

OPERABLE UNIT 2 FEASIBILITY STUDY/CORRECTIVE MEASURES STUDY PROJECT DESCRIPTION

1.0 INTRODUCTION

This Project Description is prepared to provide sufficient information for a determination of the appropriate level of National Environmental Policy Act (NEPA) documentation that should be integrated into the Feasibility Study/Corrective Measures Study (FS/CMS) for remedial action to be taken at Operable Unit (OU) 2 at the Department of Energy's Rocky Flats Plant (RFP) north of Golden, Colorado. The location of OU 2 is shown in Figure 1.

2.0 PURPOSE AND NEED FOR PROJECT

OU 2 is one of 16 operable units at the RFP Superfund Site. OU 2 is identified as the 903 Pad, Mound and East Trenches and is located in and adjacent to the southeast portion of the developed area of the Plant. It consists of the 903 Pad (an abandoned drum storage area that has been paved to prevent resuspension of plutonium particulates), the Mound area (where drums of radionuclide-contaminated lathe coolant were buried and subsequently leaked before their removal) and the East Trenches area (where radioactively-contaminated sewage sludge was buried). Under the provisions of the Comprehensive Environmental Response, Compensation and Liability Act, the 19 individual hazardous substance sites (IHSSs) of OU 2 must be characterized to identify the nature and extent of contamination. This step would be followed by identification and analysis of alternative remedial actions, and selection and implementation of one or a combination of remedial actions. The ultimate purpose of the project is to remediate OU 2.

Site characterization as well as identification and selection of the remedial action(s) will be described in a FS/CMS, preparation of which could start as early as FY '94. Because contamination above actionable levels may exist in three media (surface water, groundwater and soils), media-specific remedial actions will be developed but a single combined alternative, consisting of remedial actions for all three media, will be selected.

3.0 PROPOSED ACTION

Since preparation of the FS/CMS has not yet begun, a full range of alternative remedial actions has not yet been identified. However, information from the Remedial Investigation/RCRA Facilities Investigation Report is sufficient to permit identification of a set of possible actions that would have the greatest environmental consequences and thus allow determination of the level of NEPA documentation required. These scenarios are believed to bound the upper range of actions likely to be considered in the FS/CMS in terms of environmental impact.

Surface water remediation by continued operation of the OU 2 Interim Action surface water collection and treatment system. Modifications would be made to the existing collection and treatment plant to more fully automate the operation by installation of automated monitoring and measuring devices. The basic collection and treatment facilities would not be changed and there would be no expected environmental impacts from installation or operation of the improvements. Treated water would be released either to the natural surface drainage system as is presently done, or to the Plant's industrial water system. Releasing to the Plant's industrial water system would reduce downstream flows and could affect wetlands

downstream of the diversion area.

Groundwater remediation by installation of recovery wells and additional water treatment capacity equivalent to the existing groundwater treatment unit.

Approximately 20 wells would be drilled at the Pad, Mound and East Trenches. Water from these wells would be pumped to a central location for treatment through pipes that would probably be laid underground. Location of the treatment unit (if not combined with the existing OU 2 water treatment unit) has not been decided, but would be expected to be in the general area of the existing unit. Treated water would be either released to the natural surface drainage system, re-injected to the groundwater system or put into the Plant's industrial water system. Releasing to the Plant's industrial water system would reduce downstream flows and could affect wetlands downstream of the diversion area.

Soils remediation by excavation, treatment and/or off-site shipment. Soils within the 19 IHSSs of OU 2 would be excavated to various depths ranging from five to 15 feet. The total area to be excavated at the IHSSs is estimated at approximately 41 acres, producing approximately 550,000 cubic yards of soil. The soil would be treated in two or three stages. First, the soil believed to contain volatile compounds would be subject to low-temperature thermal desorption to remove volatiles. Secondly, soils containing radionuclides or metals would be subject to soil washing, or a comparable process, to remove as much of the radionuclides as feasible. This stage would be expected to clean approximately two-thirds of the soil enough that it could be returned to the site from which it was excavated. The remaining one-third would be solidified by the addition of a solidifying compound such as concrete. Solidification would increase the volume of material by approximately 40%. Soil from IHSS 140, totalling approximately 33,000 cubic yards and believed not to contain radionuclides, would be treated, stabilized and placed in permanent storage at an undetermined location at RFP. The nature of the storage facility is not known (a capped pile, above-ground or below-ground constructed facility, etc.), but would permanently cover a several acres. Soil from the other 18 IHSSs, totalling approximately 517,000 cubic yards and which is believed to contain radionuclides, would be treated and solidified as described above, reducing its volume to approximately 241,000 cubic yards, and shipped off site for appropriate disposal.

In addition, up to 400 acres south and east of the 903 Pad, which may have surficial plutonium contamination, would have its top four-to-six inches of soil removed. The resulting 323,000 cubic yards of soil, would be treated as described above. It is estimated that, after treatment, approximately two-thirds of the soil (215,000 cubic yards) would be clean enough to place back on the site from which it was excavated while the remainder (108,000 cubic yards) would be solidified (increasing its volume to approximately 151,000 cubic yards) and shipped off-site for appropriate disposal. The total volume of soil to be shipped off-site is estimated at approximately 392,000 cubic yards. All excavated areas would be regraded and revegetated.

Actual soil remediation could proceed under a less impacting scenario. If characterization activities determine that the surficial soil contamination outside the IHSS boundaries is below actionable levels within OU 2, soil remediation would then be confined to the 19 IHSSs. The additional 400 acres south and east of the 903 Pad would not be remediated. Vapor extraction would be used instead of excavation and treatment on approximately one-quarter of the combined acreage of the IHSSs, and would result in approximately 181,000 cubic yards of soil being shipped off-site for disposal. An estimated 31 acres of land would be affected by excavation under this scenario.

4.0 POTENTIAL ENVIRONMENTAL ISSUES

Remediation of surface water and groundwater has the potential to impact wetland areas downstream of diversion/withdrawal areas if the treated water is not returned to near the site from which it was taken. Flows could be reduced or eliminated, causing negative impacts to the downstream natural environment dependant on that water. Such impacts would continue as long as the remedial action continued, which could be up to several decades.

At the extreme, remediation of soils at OU 2 could result in the excavation of soils five-to-fifteen feet deep over an area of 41 acres and the removal of the top approximately 6-inches of soil from another 400 acres. This soil would be treated, and between half and two-thirds of the soil would be replaced where it was removed. A portion of the soil would be permanently disposed of at RFP and the remainder would be sent off-site for appropriate disposal. Environmental impacts would include destruction of the local environment at the 441 acres from which soil was removed and at the several acres occupied by the permanent storage site at RFP. All vegetation would be removed and natural soil horizons eliminated on the excavated acreage. All habitat in the area being remediated would be destroyed and animals living in or depending on the area would be forced to find alternative habitat. Some of these animals would not survive the excavation or replacement activity. In time, natural forces would be expected to return the excavated area to approximately its current condition, but the length of time required to re-establish natural conditions could be substantial. Topography of the excavated area would be different after replacement of the soil because less soil would be replaced than was removed.

Revegetation of disturbed areas would be part of the remediation project, but vegetation and habitat under the area selected for permanent disposal of treated soil would not return to natural conditions. The soil pile would be capped or otherwise protected from natural forces so that it would not support any type of habitat.

Excavation activities would be accompanied by dust suppression measures, but it is not known how successful such measures would be on such a large project. The possibility for fugitive dust would exist.

There is likely to be a high level of public interest in the remediation of OU 2 and the cost of the remediation.