Group O

Group O Map

Building 4005

Includes Building 4705, Substation

Building 4006

Includes Building 4616, Cooling Tower
Includes Building 4706, Substation

Building 4402

Site 4506

Building 4606

Includes Building 4816, Hydrogen Recombiner Test Canopy

Building 4607

Building 4615

Building 4704

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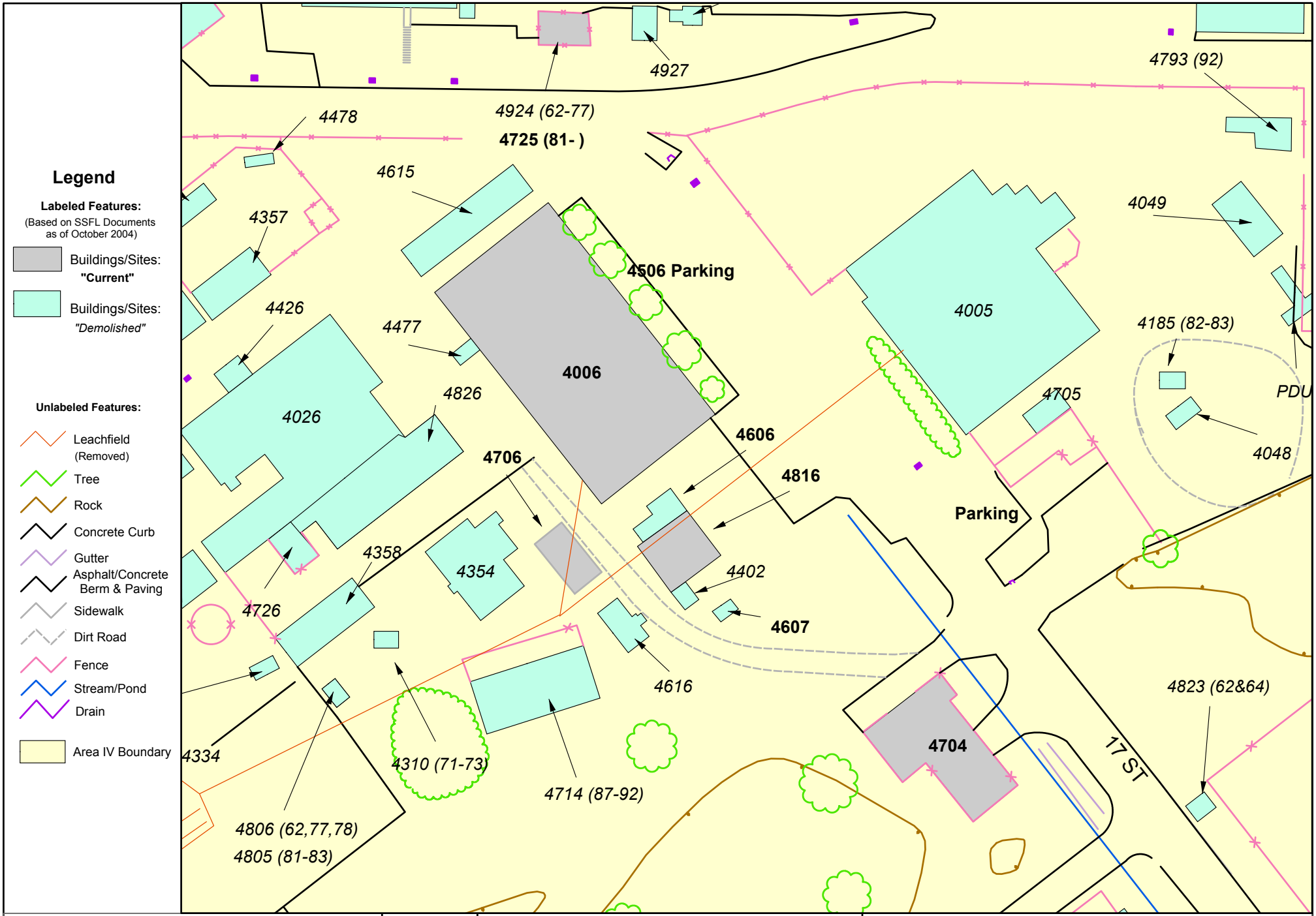
Legend
Labeled Features:
(Based on SSFL Documents as of October 2004)
Buildings/Sites: "Current"
Buildings/Sites: "Demolished"
Unlabeled Features:
Leachfield (Removed)
Tree
Rock
Concrete Curb
Gutter
Asphalt/Concrete Berm & Paving
Sidewalk
Dirt Road
Fence
Stream/Pond
Drain
Area IV Boundary
4927
4793 (92)
4478
4924 (62-77)
4725 (81-)
4615
4357
4049
4506 Parking
4005
4426
4477
4006
4185 (82-83)
PDU
4826
4026
4705
4606
4706
4816
4048
Parking
4358
4354
4402
4726
4607
4616
4823 (62&64)
4704
4334
4310 (71-73)
4714 (87-92)
17 ST
4806 (62,77,78)
4805 (81-83)
DRAWN BY:
Sapere CONSULTING INC
DATE:
May 2005
N
W
E
S
1 inch equals 75 feet
Feet
0
30
60
120
180
Site Summary Group O
AREA IV
Santa Susana Field Laboratory, CA

