Group E

Group E Map

Building 4014

Includes Building 4783, Substation

Building 4029

Building 4030

Includes Building 4XXX, Electrical Substation for 4030 and 4641

Building 4046

Building 4053

Includes Building 4033, Skid Shack
Includes Building 4043, Skid Shack

Building 4064 and Side Yard and Site 4864

Includes Mechanical Equipment Slab (Site 4864)

Parking Lot 4513

Includes Building 4333, Time Clock

4535 Parking Lot

Building 4641

Includes Building 4XXX, Electrical Substation for 4030 and 4641

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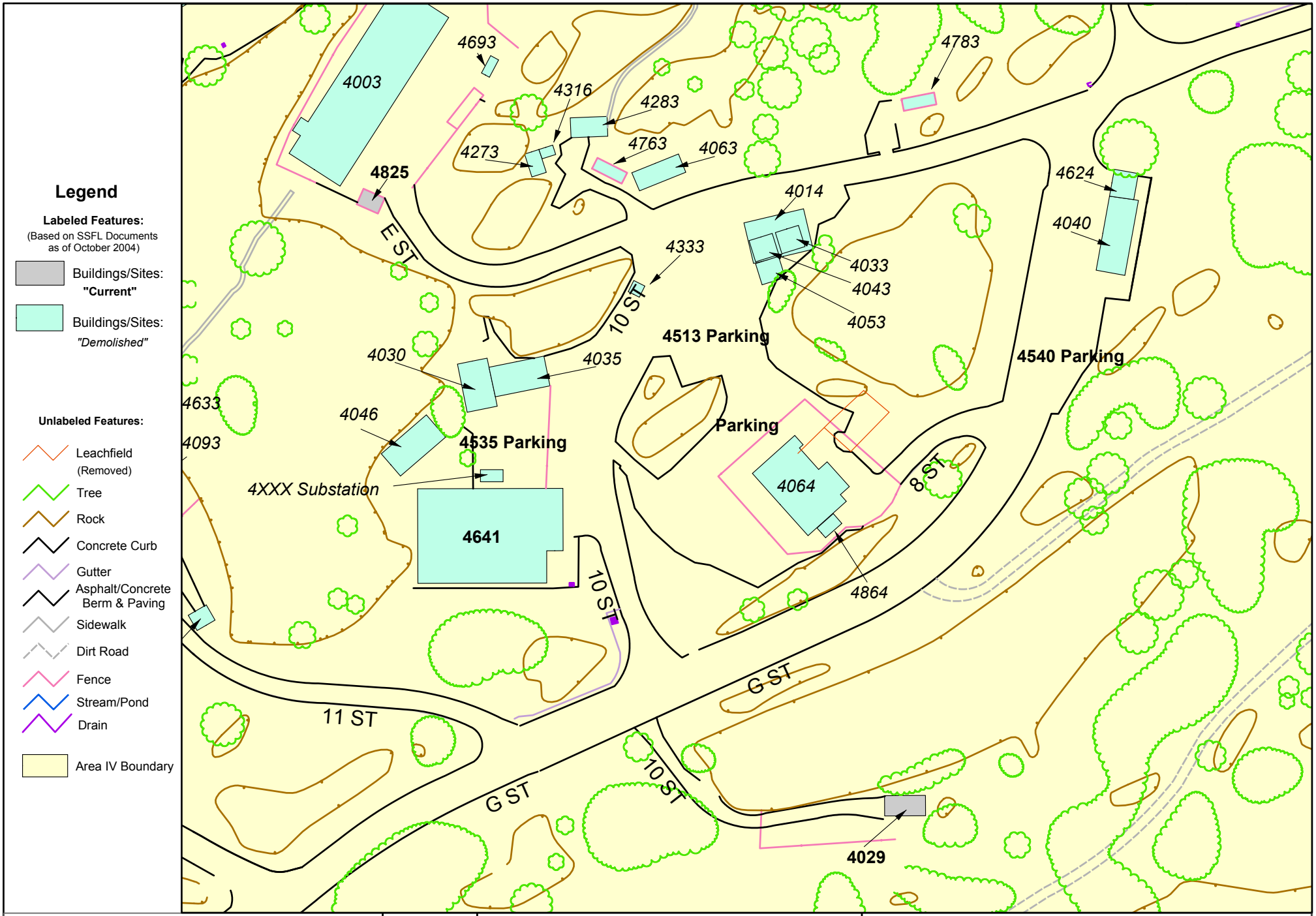
Legend
Labeled Features:
(Based on SSFL Documents as of October 2004)
Buildings/Sites: "Current"
Buildings/Sites: "Demolished"
Unlabeled Features:
Leachfield (Removed)
Tree
Rock
Concrete Curb
Gutter
Asphalt/Concrete Berm & Paving
Sidewalk
Dirt Road
Fence
Stream/Pond
Drain
Area IV Boundary
4003
4693
4316
4283
4783
4273
4763
4063
4825
4624
4014
4040
4333
4033
4043
4053
4513 Parking
4540 Parking
4030
4035
4633
4046
4093
4535 Parking
Parking
4064
4XXX Substation
4641
4864
4029
E ST
10 ST
8 ST
11 ST
G ST
DRAWN BY:
Sapere CONSULTING INC
DATE:
May 2005
N
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1 inch equals 125 feet
0 50 100 200 300
Feet
Site Summary Group E
AREA IV
Santa Susana Field Laboratory, CA

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Site Summary – Building 4014

Site Identification:

Building 4014
Sodium Storage Building
Includes Building 4783, Substation

Operational Use/History:

- Constructed in approximately 1978.[1,2]
- Building 4014 was used to store metallic sodium.
- Demolished in 2003.[1,3]

Site Description:

- Building 4014 was a 2,100-square-foot structure located near Buildings 4064 and 4030.
- Building 4014 was serviced by Substation 4783.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4014.[4]

Radiological Surveys:

- This site was included in the Area IV Radiological Characterization Survey, conducted in 1994 through 1995.[5]
    - Scope/Purpose: Designed to locate and characterize any previously unknown areas of elevated radioactivity in Area IV.
    - Background: 15.6 µR/hr.
    - Acceptable Limit: Less than 5 µR/hr above background.
    - The survey found the area to be below acceptable limits.

