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Page 1 of 13
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1.0 INTRODUCTION 3

2.0 BACKGROUND 3

Figure I, Plan View of Building 064 4

3.0 SUMMARY OF WORK PERFORMED 5

4.0 CURRENT FACILITY STATUS 8

REFERENCES 9

1.0 INTRODUCTION

This report summarizes the recent (post 1990) activities performed during the decontamination and decommissioning (D&D) of Building 064. This facility, known as the Source and Special Nuclear Materials Storage Vault, is located in Area IV of the Santa Susana Field Laboratory. Cleanup performed in the early 1960's (ref. 1) and in the late 1980's (ref. 1) has been previously documented and is not addressed in this report.

2.0 BACKGROUND

Building 064 was a high security facility originally consisting of a ~ 2100 ft^2 "vault" (Room 110) and a small office area. In 1963, a second ~ 2100 ft^2 "warehouse" (Room 114) was added (Figure I). The facility was utilized for support of Atomic Energy Commission (AEC), Energy Research and Development Administration (ERDA) and Department of Energy (DoE) related nuclear programs for the storage and repackaging of source and special nuclear materials, and for sectioning and repackaging fresh fuel elements. Plutonium was also handled at the facility in packaged form but never as "loose" powder. The yard area was also used for storage of drums of low enriched uranium recoverable scrap.

As public acceptance and funding for nuclear research programs and related activities waned in the late 1970's and early 1980's the facility was relegated to the storage of radioactively contaminated equipment and as an "overflow" waste container storage facility for the RMDF.

Room 110 contained several pieces of contaminated equipment including weighing scales, tools, a fume hood, empty storage containers and empty shipping drums. There were also four floor to ceiling, earthquake reinforced, "safe" storage racks in the northern portion of the room. Items stored in room 114 were containerized and consisted of contaminated pumps, equipment control consoles and packaged soil that had been excavated during the 1980's cleanup of the eastern yard and adjacent area. Both rooms' 110 and 114 were equipped with high efficiency particulate air (HEPA) filtered exhaust systems which were operational during fuel handling operations at the facility.

