Group J

Group H Map

Building 4023

Includes Building 4742, Substation

Building 4024

Includes Building 4928, Cooling Tower
Includes Building 4725, Substation

Building 4025

Includes Building 4924, Substation
Includes Building 4925, Mechanical Equipment Slab
Includes Building 4926, Sodium Reactor Experiment (SRE) Mock-up Equipment Area
Includes Building 4725, Substation for 4024 and 4025

Building 4027

Includes Building 4727, Substation

Building 4032

Includes Building 4727, Substation

Building 4036/4037

Includes Building 4727, Substation

Building 4042

Includes Building 4742, Substation

Site 4524

Site 4536

Includes Building 4836, Time Clock
Includes Building 4636, Guard Shack

Site 4537

Building 4625

Building 4927

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Legend

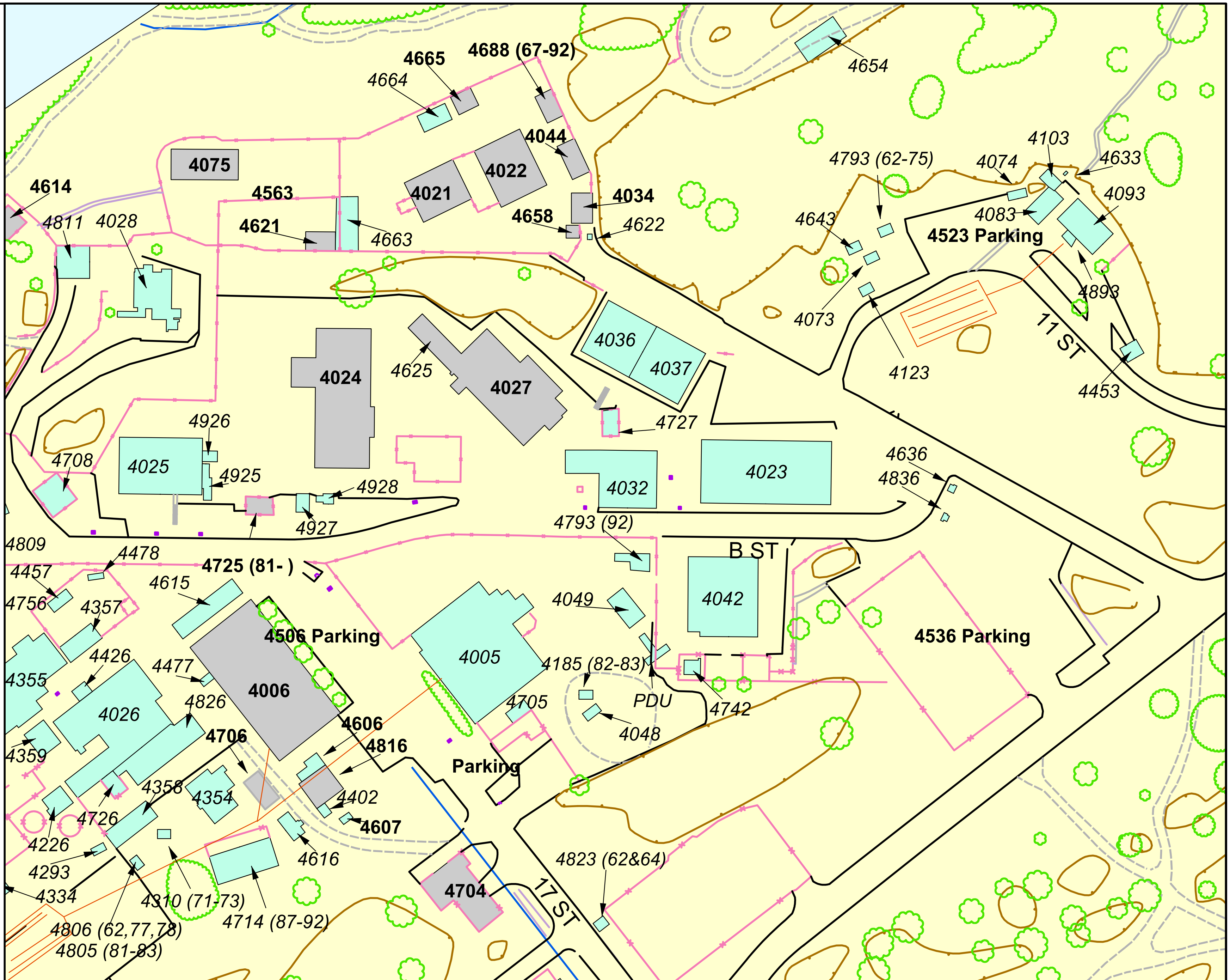
Labeled Features:

(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



DRAWN BY: Sapere CONSULTING INC	N / W / E / S	1 inch equals 150 feet 0 50 100 200 300 Feet	Site Summary Group J AREA IV Santa Susana Field Laboratory, CA
DATE: May 2005			

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Site Summary – Building 4023

Site Identification:

Building 4023
Liquid Metals Component Test Building
Corrosion Test Loop
Includes Building 4742, Substation

Operational Use/History:

- The first section of Building 4023, constructed in 1962 (known as 023), housed a small sodium loop to conduct studies of radioactive contamination transport. The second section, constructed in 1976 (known as 23A), served as a storage and setup room as well as an analytical chemistry laboratory.[1]
- In 1982, an Alnor Dew-Point Meter containing a 6.25 μCi Ra-226 source was brought to the facility to be disassembled, but the disassembly was never authorized or attempted and the instrument was removed intact in 1986.[2]
- A 10 μCi Mn-54 sealed source, which was checked annually to ensure that no leaks had occurred, was stored in the building from 1983 to 1986.[2]
- Sodium loop tests stopped in 1982 and the loop was dismantled and removed in 1986. At this point the connections to the tank were sealed and sinks were removed.[1]
- In 1990 the high-efficiency particulate air (HEPA) filtration system and fume hoods were removed.[2]
- The remainder of the radioactive liquid waste system (pipes, drains, tank) was removed in 1993.[2]

