BOEING

Engineering Product Document

GO Number	S/A Number	Page 1 of	Total Pages	Rev. Ltr/Chg. No. See Summary of Chg.	Number
97055	35120		32	N/C	EID-04600

Program Title CLOSURE OF ETEC (R21-RF)

Document Title FINAL REPORT, DECONTAMINATION & DECOMMISSIONING OF FUEL STORAGE FACILITY, 4064

Document Type
D&D Report

Related Documents

Original Issue Date 9-11-99

Release Date RELEASE 9-11-99W

Approvals — Date

Prepared By/Date	Dept.	Mail/Addr
Satish N. Shah / August 23, 1999	117	T038

R. D. Meyer 8-25-99
P. H. Horton 8/26/99
S. E. Reeder 8-27-99
P. D. Rutherford 8/25/99
M. E. Lee 8/27/99

IR&D Program? Yes ☐ No ☒
If Yes, Enter Authorization No.

Distribution

*	Name	Mail Addr.
*	Ervin III, Guy	T038
*	~~Horton, P. H.~~ Marshall, R. A.	T038
	Lafflam, S. R.	T487
*	Lee, M. E.	T038
*	Meyer, R. D.	T038
*	Reeder, S. E.	T038
*	Rutherford, P. D. (3)	T487
*	Shah, S. N. (4)	T038
*		

Abstract

This document summarizes the D&D process for the former Fuel Storage Facility, including building 4064, the fenced-in area, the Side Yard and the Surroundings.

* Complete Document
No Asterisk, Title Page/Summary
or Change Page Only.

Reserved for Proprietary/Legal Notice

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION and SUMMARY

This report summarizes the Decontamination and Decommissioning (D&D) process for the former Fuel Storage Facility. The facility consisted of the building, B4064, and a fenced-in area (See Figure 1-4). This building is referred to in this document as Building 4064. In other documentation and references this building can be called T064, 064 or B/064 depending on the designation at the time. The D&D process of this facility included the building, the fenced-in area, and "Surrounding Areas", that were found to be slightly contaminated (Fig. 1-4). The surrounding areas included a "Side Yard", which was an approximately 4,500 ft^2 area east of the building, of which approximately 4,000 ft^2 was outside the security fence.

1.1 Building 4064

Constructed in 1958, the Fuel Storage Facility was a vault, built to provide secure storage for non-irradiated fissionable nuclear materials (enriched uranium and plutonium) used to make reactor fuel. The building was constructed aboveground of concrete and concrete blocks, to meet the Atomic Energy Commission (AEC) criteria for vaults for storage of fissionable material. It was equipped with intrusion alarms. Closed containers of radioactive waste were also stored outside on a concrete pad within the locked, fenced facility perimeter.

All nuclear materials were removed from the building by 1993. The building was decontaminiminated and a final survey of the building was performed in 1993 (Ref. 3). In 1996, the building was released for demolition by the Department of Energy (DOE) and the California Department of Health Services (DHS) Radiation Branch. The building was demolished in 1997 and the waste was shipped off-site as clean waste.

Key Milestones, B4064:

Period of operation	1958 - 1993
Decontamination and decommissioning	1993
Rocketdyne Final Survey of B/4064 interior	January 1994
Rocketdyne Final Survey of B/4064 fenced-in yard	January 1994
ORISE verification survey	October 1994
DHS verification survey	1994
DOE approval to demolish building	June 1996
DHS approval to demolish building	August 1996
Demolition complete	August 1997

1.2 Side Yard and Surrounding Areas of B/4064

During the operating history of Building 4064, the concrete pad northeast of the building had been built to store sealed containers of radioactive material. During this period of handling containers of radioactive material, the side yard became contaminated with Cs-137 (Ref. 8).

In 1988, a Characterization Survey (Ref. 1) was performed which identified the location of contaminated soil. Remedial excavation was performed and a subsequent Rocketdyne survey was conducted. A follow-up verification survey was performed by ORISE (Oak Ridge Institute of Science & Education) in 1992 and additional excavation was performed in 1993.

The Area IV Survey, performed in 1994 and 1995, identified two more locations above release limits. These areas, including a septic tank and the leach field, were excavated in 1997. Subsequent scoping surveys indicated the area was below release limits.

In May 1998, sub-surface core sampling down to bedrock was performed under the original building, in the side yard, under the main access road, "G" street, and east of "G" street (Ref. 10). All sample results proved to be within the range of background levels.

The Rocketdyne Final Status Survey of the entire 2 acre-area (Ref. 10), and the ORISE verification survey were conducted in September 1998. In October 1998, the California Department of Health Services (DHS) also performed a verification survey.

Key Milestones, 4064 Side Yard & Surroundings

Characterization survey	July 1988
Remediation	1989
Interim final survey	October 1990
ORISE verification survey	December 1992
Remediation	1993
Revision to Interim final survey report	1993
Area IV survey	1995
Remediation of septic tank and leach field	1997
Sub-surface core sampling	May 1998
Rocketdyne final status survey	September 1998
ORISE verification survey	September 1998
DHS verification survey	October 1998

2.0 LOCATION

Facility 4064 was located within the former Rockwell International Santa Susana Field Laboratories (SSFL) in the Simi Hills of Southeastern Ventura County, California, adjacent to the Los Angeles County Line and approximately 29 miles northwest of downtown Los Angeles. Location of the SSFL relative to Los Angeles and vicinities is shown in Figure 2-1. An enlarged map of neighboring SSFL communities is shown in Figure 2-2. Figure 2-3 is a plot plan of the western portion of SSFL, known as Area IV, where Building 4064 was located. Figure 2-4 shows the relative locations of the building, the Side Yard and the surrounding areas including the locations of a septic tank and its leach field. A drawing (plan view) of Building 4064 and its adjoining areas is shown in Figure 2-5. Figure 2-6 shows the former building in the Area IV of SSFL and the surrounding area. Building 4064 was totally fenced in with a chain-link fence (Ref. 1). An aerial photograph of the 4064 site prior to demolition is shown in Figure 2-7.

Using USGS terminology, the USGS description for the Building 4064 is: Township T2N; Range RI 7W; and Section 30, Calabasas Quadrangle.