Status:

- Demolished in 2003.[1,3]

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Personnel Interview, Dan Trippeda, September 2003.

3- Historical Site Photographs from Boeing Database.
4- Review of Radiation Safety Records Management System, 2003.
5- Rocketdyne Document, A4CM-ZR-0011, Rev. A, "Area IV Radiological Characterization Survey," August 15, 1996.

Photograph – Building 4014

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Site Summary – Building 4029

Site Identification:

Building 4029
Radioactive Measurement Facility
Old Calibration Facility
Hazardous Waste Storage Facility
Hazardous Waste Management Facility

Operational Use/History:

- Constructed in 1959.
- Originally constructed to store radioactive source materials (i.e., Ra-266, Co-60, PoBe, PuBe and Cs-137) (which were checked annually to ensure no leakage occurred) for instrument calibration.[1]
- All radioactive source materials were removed on April 29, 1974 and the facility was partially decommissioned.[2]
- Following source materials removal, the building became a non-radioactive hazardous materials storage building for alkali metals (Na, NaK, Li, LiH_2) and alkali metal contaminated components.[3]
- In 1988, all below-grade enclosures were removed and disposed of as low level waste, the exhaust system was removed for reuse, and the excavations were backfilled to allow for continued use of the facility.[1]
- DOE released the site without radiological restrictions February 5, 1993.[4]

Site Description

- Building 4029 is a single open bay, Butler-type building with a steel frame, corrugated metal siding and roofing. The building measures 20 x 40 feet with a 12-foot eave height and the ceilings and walls are insulated with fiberglass mat. Three below-grade enclosures were constructed to hold radioactive calibration sources: a 10-foot deep concrete well with three separate galvanized pipe casings for source storage, a 10-foot deep concrete and lead well with a 4-foot above-grade section (14 feet total) with galvanized pipe casing for instrument calibration, and a 3 x 3 feet concrete pit 2 feet deep for source storage.[1, 3]

Relevant Site Information:

- Some barrels with unknown contents (assumed to be non-radioactive) were stored outside the building for a short period of time in the early 1960s. Later surveys found no detectable activity at the storage area.[3]
- Two reported incidents may have resulted in potential releases to the environment:

- On March 24, 1964, a leaking calibration source contaminated the building and personnel with 24.8 mCi Ra-226; the contamination was primarily confined to the source storage well and the source thimble. The area outside the source holder was decontaminated and surveyed, and the damaged source was removed and sealed to prevent further leakage (A0032).
- On January 20, 1970, the encapsulation of a 4.6 Ci Cs-137 calibration source failed during use, resulting in the source getting stuck in the storage well. It was estimated that external radiation level of the source was 16 R/hr one foot away from the source (A0577).

Radiological Surveys:

- Rocketdyne performed a Radiological Survey in 1988 measuring the gamma exposure rate of the building, surrounding area and entrance road to clarify and identify areas needing further radiological inspection or requiring remedial action.[3]
  - Average gamma: 14.4 ± 1.55 µR/hr. (–0.84 ± 1.55 µR/hr corrected for background)
    - DOE limit: 20 µR/h above background.
    - Nuclear Regulatory Commission (NRC) limit: 5 µR/hr above background.
    - Survey results were below the acceptable limits.
  - Source wells were contaminated (2,800 α-dpm/100 cm^2) and it was recommended that they be remediated during the final decommissioning and demolition (D&D) of the facility.
  - The survey concluded that with the exception of the wells, the facility is clean of any residual radioactive contamination.
- DHS performed verification sampling in 1995.
- Rocketdyne took soil samples as part of the D&D effort and the survey results are documented in the 1996 Final D&D Report.[1]
  - The survey found all radiation to be in acceptable ranges around background levels:
    - Excavation results for Pb-214 were 0.28 and 0.27 pCi/g compared to a background measurement of 0.84 pCi/g.
    - Excavation results for K-40 were 23.1 and 23.6 pCi/g compared to a background measurement of 22.2 pCi/g.
  - Based on these measurements and the 1988 radiological survey, the facility was released for unrestricted use.
- ORISE performed an Independent Verification Survey in 1993.[4]
  - The survey consisted of surface scans for elevated direct radiation. Results of the survey did not indicate any locations of elevated direct radiation using the NRC limit of 5 µR/hr (DOE limit is 20 µR/hr above background).[4]
  - Based on these findings ORISE recommended that the facility be released without radiological restrictions.

- EPA conducted an oversight verification survey in 2001 for alpha and beta contamination.[5] The survey included scans for alpha and beta and fixed point measurements for alpha and beta. Six swipe samples were collected and dust samples were collected from two ventilation ducts. Swipe samples were analyzed for removable contamination and dust samples were analyzed for the presence of radium daughter products. The contaminant of concern (COC) for Building 4029 was Ra-226 on the floors and walls.
    - Acceptable limits for the survey were consistent with NRC Regulatory Guide 1.86 (Ra-226 levels of 100 dpm/100 cm^2 average, 300 dpm/100 cm^2. maximum and 20 dpm/100 cm^2 removable) and the proposed sitewide release criteria in accordance with Area IV survey.[6]
    - None of the field measurements indicated the presence of radionuclides above acceptable limits.
    - The Environmental Protection Agency (EPA) field measurements confirmed the conclusions reached by both Rocketdyne and ORISE.

