

## Group Y

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Group Y Map

Building 4173, formerly 4865

Building 4363

Building 4375

Building 4473

Site 4575

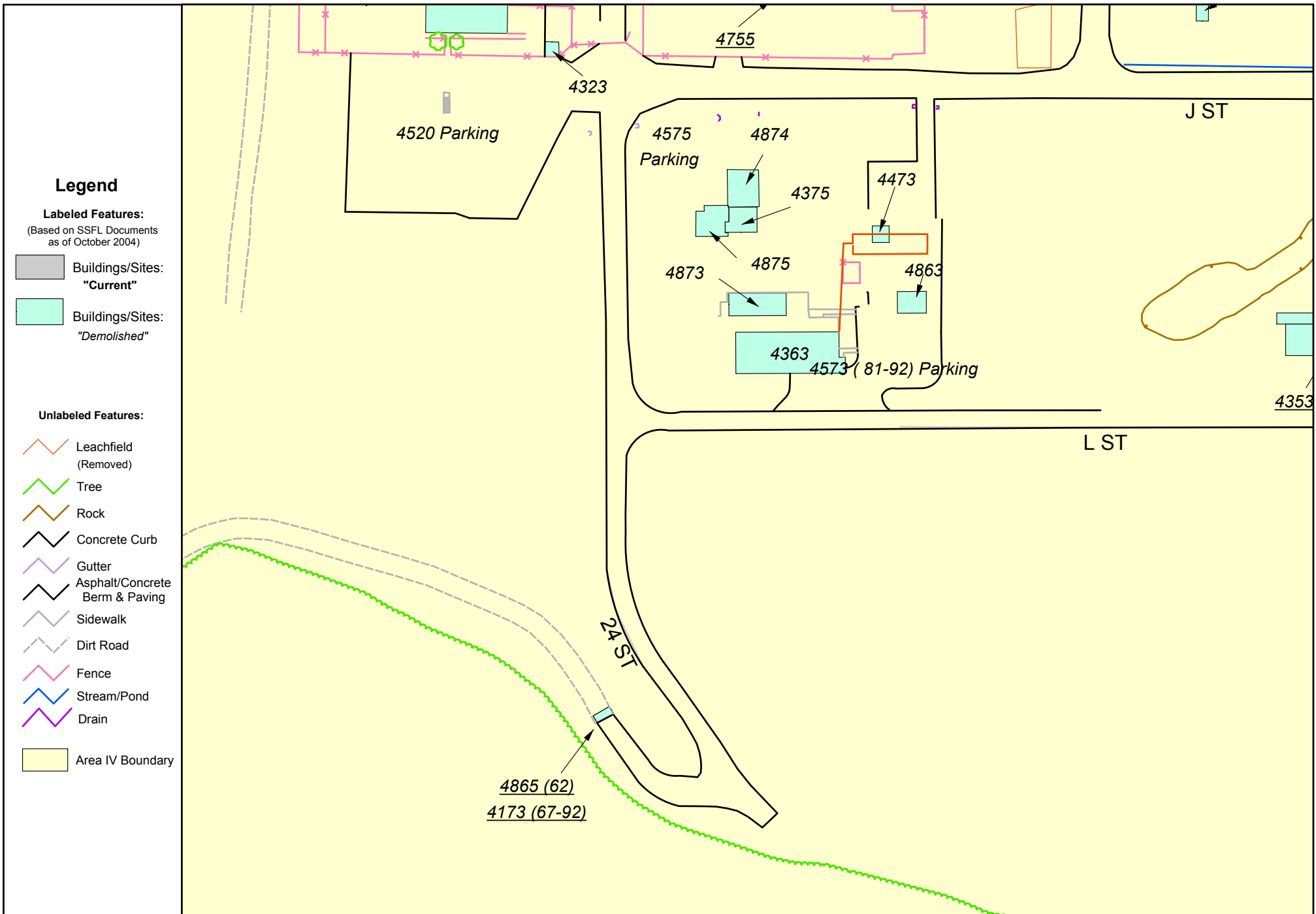
Building 4863

Building 4873

Site 4874

Site 4875

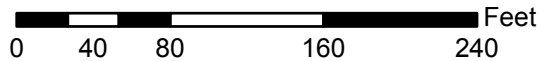
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1 inch equals 100 feet



DATE:

May 2005

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

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## Site Summary – Building 4173, formerly 4865

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### Site Identification:

Building 4173  
Gammagraph Building, Formerly 4865 Sodium Storage Pad

### Operational Use/History:

- This area was a sodium storage pad in 1962. By 1967, it was being used as Gammagraph X-ray site.<sup>1</sup>
- This pad housed a sealed gamma-emitting source used for X-ray purposes.
- Building 4173 has been demolished.