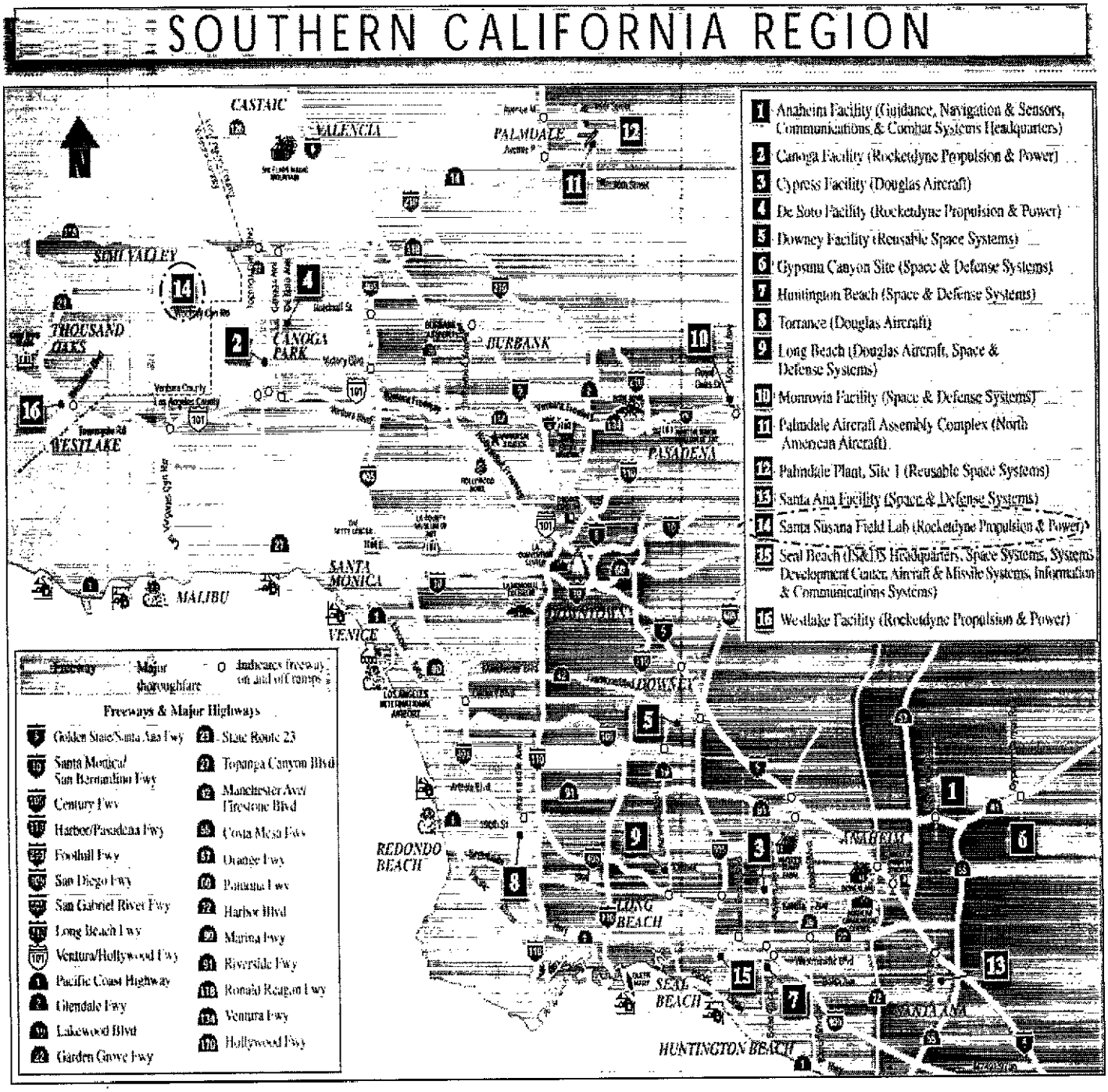

Figure 2-1. Map of Los Angeles Area

Figure 2-2. Map of Neighboring SSFL Communities

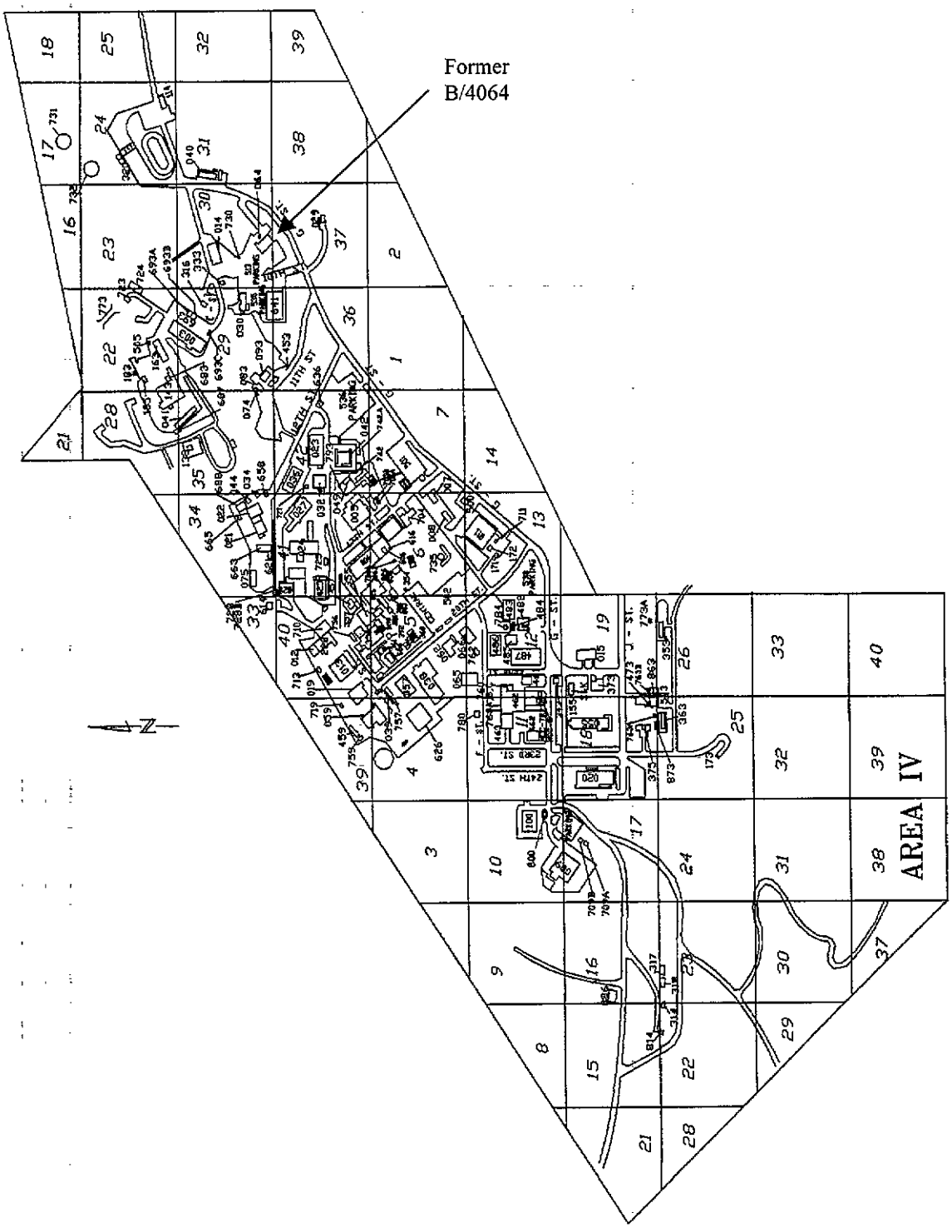

Figure 2-3. SSFL Layout Showing Location of the Former Building 4064

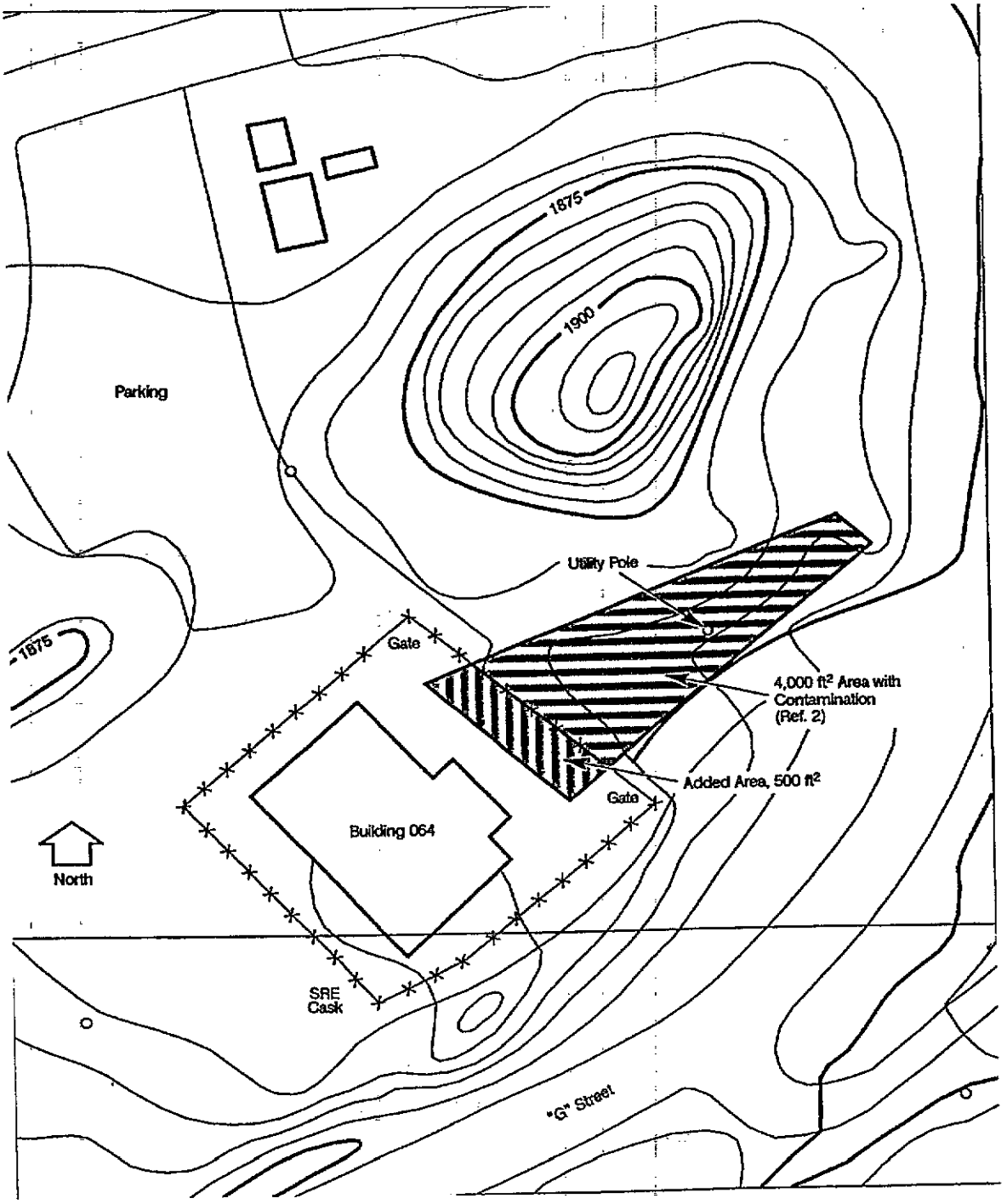

Figure 2-4. Former Facility 4064, Side Yard and Surrounding Area

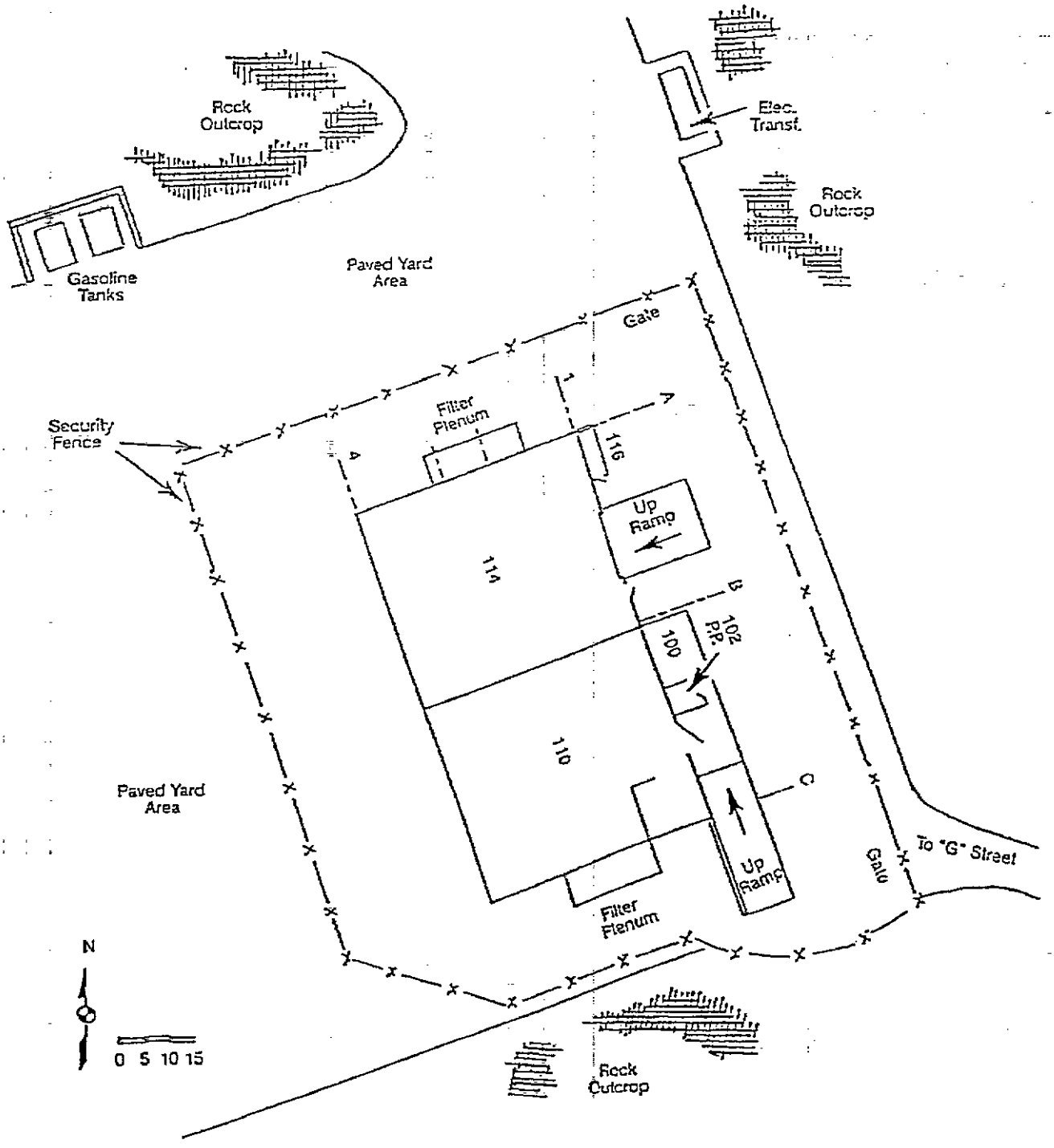

Figure 2-5. Plot plan - Former Building 4064

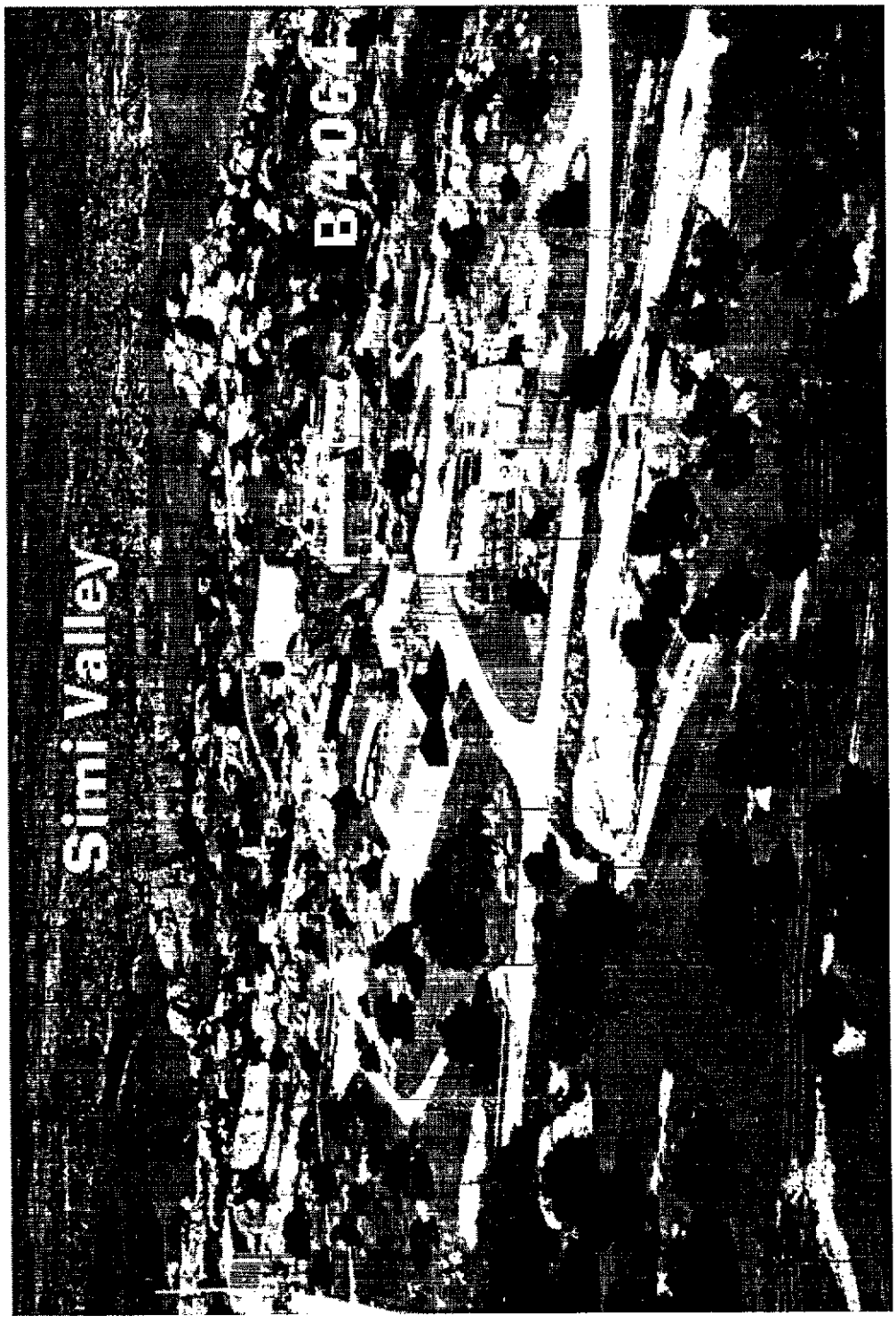

Figure 2-6. Location of B/4064 in Area IV and Surroundings

Figure 2-7. Aerial View of Former Building 4064 Site

3.0 FACILITY DESCRIPTION AND SITE TOPOGRAPHY

3.1 Building and Site

Building 4064 was designed and built as a special nuclear material and source radioactive material storage building. It was constructed in two phases. The first phase was constructed in 1958. This 2137 ft^2 portion (Room 110) was a reinforced concrete structure with 11-in. thick walls on a concrete slab. The building eaves height was 16 ft and the structure was open bay except for a 12 ft x 13 ft material handling area in the southeast corner of the building. A fume hood was installed in this small southeast corner (Room 104).

In 1963, the building was enlarged by adding a bay to the north (Room 114) bringing the total square footage of the building to 4418 ft^2. This addition used 12-in. concrete block construction with cores filled with concrete. Total square footage included a small 150 ft^2 office (Room 100) and a 50 ft^2 restroom (Room 102), both located on the dock on the east side of the building. On the northwest corner was a small supply and storage room, about 50 ft^2 (Room 116). Room 114 was accessible from the east through a 20 ft x 15 ft electrically driven rollup door and a conventional hinged door. Room 110 was accessible from the east through a heavy secured door. Ramps leading to each room allowed easy transport of materials via forklift.

The concrete slab floors were covered with 12-in. square vinyl-asbestos tiles. The concrete-block walls were painted. In 1980, the entire facility was reroofed; interior wall surfaces were patched and painted; floor tile was removed and replaced; the restroom and office were restored; plumbing was repaired; heating and ventilation was repaired; a window air-conditioner was installed in the office; and yard asphalt was patched. New fluorescent lights were installed. Storage racks were constructed to accommodate fuel.

