CORRES CONTROL
OUTGOING LTR NO

88-RF-0747

DIST.	LTR	ENCL
SANCHINI, D. J.	X	X
BADER, C. P.		
CAMPBELL, G.W.	X	X
HOOD, R. C.		
KINZER, J. E.		
KIRBY, W. A.		
McNETT, J.F.	X	X
MEYERS, G.W		
SHANNON, W.M.		
SMITH, R.E.		
WEIDNER, C.W.		
WESTON, W.F.	X	X
WILSON, G.L.		
WOZNIAK, B.D.		
YOUNG, E.R.		
BETCHER, D.H.		
CARNIVAL, G.J.		
HARMAN, L.K.		
HEBERT, J.L.		
HOEY, J.B.		
HOFFMAN, R.B.		
KRIEG, D.M.		
LIM, B.W.		
LOUDENBURG, G.E.		
NAIMON, E.R.		
NEWBY, R.L.		
ROECKER, J.H.		
VELASQUEZ, R.N.		
CORRES. CONTROL	x	x
BAHA, F.J.	X	X
EVERETTE, S.	X	X
GREENGARD, T	X	X
McKINLEY, K.	X	X
LEWIS, B	X	X

CLASSIFICATION
UNCLASSIFIED X X
CONFIDENTIAL
SECRET

AUTH. CLASSIFIER SIG.
B.L. Miller
3/7/88
DATE

IN REPLY TO LTR. NO.

EC #

TR APPROVALS

SEE/JL/

RF-46469 (Rev. 7-87)

Rocky Flats Plant
North American Space Operations
Rockwell International Corporation
P.O. Box 464
Golden, Colorado 80402-0464
(303) 966-7000
Contractor to U.S. Department of Energy

Rockwell International

March 3, 1988 88-RF-0747

Albert E. Whiteman
Area Manager
DOE, RFAO

881 HILLSIDE ACTION DESCRIPTION MEMORANDUM

Enclosed is the final 881 Hillside Action Description Memorandum (ADM). The ADM incorporates comments received from DOE/RFAO and Rockwell.

If you have any questions please contact S. E. Everette of my staff at extension 5533.

Kirk McKinley

K. B. McKinley
RCRA/CERCLA Programs

Enc.

Orig. and 1 cc - A. E. Whiteman

ADMIN RECORD

A-DU01-000015

ACTION DESCRIPTION MEMORANDUM

for

881 HILLSIDE HAZARDOUS WASTE BURIAL

SITE REMEDIAL ACTIONS

Rockwell International
Aerospace Operations
Rocky Flats Plant

Operating Contractor
U.S. Department of Energy
Rocky Flats Area Office

1.0 PROPOSED ACTION AND ALTERNATIVES

The U.S. Department of Energy (DOE) is undertaking a program to assess and manage buried hazardous waste at four locations on 881 Hillside within the Rocky Flats Plant boundary to provide both near-term and long-term enhancement to human health and the environment. The four buried hazardous waste sites are designated as solid waste management units (SWMU) 103, 106, 107, and 119.1. This action is being conducted as an integral part of the Comprehensive Environmental Assessment and Response Program (CEARP) which is a phased effort to identify, assess, and correct existing or potential environmental problems at DOE-Albuquerque Operations Office Facilities.

Although, the 881 Hillside Feasibility Study identified several alternatives, only four alternatives are analyzed in this Action Description Memorandum. The four alternatives are 1) no action; 2) collect and treat ground water drain and source well flows and discharge to surface; 3) total encapsulation with three layer RCRA cap and peripheral containment walls and ground water gradient control; and 4) collect and treat ground water from existing footing drain and existing well and discharge to surface.

Proposed waste management actions may involve a variety of activities including containing, reducing, or eliminating contamination sources and/or by managing contamination migration by reducing its mobility or toxicity. An 881 Hillside Feasibility Study has been initiated to identify and evaluate remedial alternatives and select appropriate remedial actions. This study is a multi-step effort which will identify potential health-based requirements and priorities, develop and screen preliminary remedial response alternatives and technologies, evaluate screened alternatives, compare and rank alternatives, and select the remedial action, including interim responses as necessary.

1.1 Background

As part of the CEARP Program to ensure that facilities within the DOE-Albuquerque complex are operated in full-compliance with applicable environmental regulations, over 100 contaminated waste sites have been identified at Rocky Flats Plant for assessment of existing or potential environmental concerns. 881 Hillside has been identified as a priority site for further investigation and remedial action. Contamination of the 881 Hillside site resulted from past operational practices which are no longer permitted. The 881 Hillside contains buried oil sludge from a September 1957 fire and contaminated asphalt from a May 1969 fire. Trace amounts of radionuclides (10^{-10} pCi/l) are present in the ground water with tritium being the principal constituent. Of primary environmental concern is soil and ground/surface water contamination with organic solvents. Identified organics include trichloroethene; tetrachloroethene; 1,1-dichloroethene; 1,1,1-trichloroethane, 1,2-dichloroethane, and to a lesser extent carbon tetrachloride and chloroform.