Site Description:

- Building 4023 was a single story structure with galvanized steel walls and roof and a concrete slab floor. The sodium test loop was located in the western, or "old," portion of the building. The "new" building section held an analytical chemistry laboratory and a storage set-up room.[3]
- The facility was approximately 20 feet below the general grade of the adjacent 12th Street.[1]
- The waste holdup tank was located in an exterior sub-grade open-top concrete vault (7.5 feet x 10 feet x 6 feet) at the east end of Building 4023.[2]
- Serviced by Substation 4742.

Relevant Site Information:

- The majority of the contamination of Building 4023 was associated with drain lines and associated vent pipes, the holdup tank, the open top holdup tank pit, and a laboratory fume hood.[4]

- The contaminants of concern associated with the activities at Building 4023 include: Co-60, Mn-54, Ni-63, Fe-55, Ta-182 and tritium. Limited amounts of Cs-137 and Sr-90 were also found.[5]
- Use Authorization 105 was issued in 1976. It allowed the use of a small section of activated stainless steel Experimental Boilers Reactor fuel cladding in a small sodium test loop to gather data on transport characteristics of radiological contamination in sodium loops.[1]
- There have been two incidents associated with Building 4023 that could have resulted in a release to the environment:[2]
    - On December 18, 1980, water reacted with non-neutralized sodium and surged out of the loop. The water leak resulted in contamination of the ceiling, walls and floor with maximum contamination levels of 1,000 dpm/100 cm^2 of Mn-54 (A0084).
    - On April 28, 1981, there was a minor sodium leak and fire, with Cs-137, Mn-54 and Co-60 as the principal radioactive isotopes contained in the loop at the time. The fire was extinguished with calcium carbonate. Smears of the loop and the floor showed no radioactive contamination (A0257).
- All drain lines in Building 4023 were connected to the waste holdup tank system. The lines were both above and below ground.[2]

Radiological Surveys:

- In 1993, Rockwell/Rocketdyne conducted a final radiological survey to ensure compliance with acceptable contamination limits for activation products and mixed fission products and for ambient exposure rate.[6]
    - The scope of the survey included only the interior rooms of the building.
    - Contamination limit criteria are as follows:
        - For alpha and beta contamination:
            - Average contamination of ≤ 5,000 dpm/100 cm^2.
            - Maximum of contamination ≤ 15,000 dpm/100 cm^2.
            - Removable contamination of ≤ 1,000 dpm/100 cm^2.
        - For gamma contamination:
            - ≤ 5 μR/hr above background at 1 meter interior and exterior.
    - Initial surface scans indicated an area within Building 4023 with elevated levels of Cs-137 requiring additional decontamination.
        - These locations were decontaminated and post-remedial action scans found surface activity to be below release limits.
    - Observed detection limit ranges are as follows:
        - Removable alpha: 2 dpm/100 cm^2 to 9 dpm/100 cm^2.
        - Total beta: 252 dpm/100 cm^2 to 373 dpm/100 cm^2.
        - Removable beta: 6 dpm/100 cm^2 to 23 dpm/cm^2.
        - Net ambient gamma exposure rate: 0.49 μR/hr to 0.66 μR/hr.

- In 1994, ORISE conducted a verification survey using surface scans to confirm that remedial actions have been effective in meeting established guidelines. No soil samples were taken, because the entire area around Building 4023 was paved.[3]
    - Scans inside the Building 4023 Control Room identified elevated direct radiation in two areas that required additional investigation.
        - Rocketdyne personnel decontaminated the two areas and Environmental Survey and Site Assessment Program (ESSAP) personnel performed additional scans after the decontamination. Scans showed the beta surface activity was comparable to background levels.
    - Final survey results for total surface activity levels inside Building 4023 were less than 66 to 400 dpm/100 cm^2 for alpha and less that 1,400 to 6,700 dpm/100 cm^2 for beta.
    - Final survey results for activity levels on exterior surfaces, including the holdup waste tank vault, were less than 66 dpm/100 cm^2 to 120 dpm/100 cm^2 for alpha and less than 1,500 dpm/100 cm^2 to 1,600 dpm/cm^2 for beta.
- On August 28, 1997, the Radiological Health Branch (RHB) and the California Department of Health Services (DHS) conducted a confirmatory survey of Building 4023. A complete qualitative gamma scan of the facility and surrounding area was performed. Selected measurements of total and removable beta surface activity and local gamma exposure rates were also conducted.[7]
    - The survey results and laboratory analysis results confirmed the results of the final radiological survey in 1993 and the Oak Ridge Institute for Science and Education (ORISE) verification survey in 1994.[8]

Status:

- DOE formally released Building 4023 on April 21, 1997.[9]
- DHS concurred with release of Building 4023 on February 19, 1998.[8]
- Building 4023 was demolished in October 1999.

References:

1- DOE Document, Docket No. DOE/CD-ETEC-023, "Certification Docket for the Release of Building 023 at ETEC," February 1997.
2- Rocketdyne Report, 023-AR-0002 Rev. A., "Building 023 D&D Operations Final Report," March 7, 1996.
3- ORISE Report, 94/K-14, "Verification Survey of Buildings 005, 023, and 064, Santa Susana Field Laboratory, Rockwell International, Ventura County, California," October 1994.
4- Rocketdyne, Internal Letter, "Assessment Plan for Building 023 D&D, from P. Waite to R. Meyer", January 12, 1993.
5- Rocketdyne, Internal Letter, "Potential Contaminants at T023," from R. J. Tuttle to P. Rutherford, January 20, 1993.
6- Rocketdyne Report, 023-ZR-0001, "Final Radiological Survey Report of Building 023," March 1, 1994.