Since nuclear material was only stored here, there was no processing equipment within the building. No sinks were installed in the storage areas. The only water supply was to the restroom (Room 102). Initially sanitary waste water was discharged to a septic tank and leach field. In about 1960 the facility was connected to the local sewage system. The facility was not air-conditioned. Each room was ventilated by dedicated blowers through a plenum containing pre-filters and HEPA filters. Room 104 had a fume hood that exhausted through the south filter plenum.

A disconnected sanitary leach field existed just north of the access road to "G" Street on the southeast section of the property. The building was surrounded by a chain link fence, located from 20 to 30 ft from the exterior walls of the building. The area enclosed, including the building, was about 11,000 ft^2.

There were three points of access to the site location of Building 4064. One access was directly from the north through the 513 parking area, which was on the east side of 10th Street. A second point of access was directly off 10th Street at the northwest corner of the facility, and the third was a paved roadway connecting the southeast corner of the facility with "G" Street to the east. There were two gates for accessing the fenced-in storage yard; one from the northeast corner off the 513 parking lot, and the other from the southeast corner off "G" Street.

The facility sat atop a plateau about 25 ft above "G" Street and slightly above the 513 parking lot. Figure 3-1 shows the building and surrounding area during demolition (half of the building was demolished at the time of this picture). Rock outcroppings exist up slope to the north-northeast and down slope in every other direction. Water runoff was primarily due east at the southern end of the facility.

3.2 Fenced-in Yard, Side Yard and the Surrounding Areas

The "fenced-in yard" was a 6,580 square foot area within the security fence as shown in Figure 2-5.

The "Building 4064 Side yard" was a designation given to approximately 4500 square foot trapezoidal area near building 4064 for D&D (Fig. 2-4).

The "Surrounding Areas" included a 2-acre area of the former 4064 facility, including drainage pathways, former parking lot areas, surrounding areas, and the Side yard area (Ref. 10). The septic tank, and the leach field that had serviced the Building 4064, were located within the Surrounding Areas (Fig. 2-4). Figure 3-2 shows the septic tank in the ground after the surrounding soil was removed.