Status:

- DHS concurred that Building 4029 met the approved standards for unrestricted release on December 21, 1995.
- DOE released Building 4029 without radiological restrictions on April 21, 1997.[4]
- Building 4029 is currently used to store non-radioactive hazardous materials prior to disposal.[4]

References:

1- ETEC Document, 029-AR-0001, “Final D&D Report for Building T029,” March 28, 1996.
2- Rockwell Health and Safety, Letter, “Transfer of Radioactive Sources from T029,” from J. D. Moore (Rockwell Health and Safety) to W. F. Heine, May 1, 1974.
3- ETEC Document, GEN-ZR-0006, “Radiological Survey of the Old Calibration Facility – Building T029,” August 19, 1988.
4- ORISE, Letter, “Type A Verification of Building T029, Santa Susana Field Laboratory, Rockwell International, Canoga Park, California,” from T. Vitkus (ORISE) to A. Kluk, February 5, 1993.
5- U.S. EPA Report, no document number, “Final Oversight Verification and Confirmation Radiological Survey Report for Buildings T-012, T-029, and T-363,” December 20, 2002.
6- Rocketdyne Document, A4CM-ZR-0011, Rev. A, “Area IV Radiological Characterization Survey,” August 15, 1996.
7- Historical Site Photographs from Boeing Database.
8- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4029

Site Summary – Building 4030

Site Identification:

Building 4030
AE-6 Counting Room & Workshop (4030)*
AE-6 Office Annex (4035)
Particle Accelerator Facility
Site Purchasing Office
Traffic and Warehousing
Includes Building 4XXX, Electrical Substation for 4030 and 4641

Operational Use/History:

- Constructed in 1958, for research with a small accelerator neutron source.[1]
- A Van de Graff accelerator was moved into the facility in 1960; it operated through 1964 in support of the Systems for Nuclear Auxiliary Power (SNAP) program.[1]
- In 1966, the accelerator was removed. Beginning in 1972, the building was used as a purchasing office for the site and for traffic and warehousing.[1]
- Building 4030 was demolished in 1999.

Site Description:

- Building 4030 had a total enclosed area of 2,311 square feet, which consisted of two connected sections, each with steel framing, siding and roof. The western portion of Building 4030 was constructed at a right angle to the front office section.[1]
- The front section of Building 4030 was known as Building 4035 before the rear section was added, and the two buildings were combined to form Building 4030.[1]
- The rear section of Building 4030 was configured to house a Van de Graaf accelerator, which provided an adjustable energy proton beam to bombard a tritium target to produce neutrons.[2]
- An outside concrete wall was constructed to the north and east sides of the rear section to provide shielding for the proton beam.[2]
- Drawings indicate the building had an associated leachfield that was likely used until 1961-1962, when the building was connected to the newly-built Area III site-wide sewage system.[3]
- Rock outcroppings extend from the building to the west, northwest and northeast.
- Building 4641 was adjacent to Building 4030; a fenced-in area between the buildings was used as a palletized material holding area.[1]
- Serviced by Substation 4XXX.

* Buildings 4030 and 4035 were combined to form Building 4030.

Relevant Site Information:

- Regulated radiological materials were managed at this facility. The potential contaminant of concern (COC) is tritium. Activation of building materials was negligible because drums of borated water were used around the target to thermalize and capture neutrons.[1]
- The accelerator was removed in 1966.
- The associated leachfield was not located during decontamination and demolition and it is most likely located beneath Building 4641.
- There are no Incident Reports associated with Building 4030.[4]

Radiological Surveys:

- Tritium Smear Survey on Building 4030 and associated equipment, March 29, 1966.[5]
    - Maximum sample: 75,000 dpm.
    - Tritium contamination was detected.
    - Areas of contamination were decontaminated.
- General Rocketdyne Survey, 1988.[2]
    - In 1988, Rocketdyne performed a survey to clarify and identify areas at Santa Susana Field Laboratory (SSFL) requiring further radiological inspection or remediation. Radiological contamination quantities were compared against unrestricted-use acceptable contamination prescribed by DOE 5400.1.[2]
    - Building 4030 was included and the scope of the survey, which included ambient gamma exposure rate measurements, "indication" beta surveys of the accelerator room and outside paved area (palletized-container storage area). Exterior soil samples were checked for tritium content.[2]
    - Average ambient gamma radiation: 12.7 µR/hr.
    - Limit: 5 µR/hr above background.
    - Background: between 15.6 and 14 µR/hr.
    - Beta radiation: no detectable activity (NDA)
    - Average tritium activity concentration in soil: 5.31 pCi/l.
    - Maximum acceptable contamination: 366 pCi/l
    - Survey results were below the acceptable limits.
- The Oak Ridge Institute for Science and Education (ORISE) conducted an independent verification survey for Building 4030 in 1995.[3]
    - Surface scans for alpha, beta and gamma activity and single-point direct measurements for total alpha and total beta activity were performed on floors, walls, equipment and outside soil. These levels were compared to the guidelines specified in DOE 5400.1.
    - Total Alpha Surface Activity: less than 55 dpm/100cm^2.
    - Total Beta Surface Activity: less than 1,400 dpm/100cm^2.
    - One sample of total tritium activity exceeded the average guideline (5,000 β-ϒ dpm/100 cm^2) for beta-gamma emitters (6,600 dmp/100 cm^2), and ORISE recommended additional sampling be performed in this area.