7- Rocketdyne, E-mail, "State DHS/RHB Inspection of T023," from R. Tuttle to P. Rutherford, et al, August 29, 1997.
8- DHS/RHB, Letter, "Boeing's Request for Concurrence in Release for Use Without Radiological Restriction, Rocketdyne Santa Susana Field Laboratory Building T023," from Gerard Wong (DHS/RHB) to Phil Rutherford, February 19, 1998.
9- DOE/OAK, Letter, "Release of Facilities for Unrestricted Non-Radiological Use," from Roger Liddle (DOE/OAK) to Mark Gabler, April 21, 1997.
10- Historical Site Photographs from Boeing Database.
11- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4023

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Site Summary – Building 4024

Site Identification:

Building 4024
Development Test Laboratory
Systems for Nuclear Auxiliary Power (SNAP) Environmental Test Facility (SETF)
Includes Building 4928, Cooling Tower
Includes Building 4725, Substation

Operational Use/History:

- Constructed in 1960.
- Building 4024 was used for testing SNAP reactors in a simulated operational environment. It was enlarged in 1962 to provide a second control room and increased operating equipment area.[1]
- Prototype reactor SNAP 2 Demonstration Reactor (S2DR) operated for 5,000 hours at 30 and 50 kWt in the east cell between April 1961 and December 1962.[1]
- Prototype SNAP 10 Flight System (S10FS-3) reactor operated for 10,000 hours at about 40 kWt in the west cell between January 1965 and March 1966.[1]
- SNAP Critical Assembly 4B, operated in the east cell for a short time at low power.[1]
- SNAP Transient Test (SNAPTRAN-1) support reactor, also critical, operated in the east cell for a short time. Typically SNAPTRAN-1 was operated at low power, except for some pulsed operation. This reactor last operated in 1971. It was the last reactor to be tested in Building 4024.[1]

Site Description:

- Building 4024 consists of two levels, one at ground level and a sub-grade basement.[2]
    - The areas within (and associated with) Building 4024 included: a high bay, including cell complex and operating gallery, a general support and operating area, a mechanical/electrical support area, and a yard.
- Building 4024 is constructed of aluminum siding, steel framing, some flooring and concrete.[2]
- The basement consists of a cell complex with two power test cells and a cell-transfer lock. This complex is constructed of shielded concrete walls ranging from two feet to nine feet thick, penetrated by various through-tubes, conduits and cooling pipes.[1]
- Below-ground radioactive waste storage facilities are located under asphalt in the yard.[1] The buried tanks include:
    - Three radioactive gas holdup tanks 6 feet in diameter and 40 feet long.
    - Eight solid radioactive waste storage vaults 3 feet in diameter and 4 feet deep.

    - Two 500-gallon liquid radioactive waste holdup tanks.
        - The tanks were placed on top of a concrete box filled with gravel designed to contain any accidental leakage.
- All non-radioactive sewage wastes are collected by a sanitary sewer system.[1]
- All wash-down water and emergency releases from the cooling systems are routed to the underground liquid waste holdup tanks via floor sinks and buried drain lines.[1]
- Serviced by Substation 4725.
- Serviced by Cooling Tower 4928.

Relevant Site Information:

- Potential radiological hazards are limited to the high bay area (including cell complex), electrical/mechanical support and yard areas.[1]
    - Two general areas of concern in the high bay are the cells and the S10FS-3 reactor support equipment room.
    - The electrical/mechanical support area contains systems for gas and exhaust filtering, shield cooling water and a vacuum cleaner, all of which are potentially contaminated.
- As a result of exposure to neutrons escaping from the two operating reactors, the walls, ceiling, floor and remote handling equipment of the test cells were activated.[1]
- There have been several incidents associated with Building 4024 that could have resulted in a release to the environment.
    - On March 6, 1962, a welder was burned with NaK in the high bay (A0535).
    - On February 19, 1970, maintenance workers unknowingly worked on contaminated general mills (A0634).

Radiological Surveys:

- In September 1978, prior to partial unrestricted release, surveys were conducted to ensure that the facility met unrestricted release criteria.[3]
    - No contamination in excess of 50 dpm/100 cm^2 was found.
    - No alpha activity was detected anywhere in Building 4024.
    - Beta-gamma surface contamination limits were 0.1 mrad/hr, and the maximum beta-gamma surface contamination detected outside of the power vaults was 0.07 mrad/hr with an average background of 0.05 mrad/hr.
    - Inside the power vaults, beta-gamma surface contamination was found to range from 0.5 mrad/hr to 2.5 mrad/hr.
    - Inside the corridor to the power vaults, beta-gamma surface contamination ranged from 0.02 mrad/hr to 1.8 mrad/hr.
    - Soil samples were collected in the yard and all samples were less than 30 pCi/g. Background is 20-30 pCi/g.
    - Concrete cores drilled in the power vault walls and corridor were found to have a maximum specific activity of 818 pCi/g. The average specific activity was 103 pCi/g.