1.2 Need For The Action

In August, 1986, the United States Environmental Protection Agency (EPA), the United States Department of Energy (DOE), and the Colorado Department of Health (CDH) entered into a Compliance Agreement. The objectives of the Agreement are:

a. to resolve issues related to, and to establish requirements for, hazardous waste, including radioactive mixed waste, compliance at the DOE's Rocky Flats Plant ("Plant") pursuant to CDH and EPA hazardous waste authorities;
b. to establish requirements for the investigation of, and corrective action for, any releases of hazardous waste, radioactive mixed waste, or constituents from any solid waste management units ("SWMU") and other areas at the Plant,

consistent with the requirements of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. section 6901 et seq., and Executive Order No. 12088 (43 Federal Register 47707, "Federal Compliance With Pollution Control Standards") for the cooperation, exchange of information, and participation of DOE and EPA in the development, implementation and monitoring of appropriate remedial actions, consistent with the National Contingency Plan ("NCP"), 40 C.F.R. Part 300, for releases and threatened releases of "hazardous substances, pollutants, or contaminants" as defined in CERCLA at the Rocky Flats Plant;

d. to establish requirements for: (i) the performance of a remedial investigation to determine fully the nature and extent of any threat to the public health or welfare or the environment that may be caused by the release, or threatened release, from the Rocky Flats Plant of hazardous substances; (ii) the performance of a feasibility study to identify and evaluate alternatives for appropriate remedial action to prevent or mitigate the migration or the release or threatened release of any hazardous substance from the Plant; and (iii) the implementation of remedial action as may be necessary to protect public health, welfare, or the environment.

DOE Order 5440.1 requires the preparation of the proper level of documentation describing the potential environmental impacts. In order to evaluate the potential hazards to the environment and affected population (occupational/non occupational) and to identify appropriate remedial actions and technologies, it is necessary to characterize the contaminants and site environs. At present the contaminants at 881 Hillside site pose no immediate threat to the health and safety of either the public or workers.

1.3 Remedial Action Alternative

Table 1 presents the alternatives and environmental considerations for each alternative.

2.0 LOCATION OF THE ACTION

The Rocky Flats Plant is located in northern Jefferson County approximately 16 miles northwest of downtown Denver, Colorado. The immediate area around Rocky Flats is primarily agricultural or undeveloped land, with several population centers located within 10 miles of the facility. A detailed description of the local demographics and environment is presented in the Rocky Flats Plant Site Final Environmental Impact Statement (DOE/EIS-0064, April 1980).

Construction of the plant began in 1951, with initial operations commencing the following year. The facility is operated under the direction of the DOE Albuquerque Operations Office. Rockwell International succeeded Dow Chemical U.S.A. as prime contractor for operation of the facility in July, 1975. Principal activities at Rocky Flats involve fabrication of nuclear weapons components utilizing both radioactive and nonradioactive materials. In support of fabrication work, facilities are operated for the recovery of plutonium and americium from waste residues, treatment and disposal of the wastes, research and development, and special support operations for other DOE facilities.

The 881 Hillside is located in the southeast quadrant of the plantsite and will be the primary location for any remedial actions taken. Activities associated with onsite treatment/disposal of the hazardous waste will occur totally within the plant boundaries and will be controlled by appropriate facility procedures and in compliance with appropriate environmental regulations.

3.0 POTENTIAL ENVIRONMENTAL ISSUES

881 Hillside waste management actions may involve a variety of activities including containing, reducing, or eliminating contamination sources and/or by managing contamination migration