### Site Description:

- The gamma-emitting source (which was checked annually to ensure no leakage occurred) was used and stored on a concrete pad.
- There is no evidence that a permanent building ever existed in this location.<sup>2</sup>

### Relevant Site Information:

- On April 25, 1978, the stand supporting the uranium collimator was accidentally pushed over on its side, causing damage to the source guide tube. The source guide tube was replaced and two employees received two mrem of exposure in the process (A0066).

### Radiological Surveys:

- Radiological surveys specific to Building 4173 have not been conducted.
- This area was covered as part of the 1994-1995 Area IV Radiological Characterization Survey.<sup>1</sup>
  - Background: 15.6  $\mu$ R/hr.
  - Acceptable Limit: Less than 5  $\mu$ R/hr above background.
  - Survey results were below the acceptable limits.

### Status:

- The sodium pad is empty, and the Gammagraph is no longer used.

### References:

- 1- Rocketdyne Document A4CM-ZR-0011, Rev. A, Area IV Radiological Characterization Survey, August 15, 1996.
- 2- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

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## Site Summary – Building 4363

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### Site Identification:

Building 4363  
Mechanical Component Development and Counting Building  
Research and Development Laboratory Building

### Operational Use/History:

- Transferred from the Rocketdyne Division to the Atomics International (AI) Division in 1956-1957 to support expansion of the AI activities at Santa Susana Field Laboratory (SSFL).<sup>1</sup>
- The Mechanical Component Development and Counting Building and was used for sodium systems in support of the Sodium Reactor Experiment (SRE) from before 1959 until 1963.<sup>1</sup>
- Building 4363 likely had a radioactivity counting room which may have been moved from the Engineering Test Building Annex in 1957.<sup>1</sup>
- Building 4363 has been used primarily for storage since 1963.<sup>1</sup>
- A decontamination effort was conducted in 1995.<sup>2</sup>
- Building 4363 was demolished in 2001; the sanitary leachfield system was removed in 2002.

### Site Description:

- Building 4363 was a 1,400-square-foot structure with four work bays (240 square feet each) placed side by side, a rest room and several small utility rooms. Concrete walls separated the bays. The north and south walls were sheet metal with partial wall panels on the inside wall surfaces. The roof was constructed from composition panels with asphalt base topping. The building sits on a concrete foundation, which extends around the building to form a perimeter walkway and loading dock.
- Building 4363 had an associated leachfield measuring 100 x 4 x 3 feet with a septic tank capacity of 1,500 gallons.<sup>2</sup>

### Relevant Site Information:

- Building 4363 was used to support the SRE. Contamination of Building 4363 resulted from work on a component containing contaminated sodium from the SRE Core I accident, which occurred in Building 4143 in 1959. The SRE accident dispersed low enriched uranium and mixed fission products in the sodium, which was the same type of contamination found at 4363.<sup>1</sup>
- Records indicate that in 1962 work was done on a valve or pump that contained a small amount of the directly contaminated sodium coolant. Dosimetry readings of two people assigned to the building support this assertion.<sup>1</sup>

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- The primary contaminants of concern for this site are uranium, mixed fission and activation products.<sup>3</sup>

### Radiological Surveys:

- In 1992, stored equipment was removed from Bay 4 and fixed beta contamination was detected on the floor. A more comprehensive survey conducted in 1993 detected additional radioactive contamination on the west wall and overhead horizontal surfaces in Bay 4 (i.e., ducting, piping and light fixtures).<sup>4</sup>
  - Gamma spectrometry results of wall scraping indicated the presence of Cs-137 and low enrichment uranium (2.75%), and presumed Sr-90 activity. These results indicated that the activity resulted from work being performed on components containing contaminated sodium from SRE.
  - Detectable activity on the floor area ranged from 25,000 to 142,000 dpm/100 cm<sup>2</sup> beta and hot spots on the west wall ranged from 25,000 to 730,000 dpm/100 cm<sup>2</sup> beta.
  - Contamination on overhead horizontal surfaces (i.e., piping, ducts light fixtures etc.) ranged from 7,300 to 33,000 dpm/100 cm<sup>2</sup> beta.
  - The remaining part of the building was not surveyed.
- Following a decontamination effort, Rocketdyne performed a final status survey for all of Building 4363 and the surrounding area in 1995.<sup>4</sup>
  - The entire area was surveyed for total and removable alpha and beta contamination, and ambient gamma.
    - Total and removable alpha and beta limit: 5,000 and 1,000 dpm/100 cm<sup>2</sup>, respectively.
    - Ambient gamma limit: < 5 µR/hr (background was 13.1).
    - Maximum total alpha: 23.9 dpm/100 cm<sup>2</sup>.
    - Maximum removable alpha: 6.88 dpm/100 cm<sup>2</sup>.
    - Maximum total beta: 805 dpm/100 cm<sup>2</sup>.
    - Maximum removable beta: 29.9 dpm/100 cm<sup>2</sup>.
    - Maximum ambient gamma: 1.31 µR/hr above background.
- During the 1996 Area IV Radiological Characterization Survey, soil samples were taken at one location in the vicinity of Building 4363.<sup>5</sup> None of the measurements were distinguishable from background and all the measurements were below the acceptable concentration levels established by Boeing and presented in document N001SRR140131.<sup>5</sup>
- ORISE performed an independent verification survey in October 1996.<sup>3</sup>
  - Surface scans for alpha, beta and gamma activity and direct measurements for total alpha and total beta activity were performed on floors, walls, loading dock and concrete slab surrounding the building. These levels were compared to the guidelines specified in DOE 5400.1:
    - Surface scans identified one area of total maximum direct beta radiation on the north door of Bay 4, but all other areas were within the range of ambient site background.