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Site Summary – Building 4005

Site Identification:

Building 4005
Uranium Carbide Fuel Pilot Plant
Molten Salt Test Facility
Includes Building 4705, Substation

Operational Use/History:

- Constructed in 1958.
- Building 4005 was constructed for non-nuclear testing of thermodynamic characteristics of proposed coolants for the Organic Moderated Reactor Experiment and Piqua reactors.[1]
- During the middle 1960s, Building 4005 was converted into a small-scale production facility to study the operations associated with manufacturing reactor fuel assemblies out of uranium carbide. The facility operated for a period of nine months during 1966-1967, first using depleted uranium, and later enriched uranium.[1]
- In 1967, equipment was removed and surfaces decontaminated to permit non-radiological use of the building.[1]
- Beginning in 1972, Building 4005 was used as the Molten Salt Test Facility, a non-nuclear test facility consisting of the Molten Salt Test Bed and the Process Demonstration Unit.[1]
- Completion of removal of contaminated systems was completed in 1993. Previous decontamination efforts in the late 1970s involved removal of the underground radioactive liquid holdup tanks outside the building. The drain lines from the buildings were capped and left in place. The drain lines were removed during another decontamination effort in 1987. [1]
- Demolished in 1996.

Site Description:

- Building 4005 was a tilt-up concrete structure with Butler aluminum siding and several windows. The structure was 80 feet long (running north to south), and 60 feet wide.
- Building 4005 was divided into several portions, including a small administration area, change rooms, chemistry laboratories, storage rooms and a large high-bay area.[2]
- Several concrete pads sat east of the building and held various equipment from the Molten Salt Oxidation project and the radioactive filter plenums.
- Building 4005 was connected to a holding tank by drain lines.
- Serviced by Substation 4705.

Relevant Site Information:

- Radioactive material in the form of depleted and enriched uranium was managed at this facility.[2] Accordingly, the contaminant of concern for Building 4005 is uranium.
- During operation as the Uranium Carbide Fuel Pilot Plant, considerable difficulties were experienced with the air exhaust system scrubbers and filters, including a fire in 1967. Radiological contamination was restricted to the exhaust ducts.[2]
- There have been several incidents associated with Building 4005 that could have resulted in a release to the environment:
    - In January 30, 1967, a uranium fire occurred in a retention tank of a vacuum system. Tank ducting was burned through, allowing a release of contaminated smoke to the building. No release outside the building was thought to have occurred (A0606).
    - On August 8, 1991, contaminated oil dripped from a radioactive exhaust duct, contaminating a concrete pad. The total activity for the spill was approximately 4 nCi, and all contamination was successfully cleaned up (A0215).
- Building 4005 was connected to a sanitary leach field by drain lines that extended from various laboratories and work areas in the building to two underground holding tanks. The leach field was disconnected and abandoned in 1960-61, when the Santa Susana Field Laboratory (SSFL) sewer treatment plant was constructed. It is not likely that the leach field, septic tanks and drain lines were impacted by radiological constituents because work involving regulated radiological materials did not begin until 1966.[3] The drain lines and tanks were removed in 2001 at the same time the septic tanks were removed. Sampling of soil under drain lines, leach fields and septic tanks did not detect any contamination.