TABLE 1

SCREENED REMEDIAL ACTION ALTERNATIVES

FOR 881 HILLSIDE BURIED WASTE SITES

Remedial Action Alternative	Environmental Considerations
1. No Action	Will result in local long-term environmental impacts to ground water quality from contamination. Does not incorporate a means to control contamination migration or prevent potential contamination of offsite ground water. Waste management practices will incorporate periodic monitoring on a long term basis to identify potential concerns to public health and safety. Potential impacts from natural phenomena (e.g., earthquake, heavy rainfall) on migration pathways, the adequacy and reliability of the surveillance procedures to protect public health and safety, and the possible affects associated with loss of institutional control need to be addressed.
2. Collect and treat ground water drain and source well (SWMU 119.1) flow and discharge to surface.	This alternative relies on natural infiltration to flush contaminants from the soil and provides for subsequent treatment of the leachate. Short term local impacts to the environment will result from construction activities (e.g. trenching, grading, treatment plant fabrication) and are likely to be small compared with plantwide ongoing activities. Surveillance wells will be utilized to monitor performance. An environmental assessment of treatment streams and possible needs to amend applicable NPDES Permits will be required. The reliability of the french drains to contain and collect contaminated ground water will need to be addressed as well as the waste treatment technology employed (e.g. contaminants destroyed or concentrated in a process media) and the potential to generate mixed hazardous waste. There is a limited potential for occupational exposure during construction and treatment plant operations and will need to be evaluated.

3.	Total Encapsulation with three layer RCRA cap and peripheral containment wall (soil/bentonite) and ground water gradient control.	This alternative provides for containment of contaminated ground water. A small quantity of contaminated ground water may exist beyond the proposed encapsulation area and potential migration pathways and impacts to public health and the environment need to be addressed. This alternative will result in larger terrestrial impacts (e.g. disruption of land contours, plant life, and small ground dwellers) due to earth moving operations, but will be limited to a relatively small area. Periodic removal of ground water by well to assure a downgradient zone within the encapsulation area will be incorporated and require on-site transfer for treatment. Potential occupational exposure from construction and post-construction activities needs to be assessed. Also, long-term performance of the containment system and potential impacts from loss of institutional control should be addressed. Surveillance wells will be used to monitor performance.
4.	Collect and treat ground water from existing footing drain and an existing well (No. 9-74 at SWMU 119.1) and discharge to surface.	This alternative will permit immediate improvement of ground water quality as with alternatives 2; however, due to the use of existing collection systems, it will minimize terrestrial impacts. Installation of a treatment facility will still be required. Potential effects of low level contamination down-gradient of SWMU 119.1 need to be addressed. In addition to environmental issues regarding treatment technologies and effluents and occupational exposure, is the need to confirm the adequacy of the existing drain to collect contaminated ground water. Surveillance wells will be used to verify proper performance.

by reducing its mobility or toxicity. While the proposed actions are intended to enhance the local ecosystem and reduce the potential for hazard to the public health, implementation of these actions may, in themselves, result in potential impacts from routine operations or accident conditions and need to be evaluated. Also of concern are the long term environmental effects related to the selected remedial actions. Depending on specific actions taken, these impact may be associated with inside waste management activities associated with contaminated material and sources.

3.1 Onsite Impacts

A. Archaeological and Historical Sites:

The National Historic Preservation Act of 1966, as amended, requires that Federal facilities and other projects funded by Federal monies, locate, preserve and if necessary, investigate impacts to cultural resources before the project proceeds or before disturbance is initiated.

A field survey will be conducted at the Rocky Flats Plant to locate possible sites during the summer of 1988. Due to the extent of ground disturbance during the past 35 years, and its topographic position, the 881 Hillside area is not likely to yield any sites. The State Office of Archaeology and Historic Preservation has been contacted and concurs with the stipulation that they be contacted if evidence of cultural resources is located, and that work stop until they evaluate the site.

B. Farmlands, Wetlands, and Recreational Areas:

Proposed remedial actions will not involve additional land use beyond current operations and will occur within existing plant boundaries. As determined from the DOE/EIS-0064, activities are

not located in wetlands and are intended to enhance the local ecosystem and limit potential adverse environmental effects from migration of contaminants to surrounding agricultural and population centers. The closest park and recreational area is the Standley Lake area which is approximately 5 miles from the plant site, with other small parks within 10 miles of the plant center. The closest major park is Golden Gate Canyon State Park which is approximately 15 miles to the southwest. Other national and state parks are located farther away in the mountains to the west of the plant. The Soil Conservation Service has been contacted and has determined that no prime farmland exists within the boundaries at the Plant.

40 CFR 1508.27 (b)(3) requires that the severity of an impact to the environment must be evaluated to determine effects to unique characteristics of the geographic area, including wetlands. The applicability of the wetlands requirements for DOE is specified in 10 CFR 1022.5. Section 1022.5(c) points out that projects for which a final or draft EIS was filed prior to October 1, 1977, are exempt from the rules. The draft EIS for Rocky Flats Plant was filed in September, 1977, therefore the wetlands evaluation was not included. Additionally Executive Order 11990 (Protection of Wetlands, May 24, 1977) was signed after the draft EIS was issued and thus the EIS was "grandfathered" for the wetlands issue. However, the EIS was exempted for only those actions evaluated in DOE/EIS-0064. This project will not directly impact any wetland areas. It has the potential to reduce any contamination to water supplying wetlands caused by past waste disposal practices.