- Exposure rate measurements were performed at 1 meter above surface.
  - Results: 10 to 12 µR/hr.
  - Background: 8 µR/hr.
  - Acceptable Limit: 5 µR/hr above background.
- In 1996, Rocketdyne performed a Final Comprehensive Radiological Survey designed to measure total or removable surface activity and provide additional sampling for tritium activity in the accelerator area.[6]
  - Scope: Walls, floors and ceilings were surveyed for total and removable alpha and beta activity and maximum alpha and beta activity. Floors were surveyed for ambient gamma readings in µR/hr at 1 meter.
  - Total alpha and beta limits: 5,000 dpm/100 cm^2.
  - Removable alpha and beta limits: 1,000 dpm/100 cm^2.
  - Removable tritium limit: 10,000 dpm/100cm^2.
  - Ambient gamma limit: <5.0 µR/hr at 1 meter from surface.
  - Survey results were below the acceptable limits.
- DHS performed verification sampling in 1996 and 1998 to support concurrence of release for unrestricted use.

Status:

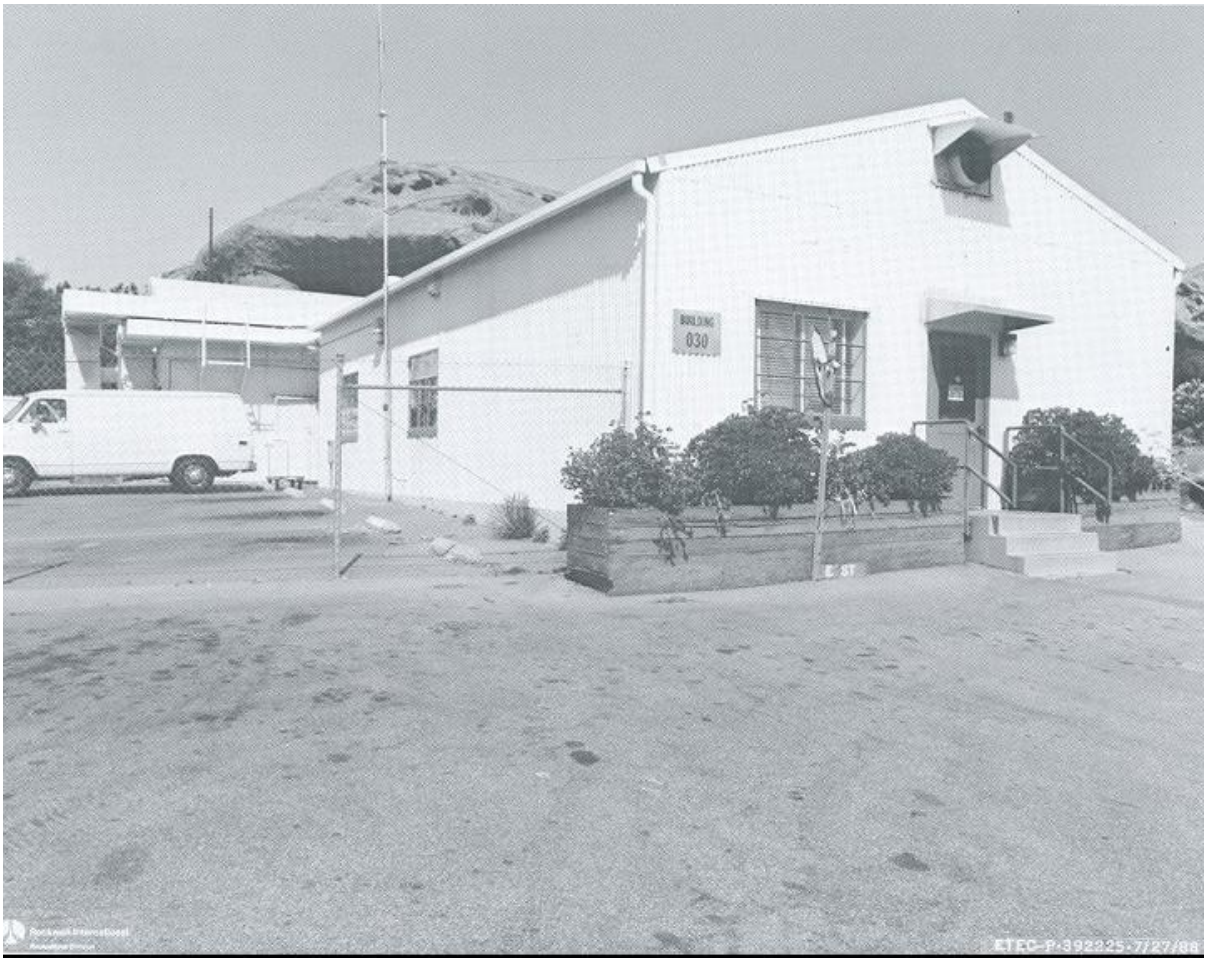
- Building 4030 was demolished in 1999 and the site was paved. Disposition of the accelerator could not be determined.[1]
- Department of Energy (DOE) released the facility for unrestricted use in October 1997.[7]
- California Department of Health Services (DHS) concurred with the release of the facility for unrestricted use on January 15, 1999.[8]

References:

1- Rocketdyne Report, 030-AR-0002, "Decontamination and Decommissioning (D&D) of Building T030," November 13, 1997.
2- ETEC Document, GEN-ZR-0007, "Radiological Survey of Shipping /Receiving and Old Accelerator Area- Buildings T641 and T030," August 19, 1988.
3- ORISE Document 96/C-4, "Verification Survey of the Interim Storage Facility; Buildings T030, T641, and T013; an Area Northwest of Buildings T019, T013, T012, and T059; and a Storage Yard West of Buildings T626 and T038, SSFL, Rockwell International, Ventura County, California," Vitkus, T. J., and T. L. Bright, February 1996.
4- Review of Radiation Safety Records Management System, 2003.
5- Atomics International Internal, Letter, "Tritium Smear Survey, Building T030 Van de Graaf Accelerator," A.R. Mooeres to W.F. Heine, March 29, 1966.
6- Rocketdyne Report, 030-AR-0001, "Final Radiological Survey Report for Building T030," January 22, 1997.
7- DOE Document, DOE/CD-ETEC-030, "Certification of the Radiological Condition of Building T030 at ETEC near Chatsworth, California," November 1997.