  - All water samples from the drain pipe in the operating gallery, the hot waste storage vault, cooling system water waste holdup tanks, ground water during the removal of waste tanks and the vacuum cleaning line to the west power vault were below 2.2 x 10^{-7} µCi/ml, which is below the limit of 3 x 10^{-7} µCi/ml for Sr-90.
- On March 26, 1981, additional concrete sampling in the power vaults began to determine the amount of concrete they needed to remove to meet unrestricted release criteria.[1]
  - The survey indicated that 12 to 22 inches of concrete would need to be removed for surface radiation to meet the acceptable does rate of 0.1 mrad/hr.
  - Only two radionuclides, Co-60 and Eu-152, were found to contribute significantly to radiation greater than background.
- In September 1995, ORISE Conducted an independent verification survey.[2]
  - Surface scans were performed over 50 to 100% of accessible floors and lower walls (up to 2 meters) for alpha, beta and gamma activity.
    - In the fan room, elevated direct beta radiation was identified.
    - In all other areas, alpha, beta and gamma radiation were within the range of ambient site background.
  - Surface activity measurements were conducted at 76 floor and wall locations.
    - Excluding the power vaults, surface activity levels were less than 55 dpm/100 cm^2 for alpha and ranged from less than 1,400 to 33,000 dpm/100 cm^2 for beta.
    - Removable alpha: less than 12 dpm/100 cm^2.
    - Removable beta: less than 16 dpm/100 cm^2.
    - Maximum beta-gamma total surface activity guideline (15,000 dpm/100 cm^2) was exceeded in the hot gas compression room of Building 4024.
  - Exposure rate measurements were made at four locations in Building 4024, but none were made in the power vaults.
    - Excluding the power vaults, exposure rates ranged from 11 to 13 µR/hr. Background was 8 µR/hr.
    - Interior exposure rates satisfy Department of Energy (DOE) and Nuclear Regulatory Commission (NRC) exposure rate guidelines.
  - ORISE determined that existing documentation for Building 4024 was inadequate to support the determination that DOE guidelines for unrestricted release were met.
- Additional concrete core data taken in 2003 indicates activation with a maximum of 9.3 pCi/g of Co-60 and a maximum of 105 pCi/g of Eu-152. Measurable activation exists only within the inner 16 inches of concrete of the two power test cells.[4]

Status:

- Decontamination and disposition (D&D) of Building 4024 began on August 27, 1977, and concluded sometime before September 1, 1978.[3]

  - Within the vaults, all components such as rails, fixtures, surface mounted conduits and all wires in through-tubes were removed between August 1977 and September 1978.
  - The vacuum system, piping and tanks, and concrete seal door with an 18-inch diameter gas exhauster pipe were removed.
  - The liquid and gas waste holdup tanks and associated piping were removed.
  - All contaminated or activated components throughout the facility were packaged for offsite burial or decontaminated to meet applicable limits.
- All areas of Building 4024 except the two power test vaults were determined by survey to be suitable for release for unrestricted use.[3]
- The power test vaults are restricted and have remained in surveillance and maintenance mode since September 1, 1978.[2]
- Additional decontamination of Building 4024 is planned for FY 2004.

References:

1- Atomics International Document, N704FDP990006 Rev. A., "Building T024 (SETF) Facilities Dismantling Plan," July 31, 1981.
2- ORISE Report, 96/C-5, "Verification Survey of Buildings T019 and T024, Santa Susana Field Laboratory, Rockwell International, Ventura County, California," February 1996.
3- Rockwell International Document, N704TI990044, "Radiological Survey Results—Release to Unrestricted Use, Building 024, SSFL," November 28, 1978.
4- Personnel Interview, Phil Rutherford, September 18, 2003.
5- Historical Site Photographs from Boeing Database.
6- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4024

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Site Summary – Building 4025

Site Identification:

Building 4025
Sodium Component Test Installation (SCTI) Maintenance and Storage
Remote Handling Mock-up Facility
Includes Building 4924, Substation
Includes Building 4925, Mechanical Equipment Slab
Includes Building 4926, Sodium Reactor Experiment (SRE) Mock-up Equipment Area
Includes Building 4725, Substation for 4024 and 4025

Operational Use/History:

- Constructed in 1959.
- Building 4025 was used for nuclear reactor remote handling and viewing mock-up work in support of the SNAP 2/10A and SNAP 8 tests.[1]
- Building 4025 was not known to contain radioactive or nuclear materials.
- After support work for SNAP tests ceased, Building 4025 was used as a storage and warehouse facility.[1]
- Demolished in September 1999.

Site Description:

- Building 4025 had a steel frame with steel sides and a steel roof and consisted of three bays. The low bay had a ceiling height of 9 feet, the middle bay had a ceiling height of 20 feet and the high bay had a ceiling height of 35.5 feet.[1]
- On a 1962 Industrial Planning Map, Building 4925 Mechanical Equipment Slab and Building 4926 SRE Mock-up Equipment Area were identified as separate from but adjacent to Building 4025. In subsequent Industrial Planning Map, the outlines of Buildings 4925 and 4926 remain, but no longer have their own numbers. As such, it is assumed that both 4925 and 4926 are included in Building 4025, and that all three were treated as a single facility.[1,2]
- Serviced by Substations 4725 and 4924.[1]

Relevant Site Information:

- Building 4025 was located in close proximity to Radioactive Materials Handling Facility (RMHF), and direct radiation and skyshine from RMHF affected ambient radiation conditions in the area.[1]
- An incident occurred on January 16, 1979, in which a radiograph operator's dosimeter read off-scale during gradiograph operation, indicating a potential personnel exposure. The radiograph operator's assistant was present at the time, and his dosimeter gave a normal reading. After processing of the off-scale dosimeter, it

was determined that the operator had not been exposed to an unacceptable dose. No cause for the off-scale reading was determined (A0306).

