U. S. DEPARTMENT OF ENERGY

FINDING OF NO SIGNIFICANT IMPACT

ON-SITE TREATMENT OF LOW LEVEL MIXED WASTE AT ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

SUMMARY: The Department of Energy (DOE) has prepared an environmental assessment (EA) (DOE/EA-1292) to evaluate the proposed treatment of low level mixed waste (LLMW) at the Rocky Flats Environmental Technology Site (Site). The purpose of the action is to treat LLMW in order to meet the Land Disposal Restrictions specified by the Resource Conservation and Recovery Act and the waste acceptance criteria of the planned disposal site(s).

Approximately 17,000 cubic meters (m^3) of LLMW are currently stored at the Site. Another 65,000 m^3 of LLMW are likely to be generated by Site closure activities (a total of 82,000 m^3 of LLMW). About 35,000 m^3 can be directly disposed of off-site without treatment, and most of the remaining 47,000 m^3 of LLMW can be treated at off-site treatment, storage, and disposal facilities. However, some LLMW will require treatment on-site, either because it does not meet shipping requirements or because off-site treatment is not available for these particular types of LLMW. Currently, this LLMW is stored at the Site pending the development and implementation of effective treatment processes. The Site needs to treat this LLMW on-site prior to shipment to off-site disposal facilities, in order to meet the DOE long-term objective of clean up and closure of the Site. All on-site treatment of LLMW would comply with applicable Federal and State laws designed to protect public health and safety and to enhance protection of the environment.

The EA describes and analyzes the environmental effects of the proposed action (using ten mobile treatment processes to treat waste on-site), and the alternatives of treating waste on-site (using two fixed treatment processes), and of taking no action. The EA was the subject of a public comment period from February 3 to 24, 1999. No written or other comments regarding the EA were received.

PROPOSED ACTION: The proposed action is to treat certain LLMW on-site, prior to shipment off-site for disposal, using one or more of the ten potential treatment processes for LLMW. About 2,500 to 5,200 m^3 of LLMW may require on-site treatment. This estimate may change as LLMW streams are better characterized, and as additional off-site treatment capabilities become available. The wastes are stored throughout the industrial portion of the Site in various containers (e.g., wooden crates, 55-gallon drums, plastic bags, vials).

Depending upon the waste type, treatment may include one or more of the following processes:

- stabilization/immobilization-polymer macroencapsulation,
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- stabilization/immobilization-cementation,

- neutralization,
- destruction-alkaline chlorination of cyanides,
- destruction-ultraviolet (UV) oxidation,
- separation/decontamination–supercritical CO_2 extraction,
- separation/decontamination–low temperature thermal desorption,
- separation/decontamination–catalyzed chemical oxidation, and
- surface decontamination.

These treatment processes are established processes, which have been used or approved for use at the Site or have been successfully used in similar applications for similar wastes. Most of the proposed treatment processes would be deployed on mobile, skid-mounted units, and could be moved from location to location. Some wastes may be moved from one on-site location to another on-site location for treatment. Wastes would be unpacked, treated, and packaged as necessary (typically a 55-gallon drum would be used). After packaging, the containers would be sent to an approved storage area pending disposal. Construction associated with the proposed action would occur within existing buildings at the Site and would not require substantial additions to Site buildings or utilities. New air monitors, air filters, water lines, and electrical connections may be needed at some of the facilities that would be used to house a process. One or more of the processes would be used to treat a specific LLMW stream.

ALTERNATIVES CONSIDERED: DOE considered but dismissed using two treatment processes, fluidized bed incineration (FBI) and microwave solidification, that would require a stationary on-site location for treating LLMW.

Because the FBI and microwave solidification treatment processes would be permanently situated, additional handling and transport of the waste would be required.

The use of the FBI would require obtaining an air quality permit from the Colorado Department of Public Health and Environment (CDPHE); the microwave solidification treatment process may require an air quality permit. The type of permit would depend on various factors (e.g., regional air quality) and the potential to emit various air pollutants, but the permit application would be subject to a public review. Obtaining a permit would likely take six months to two years. These treatment processes have often generated extensive public opposition, which would further delay the process. Purchasing, constructing, and testing the selected process would take additional time.

The timely use of FBI and microwave solidification is considered impractical for the Site. The use of these processes would likely delay treatment of LLMW, thereby affecting the Site's ability to meet the accelerated off-site shipment schedule required by the Rocky Flats Cleanup Agreement. In addition, implementation of these processes would likely result in greater environmental impacts. For these reasons, this alternative has been eliminated from further consideration.

DOE also considered a No Action alternative. If no action were to be taken, the LLMW streams addressed in this EA would not be treated, and would not be shipped off-site. The

No Action alternative would require long-term or permanent storage of some LLMW at the Site.

Existing facilities could be used for storage as long as each facility remained in suitable condition. Some consolidation of wastes at a single facility would be expected. Ongoing programs to clean up the Site would continue under the No Action alternative, but some programs might be delayed or otherwise modified. The continued generation of LLMW and storage of LLMW could interfere with activities to clean up various facilities at the Site. The Site would need to continue and expand on-site waste management activities; such as inspections and replacement of containers showing signs of severe rusting, apparent structural defects, or leakage.

Implementation of the No Action alternative would raise safety concerns and place the Site in non-conformance with the Settlement Agreement and Compliance Order on Consent No. 93-04-23-01 issued by the CDPHE. Selection of the No Action alternative would also limit future uses of portions of the Site, and impede progress toward achieving the Site's mission of cleanup and closure.

ENVIRONMENTAL EFFECTS: Most potential environmental effects will be minor and temporary. The proposed action will generate criteria and other air pollutants below levels of concern. Radiological impacts will be well below federal standards for workers and the public. There will be no direct effects on water resources from installing and using any of the treatment processes. The chance for a spill during the on-site transport of LLMW is slight, and could be mitigated through existing Site procedures. Impacts to cultural resources can be mitigated through established processes.

Waste management will benefit from implementation of the proposed action. Preparing LLMW for off-site disposition will assist waste management and provide for better control of wastes, and support the Site's closure goals.

Under the No Action alternative, potential environmental effects to air quality, human health and safety, water resources, and cultural resources would be minor and temporary. However, the No Action alternative would not change the existing waste management situation, and continued storage of LLMW in multiple locations at the Site could impede the demolition of Site buildings and closure of the Site. The additional LLMW handling and storage needs, which would occur as buildings are demolished, would adversely affect waste management.

FOR FURTHER INFORMATION ABOUT THIS ACTION, CONTACT:

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DETERMINATION: Based on the information and analyses in the EA, DOE has determined that the proposed action to use the listed treatment processes at the Rocky Flats Environmental Technology Site does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969, as amended. Therefore, an environmental impact statement is not required, and DOE is issuing this Finding of No Significant Impact for the proposed action.

Signed at Golden, Colorado, this 22 day of March, 1999.

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