- Total 1 m<sup>2</sup> average alpha: 79 dpm/100 cm<sup>2</sup>.
- Total 1 m<sup>2</sup> average beta: 1300 dpm/100 cm<sup>2</sup>.

Total maximum surface activity levels ranged from less than 34 to 110 dpm/100 cm<sup>2</sup> and less than 230 to 6,200 dpm/100 cm<sup>2</sup> for alpha and beta respectively. This was below the allowable maximum limits of 3,000 and 15,000 dpm/100 cm<sup>2</sup> respectively.

Removable gross alpha: < 9 dpm/100 cm<sup>2</sup>.

Removable gross beta: < 15 dpm/100 cm<sup>2</sup>.

- Exposure rate measurements ranged from 10 to 13 μR/hr.
  - Average background: 13 μR/hr.
- DHS also performed a verification survey in 1996.
- EPA conducted an oversight verification survey in 2001 for alpha and beta.<sup>6</sup> The surveys included scans and fixed point measurements for alpha and beta. In addition, the survey included swipe samples for removable contamination and concrete samples for isotopic analysis. The COCs for 4363 were mixed fission products and uranium on the floors and walls.<sup>7</sup>
  - Acceptable limits for the survey were consistent with NRC regulatory guide 1.86 and the proposed site-wide release criteria.<sup>4</sup>
  - Fixed point measurements of the building identified one point of elevated alpha and beta-gamma readings (alpha was 49.8 +/- 38 dpm/100 cm<sup>2</sup> and beta gamma was 4753 +/- 565).
  - All other results were below the acceptable limits.
  - EPA field measurements confirmed the conclusions reached by both Rocketdyne and ORISE.

#### Status:

- The California Department of Health Service (DHS) released the facility for unrestricted use July 9, 1998.<sup>6</sup>
- The building was demolished in 2001 and the sanitary leach field was removed in 2002.<sup>8</sup>

#### References:

- 1- Rockwell International, Internal Letter, "Study of Possible Source of Radioactive Contamination in T363," from R. J. Tuttle to P. D. Rutherford, September 9, 1994.
- 2- Rocketdyne Report, 363-AR-0001, "Decontamination and Decommissioning of Building T363," September 25, 1997.
- 3- ORISE Document, no document number, "Verification Survey of Building T363, SSFL, Rockwell International, Ventura County, California," Vitkus, T. J., and J. R. Morton, October 1996.
- 4- Rocketdyne Report, SSWA-ZR-0002, "Final Radiological Survey Report for Building T363," June 21, 1996.

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- 5- Rocketdyne Report, A4CM-ZR-0011, "Area IV Radiological Characterization Survey Final Report," August 15, 1996.
- 6- DHS/RHB, Untitled Letter, from David Wesley (DHS/RHB) to James Barnes. July 9, 1998.
- 7- 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.
- 8- Personnel Interview, Dan Trippeda, August 12, 2003.
- 9- Historical Site Photographs from Boeing Database.
- 10- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph – Building 4363

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## Site Summary – Building 4375

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### Site Identification:

Building 4375  
Control Shelter Building

### Operational Use/History:

- Constructed in 1959.
- The building was constructed as a test shelter for outside control-rod test towers (Sites 4874 and 4875).
- Building 4375 was used as a non-nuclear control center for testing Systems for Nuclear Auxiliary Power (SNAP) control rod assemblies.<sup>1</sup>
- After the building was abandoned, barrels were stored in the surrounding areas.<sup>1</sup>
- Demolished in 1999.