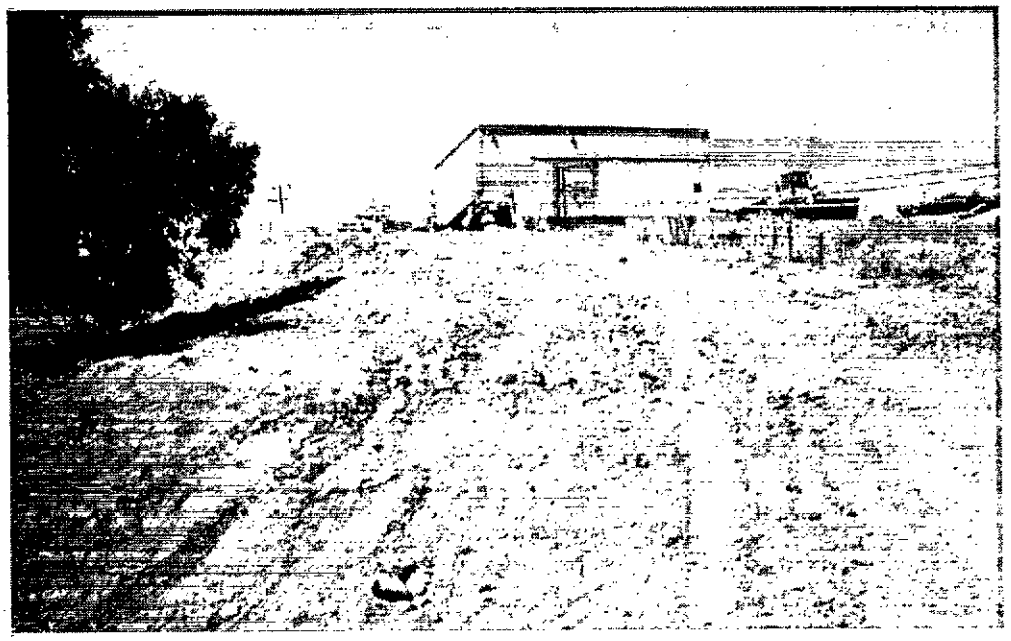

Figure 3-1. North Half of Building 4064 during Demolition

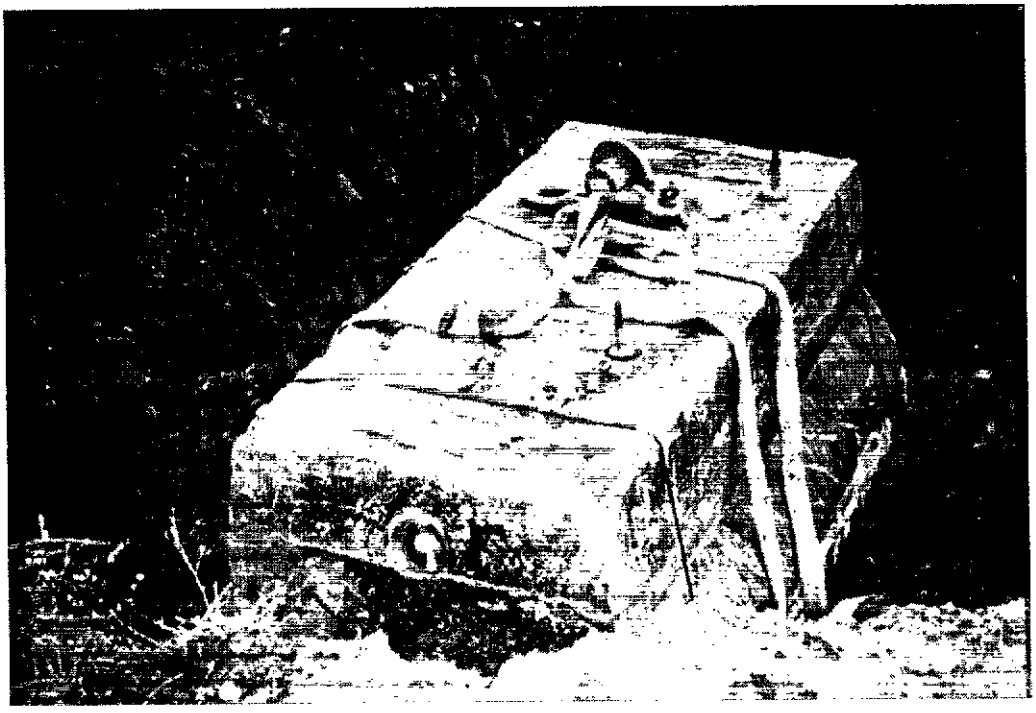

Figure 3-2. Uncovered Septic Tank for Former Building

4.0 OPERATING HISTORY

4.1 Building 4064

Building 4064 was used primarily for storage of packaged items of source material (normal uranium, depleted uranium, and thorium), and packaged special nuclear material (enriched uranium, plutonium, U-233) of various forms and configurations. Originally Room 114 and Room 110 contained steel racks for storing material. Room 110 was primarily used for storage of highly enriched uranium and plutonium; Room 114 was primarily used for source material and low enriched uranium storage.

Enriched uranium powders and source material powder packages were split into smaller units or combined into larger units in a glove box located in the small work area alcove (Room 104) in the southeast corner of Room 110. Plutonium was handled only in packaged form; never in a loose form. No plutonium handling was done other than transferring sealed packages between containers. Transfers of solid metallic forms of material generally were handled in the glove box; however, on occasion, larger solid metallic pieces were transferred and repackaged within the room.

During the early 1960's, a changed storage configuration was required. The metal racks from the south half of Room 110 were removed in order to store material in storage containers and drums. This storage included large quantities of special nuclear material recoverable scrap.

During this time, recoverable scrap storage space was needed. As a result, the yard area in front of the building (east), the side (north), and the back (west) was used to store 55-gallon drums of low enriched recoverable scrap. This material was shipped off-site from Rocketdyne to various government sites in the mid-to-late 1960's and early 1970's.

No plutonium or U-233 packages were ever opened in this facility. Any residual radioactive contamination was enriched uranium, normal uranium, depleted uranium, or thorium and came from handling bare metallic pieces (Ref. 1).

During the mid-1970's to early-1980's, most of the major DOE nuclear development and reactor contracts had ended. Later, following removal of all fissionable material, miscellaneous equipment and containers of radioactive waste (principally soil) were stored in the building. The building was emptied of all contents (both radioactive and non- radioactive) by 1993 (Ref. 5).

The building was decontamiminated and a Rocketdyne final survey of the building interior and also the fenced-in yard was performed in 1993 and was documented in 1994. The Oak Ridge Institute of Science and Education (ORISE) and the California Department of Health Services (DHS) performed verification surveys in 1994. In 1996, the building was released for demolition by the Department of Energy (DOE) (Appendix 1) and the California DHS (Appendix 2).

In May, 1997, the alarm system was removed from the building to prepare for demolition. The asbestos and paint were removed from the building by a contractor specializing in asbestos abatement. The building demolition process was completed in August, 1997, and the waste was shipped off-site as conventional waste.

4.2 Side yard and Surrounding Areas of B/4064

In 1988, a Characterization Survey was performed which confirmed the location of contaminated soil. Remedial excavation was performed to remove the contaminated soil. A subsequent Rocketdyne survey comprising of one-meter gridded exposure measurements and soil sampling was documented in 1990. A follow-up verification survey was performed by ORISE in 1992. Further excavation was performed in two locations in 1993, following imposition of more stringent clean-up standards by the Department of Energy, and documented in a revision to Rocketdyne's 1990 survey report (Ref. 6).

During the Area IV Survey in 1994 through 1995, two locations, one in the original side yard and one located across the other side of "G" Street were identified as remaining above release limits. These areas were excavated in 1997 including the removal of an abandoned septic tank and leach field that had serviced Building 4064. Scoping surveys and soil samples conducted during and after excavation proved the 4064 area beneath the previous building foundations, and surrounding yard areas were non-contaminated.

In May, 1998, sub-surface core sampling down to bedrock was performed under the original building, in the side yard, under the main access road, "G" street, and east of "G" street (Ref. 10). All sample results proved to be within the range of background.

In September, 1998, the Final Status Survey was conducted in the entire 2 acre site, including drainage pathways, former parking lot areas, surrounding areas, and the side yard area. One hundred and thirty one (131) soil samples were taken, 553 one-meter gridded exposure measurements were taken and a surface exposure survey of all two acres was performed. All measurements demonstrated that the facility met cleanup standards for release for unrestricted use. The Final Status Survey Report was issued in April, 1999 (Ref. 10).

In September, 1998, the Oak Ridge Institute of Science and Education (ORISE) performed a verification survey (Reference 9). In October, 1998, the California Department of Health Services (DHS) performed a verification survey.

5.0 PROJECT ACTIVITIES

5.1 Building 4064

A radiological survey of the facility structure and yard was performed in 1987/88 (Ref. 1). That survey revealed low level contamination on most of the fixtures inside Room 110 and in the two exhaust systems that were serving Rooms 110 and 114. The office, restroom and a janitor's closet showed no signs of contamination. The floor tiles were surveyed for radiological contamination, none was found, and the tiles were removed from these rooms during the asbestos containing material (ACM) abatement of the facility.

5.1.1 Room 114

After work had ceased at Building 4064, miscellaneous packaged components and approximately 125 cubic yards of containerized soil were stored in Room 114. The remediation work performed in Room 114 consisted of the removal of these stored items. During the removal of the equipment and boxes of soil, frequent area contamination surveys were performed by radiation protection personnel 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 Radioactive Materials Handling Facility (RMHF) for temporary storage and eventual disposal at an approved DOE burial site.

5.1.2 Room 110

Most items in Room 110 had been used for operations at Building 4064 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, two large balances (Fig. 5-1), and several 6 in. diameter x 5 ft. long steel shipping drum inserts. All of these items were transferred to the RMHF 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 radioactive waste, the ballasts were surveyed and found to be radiologically clean and were disposed of as hazardous PCB waste, the fluorescent bulbs were decontaminated and disposed of as conventional waste. The storage racks (Fig. 5-2) contained fixed radioactive contamination and were disassembled, size reduced and packaged on site and transferred to the RMHF for eventual shipment to an approved disposal facility.

5.1.3 HEPA Filtered Exhaust Systems

To maintain contamination control during the size reduction of the HEPA filter plenums, size reduction was done at the RMHF. The plenums were detached from the buildings and blowers as intact units and transported to the RMHF. Because of the large size of the exhaust plenums this effort required the fabrication of custom boxes to assure contamination containment during transport. Inlet (Fig. 5-3) and outlet openings were sealed, the units were disconnected from the building, placed in the boxes and transferred to the RMHF. The plenums were cut into manageable size pieces using a plasma torch and packaged for disposal as radioactive waste.

Because the facility had been used for storage for several 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 4-oz quantity of oil from one of the scales was determined to contain radioactive contamination and was effectively treated during the Molten Salt Oxidation (MSO) Bench Scale Unit tests being performed at the RMHF. The other oil and the lead were certified as "Containing no DOE-Added Radioactivity," in accordance with ER-SP-0001 (Ref. 2) and were disposed of in accordance with the Rocketdyne Environmental Control procedures. 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 procedures.

Because the floor 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. The tile and abatement-related ACM wastes were packaged and placed in an approved hazardous waste container and were disposed at an approved disposal facility. Copies of certifications were forwarded to the DOE.

5.2 Side yard and Surrounding Areas

The characterization survey of 1988 indicated areas of contaminated soil, which were subsequently removed. In 1993, the Department of Energy imposed stricter clean-up standards, and soil was excavated from two additional locations (Ref. 6). The demolition of building 4064 was placed on hold until removal of all contaminated soil was completed.

The Area IV survey of 1994-95 identified two more locations with elevated readings, one in the original Side yard, and the other located across the other side of "G" street. The remediation of these locations was performed in 1995. Soil samples from these locations were taken to determine the amount of soil needed to be removed. Roll-off containers were used for interim storage of contaminated soil. The removal of soil areas with elevated readings was completed by the end of 1995.