Radiological Surveys:

- As part of the Department of Energy (DOE) Santa Susana Field Laboratory (SSFL) Site Survey, Building 4025 was surveyed to determine if any residual activity was accidentally left behind as a result of operations in support of the SNAP program. The inside and outside portions of Building 4025 were surveyed as separate units.[1]
    - Inside:
        - Maximum net gamma: 3.6 μR/hr (corrected for background and statistically tested against an acceptance limit of 5μR/hr).
        - Average net gamma: –0.43 μR/hr (corrected for background).
        - Based on the median value of exposure rate measurements in the vicinity of 4025, the inside ambient background value for gross gamma was determined to be 11.8 μR/hr.
        - All beta surface activity measurements made "for indication" showed no detectable activity.
        - Based on the results of the interior survey of Building 4025, the conclusion was made that this area passed the criteria for unrestricted use.
    - Outside:
        - Maximum net gamma: 3.9 μR/hr (corrected for background and statistically tested against an acceptance limit of 5μR/hr).
        - Average net gamma: –0.14 μR/hr.
        - Based on the median value of exposure rate measurements in the vicinity of 4025, the outside ambient background value for gross gamma was determined to be 24.0 μR/hr.
        - Based on the results of the exterior survey of Building 4025 and the storage yard, the conclusion was made that this area was not contaminated and passed the criteria for unrestricted use.

Status:

- Building 4025 was demolished in September 1999.

References:

1- ETEC Document, GEN-ZR-0013, "Radiological Survey of Buildings T049, T042, T027, T032, and T025," August 26, 1988.
2- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
3- Historical Site Photographs from Boeing Database.

Photograph – Building 4025

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Site Summary – Building 4027

Site Identification:

Building 4027
SNAP Engineering Development Laboratory 2
Former Weld Shop
SNAP Vibration and Shock Laboratory
Includes Building 4727, Substation

Operational Use/History:

- Constructed in 1961.
- Building 4027 was used as a vibration and shock test facility in support of the SNAP program launch schedule.[1]
- Following the end of support work for SNAP tests, Building 4027 was used as a non-radiological storage facility.
- Building 4027 was demolished in 2003.

Site Description:

- Building 4027 is a 9,240-square-foot structure located south of RMHF.[2] The building has a steel frame, steel sides and a steel roof. It consists of a 37-foot high bay laboratory area, an office and shop support/storage.[1]
- Serviced by Substation 4727.

Relevant Site Information:

- There are no Use Authorizations associated with Building 4027.[3]
- No incidents occurred in Building 4027 that might have resulted in a release of contamination to the environment.[3]
- Building 4027 may have been used for storing sealed radiography sources, which would have been checked annually to ensure that no leaks had occurred.

Radiological Surveys:

- As part of the DOE SSFL Site Survey, Building 4027 was surveyed to determine if any residual activity was accidentally left behind as a result of operations in support of the SNAP program. The high bay and storage portions of Building 4027 were surveyed as separate units due to variations in "ambient background."[1]
    - High Bay
        - Maximum net gamma: 3.8 μR/hr (corrected for background and statistically tested against an acceptance limit of 5 μR/hr).
        - Average net gamma: 0.46 μR/hr.

- Based on the median value of exposure rate measurements in the vicinity of Building 4027, the ambient background value for gross gamma was determined to be 9.09 μR/hr.
- All beta surface activity measurements made "for indication" showed no detectable activity.
- Based on the results of the interior survey of Building 4027, the conclusion was made that this area passes the criteria for unrestricted use.

o Storage

- Maximum net gamma: 2.8 μR/hr (corrected for background and statistically tested against an acceptance limit of 5μR/hr).
- Average net gamma: –1.26 μR/hr.
- Based on the median value of exposure rate measurements in the vicinity of Building 4027, the ambient background value for gross gamma was determined to be 17.40 μR/hr.
- All beta surface activity measurements made "for indication" showed no detectable activity.
- Based on the results of the exterior survey of Building 4027 and the storage yard, the conclusion was made that this area is not contaminated and passes the criteria for unrestricted use.

Status:

- Building 4027 was demolished in 2003.

References:

1- ETEC Document, GEN-ZR-0013, "Radiological Survey of Buildings T049, T042, T027, T032, and T025," August 26, 1988.
2- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
3- Review of Radiation Safety Records Management System, 2003.

Site Summary – Building 4032

Site Identification:

Building 4032
Liquid Metal Development Lab (LMDL)
Space Environmental Test Facility
Includes Building 4727, Substation

Operational Use/History:

- Constructed in 1962.
- Building 4032 was used as a space environmental test facility for a thermal vacuum system.[1]
- Building 4032 was used for mock-ups using a radiological source to determine the positioning of non-radioactive rods for use in developing the fuel rod control system.[1]
- After support work for SNAP tests ceased, Building 4032 was used as a sodium component and instrumentation test facility.
- Demolished in May 2003.

Site Description:

- Building 4032 was 4,580 square feet with 32-foot ceilings. The structure had a steel frame, steel sides and a steel roof. It contained 4,200 square feet of laboratory space. [1]
- Serviced by Substation 4727.