### Site Description:

- Building 4375 was a 400-square-foot steel-framed building with a steel roof and siding.

### Relevant Site Information:

- This building was used to support the SNAP program, but was not involved in nuclear work.
- After the building was abandoned, barrels that may have contained radioactive material were stored in the surrounding area.<sup>1</sup>
- There are no Incident Reports associated with Building 4375.<sup>2</sup>

### Radiological Surveys:

- In 1988, Rocketdyne performed a radiological survey in nuclear-related support facilities to determine if radioactive material was unintentionally left behind. The interior and area surrounding Building 4375 was surveyed for mixed fission products by measuring ambient gamma exposure rates.<sup>1</sup>
  - Ambient gamma limit: < 5  $\mu\text{R/hr}$  above background (background was 12-16  $\mu\text{R/hr}$ ).
  - Maximum ambient gamma: 9.3  $\mu\text{R/hr}$  in the interior of the building and 13.7  $\mu\text{R/hr}$  for the surrounding area.
  - Survey results were below the acceptable limits.

### Status:

- DHS released the facility for unrestricted use May 9, 1995.<sup>3</sup>

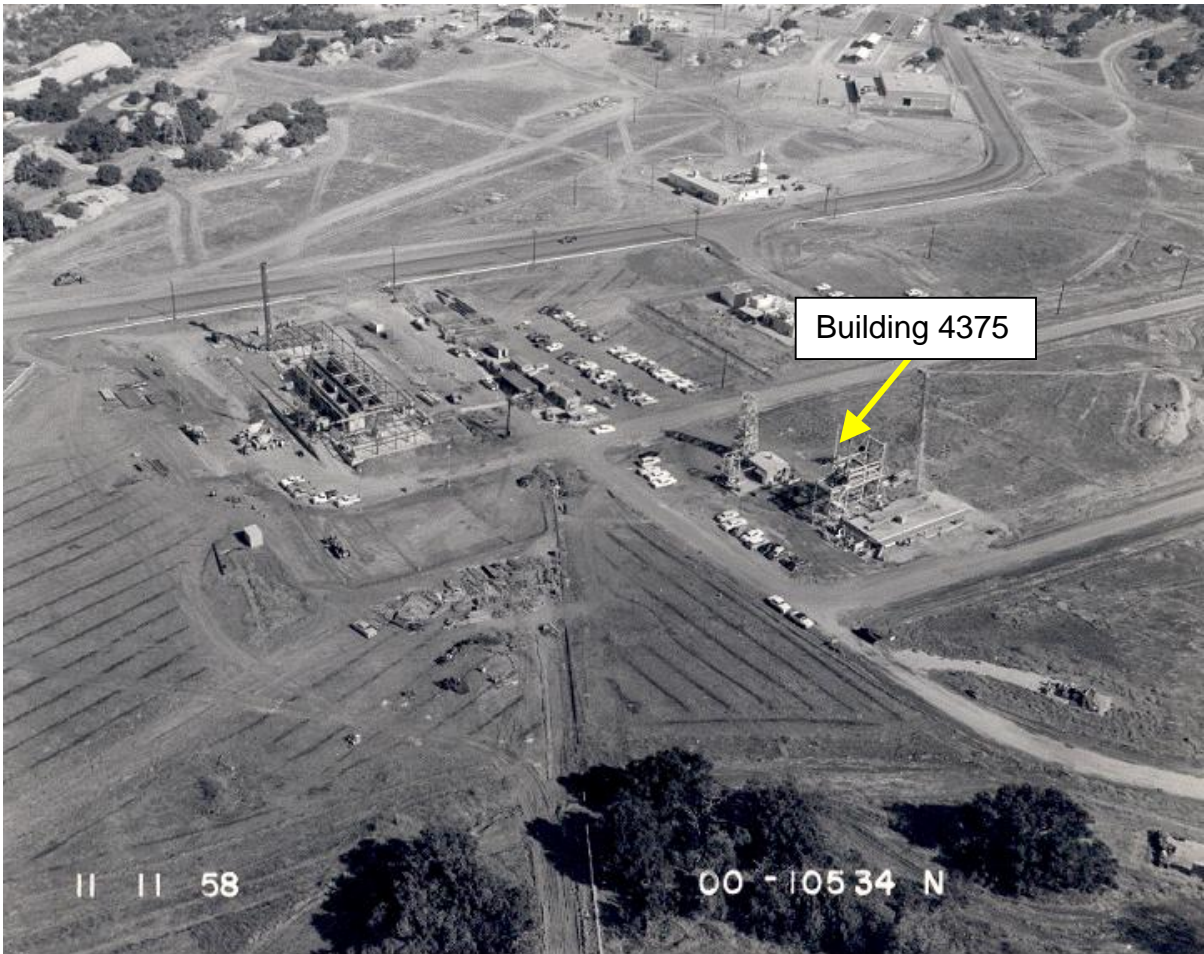
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- Building 4375 was demolished in 1999.

