48 recommendations regarding internal radiation dosimetry for transuranic nuclides resulted in changes to the calculated Department of Energy Derived Concentration Guides (DCGs) for plutonium and americium isotopes that are of interest for Rocky Flats Plant activities. DCGs are the concentrations which would result in an effective dose equivalent of 100 mrem from one year's chronic exposure or intake of the radionuclide.

Attached are the current calculated Derived Concentration Guides for plutonium-238, 239, 240, 241, and -242, as well as for americium-241. In calculating these DCGs, the methodology prescribed by DOE in a 1986 memorandum has been followed (Stem). For calculation of air inhalation DCGs, DOE assumes that the exposed individual inhales 2,400 cubic meters of air at the calculated DCG during the year. Ingestion DCGs assume a water intake of 730 liters at the calculated DCG for the year. In order to achieve a more restrictive DCG, all rounding of calculated DCGs was down to 1 significant figure.

References:

USDOEb DOE/EH-0071, "Internal Dose Conversion Factors for Calculation of Dose to the Public," U. S. Dept. of Energy, Asst. Secretary for Environment, Safety and Health, July 1988.

Stem Stem, R. J. Director, "Preparation of Annual Site Environmental Reports for Calendar Year 1985," DOE memorandum, Office of Environmental Guidance, February 25, 1986.

DOE CALCULATED DERIVED CONCENTRATION GUIDES

USING DOSE CONVERSION FACTORS FROM DOE/EH-0071

AIR INHALATION:

Radionuclide (Lung Clearance Class)		DCG (pCi/m³)
Pu-238	(W)	0.02
	(Y)	0.03
Pu-239, -240	(W)	0.02
	(Y)	0.03
Pu-241	(W)	1
	(Y)	2
Pu-242	(W)	0.02
	(Y)	0.03
Am-241	(W)	0.02

WATER INGESTION:

Radionuclide (GI Absorption Fraction)		DCG (pCi/l)
Pu-238	(1.0E-3)	30
	(1.0E-5)	2,000
Pu-239, -240	(1.)E-3)	30
	(1.0E-5)	2,000
Pu-241	(1.0E-3)	1,000
	(1.0E-5)	100,000
Pu-242	(1.0E-3)	30
	(1.0E-5)	2,000
Am-241	(1.0E-3)	30

Note: The preceding calculated DCGs are based on an annual radiation protection standard of 100 mrem/year effective dose equivalent, an inhalation rate of 8,400 liters/year, and ingestion rate of 730 liters/year, and dose conversion factors from DOE/EH-0071, "Internal Dose Conversion Factors for Calculation of Dose to the Public," U. S. Dept. of Energy, Asst. Secretary for Environment, Safety and Health, July 1988. Calculated DCGs were rounded down to 1 significant figure.