8- DHS/RHB, Untitled letter, from Gerard Wong (DHS/RHB) to Phil Rutherford, January 15, 1999.
9- Historical Site Photographs from Boeing Database.
10- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4030



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Site Summary – Building 4046

Site Identification:

Building 4046
Material Office Annex

Operational Use/History:

- Constructed in approximately 1977.[1]
- Radiological materials were not handled in Building 4046. A more detailed description of activities associated with Building 4046 could not be located.
- Demolished in approximately 1981.[1]

Site Description:

- Building 4046 was located west of Building 4030, just north of Parking Lot 4535.[1]

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4046.[2]

Radiological Surveys:

- Radiological surveys specific to Building 4046 have not been conducted.

Status:

- Building 4046 was demolished in approximately 1981.[1]

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Review of Radiation Safety Records Management System, 2003.

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Site Summary – Building 4053

Site Identification:

Building 4053
Fire Department Service Building
Includes Building 4033, Skid Shack
Includes Building 4043, Skid Shack

Operational Use/History:

- Constructed prior to 1962.[1]
- Building 4053 served as the Fire Department Service Building.
- Demolished in the late 1970s.[1]

Site Description:

- Building 4053 was located directly south of the current location of Building 4014.[1]
- Serviced by Skid Shack 4033 (storage area).
- Serviced by Skid Shack 4043.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4053.[2]

Radiological Surveys:

- Radiological surveys specific to Building 4053 have not been conducted.

Status:

- Buildings 4033, 4043 and 4053 were demolished in the late 1970s.[1]

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Review of Radiation Safety Records Management System, 2003.

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Site Summary – Building 4064 and Side Yard and Site 4864

Site Identification:

Building 4064 and Side Yard
Fuel Storage Facility
Includes Mechanical Equipment Slab (Site 4864)

Operational Use/History:

- The building was constructed in two phases. The first phase began in 1958, the second phase in 1963.[1]
- The fuel storage facility was a vault built to provide secure storage for non-irradiated, fissionable nuclear material (enriched uranium and plutonium) used to make reactor fuel.
- Enriched uranium powders and source material powder packages were split into smaller units or combined into larger units in a glove box.[1]
- In the early 1960s, the yard areas in the front, side and back of the building were used to store 55-gallon drums of low-level enriched recoverable scrap.[1]
- By the early 1980s, most reactor contracts had ended. Following removal of all fissionable material, miscellaneous equipment and containers of radioactive waste (principally soil) were stored in the building.[1]
- The facility operated until 1993, when all nuclear material was removed and the building was decontaminated.[1]
- Demolished in 1997.[1]

Site Description:

- Building 4064 was constructed in two phases:
    - Phase One: A 2,127-square-foot reinforced concrete structure with 11-inch thick walls was constructed on a concrete slab and a fume hood was installed.
    - Phase Two: A new bay was added to the north of the original structure, increasing the total size to 4,418 square feet. The addition was constructed with 12-inch thick concrete blocks.[1]
        - The fenced-in yard was a 6,580-square-foot area within a security fence. This area included a mechanical equipment slab, which was designated Site 4864 on the 1962 Industrial Planning Map.[2] Site 4864 is not included on any subsequent maps and was absorbed by Building 4064.[3]
        - The side yard was designated as the 4,500-square-foot area near Building 4064.[4]
        - Included in the two-acre area surrounding the facility were drainage pathways, former parking lot areas, the side yard, septic tank and a leachfield.[1]

Relevant Site Information:

- Regulated radiological materials were managed at this facility. The potential COCs include various uranium isotopes, plutonium, thorium, and activation products.[3]
- There were no sinks or processing equipment in the building; the only water supply was in the restroom. Initially, sanitary wastewater was discharged to a septic tank and leach field. In the early 1960s, the facility was connected to the local sewage system, and the leach field was disconnected. The facility was equipped with a high-efficiency particulate air (HEPA) filtered exhaust system.[1]
- Several incidents are recorded for this facility that could have involved releases of radioactivity to the environment:
    - On February 18, 1963, an area of soil and concrete was discovered to have elevated levels of radioactivity (1×10^6 dpm/gram for Cs-137 and 2×10^5 dpm/gram for Cs-134). Further surveys showed that 700 square feet of soil and concrete were contaminated with mixed fission products with a maximum of 700 mrad/hr at 2 inches. Though no firm evidence of the source was discovered, it was assumed that the contamination was a result of a leak from a drum containing irradiated Seawolf submarine reactor fuel pins. It is likely that the drum plug rusted through and allowed any liquid in the drum to leak out. The area was excavated, reducing the contamination to an acceptable level of 0.5 mrad/hr (A0028).
    - On October 8, 1964, following shipment to the vault, it was discovered that a can of uranium carbide had oxidized inside the shipping container ("birdcage"), causing the lid of the can to blow open and the bottom of the can to warp. This resulted in alpha radiation levels on the concrete dock to increase from less than 1 dpm/100 cm^2 (clean level) up to 200 dpm/100 cm^2 (A0468).
    - On July 20, 1967, a significant increase in alpha radioactivity was detected on vegetation in the Side Yard. Investigation revealed that a 55-gallon drum containing U_30_8 had been opened outside on a piece of plastic sheeting. U_3O_8 was visible on the sheeting and its was believed that some had been dispersed by wind in the area, contaminating the vegetation. The plastic sheeting was removed and appropriately dispositioned (A0622).