Relevant Site Information:

- From 1978 through 1983, Building 4032 was used for mock-ups using a radiological source to determine the positioning of non-radioactive rods for use in developing the fuel rod control system. During these experiments, under Use Authorization 118, a radiation source was used to determine the location, free fall time and acceleration of the articulated rod assembly of the Self Actuated Shutdown System-Articulated Control Assembly (SASS-ACA) test article. The source was 97.2 μCi of Co-60. The form was sealed source S/N 43014, which was checked annually to ensure no leakage occured.[2]

Radiological Surveys:

- During the 1988 beta survey, a stainless steel catch pan was found to be slightly contaminated with Co-60 at a level of about 25,000 dpm/100 cm^2. The catchpan was most likely from Building 4059 or related to the SNAP facility and ended up in Building 4032 accidentally. The radioactivity was fixed in the steel and did not spread to surrounding areas. The pan was dispositioned as radioactive waste. [1]

- As part of the DOE SSFL Site Survey, Building 4032 was surveyed to determine if any residual activity was accidentally left behind as a result of operations in support of the SNAP program. [1]
    - The maximum gamma exposure rate (corrected for background and statistically tested against an acceptance limit of 5 μR/hr) in Building 4032 was 4.4 μR/hr. The average value was 0.43 μR/hr.
        - Based on the median value of exposure rate measurements in the vicinity of Building 4032, the ambient background value for gamma was determined to be 7.27 μR/hr.
    - All beta surface activity measurements made "for indication" showed no detectable activity, except for the stainless steel catch pan described above.
- Based on the results of the survey of Building 4032, the conclusion was made that this area passes the criteria for unrestricted use. [1]

Status:

- Building 4032 was demolished in May 2003.

References:

1- ETEC Document, GEN-ZR-0013, "Radiological Survey of Buildings T049, T042, T027, T032, and T025," August 26, 1988.
2- Authorization Series 118, Shutdown Rod Measurement, J. V. Menteer, August 1978.
3- Historical Site Photographs from Boeing Database.
4- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4032

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Site Summary – Building 4036/4037

Site Identification:

Building 4036/4037
SNAP Office Buildings
Includes Building 4727, Substation

Operational Use/History:

- Constructed in approximately 1962.
- Building 4037 appears distinctly only on the 1962 map. Thereafter, it is labeled as part of Building 4036.[1]
- Building 4036/4037 operated as a non-nuclear office building for the SNAP program.
- Demolished in 1999.

Site Description:

- Building 4036/4037 consisted of two one-story metal buildings joined together, each with a concrete slab floor and concrete foundation. The support structure consisted of steel beams with corrugated steel siding and roof. The buildings contain numerous internal partition walls with wood framing and drywall surfaces.[2]
- Serviced by Substation 4727.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4036.[3]
- Building 4036 did not require radiological controls during demolition.[2]

Radiological Surveys:

- Radiological surveys specific to Building 4036 have not been conducted.

Status:

- Building 4036 was demolished in 1999.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Boeing Document, EID-04366, "Removal of DOE Buildings, Demo Pak A," May 18, 1999.
3- Review of Radiation Safety Records Management System, 2003.
4- Historical Site Photographs from Boeing Database.

Photograph – Building 4036/4037

Site Summary – Building 4042

Site Identification:

Building 4042
Liquid Metal Fast Breeder Reactor (LMFBR) Development Testing
SNAP Shield Casting Facility
Includes Building 4742, Substation

Operational Use/History:

- Constructed in 1963.
- Building 4042 was used as a general test and lithium hybrid shield fabrication building in support of the SNAP program. The facility was also used for sodium-aerosol and related technology tests.[1]
- After support work for SNAP tests ceased, Building 4042 was used for liquid metal technology work.
- Demolished in May 2003.

Site Description:

- Building 4042 was a 4,269-square-foot structure with steel sides and a steel roof. It had 38-foot ceilings and contained 4,117 square feet of laboratory space. [1]
- Serviced by Substation 4742.

Relevant Site Information:

- Use Authorization 62 was obtained for a period of one year, from February 6, 1973, to February 6, 1974. The authorization was for 15,000 lbs of uranium in the form of UO_2 powder for the Lower Axial Blanket Shielding Experiment.[1,2] It is unclear whether this experiment was ever conducted.
- In the Site Survey Plan, Building 4042 was incorrectly listed as having a contaminated sodium test loop. This test loop was actually in Building 4023.

Radiological Surveys:

- As part of the DOE SSFL Site Survey, Building 4042 was surveyed to determine if any residual activity was accidentally left behind as a result of operations in support of the SNAP program. Measurements, including exposure rate measurements, were made in Building 4042. [1]
    - Maximum gamma: 4.4 μR/hr. (corrected for background and statistically tested against an acceptance limit of 5 μR/hr).
    - Average gamma: 0.1 μR/hr.

  - Based on the median value of exposure rate measurements in the vicinity of 4042, the ambient background value for gamma was determined to be 7.1 µR/hr.
  - Maximum total-average alpha: 12.6 dpm/100 cm^2 (statistically tested against an acceptance limit of 5,000 dpm/100 cm^2).
  - Average total-average alpha: 4.0 dpm/100cm^2.
  - Maximum removable alpha: 5.9 dpm/100 cm^2 (statistically tested against an acceptance limit of 1,000 dpm/100 cm^2).
  - Average removable alpha: 0.5 dpm/100cm^2.
  - Maximum total-average beta: 1,200 dpm/100 cm^2 (statistically tested against an acceptance limit of 5,000 dpm/100 cm^2).
  - Average total-average beta: 775 dpm/100cm^2.
  - Maximum removable beta: 15.4 dpm/100 cm^2 (statistically tested against an acceptance limit of 1,000 dpm/100 cm^2).
  - Average removable beta: 2.8 dpm/100cm^2.
- Based on the results of the survey of Building 4042, the conclusion was made that this area passes the criteria for unrestricted use.

Status:

- Building 4042 was demolished in May 2003.