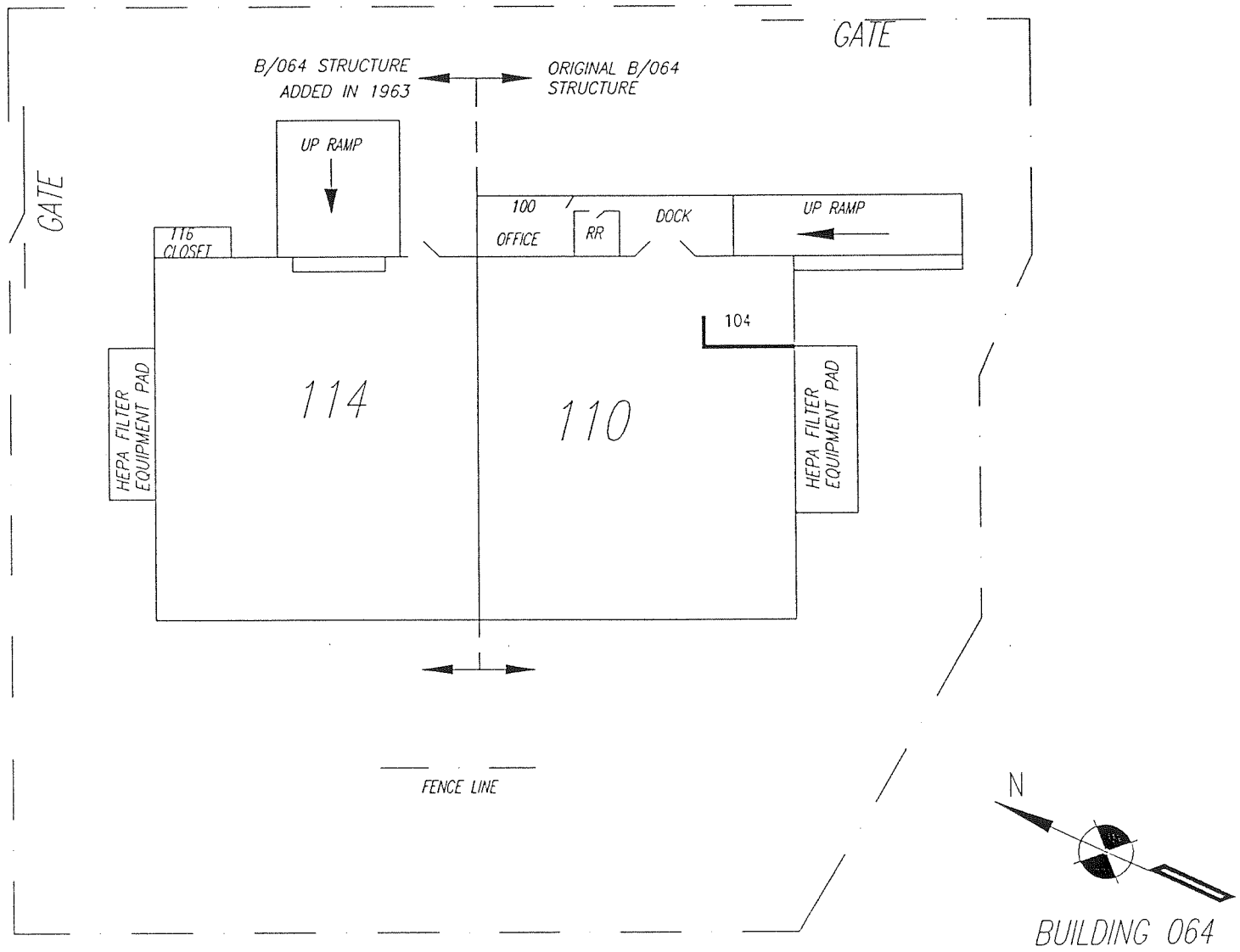


Figure I Building 064

2.1 Facility Status Prior To D&D

A radiological survey of the facility structure and yard was performed in 1987/88, that survey revealed low level contamination on most of the fixtures inside room 110 and in the two exhaust systems that were serving room 110 and 114. The office, restroom and a janitors closet showed no signs of contamination and were not included as a part of the radiological D&D of the facility, however the floor tiles were removed from these rooms during the asbestos containing material (ACM) abatement of the facility.

3.0 SUMMARY OF WORK PERFORMED

To release the facility for use without radiological restrictions all contaminated equipment and fixtures had to be removed in preparation for a final radiological survey. In addition, all hazardous materials and wastes in the facility had to be properly disposed. Where practical and cost effective, equipment was decontaminated and either disposed as non R/A waste or surplused. Some equipment required disassembly in order to remove hazardous materials such as oils, grease and lead. Most of the items, however, could not be readily decontaminated and some equipment had areas that could not be surveyed with the confidence level necessary for release without radiological restrictions. Analysis of the floor tiles indicated that the tiles and mastic glue throughout the facility contained asbestos and would require removal and disposal.

3.1 Room 114

The work performed in room 114 consisted of the removal of miscellaneous packaged components and approximately 195 cubic yards of containerized soil (photo #5). All of the items stored in room 114 were brought to the facility for storage after work had ceased at B/064 and had been properly packaged to prevent release of contamination. During the removal of the equipment and boxes of soil, frequent area contamination surveys were performed by Radiation Protection and Health Physics Services (RP&HPS) representatives to assure that container integrity and contamination control were maintained. All contaminated equipment, components and soil that had been stored in room 114 were transported to the RMDF for temporary storage and eventual disposal at an approved DOE burial site.

3.2 Room 110

Most of the items in room 110 had been used for operations B/064 and were contaminated to varying degrees. When practical, size reduction and packaging were performed on site. However, some of the equipment required more aggressive techniques for size reduction and contamination control. These items included: a fume hood that had been used to package enriched uranium powders and source materials, (photo #1) two large balances (photo #1) and several 6 in. diameter X 5 ft. long steel shipping drum inserts. All of these items were transferred to the RMDF for size reduction and packaging for disposal. The fluorescent light fixtures in this room were also contaminated. The fixtures were taken down, disassembled and the PCB containing ballasts removed. The fixtures less ballasts and bulbs were packaged and disposed of as R/A waste, the ballasts were surveyed and found to be radiologically clean and were disposed of as hazardous PCB waste, the florescent bulbs were decontaminated and disposed of as conventional waste. The storage racks (photo #2 & 4) contained fixed R/A contamination and were disassembled, size reduced and packaged on site and transferred to the RMDF for eventual shipment to an approved disposal facility.

3.3 HEPA Filtered Exhaust Systems

To maintain contamination control during the size reduction of the HEPA filter plenums, size reduction was done at the RMDF. The plenums were detached from the buildings and blowers as intact units and transported to the RMDF. Because of the large size of the exhaust plenums this effort required the fabrication of custom boxes to assure contamination containment during transport. Inlet (photo #3) and outlet openings were sealed, the units were disconnected from the building, placed in the boxes and transferred to the RMDF. The plenums were cut into manageable size pieces using a plasma torch and packaged for disposal as R/A waste.