Radiological Surveys:

- Rocketdyne performed a characterization survey in 1987 to confirm that residual contamination remained in ventilation systems and drain lines.[4]
    - The survey showed that several areas were contaminated at levels above Department of Energy (DOE) release limits: room 113, room 110E, four remaining radioactive exhaust ducts and both radioactive exhaust filter plenums.
        - Maximum beta levels: 107,954 dpm/100cm^2 for the rooms (Acceptable limit is 1,000 dpm/100cm^2).
        - Maximum alpha levels: 2,467 dpm/100cm^2 (Acceptable limit 1000 dpm/100cm^2).
        - Maximum beta levels: 6,302 dpm/100cm^2 in the exhaust ducts (Acceptable limit 1000 dpm/100cm^2).
        - No other residual contamination was present.
- Rocketdyne performed a final survey in September 1993.[2,5]
    - Derived concentration guideline levels (DCGLs) for soil were as follows:
        - U-234 < 23.17 pCi/g (total).

        - U-235 < 5.54 pCi/g (total).
        - U-238 < 24.55 pCi/g (total).
    - The survey found that Building 4005 and adjacent yards were acceptably free of contamination and recommended that the facility be released for unrestricted use.
- Oak Ridge Institute for Science and Education (ORISE) and the California Department of Health Services (DHS) performed verification surveys in 1994.[6]

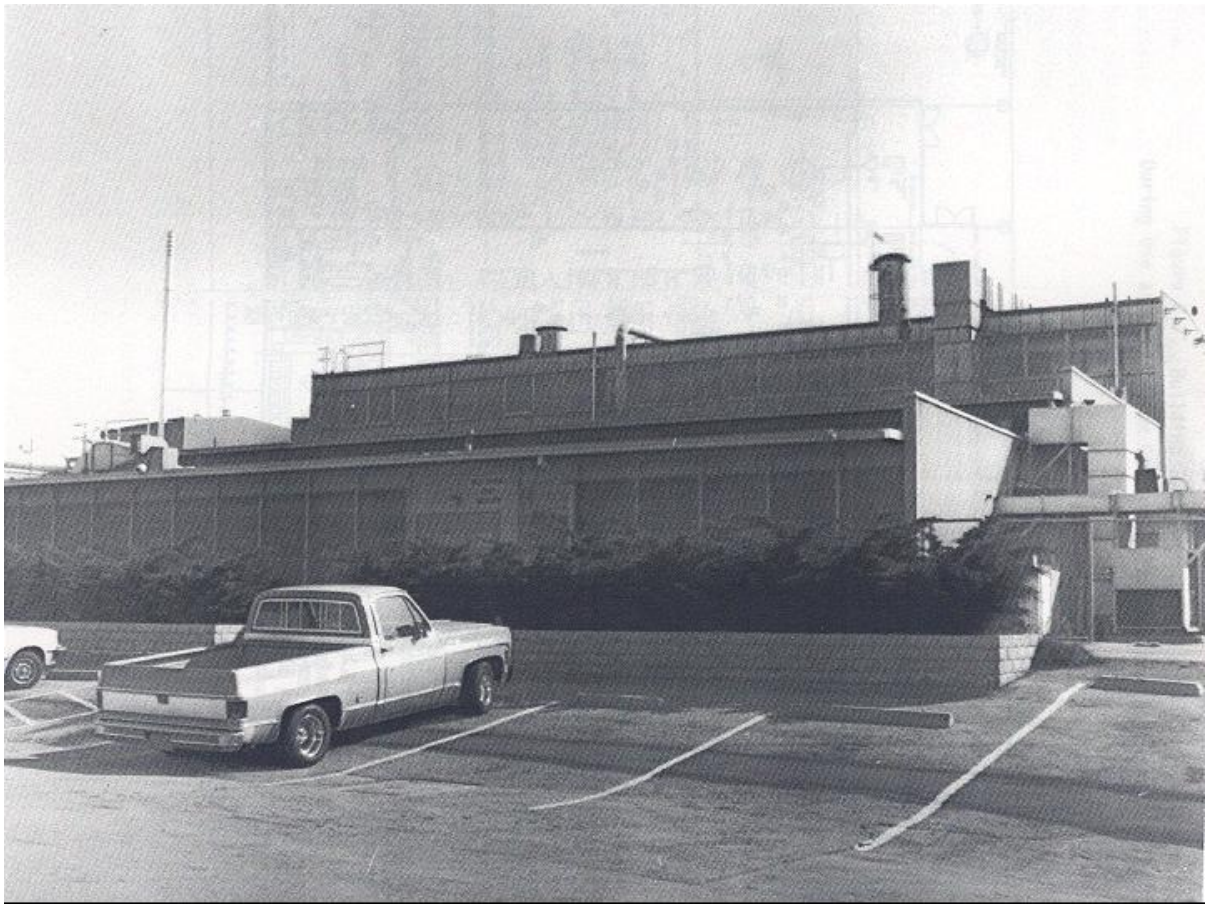
Status:

- DHS released Building 4005 and the surrounding soil for unrestricted use in March 1995.[7]
- Building 4005 was demolished in 1996.

References:

1- Rockwell International Document, 005-AN-0002, "Decontamination and Decommissioning (D&D) of the Uranium Carbide Pilot Fuel Facility – Building T005," September 28, 1993.
2- Rocketdyne Report, 005-ZR-0001, "Final Radiological Survey of Building 005," September 21, 1993.
3- Rocketdyne, Internal letter, "Sanitary Leachfield at T005," from R.J. Tuttle, October 29, 1987.
4- ETEC Document, GEN-ZR-0003, "Radiological Survey of Building T005," November 16, 1987.
5- Rocketdyne Report, 005-SP-0001, "Building 005 Final Survey Procedure," December 9, 1992.
6- ORISE Report, 94/K-14, "Verification Survey of Buildings 005, 023, and 064, Santa Susana Field Laboratory, Rockwell International, Ventura County, California," October 1994.
7- DHS/RHB, Untitled letter, from Ben Kapel (DHS/RHB) to Phil Rutherford. April 5, 1995.
8- Historical Site Photographs from Boeing Database.
9- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4005



Site Summary – Building 4006

Site Identification:

Building 4006
Sodium Laboratory
Includes Building 4616, Cooling Tower
Includes Building 4706, Substation

Operational Use/History:

- Building 4006 was operated as a non-nuclear sodium laboratory.[1, 2]
- Building 4006 closed for operations in 1999.[3]
- The septic tank was removed in 2000.[3]
- The leach field was removed in 2001.[3]
- Building 4006 is still standing but no longer in use.

Site Description:

- Building 4006 was constructed with a steel frame and steel walls and measures 13,284 square feet, including 2,268 square feet of office space and 7,674 square feet of lab space.[1]
- The building had an associated cooling tower that was removed in the early 1980s in order to make room for a Power Pak associated substation.[3]
- Serviced by Substation 4706.

Relevant Site Information:

- Use Authorization No. 66, dated September 28, 1973, specified that Na would be added to canisters containing UO_2 in Building 4006.[4]
- Use Authorization No. 81, dated June 26, 1974, permitted the use of tritiated titanium foils as gas chromatograph detectors. The foils were declared excess in 1986 and removed from the building.[5]
- Use Authorization No. 101, originally dated April 8, 1976, permitted the handling of 0.5 µCi of Mn-54 contained in sections of activated piping with frozen sodium. This piping was packaged in aluminum piping; the unpacking occurred in Building 4006.[6]

Radiological Surveys:

- Radiological surveys specific to the interior of Building 4006 have not been conducted.
- A radiation survey conducted on the contents of the septic tank returned removable alpha levels <20 dpm/cm^2 and removable beta levels <100 dpm/cm^2. Total alpha and beta levels were non-detect.[7]

- Soil sampling performed during excavation of the leachfield, drain lines and septic tank did not detect any contamination.[7]

Status:

- Building 4006 is still standing but no longer in use.