### References:

- 1- ETEC Document, GEN-ZR-0012, "Radiological Survey of Buildings T373 and T375," August 26, 1988.
- 2- Review of Radiation Safety Records Management System, 2003.
- 3- DHS/RHB, Untitled Letter, from G. Wong (DHS/RHB) to P. Rutherford. May 9, 1995.
- 4- Historical Site Photographs from Boeing Database.

Photograph – Building 4375



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## Site Summary – Building 4473

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### Site Identification:

Building 4473  
Hydraulic Test Instrumentation Building  
Part of Hydraulic Test Facility

### Operational Use/History:

- The Hydraulic Test Facility was used to conduct preliminary tests on piping, pumps and other loop components. Water was used, because it has a similar flow rate to liquid sodium. The tests were designed so the researchers could examine descriptors such as fatigue rates and results such as fracturing of components.<sup>1</sup>
- The Hydraulic Test Instrumentation Building was the control center for the Hydraulic Test Loop (Building 4863).
- The building was demolished in 2003.<sup>1</sup>

### Site Description:

- Building 4473 was a small structure located near the corner of K and L Streets, adjacent to Building 4863.<sup>2</sup>

### Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4473.<sup>3</sup>

### Radiological Surveys:

- Radiological surveys specific to Building 4473 have not been conducted.

### Status:

- Building 4473 was demolished in 2003.<sup>1</sup>

### References:

- 1- Personnel Interview, Dan Trippeda, September 18, 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 4473

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## Site Summary – Site 4575

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### Site Identification:

Site 4575  
Parking Lot Near Building 4375

### Operational Use/History:

- Site 4575 was a parking lot located west of Building 4375.<sup>1</sup> Building 4375 was used as a non-nuclear control center for testing SNAP control rod assemblies.<sup>2</sup>
- Site 4575 has been removed.

### Site Description:

- Site 4575 was a parking lot located west of Building 4375.

### Relevant Site Information:

- Building 4375 was used to support the SNAP program, but was not involved in nuclear work. After the building was abandoned, barrels that may have contained radioactive material were stored in the surrounding area, which may have included Parking Lot 4575.<sup>2</sup>
- There are no Use Authorizations and no Incident Reports associated with Site 4575.<sup>3</sup>

### Radiological Surveys:

- In 1988, Rocketdyne performed a radiological survey in nuclear-related support facilities to determine if radioactive material was unintentionally left behind. The area surrounding Building 4375, including the former location of Site 4575, was surveyed for mixed fission products by measuring ambient gamma exposure rates.<sup>2</sup>
  - Ambient gamma limit: < 5  $\mu\text{R/hr}$  above background (ambient background was 12-16  $\mu\text{R/hr}$ ).
  - Maximum ambient gamma exposure rate: 13.7  $\mu\text{R/hr}$  for the surrounding area.
  - Survey results were below the acceptable limits.

### Status:

- Site 4575 has been removed.

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### References:

- 1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
- 2- ETEC Document, GEN-ZR-0012, "Radiological Survey of Buildings T373 and T375," August 26, 1988.
- 3- Review of Radiation Safety Records Management System, 2003.
- 4- Historical Site Photographs from Boeing Database.

Photograph – Site 4575



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## Site Summary – Building 4863

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### Site Identification:

Building 4863  
Hydraulic Test Loop  
Part of Hydraulic Test Facility

### Operational Use/History:

- Constructed in approximately 1961.
- The Hydraulic Test Facility was used as a preliminary test for piping, pumps and other loop components. This facility combined pressure, temperature and different water in its testing. Water was used because it has a similar flow rate to liquid sodium. The tests were designed such that the researchers could examine descriptors such as fatigue rates and results such as fracturing.<sup>1</sup>
- The Hydraulic Test Loop was the experimental loop portion of the facility.
- The building was demolished in 2003.<sup>1</sup>

### Site Description:

- Building 4863 was a 400-square-foot facility. The frame, siding and roof are all steel and anchored to a concrete pad.<sup>2</sup>

### Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4863.<sup>3</sup>

### Radiological Surveys:

- Radiological surveys specific to Building 4863 have not been conducted.

### Status:

- Building 4863 was demolished in 2003.<sup>1</sup>

### References:

- 1- Personnel Interview, Dan Trippeda, September 18, 2003.
- 2- ERDA Document, LR-03026, Part 1, "Site Development Plan: 1977-1981," June 1975.
- 3- Review of Radiation Safety Records Management System, 2003.
- 4- Historical Site Photographs from Boeing Database.