3.4 Hazardous Materials And Wastes

Because of the potential of discovering removable contamination during the D&D, process rooms 110 and 114 were designated as Radioactive Material Management Areas (RMMA). In accordance with the DOE Performance Objectives established for the removal of hazardous materials from a (RMMA) an established procedure for defining and dispositioning hazardous wastes from a RMMA was implemented. This procedure, ER-SP-0001 "Management and Disposition of Known or Potentially Hazardous Wastes Originating in a RMMA," provides step by step direction for determining if a material is; 1) a hazardous material, and 2) if so does it contain any DOE added radioactivity.

Because the facility had been used for storage for a number of years, special attention was given to identifying hazardous or potentially hazardous materials requiring disposition. Two scales were found to contain oil and one also contained lead. A four ounce quantity of oil from one of the scales was determined to contain radioactive contamination and was safely treated during the Molten Salt Oxidation (MSO) Bench Scale Unit tests being performed at the RMDF. The other oil and the lead were certified as "Containing No DOE Added Radioactivity," in accordance with ER-SP-0001 and were disposed of in accordance with the Rocketdyne Environmental Control Manual. The ballasts removed from the light fixtures in room 110 were hermetically sealed units and after a thorough radiological survey were also certified as "Containing No DOE Added Radioactivity" and were disposed of in accordance with the Rocketdyne Environmental Control Manual.

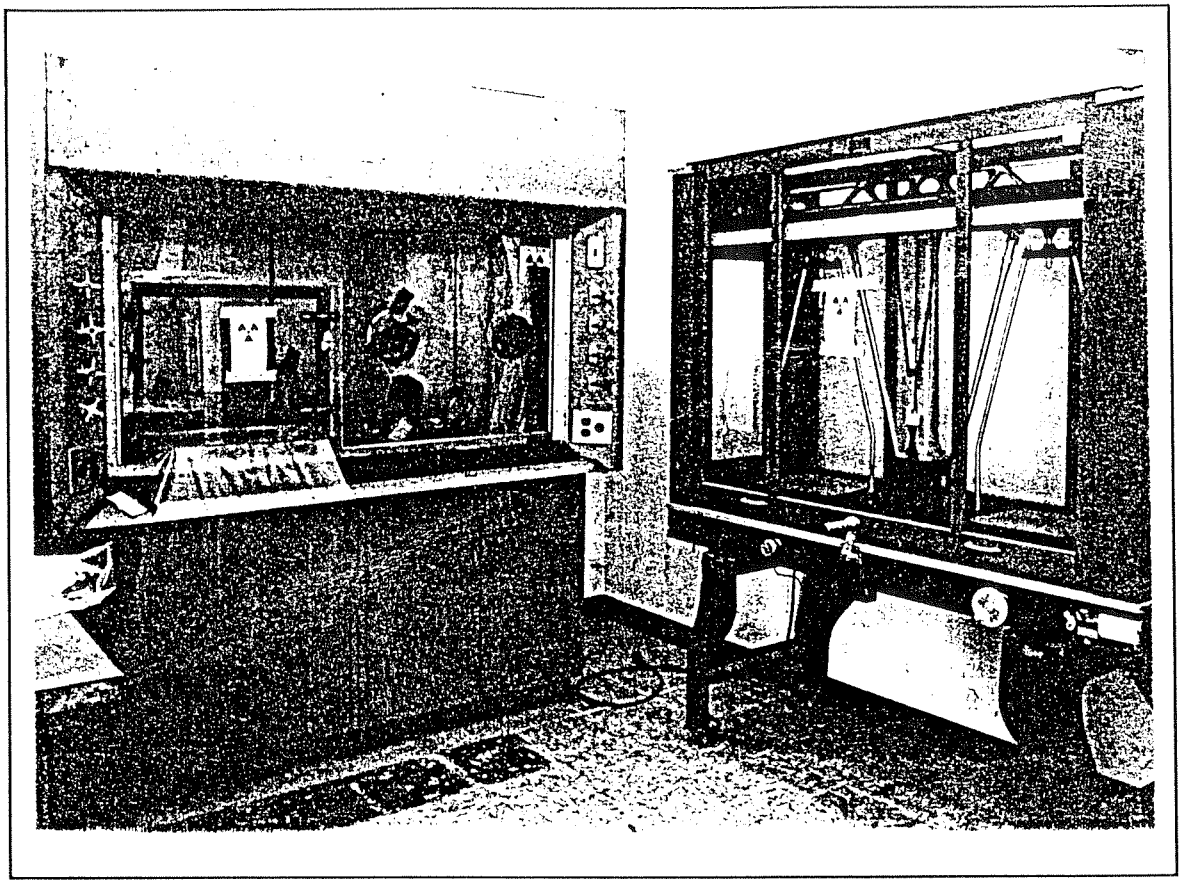
Because the tiles throughout the facility had been determined to contain asbestos and were in a deteriorated state their removal was required. A sampling plan was developed and implemented in accordance with ER-SP-0001. Randomly selected tiles were removed and the tiles and subfloor were surveyed for total contamination. The results of this survey sampling concluded that the tiles and subfloor had No Detectable Activity (NDA) above background, therefore, all tiles were certified as "Containing No DOE Added Radioactivity." An asbestos abatement contractor was employed to remove a total of 4,352 $ft.^2$ of tile (photo #6 & 7). The tile and abatement related ACM wastes have been packaged and placed in an approved hazardous waste container and will be disposed at an approved disposal facility. Copies of certifications were forwarded to the DOE.