Radiological Surveys:

- In 1988, Rocketdyne conducted a radiological survey of the source and special nuclear material (SNM) storage vault in Building 4064.[5]
    - Scope: Ambient gamma exposure rate measurements were taken in the storage yard and surrounding area. Soil samples, debris and miscellaneous items were also analyzed. Radiological contamination quantities were compared against unrestricted-use acceptable contamination limits prescribed by DOE 5400.1:[2]
    - Samples were taken in the interior of the building to test for alpha and beta contamination.
    - Average alpha value: 10.5 dpm/100cm^2
    - Average beta: 388 dpm/100 cm^2.

  - Derived Concentration Guideline Level (DCGL): 5000 dpm/100cm^2.
  - Survey results for the interior walls and floors were below the acceptable limits.
  - Miscellaneous building features were surveyed by indication only. The light fixtures, a floor mop and the fume hood were found to be contaminated.
  - The area within the fenced storage yard was surveyed for ambient gamma. A contaminated area was found bordering and outside of the eastern fence. This area, measuring approximately 300 square feet, was significantly contaminated with rate readings of 50-100 µR/hr at one meter. Soil samples from the vicinity showed elevated Cs-137 activity (2,500 pCi/g, DCGL 100 pCi/g). Further remedial action for that area was required.
    - Remedial action occurred in 1990. The top layer materials for the side yard were removed and the residual activity was analyzed and compared to previous data. It was concluded that radiation and contamination levels in the side yard and other surrounding areas are well below acceptable regulatory limits.[4]
- ORISE performed a final verification survey in December 1992, during which three Cs-137 hotspots in the Building 4064 Side Yard were discovered. One hotspot was found to contain 210 pCi/g of Cs-137. The second was measured at 35.1 pCi/g, and the third was measured at 27.7 pCi/g. (Allowable limits for Cs-137 were 7.08 pCi/g average in 100 m^2 or 70.8 pCi/g maximum in 100 m^2.) Following additional remediation of these areas, ORISE conducted an additional verification survey and published its findings in 1993.[6]
- The site was included in the Area IV survey in 1995, and additional locations above release limits were found in the side yard and across the street (G Street). Additional remediation occurred in 1997 and 1998.[7]
- In 1998, Rocketdyne performed a final status survey for Building 4064.[7]
  - The entire area was surveyed and sampled. A direct surface gamma scan and ambient gamma exposure measurements at 1 meter above ground were performed. Soil samples were also collected.
    - The highest Cs-137 concentration in soil was 3.1 pCi/g or 28 percent of the DCGL (9.2 pCi/g) for Cs-137.
    - The average net ambient gamma measurement was 4 µR/hr, which is below the acceptance limit of 5 µR/hr above background.
- In 1998, ORISE conducted a final verification survey of the Building 4064 side yard and other land areas following the demolition of the building and remediation of the yard.[6]
  - ORISE performed gamma surface scans and conducted soil sampling at the site.
    - One area was identified with elevated gamma radiation. Additional remediation was performed immediately and post remediation samples were collected. Post remediation samples had gamma exposure rates ranging from 9 to 13 µR/hr, which is below the acceptable limit of 5 µR/hr above background (background is 14 µR/hr).

    - Soil samples ranged from less than 0.06 to 2.9 pCi/g for Cs-137, which is below the DCGL of 9.2 pCi/g.
- DHS also performed a verification survey in October 1998.[1]