C. Rare or Endangered Species

Based upon prior studies documented in the RFP/FEIS, Plant Operations, including the 881 Hillside remedial actions, will not impair or adversely affect any rare or endangered species of flora or fauna. Plantsite vegetation includes species of flora

representative of tall grass prairie, short grass plains, lower montane, and foothill ravine regions. Areas of marsh and stream-bank vegetation occur along several creeks. Mule deer are the most common large mammal, with small mammals including various species of mice, ground squirrel, rabbit and meadow vole. Carnivores in the area include coyote, red fox, striped skunk, and weasel. Considerable impacts occurred to the wildlife habitat from prior fur trade activities, livestock production, and industrial development. A list of aquatic organisms known to occur in the streams and ponds of the plantsite are tabulated in Appendix A of DOE/EIS-0064 and are typical of high-prairie streams having various degrees of domestic or industrial effluent.

The determination in DOE/EIS-0064 that rare or endangered species is not valid for this project. This issue must be assessed in future documentation prepared to fulfill National Environmental Policy Act (NEPA) requirements to ensure that 881 Hillside Remedial Actions do not impact rare, endangered or protected species.

D. Remedial Action Activities

With the exception of the no action option, proposed remedial action alternatives incorporate various degrees of field construction efforts including trenching, excavation, grading, and capping operations. Direct effects of this work will include those short-term minor impacts common to all construction work. The construction will be managed to assure proper work scheduling and operations of equipment to control dust, noise, exhaust, and traffic. While these impacts need to be addressed, the scope of proposed construction improvements are relatively small in comparison with on-going construction efforts at Rocky Flats and consequently are not viewed as a significant issue. Localized short-term effects to the terrestrial environment will occur but will result in enhancement to water quality and local vegetation,

though certain alternatives will incorporate asphalt caps and result in long term changes to land features.

E. Health, Safety, and Environmental Impacts

Implementing remedial actions will conform to all applicable health, safety, and environmental requirements. The facility maintains an on-going environmental surveillance program. Monitoring and sampling locations will be augmented to ensure compliance with environmental requirements for the remedial actions taken. Environmental issues include:

a) Occupational Exposure - Buried waste site improvements and/or contaminated waste treatment will result in occupational exposures to toxic substances and trace amounts of radioactive materials. Appropriate field operations and waste-handling procedures will need to be implemented to minimize this exposure. It will also be necessary to evaluate the tradeoffs between occupational exposures and environmental benefits for candidate remedial actions.

b) Nonoccupational Exposure - Implementing actions will be directed towards preventing potential exposure to the public from contaminants which have the potential to migrate beyond site boundaries. Construction activities will be managed to limit airborne contaminants resulting from excavation work and any waste processing effluents will be controlled in accordance with existing facility policies and environmental requirements.

c) Onsite Transportation - Any onsite transportation of waste will be by truck. The potential for occupational exposure to toxic substances and trace amounts of radioactive materials is an impact normally incident to transportation. Onsite transportation activities will be managed to minimize

attendant occupational risks. There is essentially no hazard to the public health since the subject transportation activities will occur within plant boundaries.

d) Accidents and Natural Phenomena - Potential impacts from equipment failures and operator errors will need to be addressed as well as possible effects from fires and natural phenomena (e.g., tornado, high winds, heavy rainfall), though such occurrences are expected to have a very low frequency. The potential for both occupational and nonoccupational risks will be evaluated.

e) Long-Term Environmental Quality - Of primary issue is the effectiveness of implementing technologies to enhance the environment. There are several individual issues associated with contamination treatment and confinement actions. Associated with both remedial action categories is the need to establish that appropriate surveillance and reporting practices are implemented. This includes monitoring well placement, frequency and method of sampling, and duration of sampling. Also of issue are potential impacts from intrusive actions by burrowing animals and vegetation. Confinement alternatives raise the issue of loss of institutional control and potential impacts from subsequent intrusion by man. Any remedial actions involving treatment processes will also require an environmental evaluation of effluent streams.

f) Cumulative Impacts - Over 100 contaminated hazardous waste sites have been identified at the Rocky Flats Plantsite. Cumulative issues need to be addressed. Based on the 881 Hillside Feasibility Study it appears that Cumulative Impacts are likely to be insignificant.

Reference

U.S. Department of Energy, Rocky Flats Plantsite,
Final Environmental Impact Statement,
DOE/EIS-0064, April, 1980.