4.0 CURRENT FACILITY STATUS

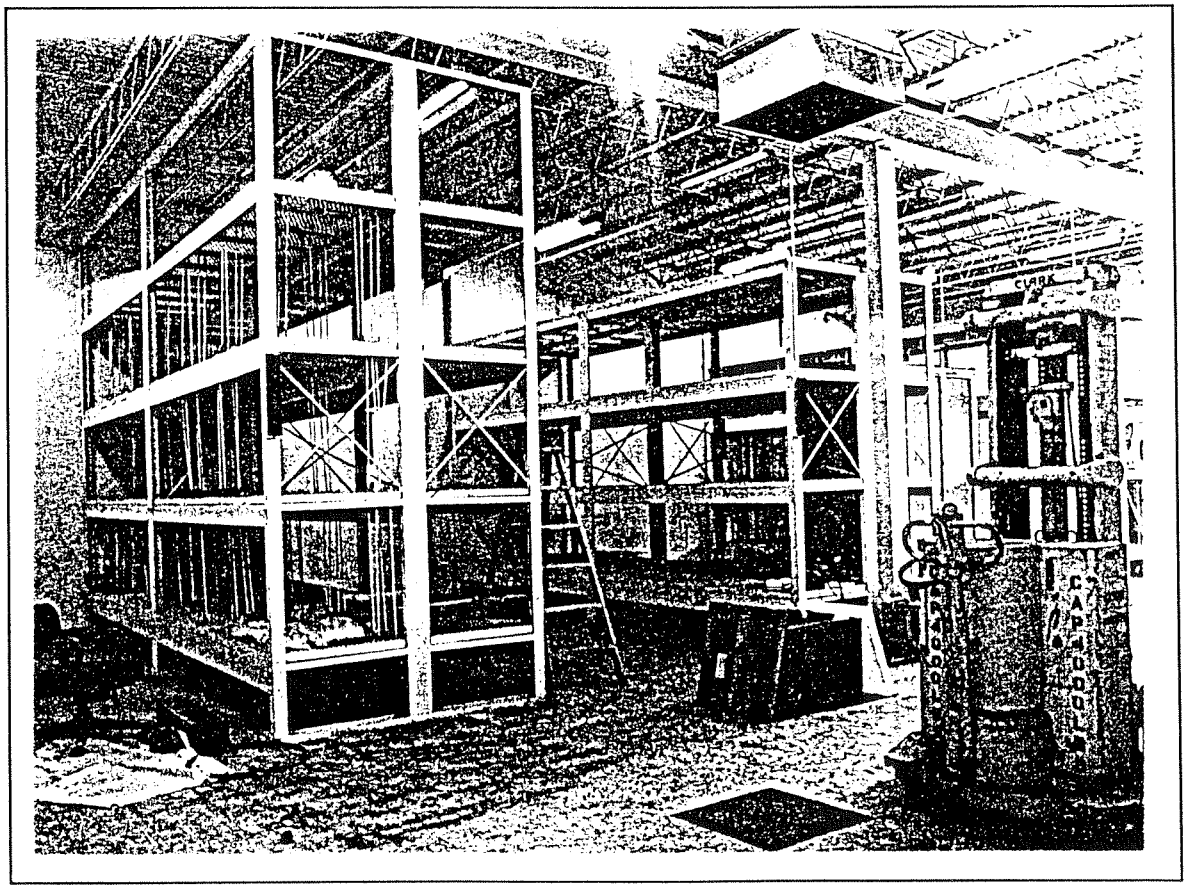
All known radioactively contaminated equipment, components and structures have been removed from the facility, and asbestos containing materials have been abated. All R/A waste has been packaged and shipped to an approved disposal facility. The next and final phase of the D&D will be the final radiological survey of the facility. Upon completion, review and acceptance of the final survey by DOE the facility will be released for use without radiological restrictions.