The location of the abandoned septic tank was confirmed during the above-described excavations. A methodology was developed to determine the extent of side yard contamination. It was decided to auger holes 18" deep and measure activity using a NaI detector. Additional side yard samples were taken using this methodology. The removal of elevated radiological spots was completed by the end of 1995. In April, the leach field distribution box was surveyed in detail and contamination was found in both the inlet and outlet lines. The distribution box was removed in June and sent to the Radioactive Materials Handling Facility (RMHF) for further processing. The box was packaged at the RMHF for shipment to the DOE-Hanford disposal site. It was shipped in March, 1999.

The radiological boundary determination showed that an area inside of the drip line of an oak tree needed to be excavated. In January, 1996, a radiological survey of the buried septic tank showed no

radioactivity. In February, the water and sludge samples from the tank were analyzed and found to be non-hazardous. The tank then was decanted and the non-contaminated water was allowed to evaporate. Permits to remove the septic tank and to excavate around oak trees were obtained in June 1996. The Critical Lift procedure was modified for the septic tank, and the tank and piping were removed in July 1996 (see Fig. 5-4) and sent to RMHF for processing. Low Level contamination was detected in the sludge in the tank. The sludge was absorbed in diatomaceous earth. The tank was size reduced (rubblized) and packaged for shipment to the DOE-Hanford disposal site. Figure 5-5 shows the locations of the tank and its leach field after excavation.

The soil sampling based on the boundary determination methodology was completed in 1996. The soil defined by this methodology was excavated and was shipped to the Envirocare facility in Utah.