Photograph – Building 4863

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## Site Summary – Building 4873

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### Site Identification:

Building 4873  
Hydraulic Test Laboratory  
Fuel Rod Test Tower and Pad  
Part of Hydraulic Test Facility

### Operational Use/History:

- Building 4873 first appears and is labeled the Fuel Rod Test Tower and Pad on the 1967 map.<sup>1</sup> There is no record of any activity with fuel rods at this location. Building 4873 is most likely a pad located directly north of Building 4363 and is addressed in that building remediation and release.<sup>2</sup>
- The Hydraulic Test Facility was used as a preliminary test for piping, pumps and other loop components. This facility combined pressure, temperature and different types of water in its testing. Water was used because it has a similar flow rate to liquid sodium. The tests were designed so that researchers could examine descriptors such as fatigue rates and results such as fracturing.<sup>2</sup> The Hydraulic Test Laboratory was where the engineers established the parameters of the experiment.<sup>3</sup>
- Building 4873 was demolished in 2003.<sup>4</sup>

### Site Description:

- Building 4873 was located near the corner of K and L Streets, just north of Building 4363.<sup>1</sup>

### Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Building 4873.<sup>5</sup>

### Radiological Surveys:

- During the 1996 Area IV Radiological Characterization Survey, soil samples were taken at one location in the vicinity of Building 4873. None of the measurements were distinguishable from background and all the measurements were below the acceptable concentration levels established by Boeing and presented in document N001SRR140131.<sup>6</sup>
- Radiological surveys specific to Building 4873 have not been conducted.

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### Status:

- Building 4873 was demolished in 2003.<sup>4</sup>

### References:

- 1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
- 2- Personnel Interview, Phil Rutherford, September 18, 2003.
- 3- Personnel Interview, Del Aubuchon, September 18, 2003.
- 4- Personnel Interview, Dan Trippeda, September 18, 2003.
- 5- Review of Radiation Safety Records Management System, 2003.
- 6- Rocketdyne Document, A4CM-ZR-0011, Rev. A, "Area IV Radiological Characterization Survey," August 15, 1996.

## Site Summary – Site 4874

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### Site Identification:

Site 4874  
Control Rod Test Tower and Pad

### Operational Use/History:

- Constructed in the late 1950s.
- Site 4874 was used as a non-nuclear facility for testing SNAP control rod assemblies for the Piqua Organic Moderated Reactor (OMR) through 1968.<sup>1</sup>
- The tower was dismantled and equipment including tanks, piping valves, instrumentation, controls, etc. were removed following completion of testing.
- After the testing was completed, the area was used for barrel storage.

### Site Description:

- Building 4874 was a test tower north of 4375.<sup>2,3</sup>

### Relevant Site Information:

- Building 4874 was used to support the SNAP program, but was not involved in nuclear work. After the building was demolished, barrels that may have contained radioactive material were stored in the surrounding area.<sup>1</sup>
- There are no Use Authorizations and no Incident Reports associated with Building 4874.<sup>4</sup>

### Radiological Surveys:

- In 1988, Rocketdyne performed a radiological survey in nuclear-related support facilities to determine if radioactive material was unintentionally left behind. The area surrounding Building 4375, including the former location of Site 4874, was surveyed for mixed fission products by measuring ambient gamma exposure rates.<sup>1</sup>
  - Ambient Gamma limit: < 5  $\mu\text{R/hr}$  above background (ambient background was 12-16  $\mu\text{R/hr}$ ).
  - Maximum ambient gamma: 13.7  $\mu\text{R/hr}$  for the surrounding area.
  - Survey results were below the acceptable limits.
- During the 1996 Area IV Radiological Characterization Survey, soil samples were taken at one location in the vicinity of Building 4874. None of the measurements were distinguishable from background and all the measurements were below the acceptable concentration levels established by Boeing and presented in document N001SRR140131.<sup>5</sup>