REFERENCES

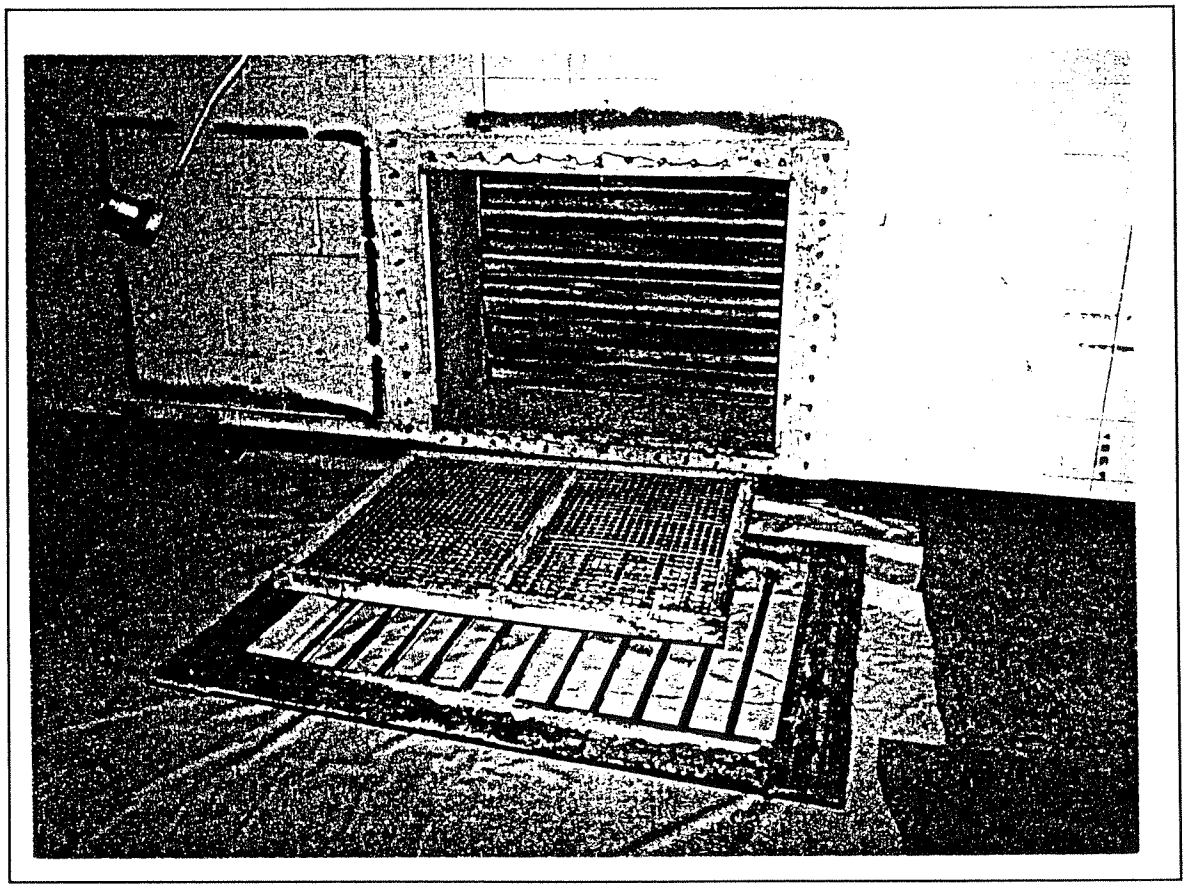
1. GEN-ZR-0005, "Radiological Survey of the Source and Special Nuclear Materials Storage Vault - Building 064"
2. SSWA-SOP-0001, "Building 064 Radiological Survey and sampling"
3. SSWA-SOP-0002, "Building 064 Removal of Contaminated Fixtures and Equipment"
4. SSWA-SOP-0003, "Building 064 Removal of Filter Plenums"
5. SSWA-SOP-0004, "Building 064 Structural Surfaces, Final Cleaning"
6. 064-OI-0002, "Building 064 Floor Tile Sampling Plan"
7. ER-SP-0001, "Management and Disposition of Known or Potentially Hazardous Wastes Originating in a RMMA"
8. Environmental Control Manual, Rocketdyne Publication 572-Z
9. N001SRR140119, "Analysis of Hazardous Wastes for Radioactivity"
10. N7045RR990031, "Final Decontamination and Radiological Survey of the Building 064 Side Yard"
11. SSWA-AN-0001, "D&D Work Plan for Building 064, Environmental Restoration"



