

## Site Summary – Building 4030

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### 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.<sup>1</sup>
- 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.<sup>1</sup>
- 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.<sup>1</sup>
- 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.<sup>1</sup>
- 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.<sup>1</sup>
- 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.<sup>2</sup>
- An outside concrete wall was constructed to the north and east sides of the rear section to provide shielding for the proton beam.<sup>2</sup>
- 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.<sup>3</sup>
- 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.<sup>1</sup>
- Serviced by Substation 4XXX.

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

## Group E

### 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.<sup>1</sup>
- 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.<sup>4</sup>

### Radiological Surveys:

- Tritium Smear Survey on Building 4030 and associated equipment, March 29, 1966.<sup>5</sup>
  - Maximum sample: 75,000 dpm.
  - Tritium contamination was detected.
  - Areas of contamination were decontaminated.
- General Rocketdyne Survey, 1988.<sup>2</sup>
  - 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.<sup>2</sup>
  - 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.<sup>2</sup>
  - Average ambient gamma radiation: 12.7  $\mu\text{R/hr}$ .
  - Limit: 5  $\mu\text{R/hr}$  above background.
  - Background: between 15.6 and 14  $\mu\text{R/hr}$ .
  - 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.<sup>3</sup>
  - 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<sup>2</sup>.
  - Total Beta Surface Activity: less than 1,400 dpm/100cm<sup>2</sup>.
  - One sample of total tritium activity exceeded the average guideline (5,000  $\beta\text{-}\gamma$  dpm/100 cm<sup>2</sup>) for beta-gamma emitters (6,600 dmp/100 cm<sup>2</sup>), and ORISE recommended additional sampling be performed in this area.

- Exposure rate measurements were performed at 1 meter above surface.
  - Results: 10 to 12  $\mu\text{R/hr}$ .
  - Background: 8  $\mu\text{R/hr}$ .
  - Acceptable Limit: 5  $\mu\text{R/hr}$  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.<sup>6</sup>
  - 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  $\mu\text{R/hr}$  at 1 meter.
  - Total alpha and beta limits: 5,000 dpm/100  $\text{cm}^2$ .
  - Removable alpha and beta limits: 1,000 dpm/100  $\text{cm}^2$ .
  - Removable tritium limit: 10,000 dpm/100 $\text{cm}^2$ .
  - Ambient gamma limit: <5.0  $\mu\text{R/hr}$  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.<sup>1</sup>
- Department of Energy (DOE) released the facility for unrestricted use in October 1997.<sup>7</sup>
- California Department of Health Services (DHS) concurred with the release of the facility for unrestricted use on January 15, 1999.<sup>8</sup>

#### References:

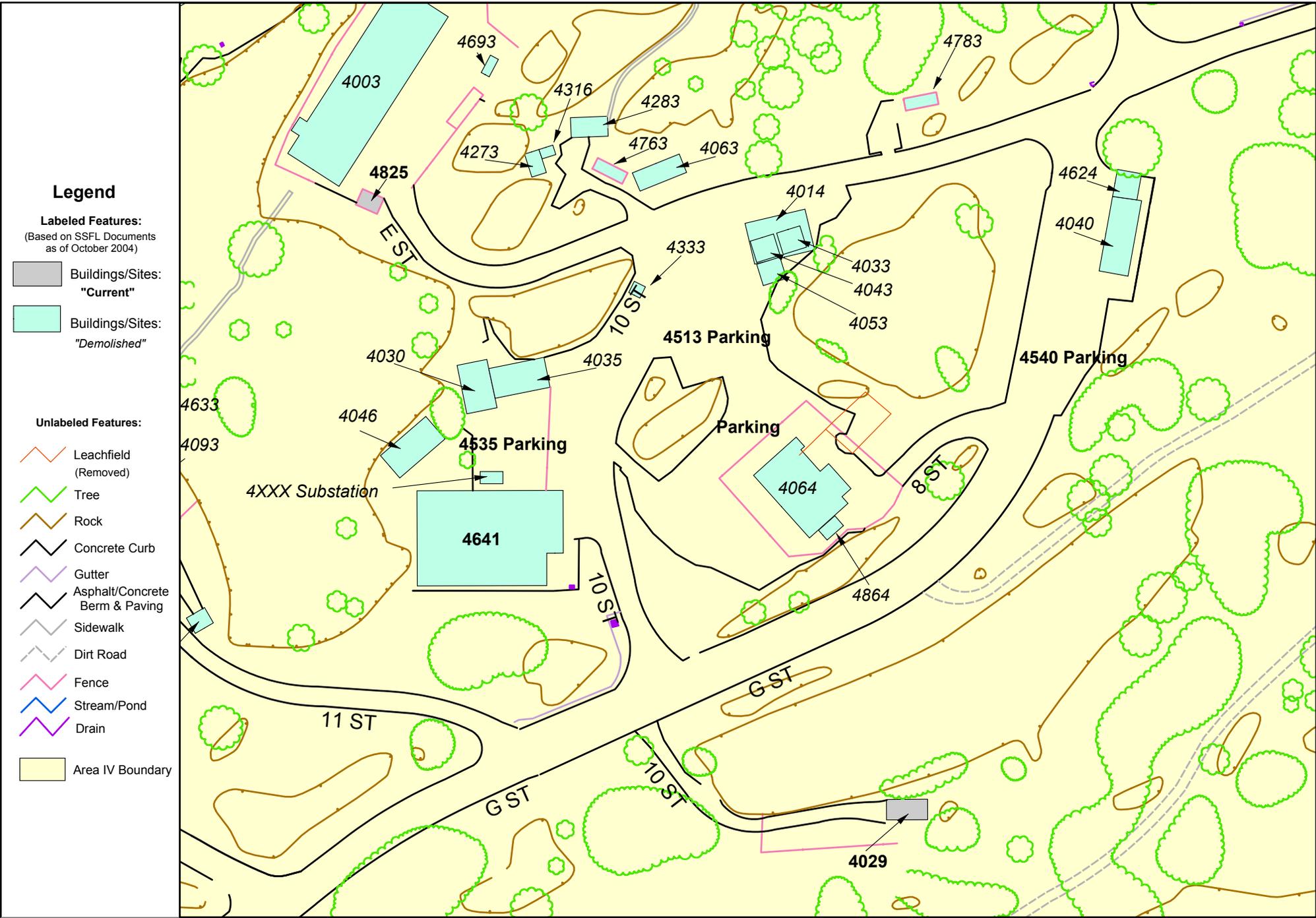
- 1- Rocketdyne Report, 030-AR-0002, "Decontamination and Decommissioning (D&D) of Building T030," November 13, 1997.
- 2- ETEC Document, GEN-ZR-0007, "Radiological Survey of Shipping /Receiving and Old Accelerator Area- Buildings T641 and T030," August 19, 1988.
- 3- ORISE Document 96/C-4, "Verification 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.

## Group E

- 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.

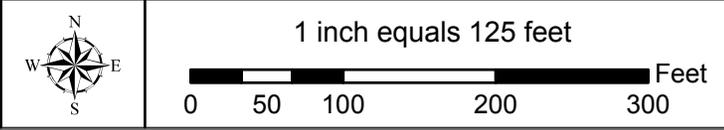
Photograph – Building 4030





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Site Summary Group E  
AREA IV  
Santa Susana Field Laboratory, CA