

**Internal Letter**

Rockwell Intern 000024620

Date January 30, 1987

No

WS-LT-00024

TO (Name Organization Internal Address)

R. E. Richardella  
Waste Proc & Inst Engr  
Building 130

FROM (Name Organization Internal Address Phone)

Room 141 Disposition Team

**SUBJECT ROOM 141 DISPOSITION TEAM REPORT**

This report consists of this letter describing the team evaluation and recommendations and the following attachments

- 1) PRP Technical Recommendation
- 2) Facilities Engineering Cost Estimate, Restoration of Vault 141, January, 30, 1987
- 3) HS&E requirements statement
- 4) User needs letter, Nau to Richardella, January 19, 1987
- 5) Safeguards letter of January 19, 1987
- 6) Team charter letter of January 8, 1987

Objective

The team was formed to evaluate three options and recommend the final disposition of Room 141, Building 771.

- Option 1 - Leave room sealed off, as is
- Option 2 - Decontaminate the room
- Option 3 - Immobilize the contamination and permanently seal the room

Background

Room 141 was abandoned in a contaminated condition in 1971 and closed to personnel access. A cleanup effort at that time was stopped due to high contamination levels and lack of funding. A design criteria for decontamination, restoration, and conversion to vault storage was issued in 1981. The project was discontinued due to lack of funding.

Recently, plantwide decontamination planning has focused attention on the Room 141 issue. Information is compiled in the Facilities Engineering file on the current status and history of Room 141.

Investigation/Evaluation

The team focused on the Rocky Flats Plant Health, Safety and Environmental (HS&E) requirements for a contaminated area such as Room 141. These requirements are derived from DOE Order 5480. The requirements are to

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decontaminate to less than 0.1 millirem per hour gamma/neutron, 250 counts per minute smear, and 5,000 counts per minute direct. The decontamination is to be done immediately after a spill or a contaminated condition is found.

The Room 141 exhaust air flow rate is only a small fraction of that required for normal room operation of 7 to 15 changes per hour. The room is essentially a glovebox atmosphere due to the contamination. However, the room exhaust is currently flowing through the building plenum consisting of two HEPA stages plus the tunnel stage and not the four stages required. The existing manometer indicates the room is operating at 1 inch water column pressure negative to the surrounding rooms. The accuracy of this manometer has not been verified.

Generally, contamination from Room 141 has not spread to surrounding rooms since the room was abandoned.

#### Option 1

The room violates current HS&E requirements and cannot be left in this condition indefinitely. The room pressure should be verified and the utilities requirements should be determined immediately to ensure continued safe occupation of the surrounding work areas. Decontamination of the room must be planned.

#### Option 2

HS&E requires the clean up and decontamination of the room. The attached PRP Technical Recommendation describes the decontamination work. The scope of work includes removal of 1/4-inch concrete from the walls and ceiling and total removal of the concrete floor. The estimated cost for this option was determined by the team and Facilities Cost Estimating. The cost will be approximately \$650,000.

A minimum of four stages of HEPA filtration of Room 141 exhaust is required for decontamination operations. The exhaust air flow rate should be 7 to 15 changes an hour. The 1981 design criteria plan was to use the existing FU-2B plenum, but the capacity of this system may not be adequate. The job safety analysis prior to start of work would determine ventilation requirements.

Scheduling the decontamination work with the startup of the new FU-2B plenum in the Utilities Upgrade Project would allow a start date of June 1988. An earlier start date could be set by determining alternate ventilation schemes.

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An assessment of the extent of contamination of the room would provide valuable information for planning the work. This assessment could be done by accessing the room for radiation readings and samples. This information could be obtained in conjunction with cleanup of loose debris and equipment and an exhaust filter change.

The question of contamination of the soil below the floor was raised before formation of the team. This issue should be resolved as soon as possible. If contamination is found, it will affect the plan, schedule, and cost for decontamination of the room. A closure plan would have to be developed.

Water and soil sampling may be accomplished without entry into Room 141 or penetration of the contaminated floor. Water samples may be obtained from the sump located in the floor of the adjacent elevator shaft. Preliminary soil samples may be obtained by core drilling under the vault from the same area.

Performing Option 2 would provide Plutonium Operations with valuable space for storage of in-process materials and result in a decrease of radiation exposure to operators.

### Option 3

Immobilizing the contamination in the floors and walls of Room 141 is not in accordance with HS&E requirements. This is not a final disposition of the problem.

Using materials such as concrete to immobilize the contamination may not be effective. Applying the material to the underside of the floor would be particularly difficult. If tried, more contaminated waste would be generated in the eventual cleanup.

Coatings are currently used in Building 771 to fix contamination in place and to indicate by purple color the area involved. This offers only limited protection at the floor surface.

The potential for soil contamination remains as long as the contamination remains in the floor concrete.

No material or application methods for immobilization can be recommended by the team. Further investigation may develop candidate materials and methods, but their effectiveness would be doubtful without considerable evidence and/or experimentation.

Recommendations

1. Plan and execute decontamination of Room 141 according to Option 2 and the PRP recommendation attached.
2. Determine the room air pressure and flow rate immediately. Change filters and take corrective action as required.
3. Sample the sump and soil to confirm that no environmental problems exist.
4. Authorize funding for decontamination and decommissioning (D&D) and the restoration of the room in amount of \$650,000 for FY 1988. A separate authorization for storage vault conversion will follow the decontamination work.
5. Plan the D&D and restoration work.
6. Perform the D&D after the startup of the new FU-2B exhaust plenum scheduled for June 1988.

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