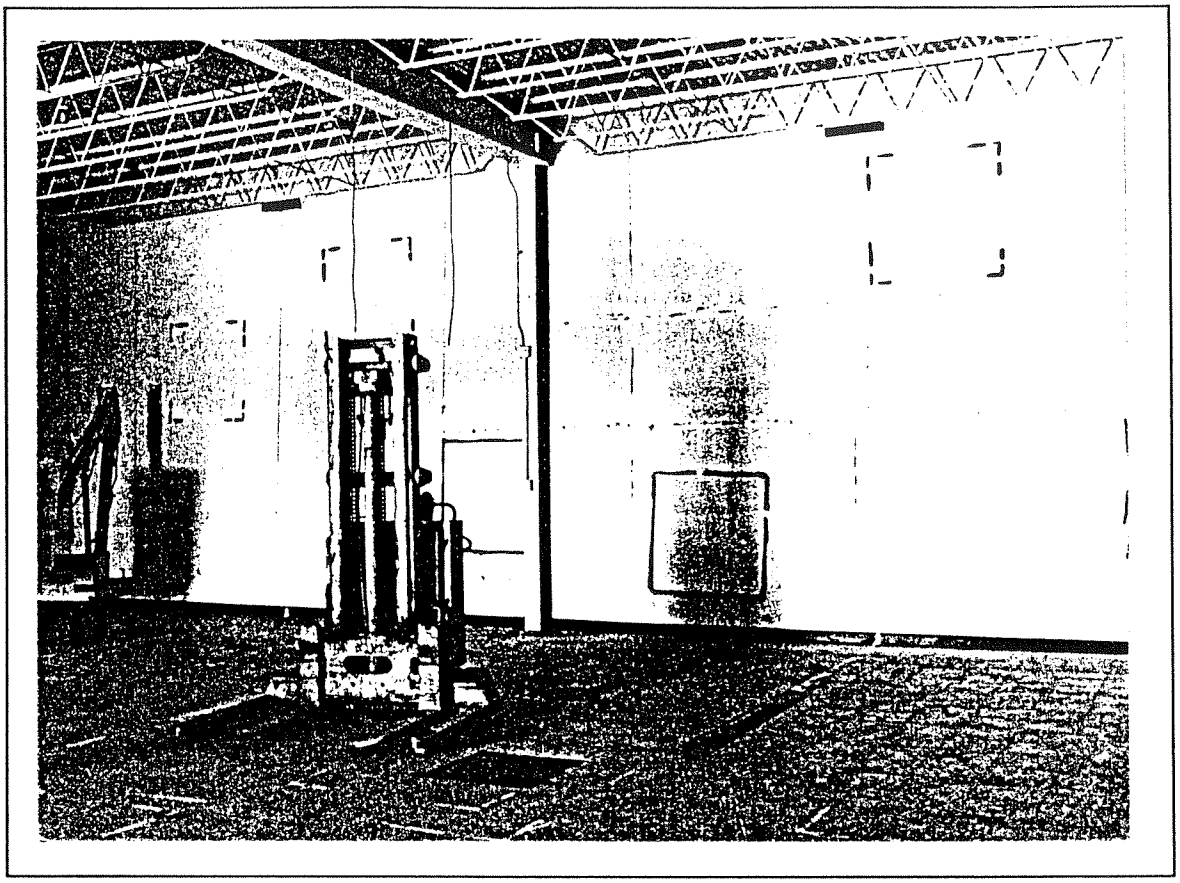
(#1) **Room 110, Fume Hood (left) and Voland Balance**