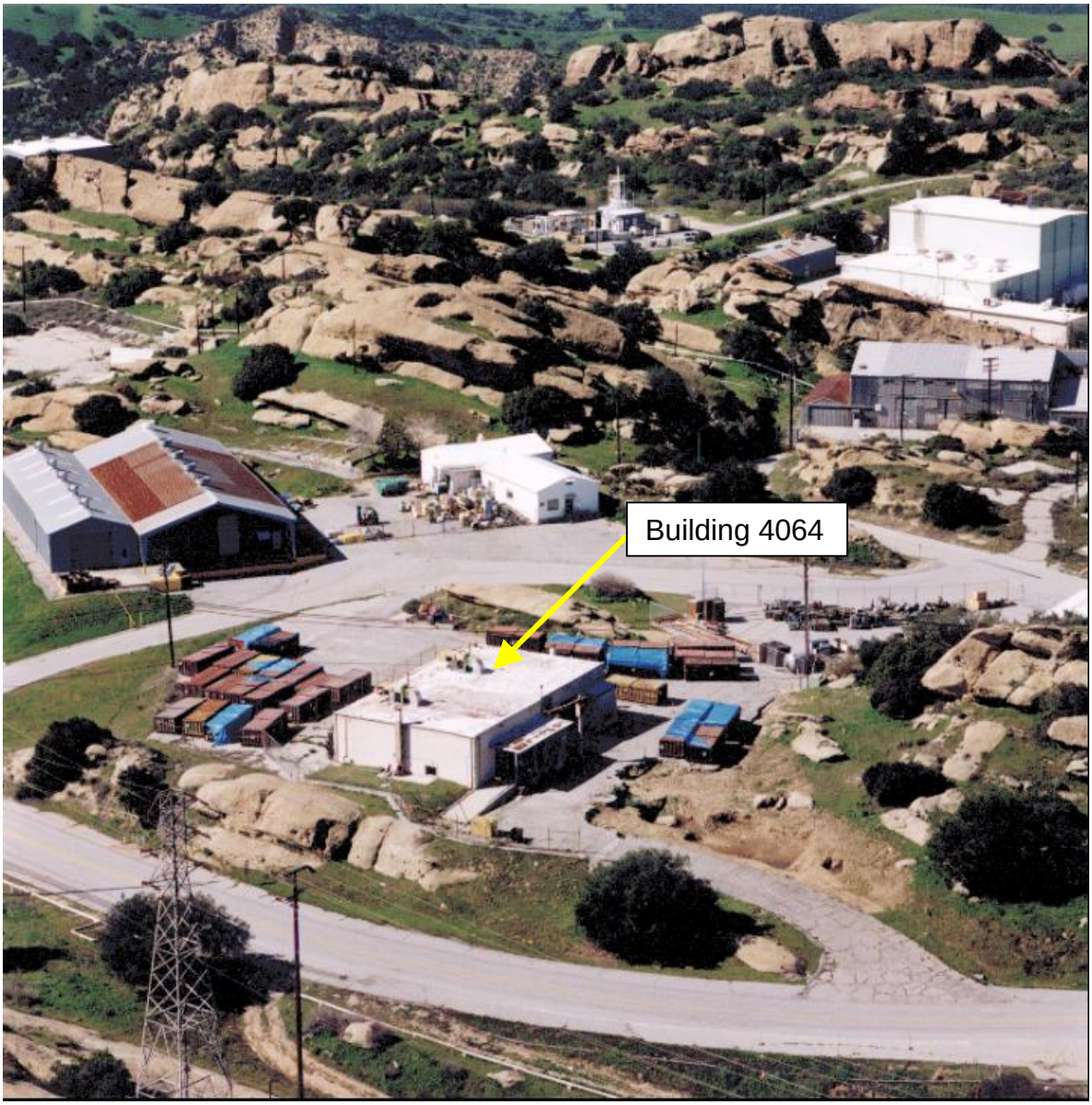
Status:

- DOE released Building 4064 for demolition in 1996.[8]
- DHS concurred with the release of the building for demolition in 1996.[9]
- Building 4064 was demolished and the septic tank and leach field were removed in 1997.[1]
- A certification docket has been submitted to DOE. [3]
- On January 31, 2005 DOE provided a letter to Boeing declaring that Boeing and ORISE surveys had confirmed that DOE and DHS approved soil cleanup limits had been met, and that the 4064 site was suitable for release for unrestricted use.[10]

References:

1- Boeing Document, EID-04600, "Final Report, Decontamination and Decommissioning (D&D) of Fuel Storage Facility 4064," September 11, 1999.
2- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
3- U.S. DOE, Oakland Operations Office Document, DOE/CD-ETEC-4064, "Draft Docket for the Release of Facility 4064 at the Former Energy Technology Engineering Center," September 1999.
4- Rocketdyne Report, N704SRR990031, "Final Decontamination and Radiological survey of the Building T064 Side Yard," October 20, 1990.
5- ETEC Document, GEN-ZR-005, "Radiological Survey of the Source and Special Nuclear Material Storage Vault at Building T064," August 19, 1988.
6- ORISE, Letter, "Second Addendum to the Verification Survey of Buildings T064 Side-Yard, SSFL, Ventura County, California (ORISE 1993 and 1994)," from T. Vitkus, (ORISE) to A. Gupta (DOE), January 25, 1999.
7- ETEC Document, RS-00003, "Area 4064 Final Status Survey Report," March 30, 1999.
8- DOE, Letter, "Demolition of Building 064," from M. Lopez (DOE) to M. Lee, (Rocketdyne) June 25, 1996.
9- DHS/RHB, Letter, "Demolition and Disposal of Structural Material from Building T064 at SSFL," from G. Wong (DHS/RHB) to P. Rutherford, August 19, 1996.
10- DOE Letter, "Release of Building 4064," from M. Lopez (DOE) to M. Lee (Boeing), January 31, 2005.
11- Historical Site Photographs from Boeing Database.

Photograph 1 – Building 4064



Photograph 2 – Building 4064

Site Summary – Parking Lot 4513

Site Identification:

Site 4513
Parking Lot between Building 4064 and Building 4030
Includes Building 4333, Time Clock

Operational Use/History:

- Constructed in approximately 1967.[1]
- Site 4513 was a parking lot located on the east side of 10th Street. It was used by personnel working in Buildings 4064, 4641 and 4030.[2]
- Parking Lot 4513 is still in use.

Site Description:

- Site 4513 is an asphalt parking lot located on the east side of 10th Street.[1, 2]
- Serviced by Time Clock 4333.

Relevant Site Information:

- All of the facilities surrounding the parking lot handled radioactive material or radiologically contaminated equipment. No known contamination incidents occurred, but radioactive contaminants were suspect in this area because of its operational history.[1]

Radiological Surveys:

- In 1988, Rocketdyne performed a radiological survey for areas that were used to support nuclear-related facilities to determine if radioactive material was accidentally left behind. The parking lot surface and 4333 was surveyed for mixed fission products, by measuring ambient gamma exposure rates.[1]
    - Average Ambient Gamma: –1.26 µR/hr (corrected for background).
    - Acceptable Limit: 5 µR/hr above background.
    - Survey results were below the acceptable limits.