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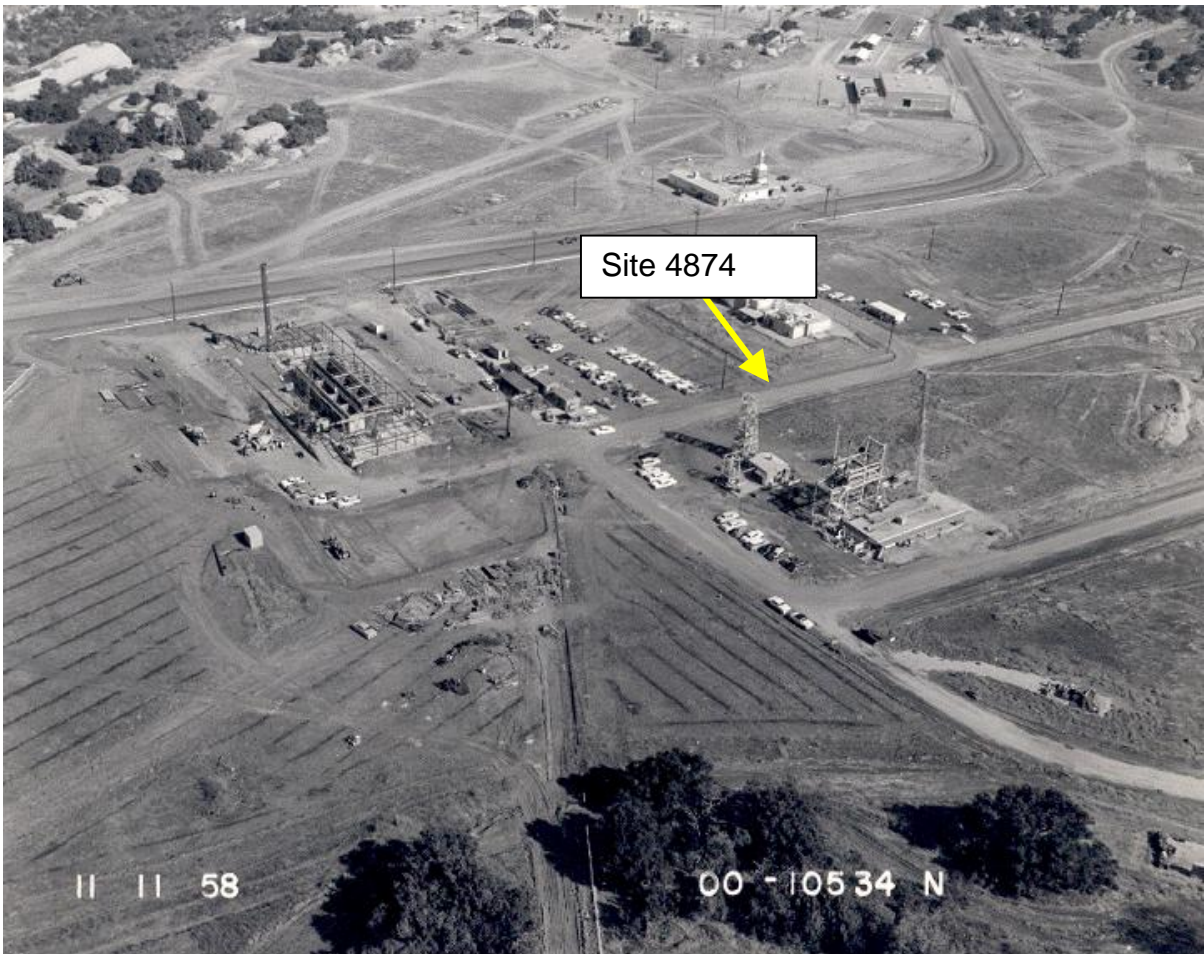
### Status:

- Building 4874 was demolished in the early 1970s.

### References:

- 1- ETEC Document, GEN-ZR-0012, "Radiological Survey of Buildings T373 and T375," August 26, 1988.
- 2- Historical Site Photographs from Boeing Database.
- 3- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
- 4- Review of Radiation Safety Records Management System, 2003.
- 5- Rocketdyne Report, A4CM-ZR-0011, "Area IV Radiological Characterization Survey Final Report," August 15, 1996.

Photograph –Site 4874



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## Site Summary – Site 4875

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### Site Identification:

Site 4875  
Pad and Creep Loop Tower

### Operational Use/History:

- Constructed in the late 1950s.
- Site 4875 was a non-nuclear facility used to test SNAP control rod assemblies for the Piqua OMR through 1968.<sup>1</sup>
- Demolished in the middle 1970s.

### Site Description:

- Site 4875 was a control test tower located west of Building 4375.<sup>2,3</sup>

### Relevant Site Information:

- Site 4875 was used to support the SNAP program, but was not involved in nuclear work. However, due to the proximity of Building 4374 (a nuclear facility), radioactive and/or nuclear materials may have been handled there. In addition, after the building was abandoned, barrels that may have contained radioactive material were stored in the surrounding area.<sup>1</sup>
- There are no Use Authorizations and no Incident Reports associated with Site 4875.<sup>4</sup>

### Radiological Surveys:

- In 1988, Rocketdyne performed a radiological survey in nuclear-related support facilities to determine if radioactive material was unintentionally left behind. The area surrounding Building 4735, including the former location of Site 4875 was surveyed for mixed fission products by measuring ambient gamma exposure rates:<sup>1</sup>
  - Ambient gamma limit: < 5  $\mu\text{R/hr}$  above background (ambient background was 12-16  $\mu\text{R/hr}$ ).
  - Maximum ambient gamma: 9.3  $\mu\text{R/hr}$  in the interior of the building and 13.7  $\mu\text{R/hr}$  for the surrounding area.
  - Survey results were below the acceptable limits.