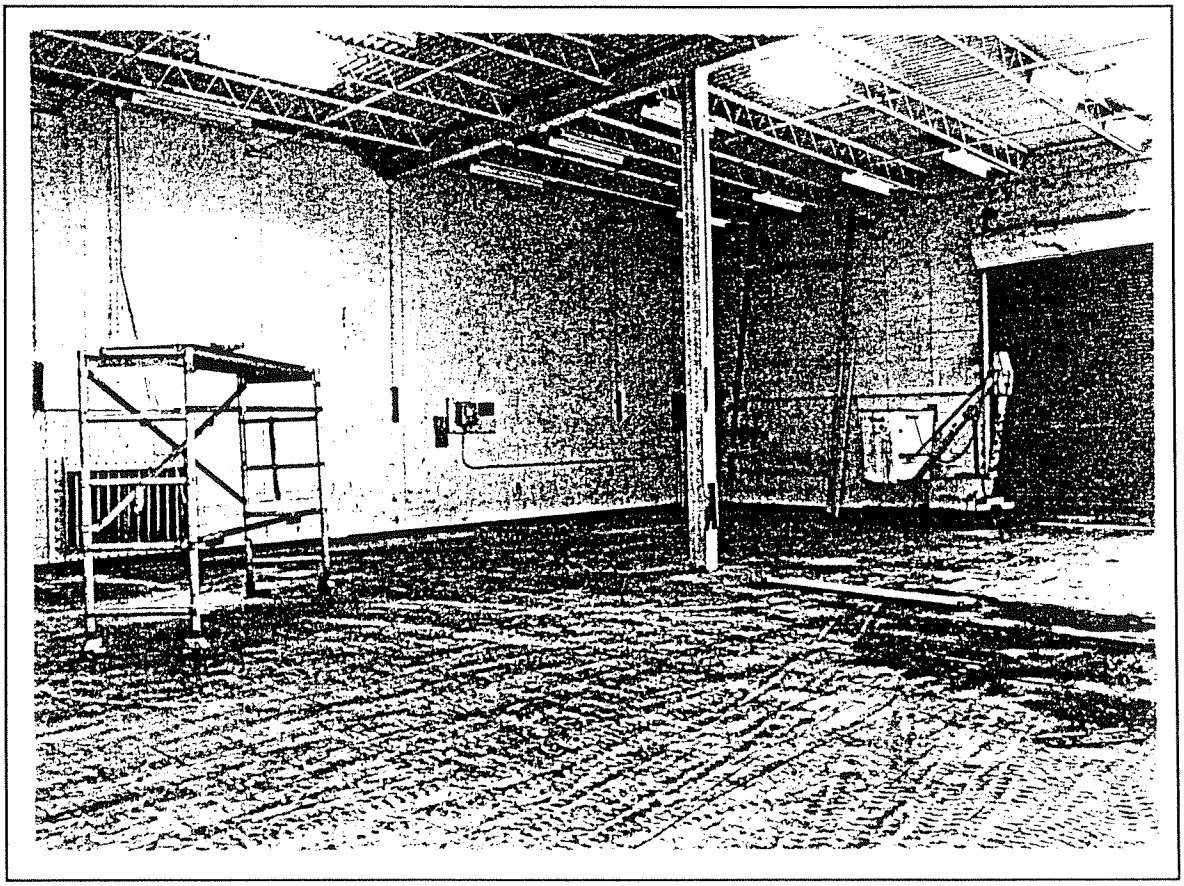
(#2) **Room 110, Storage Racks**



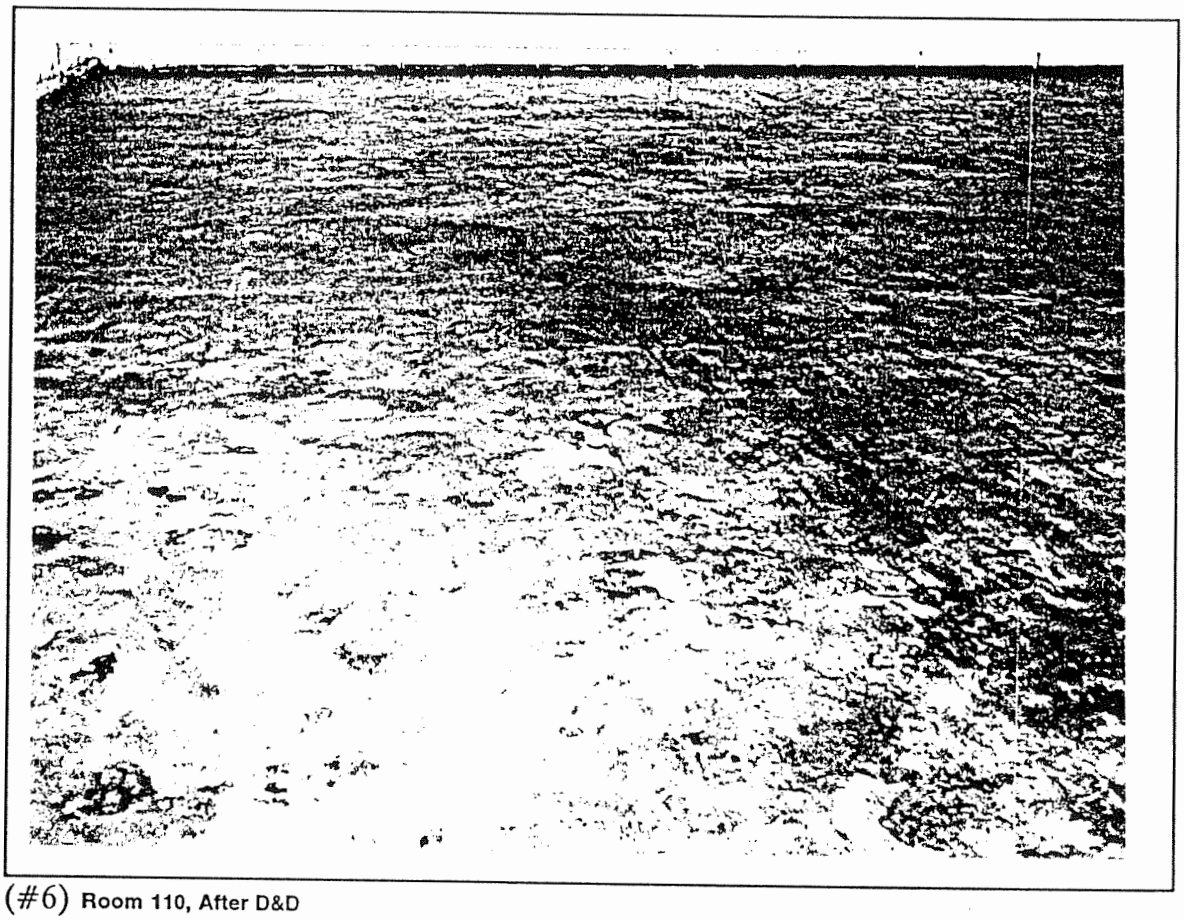
(#3) HEPA Filtered Exhaust Inlet (Typical Room 110 & 114)