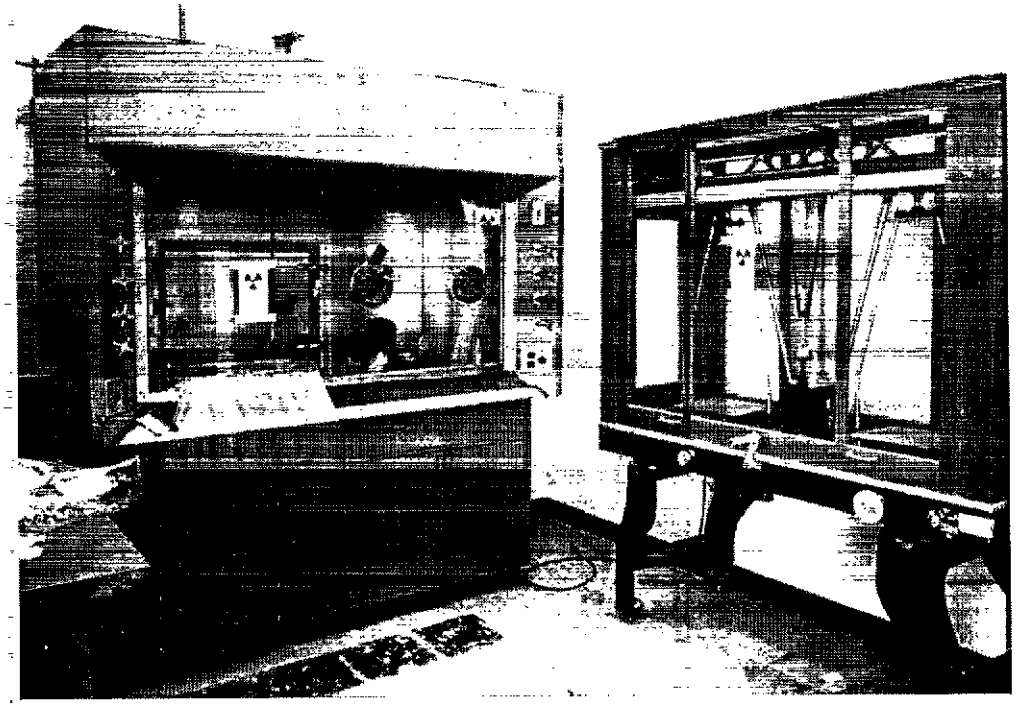

Figure 5-1. Room 110, Fume Hood (left) and Voland Balance

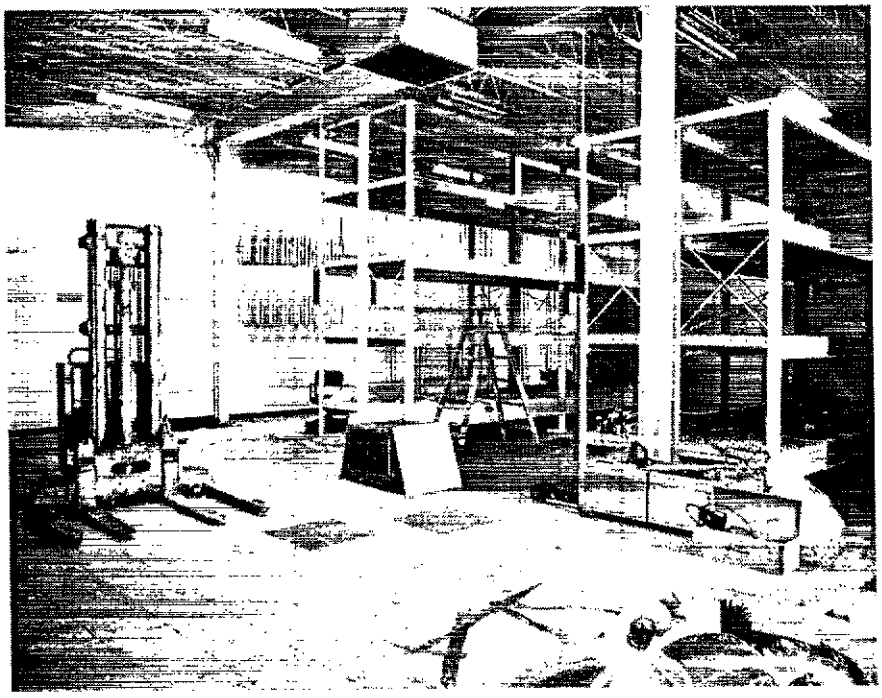

Figure 5-2. Room 110, Storage Racks

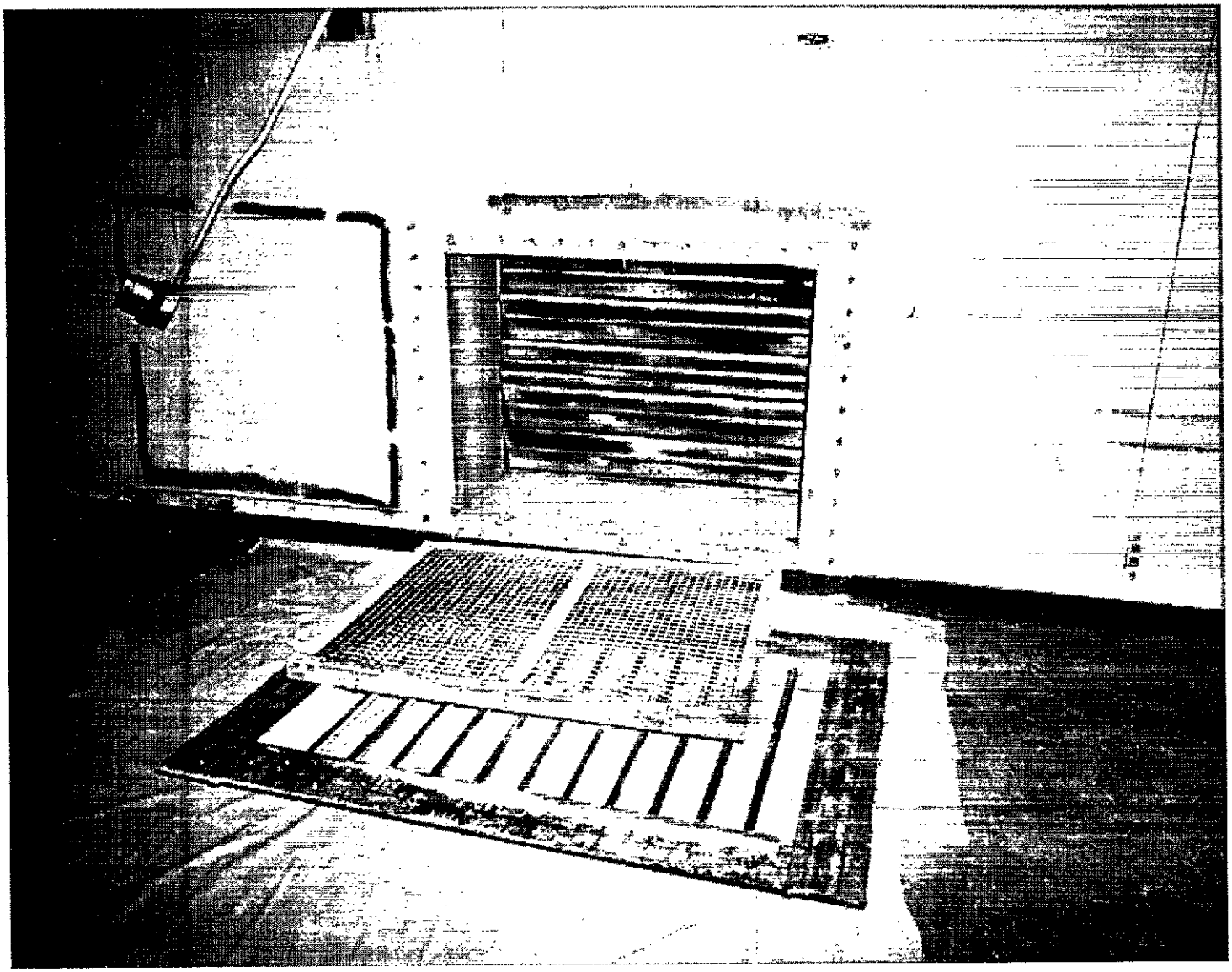

Figure 5-3. HEPA Filtered Exhaust Inlet (Typical Rooms 110 and 114)

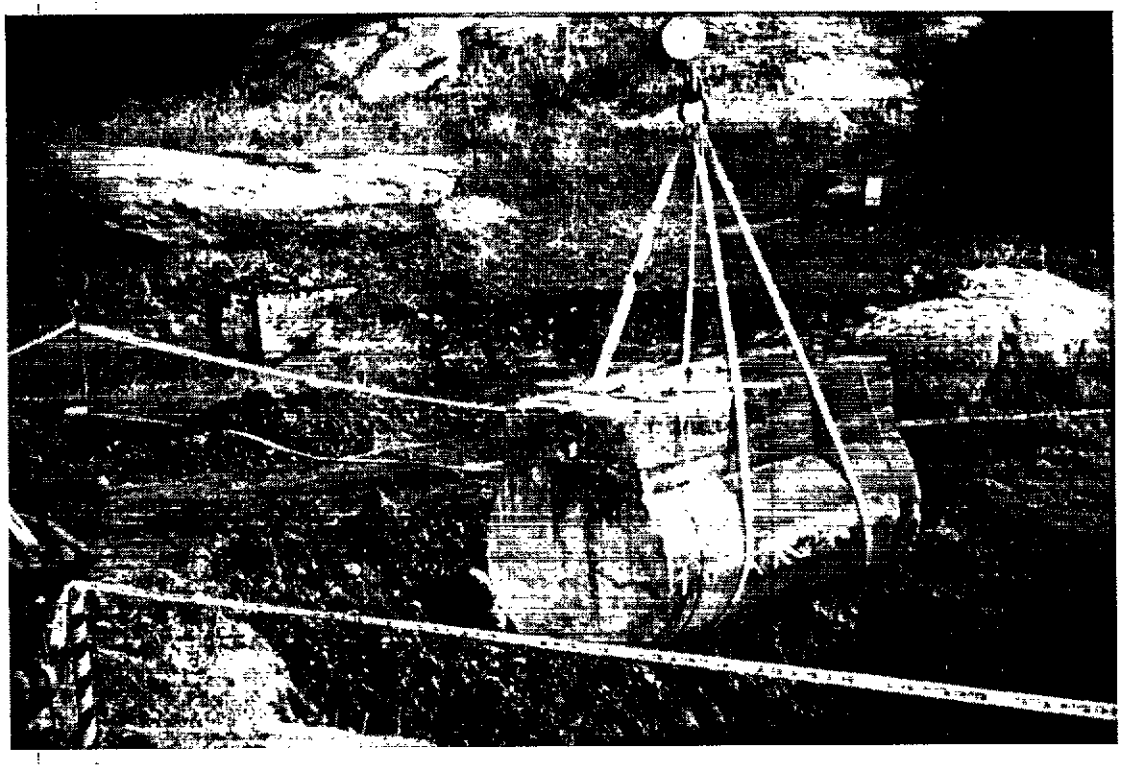

Figure 5-4. Removal of the 4064 Septic Tank

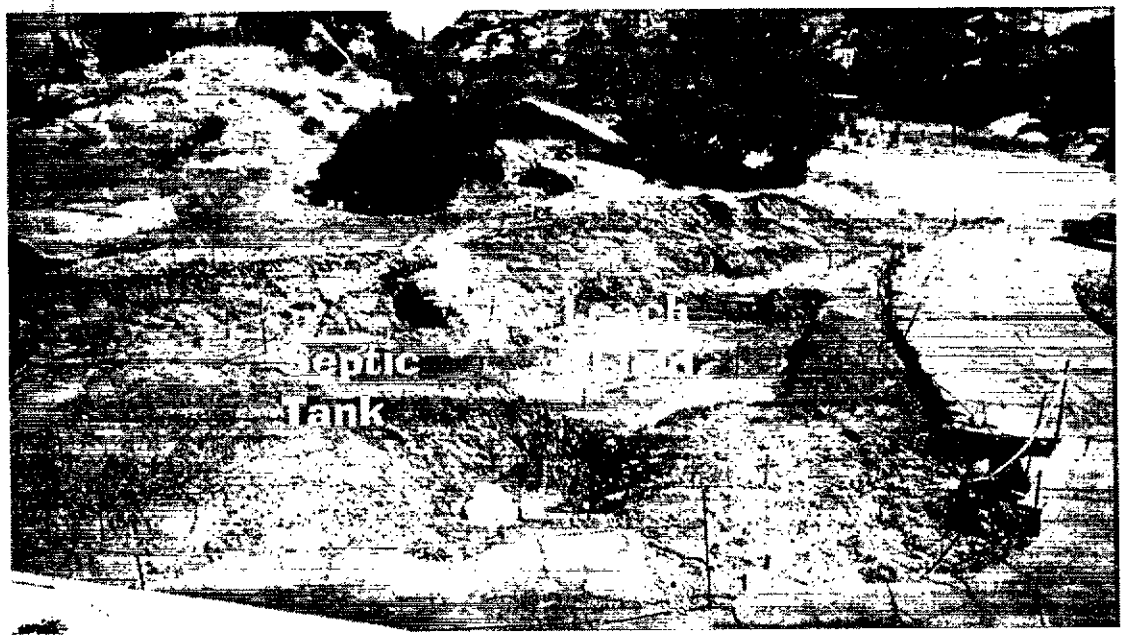

Figure 5-5. Locations of the Septic Tank and the Leach Field after Excavation

6.0 SURVEY RESULTS

6.1 Overview

Upon D&D of radioactive constituents, releasing a facility or area for unrestricted use requires a formal radiation survey to demonstrate that the applicable regulatory limits for such a release are met. The survey is performed under an established plan, and a statistical interpretation of the resulting data is made to verify that the regulatory release criteria have been met. References 3, 8 and 10 provide information that demonstrates that Building 4064 and the Area 4064, which includes the Side yard and the "Surrounding Areas", meet DOE, NRC, and State of California criteria for release of the facility for unrestricted use.

6.2 Scope of the Survey

6.2.1 Building 4064

For the final radiological survey of Building 4064, the interior rooms and office were separated into sample lots. These sample lots are graphically shown in Figure 6 of Reference 3. Sample lots were treated separately for the purposes of statistical data analyses. Distinguishable properties for selecting the sample lots were areas or rooms, which contained contaminated components that were recently decontaminated. The chosen sample lots or areas are shown in Table 1 of Reference 3 with the corresponding type of survey performed.

6.2.2 Area 4064 (Side yard and the Surrounding Areas)

The entire 2-acre lot was surveyed and sampled including a direct qualitative surface gamma scan (100%) for contamination, ambient gamma exposure measurements at 1 meter above the ground at 10 ft by 10-ft grids, and both surface and subsurface soil sampling (Ref. 10).