### Status:

- Building 4875 was demolished in the early 1970s.

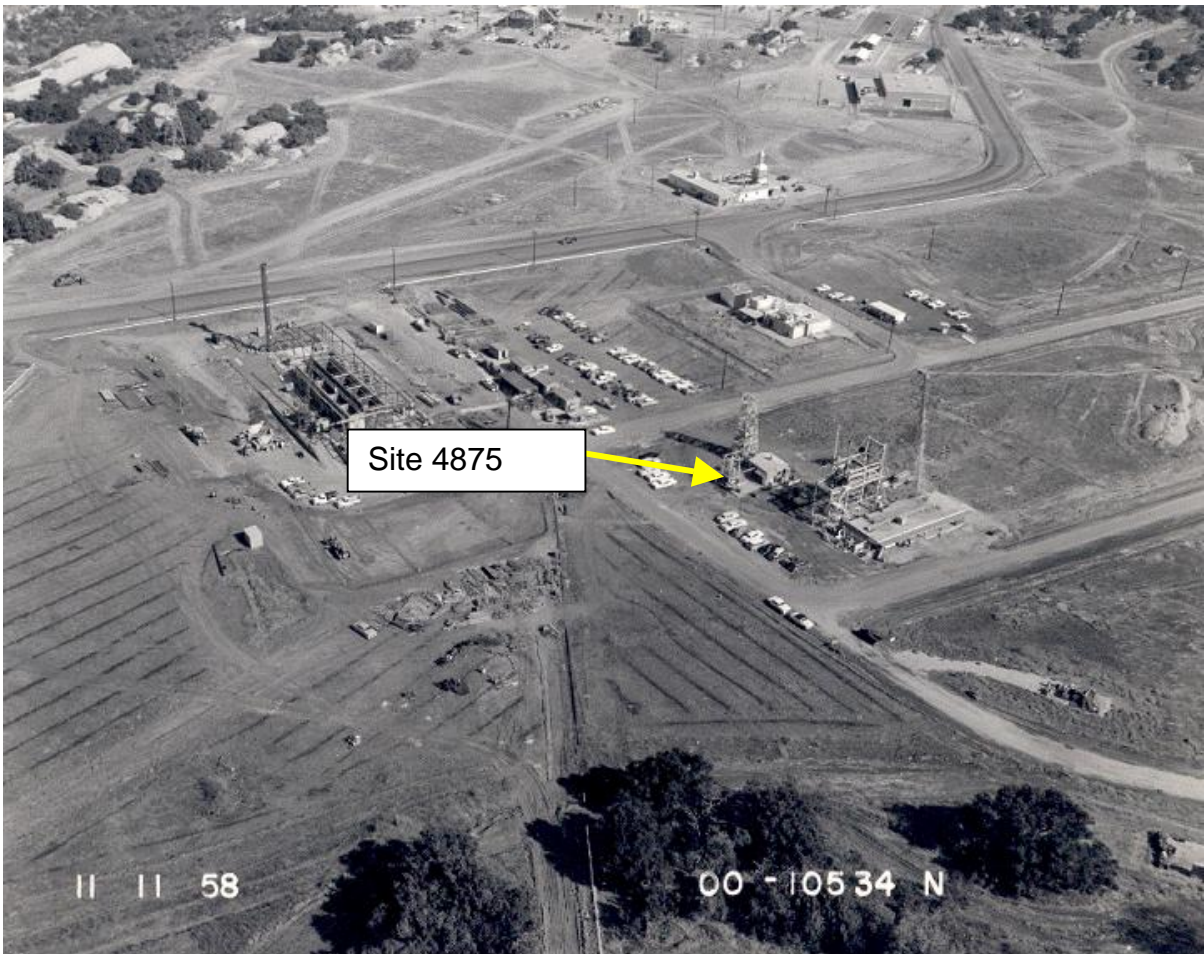
## Group Y

### References:

- 1- ETEC Document, GEN-ZR-0012, "Radiological Survey of Buildings T373 and T375," August 26, 1988.
- 2- Historical Site Photographs from Boeing Database.
- 3- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
- 4- Review of Radiation Safety Records Management System, 2003.



Photograph – Site 4875



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