References:

1- DOE Document, N-083E-A02-DV001, Rev. A, "Site Development and Facility Utilization Planning: FY 1984-FY 1989" April 1984.
2- Personnel Interview, Phil Rutherford, September 4, 2003.
3- Personnel Interview, Dan Trippeda, September 9, 2003.
4- North American Rockwell, Letter, "Adding Na to Cannisters [sic] Containing UO_2 in the Fabrication of Lower Axial Blanket Shielding Experiment," L. M. Haba to W. F. Heine, September 24, 1973.
5- Rockwell International, Internal Letter, "Retirement of User Authorization No. 81," F. G. Schmidt to W. E. Nagel, June 9, 1986.
6- Rockwell International Internal Letter, "Use Authorization #101: Decontamination of Na Components," E. Hill to R. J. Tuttle, March 25, 1977.
7- DOE Internal Document, no document number, "Demolition Binder: 4006 Septic Tank."
8- Historical Site Photographs from Boeing Database.
9- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph 1 – Building 4006

Photograph 2 – Building 4006

Site Summary – Building 4402

Site Identification:

Building 4402
MHD Experiment

Operational Use/History:

- Constructed prior to 1967.[1]
- Building 4402 was a non-radiological facility; a more detailed record of associated activities could not be located.[2]
- Building 4402 has been demolished.

Site Description:

- Building 4402 was a small structure located south of Building 4006, near 17th Street.[1]

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4402.[2]

Radiological Surveys:

- Radiological surveys specific to Building 4402 have not been conducted.

Status:

- Building 4402 has been demolished.

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 – Site 4506

Site Identification:

Site 4506
Parking Lot

Operational Use/History:

- Constructed in the 1960s.
- Site 4506 serves as a parking lot used by personnel working in Building 4006, 4005, 4024, 4025 and the adjacent facilities.
- Site 4506 is still in use.

Site Description:

- Site 4506 is a parking lot located just south of B Street, between Building 4006 and Building 4005.[1]

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Site 4506.[2]

Radiological Surveys:

- Radiological surveys specific to Site 4506 have not been conducted.

Status:

- Site 4506 is still in use.

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 4606

Site Identification:

Building 4606
Sodium Lab Instrument Building A
MHD Support Building
Hydrogen Recombiner Test
Includes Building 4816, Hydrogen Recombiner Test Canopy

Operational Use/History:

- Constructed in the 1960s.
- Building 4606 was used to test the capacity of the Hydrogen Recombiner, a device developed by Atomics International (AI) to mix hydrogen and regular air to create water, useful in an emergency situation if a reactor produced excess hydrogen.[1]
- Building 4606 has been demolished.

Site Description:

- Building 4606 was a small, garage-sized structure located to the southeast of Building 4006.[1,2]
- Serviced by Building 4816, Hydrogen Recombiner Test Canopy.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4606.[3]

Radiological Surveys:

- Radiological surveys specific to Building 4606 have not been conducted.

Status:

- Building 4606 has been demolished.

References:

1- Personnel Interview, Phil Horton, September 16, 2003.
2- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
3- Review of Radiation Safety Records Management System, 2003.

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Site Summary – Building 4607

Site Identification:

Building 4607
Sodium Lab Instrument Building B
Storage

Operational Use/History:

- Constructed prior to 1962.[1]
- Building 4607 was used for non-radiological storage.[2,3]
- Demolished in the early 1970s.

Site Description:

- Building 4607 was a small structure located to the southeast of Building 4006.[1]

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4607.[4]

Radiological Surveys:

- Radiological surveys specific to Building 4607 have not been conducted.
- This area was covered as part of the 1994-1995 Area IV Radiological Characterization Survey.[5]
    - Background: 15.6 µR/hr.
    - Acceptable Limit: Less than 5 µR/hr above background.
    - Survey results were below the acceptable limits.