Status:

- Parking Lot 4513 is still in use.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- ETEC Document, GEN-ZR-0009, “Radiological Survey of the T513 Parking Lot; Old R/A Laundry Area; Plot 333; and Areas Between SRE to RMDF, and KEWB to RMDF,” August 26, 1988.
3- Historical Site Photographs from Boeing Database.

Photograph – Parking Lot 4513

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Site Summary – 4535 Parking Lot

Site Identification:

Site 4535
Parking Lot between Building 4641 and Building 4030

Operational Use/History:

- Constructed in approximately 1967.
- Site 4535 is located on the east side of 10th Street.[1] Personnel working in Buildings 4030 and 4641 used this lot. It is adjacent to Parking Lot 4513.
- Parking Lot 4535 currently is used as a storage area.

Site Description:

- Site 4535 is an asphalt parking lot located on the east side of 10th Street, adjacent to Site 4513.[1]

Relevant Site Information:

- All the facilities surrounding the parking lot handled radioactive material or radioactively contaminated equipment. No known contamination incidents occurred, but radioactive contaminants were suspect in this area because of operational history.

Radiological Surveys:

- In 1988, Rocketdyne performed a radiological survey for Buildings 4030 and 4641 to clarify and identify areas at SSFL requiring further radiological inspection or remediation. The ambient gamma exposure rates were measured at Building 4641 loading dock and Building 4030. The parking lot was included in the survey: [2]
    - Background: 8 µR/hr.
    - Acceptable Limit: Less than 5 µR/hr above background.
    - Average Ambient Gamma: 12.7 µR/hr.
    - Survey results were below the acceptable limits.

Status:

- Parking Lot 4535 is used as a storage area.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- ETEC Document, GEN-ZR-0007, “Radiological Survey of Shipping/Receiving and Old Accelerator Area- Buildings T641 and T030,” August 19, 1988.
3- Historical Site Photographs from Boeing Database.

Photograph – Parking Lot 4535

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Site Summary – Building 4641

Site Identification:

Building 4641
Shipping and Receiving
Includes Building 4XXX, Electrical Substation for 4030 and 4641

Operational Use/History:

- Constructed in 1964 to be used for shipping and receiving.[1]
- Building 4641 served as a transfer point for all SSFL incoming and outgoing shipments. Through 1985, this included radioactive materials. Non-radioactive materials were stored in the warehouse. [1]
- In 1985, Building 4641 was designated as an on-site, internal moving and transport facility, and radioactive materials ceased being handled there.[1]
- Building 4641 was demolished in 2004.

Site Description:

- Building 4641 is adjacent to Building 4030.[2] The building has 7,680 square feet of storage space, 240 square feet of office space, and a loading dock for shipping and receiving. A fenced area between 4030 and 4641 was used as a palletized material holding area. South and west of the building are outcroppings of Chatsworth sandstone formation.[3]
- Substation 4XXX serviced Buildings 4030 and 4641. [1]

Relevant Site Information:

- Radioactive and nuclear shipments were handled only on the outdoor dock; they were never stored in the warehouse. Radioactive materials included individual gamma-graphic sources, radioactive laundry and shipping casks. All radioactive materials being shipped or received were always completely containerized and packaged. Containers were not opened in the area of Building 4641.[1]
- A radiation detector alarm system was installed in the dock; the alarm system was never triggered.[1]
- The storage area may have been used to store drums containing mixed fission products.[1]
- One incident is recorded for this facility that could have involved releases of radioactivity to the environment:
    - On June 20, 1989, 13 mCi of Be-7 arrived at the facility without any labels or controls, in violation of State of California regulations (A0581).

Radiological Surveys:

- Rocketdyne performed a general radiological survey to clarify and identify areas at SSFL requiring further radiological inspection or remediation. The ambient gamma exposure rates were measured at the Building 4641 loading dock and the storage yard. A surface survey for beta-emitting contamination was performed outside in the storage yard "for indication:"[1]
    - Background: 8 µR/hr.
    - Acceptable Limit: Less than 5 µR/hr above background.
    - Average Ambient Gamma: 12.7 µR/hr.
    - Survey results were below the acceptable limits.
    - The criteria for maximum acceptable contamination limits for beta emitters was 5,000 dpm/100 cm^2 for total surface averaged over 1 square meter.
        - Beta radiation measurements showed no detectable activity.
        - Survey results were below the acceptable limits.
- In 1995, ORISE performed an independent verification survey for Building 4641:[3]
    - Surface scans for alpha, beta and gamma activity and single-point direct measurements for total alpha and total beta activities were performed on the loading dock.
        - Surface activity levels were less than 100 dpm/100cm^2 for total alpha and less than 1,400 dpm/100cm^2 for total beta on the loading dock. These levels were compared to the guidelines specified in DOE 5400.1 and are considered radiologically clean.
    - Exposure rate measurements were performed at 1 meter above the surface using a proportional ionization counter and ranged from 10 to 12 µR/hr. Background exposure rate is 8 µR/hr.

Status:

- Building 4641 was demolished in 2004.

References:

1- ETEC Document, GEN-ZR-0007, "Radiological Survey of Shipping/Receiving and Old Accelerator Area- Buildings T641 and T030," August 19, 1988.
2- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
3- ORISE Document 96/C-4, "Verification Survey of the Interim Storage Facility; Buildings T030, T641, and T013; an Area Northwest of Buildings T019, T013, T012, and T059; and a Storage Yard West of Buildings T626 and T038, SSFL, Rockwell International, Ventura County, California," Vitkus, T. J., and T. L. Bright, November 1995.
4- Historical Site Photographs from Boeing Database.

Photograph – Building 4641

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