References:

1- ETEC Document, GEN-ZR-0013, "Radiological Survey of Buildings T049, T042, T027, T032, and T025," August 26, 1988.
2- Rockwell International Document, Use Authorization 62, February 6, 1973.
3- Historical Site Photographs from Boeing Database.
4- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4042

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Site Summary- Site 4524

Site Identification:

Site 4524
Parking Lot

Operational Use/History:

- Constructed prior to 1962.
- Site 4524 served as a parking lot for personnel working in the SNAP area.
- Demolished in the middle 1960s.[1]

Site Description:

- Site 4524 was located near the SNAP area.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Site 4524.[2]

Radiological Surveys:

- Radiological surveys specific to Site 4524 have not been conducted.[2]
- This area was covered as part of the 1994-1995 Area IV Radiological Characterization Survey.[3]
    - Background: 15.6 μR/hr.
    - Acceptable Limit: Less than 5 μR/hr above background.
    - Survey results were below the acceptable limits.

Status:

- Site 4524 was demolished in the middle 1960s.[1]

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Review of Radiation Safety Records Management System, 2003.
3- Rocketdyne Document, A4CM-ZR-0011, Rev. A, "Area IV Radiological Characterization Survey," August 15, 1996.

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Site Summary – Site 4536

Site Identification:

Site 4536
Parking Lot
Includes Building 4836, Time Clock
Includes Building 4636, Guard Shack

Operational Use/History:

- Constructed prior to 1962.
- Site 4536 was a parking lot for personnel working in the SNAP facility.
- Site 4536 is now used for storage of non-radiological equipment.

Site Description:

- Site 4536 sits on the west corner of 12th Street and G Street.[1]
- Serviced by Time Clock 4836.
- Serviced by Guard Shack 4636.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Site 4536.[2]

Radiological Surveys:

- Radiological surveys specific to Site 4536 have not been conducted.
- This site was included in the Area IV Radiological Characterization Survey, conducted in 1994 through 1995.[3]
    - 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.

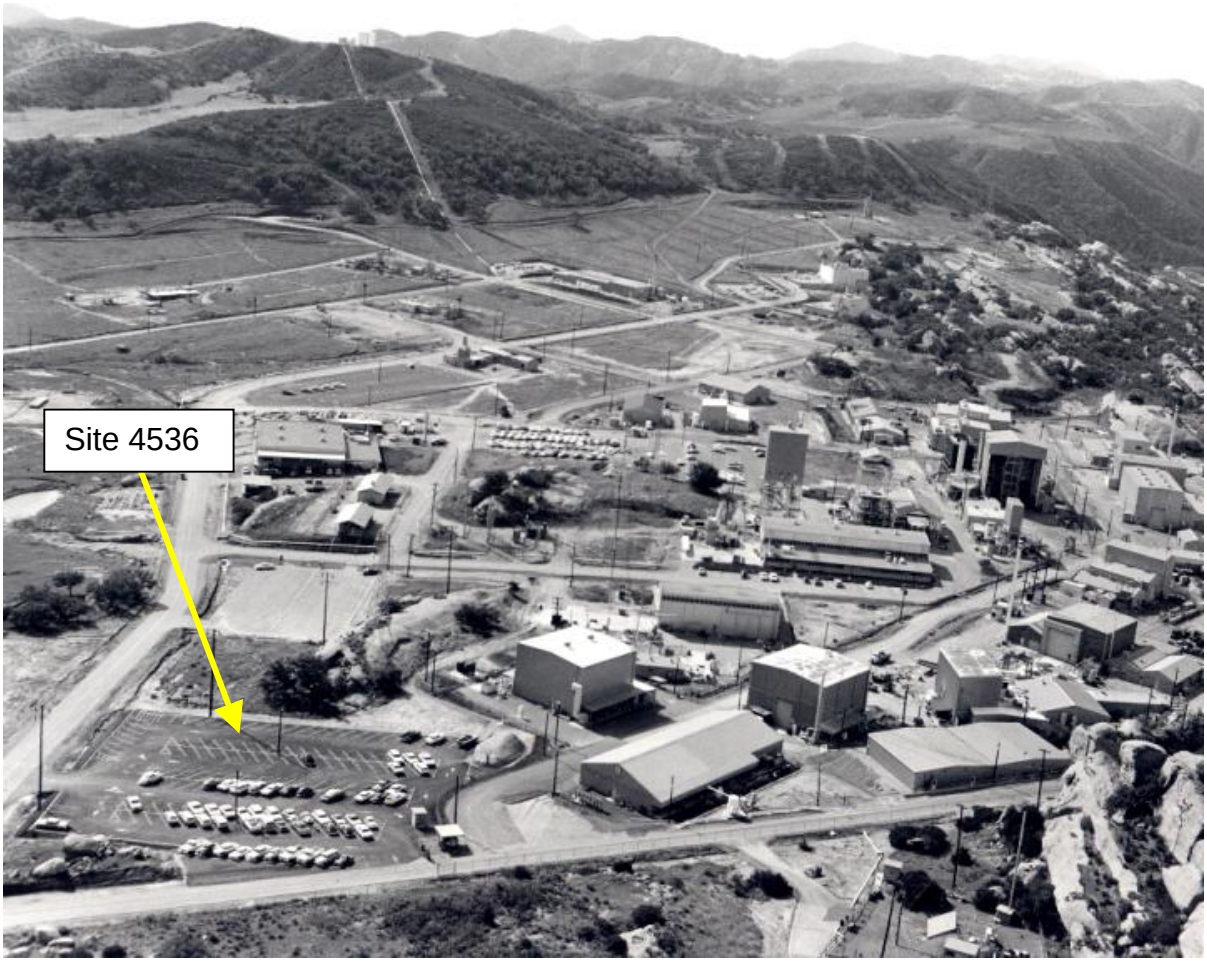
Status:

- Site 4536 is now used for storage of non-radiological equipment.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Review of Radiation Safety Records Management System, 2003.
3- Rocketdyne Document, A4CM-ZR-0011, Rev. A, Area IV Radiological Characterization Survey, August 15, 1996.
4- Historical Site Photographs from Boeing Database.