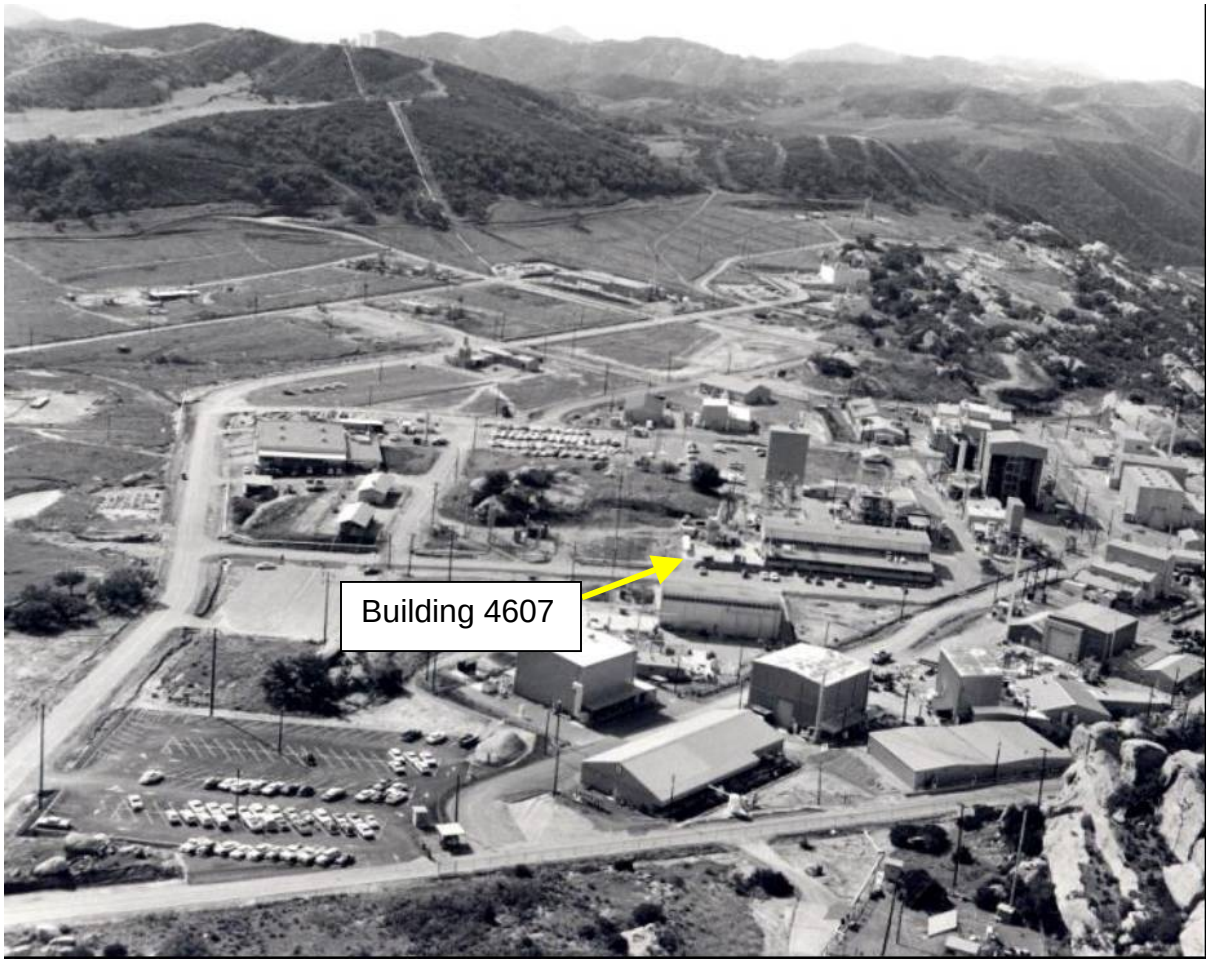
Status:

- Building 4607 was demolished in the early 1970s.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Personnel Interview, Phil Horton, September 16, 2003.
3- Personnel Interview, Bob Tuttle, December 12, 2003.
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.
6- Historical Site Photographs from Boeing Database.

Photograph – Building 4607



Site Summary – Building 4615

Site Identification:

Building 4615
Combustion Test Facility

Operational Use/History:

- Constructed in the early 1980s.
- Building 4615 served as a non-radiological facility. A more detailed description of associated activities could not be located.[1]
- Building 4615 has been demolished.

Site Description:

- Building 4615 was located at the northern end of Building 4006.[2]

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4615.[1]

Radiological Surveys:

- Radiological surveys specific to Building 4615 have not been conducted.

References:

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

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Site Summary – Building 4704

Site Identification:

Building 4704
Main Electrical

Operational Use/History:

- Constructed prior to 1962.
- Building 4704 is an inbound transformer adjacent to a station owned by Edison Power.[1]
- Scheduled for demolition in 2004.

Site Description:

- Building 4704 was a small structure located at the corner of 17th and F Streets.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4704.[2]

Radiological Surveys:

- Radiological surveys specific to Building 4704 have not been conducted.

Status:

- Building 4704 is scheduled for demolition in 2004.[1]

References:

1- Personnel Interview, Del Aubuchon, September 19, 2003.
2- Review of Radiation Safety Records Management System, 2003.
3- Historical Site Photographs from Boeing Database.
4- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph– Building 4704