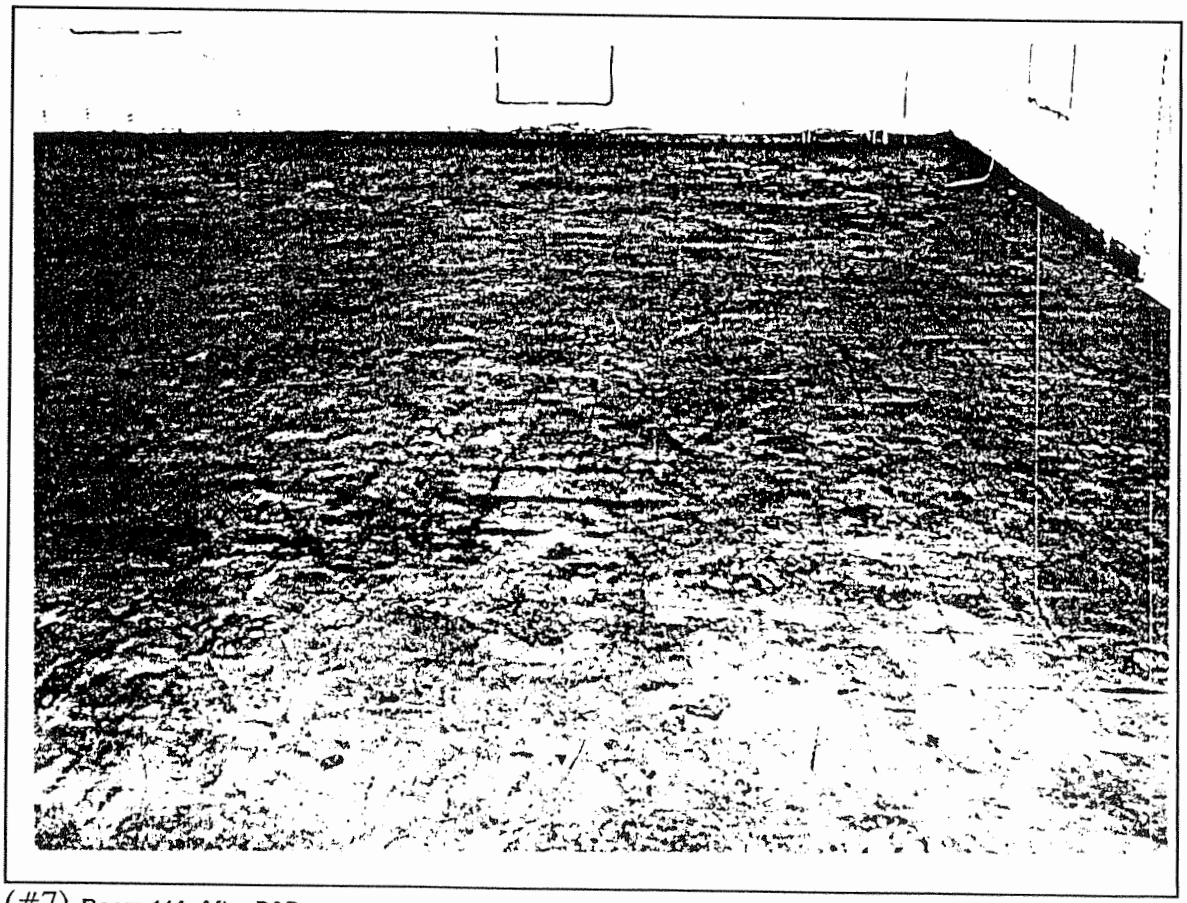
(#4) Room 110, After Removal of Equipment and Racks



(#5) Room 114, After Removal of containerized Equipment and Soil



(#6) Room 110, After D&D



(#7) Room 114, After D&D