6.3 Survey Summary and Conclusions

6.3.1 Building 4064

Survey measurements were made for surface contamination (alpha and beta) on the interior walls, floors, and ceilings in Building 4064, and for ambient gamma exposure rate at 1 meter above the interior floors. These measurements were tested statistically for compliance with acceptable contamination limits for enriched uranium, activation products, and mixed fission products, and for ambient exposure rate.

All tests for surface contamination showed that the facility was suitable for release without radiological restrictions. Interpretation of the gamma exposure rate measurements for the Building 4064 interior is based on the average gamma exposure rate background value (15.76 μR/hr) for a building of similar construction (Building S445) that has never been used for any radiological purposes. The probability distributions for the comparisons between these measurements shows no local contamination, except for two measurements that were affected by the near proximity of smoke alarm units containing approximately 80 μCi Am-241. The results indicate a natural/normal

background distribution for the building, with an average value of 14.7 μR/hr. Therefore, the Building 4064 interior average gamma exposure rate was consistent with the average gamma exposure rate for Building S445.

A confirmatory survey of the building was performed by ORISE (Ref. 4). The results of the final survey and the confirmatory survey showed that the building was suitable for release for use without radiological restrictions.

An inspector from the State of California, Department of Health & Services-Radiologic Health Branch (DHS-RHB) accompanied the confirmatory survey team and also made independent measurements. The results of these measurements were consistent with the confirmatory survey. (see attached letters in the Appendix).

6.3.2 Area 4064 (Side yard and the Surrounding Areas)

The test statistic for the distribution of the background –subtracted gamma exposure rate is 4.1 μR/hr, which is below the acceptance limit of 5 μR/hr.

The [post-remediation] soil samples indicate that the Cs-137 contamination, historically observed at Area 4064, has been remediated and is now below the clean-up standard of 9.2 pCi/gm. Most samples indicated no Cs-137, while a small number of samples showed trace levels of Cs-137 above background levels with a maximum level of 3.1 pCi/gm.

All soil sample and radiation exposure measurements are below the Department of Energy's and California Department of Health Services' approved release limits. The 4064 area, including surrounding areas, is suitable for release for unrestricted use (Ref. 10).

6.4 Verification Surveys

A verifcation survey of Area 4064 was performed by ORISE (Ref. 9). This report concludes that the 4064 Side Yard satisfies the criteria for release for unrestricted use. A verification survey of Area 4064 was performed by DHS-RHB and confirmed the Rocketdyne and ORISE conclusions.

7.0 WASTE VOLUME GENERATED AND DISPOSAL

The types of waste materials generated during the D&D of Building 4064 included steel (exhaust hoods, parts, and storage racks) and miscellaneous items (HEPA, filters, fiberboards, and glass, etc.). Table 7-1 lists actual amounts of generated waste.

TABLE 7-1

Source	lb.	Ft^3
Piping/Miscellaneous Steel	5,600	150
Misc. Items	31,600	930
Total	37,200	1,080

Additionally, the demolition contractor disposed of several tons of non-hazardous building material, such as walls and roof, in 1997. The contractor also disposed of some asbestos containing materials.

The excavation from the Side yard and the Surrounding Areas include soil, asphalt and concrete from the distribution box. Table 7-2 lists the amounts of waste.

TABLE 7-2

Source	lb.	Ft^3
Soil	1,270,600	15,820
Asphalt	313,000	3,700
Soil & asphalt	684,400	8,560
Concrete (From Distribution Box)	6,000	140
TOTAL	**2,274,000**	**28,220**

Additionally, the size-reduced septic tank, weighing approximately 25,000 lb., is in a roll-off (~405 Ft^3) awaiting shipment to the DOE-Hanford Disposal Facility.

8.0 PERSONNEL RADIATION EXPOSURE

No personnel radiation exposure was anticipated or encountered from the D&D activities for Building 4064, the Side yard or the Surrounding Areas.

9.0 PROJECT COST SUMMARY

The total cost associated with the decontamination and decommissioning of Building 4064 in Table 9-1.

TABLE 9-1

D&D plans and performance	$154,000
Burial and transportation	$ 54,000
Survey & Reporting	$ 45,000
Building structure demolition & disposal	$ 35,000
Asbestos abatement/paint removal	$ 13,000
TOTAL	**$301,000**

The cost associated with sampling, excavating, packaging and disposing the debris from the Side yard and the Surrounding Areas is given in Table 9-2.

TABLE 9-2

Labor including overhead (Radiation Protection Department - approx. 40% of total)	$114,000
Roll-off rental for soil storage	$ 92,000
Soil sampling	$ 9,000
Disposal including transportation & fees	$310,000
Misc. Materials, leases	$ 21,000
TOTAL	**$546,000**

10.0 REFERENCES

1. GEN-ZR-0005, "Radiological Survey of the Source and Special Nuclear Materials Storage Vault - Building 064" (8/19/88)

2. ER-SP-0001, "Management and Disposition of Known or Potentially Hazardous Wastes Originating in a RMMA" (10/22/91)

3. SSWA-ZR-0001, "Final Radiological Survey Report of Building 064 Interior" (1/14/94)

4. "Verification Survey of Buildings 005, 023, and 064, Santa Susana Field Laboratory, Rockwell International, Ventura County, California", T. J. Vitkus, ORISE (October 1994)

5. SSWA-SR-0002, "Building 064 D&D Operations Final Report" (8/13/93)

6. N704SRR990031, "Final Decontamination and Radiological Survey of the Building T064 Side Yard", Revision A (9/10/93)

7. "Verification Survey of the Old Conservation Yard, Building T064 Side Yard, and Building T028, Santa Susana Field Laboratory, Rockwell International, Ventura County, California", T. J. Vitkus, ORISE (October 1993)

8. N704SRR990035, "Radiological Assessment of the Building T064 Fenced-in Yard" (1/12/94)

9. "Second Addendum to the Verification Survey of the Building T064 Side Yard, Santa Susana Field Laboratory, Ventura County, California (ORISE 1993 and 1994)", from Tim Vitkus, ORISE, to Anand Gupta, US DOE (EM-43), January 25, 1999

10. RS-00003, "Area 4064, Final Status Survey Report" (4/13/99)

APPENDIX 1. DOE LETTER, DEMOLITION BIULDING T064

Department of Energy
Oakland Operations Office
1301 Clay Street, N700
Oakland, CA 94612-5208

June 25, 1996

Majelle Lee
Program Manager
Environmental Programs
Energy Technology Engineering Center
Rocketdyne Division
Rockwell International Corporation
P.O. Box 7930
Canoga Park, CA 91309-7930

Subject: Demolition of Building 064

Dear Ms. Lee:

The cleanup of radioactive decontamination at Building 064 is complete. ORISE has verified the condition of the building. Consequently, approval is given for the demolition of B064. The empty site (the land) will be combined with the B064 Sideyard into one release site. This release site is expected to be ready for a release for unrestricted use in FY97, after the remediation of the Sideyard is completed.

Sincerely,

Michael Lopez
ETEC PM
Environmental
Restoration Division

W022-003.DOC

APPENDIX 2. STATE OF CALIF. H&S LETTER TO ETEC.

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY — PETE WILSON, Governor

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
P.O. BOX 942732
SACRAMENTO, CA 94234-7320

(916) 323-2759

August 19, 1996

Mr. Phil Rutherford, Manager
Environmental Remediation
Rocketdyne Division
Rockwell International Corporation
P. O. Box 7930
Canoga Park, CA 91309-7930

Subject: Demolition and Disposal of Structural Material from Building T064 at SSFL

Dear Mr. Rutherford:

This letter is to acknowledge the receipt of your letter dated July 30, 1996, with attachments, requesting concurrence of the above subject. Based on the review of your submittal and the results of the surveys performed by the inspection staff of our Los Angeles office, the Radiologic Health Branch (RHB) concurs that you may proceed with the demolition of the Building T064 and that you also may dispose of the structural material resulting from such demolition as conventional waste.

If you have any questions concerning this matter, please feel free to call Mr. Stephen Hsu of this office at (916) 322-4797.

Sincerely,

Gerard Wong, Ph.D., Chief
Radioactive Material Licensing Section

W022-003.DOC