Photograph – Site 4536



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Site Summary –Site 4537

Site Identification:

Site 4537
Parking Lot

Operational Use/History:

- Constructed prior to 1962.
- Site 4537 served as a parking lot for personnel working in the SNAP facility.
- Site 4537 is now used for storage of non-radiological equipment.

Site Description:

- Site 4537 sits adjacent to the SNAP facility.[1]

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Site 4537.[2]

Radiological Surveys:

- Radiological surveys specific to Site 4537 have not been conducted.
- This site was included in the Area IV Radiological Characterization Survey, conducted in 1994 through 1995.[3]
    - 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:

- Site 4537 is now used for storage of non-radiological equipment.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Review of Radiation Safety Records Management System, 2003.
3- Rocketdyne Document, A4CM-ZR-0011, Rev. A, Area IV Radiological Characterization Survey, August 15, 1996.

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Site Summary – Building 4625

Site Identification:

Building 4625
Non-Nuclear Component Storage Building

Operational Use/History:

- Constructed in approximately 1961.
- Building 4625 operated as a Non-Nuclear Component Storage Building.
- In 1964, an addition was built onto the adjacent Building 4027, filling the gap between Building 4027 and Building 4625. From that point on, Building 4625 was considered part of Building 4027 and no longer referred to separately.[1]
    - Building 4027 was built in 1961, and was used as a vibration and shock test facility in support of the SNAP program launch schedule.[2]
    - There is no record of any activities conducted in Building 4027 involving radioactive or nuclear materials, although Building 4027 may have been used for storing completely sealed radiography sources.[2]
    - After support work for SNAP tests ceased, Building 4027 was used as storage facility.
- Building 4625 was demolished in 2003.[3]

Site Description:

- Building 4625 sat directly northwest of Building 4027.[4]
- Building 4625 measures 61 feet 9 inches x 20 feet. In 1963-1964, an addition, measuring 57 feet 9 inches x 49 feet was made to the adjacent Building 4027, filling the space between Buildings 4027 and 4625.[2]

Relevant Site Information:

- Building 4625/4027 is located in close proximity to RMHF; therefore, direct radiation and skyshine from RMHF affects ambient radiation conditions in the area.[2]
- There are no Use Authorizations and no Incident Reports associated with Building 4625/4027.[5]

Radiological Surveys:

- As part of the DOE SSFL Site Survey, Building 4625/4027 was surveyed to determine if any residual activity was accidentally left behind as a result of operations in support of the SNAP program. The high bay and storage portions of Building 4625/4027 were surveyed as separate units due to variations in ambient background.[2]

- High Bay:
  - Maximum net gamma: 3.8 μR/hr (corrected for background and statistically tested against an acceptance limit of 5 μR/hr).
  - Average net gamma: 0.46 μR/hr.
  - Based on the median value of exposure rate measurements in the vicinity of 4625/4027, the ambient background value for gross gamma was determined to be 9.09 μR/hr.
  - All beta surface activity measurements made "for indication" showed no detectable activity.
  - Based on the results of the interior survey of Building 4625/4027, the conclusion was made that this area passes the criteria for unrestricted use.
- Storage
  - Maximum net gamma: 2.8 μR/hr (corrected for background and statistically tested against an acceptance limit of 5μR/hr).
  - Average net gamma: –1.26 μR/hr.
  - Based on the median value of exposure rate measurements in the vicinity of 4625/4027, the ambient background value for gross gamma was determined to be 17.40 μR/hr.
  - All beta surface activity measurements made "for indication" showed no detectable activity.
  - Based on the results of the exterior survey of Building 4625/4027 and the storage yard, the conclusion was made that this area is not contaminated and passes the criteria for unrestricted use.

Status:

- Building 4625/4027 was demolished in 2003.[3]

References:

1- Drawing 303-027-A4, "Expansion of Non-Nuclear Mechanical Vibration and Shock Testing, Building 027 Expansion, Floor Plan, as built," 1964.
2- ETEC Document, GEN-ZR-0013, "Radiological Survey of Buildings T049, T042, T027, T032, and T025," August 26, 1988.
3- Personnel Interview, Dan Trippeda, September 23, 2003.
4- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
5- Review of Radiation Safety Records Management System, 2003.
6- Historical Site Photographs from Boeing Database.

Photograph – Building 4625 as part of 4027

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Site Summary – Building 4927

Site Identification:

Building 4927
Nitrogen Storage Tank

Operational Use/History:

- Constructed prior to 1962.[1]
- Building 4927 was most likely demolished in the 1970s, when the site began using a high-pressure nitrogen system. This involved piping in nitrogen from Area III, eliminating the need for most Area IV nitrogen storage tanks.[2]

Site Description:

- Building 4927 was located southeast of Building 4025, between Building 4924 on the east and Building 4928 on the west.[1]

Relevant Site Information:

- Building 4927 was used to store nitrogen. Documents outlining which buildings the storage tank serviced could not be located; however, the Facility Area Plan of inert gas shows that the adjacent Building 4025 was serviced by high-pressure nitrogen system. Before the system was installed, Building 4927 most likely serviced Building 4025.[3]
- There are no Use Authorizations and no Incident Reports associated with Building 4927.[4]

Radiological Surveys:

- Radiological surveys specific to Building 4927 have not been conducted.
- 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:

- Building 4927 was demolished in the 1970s.

References:

1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
2- Personnel Interview, Randy Ingersoll, September 23, 2003.
3- Drawing, 303-GEN-C254, "Santa Susana Facility Area Plan Inert Gas Master East," As Built to Date, February 22, 1991, Ref # PEWR 75184.
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.