

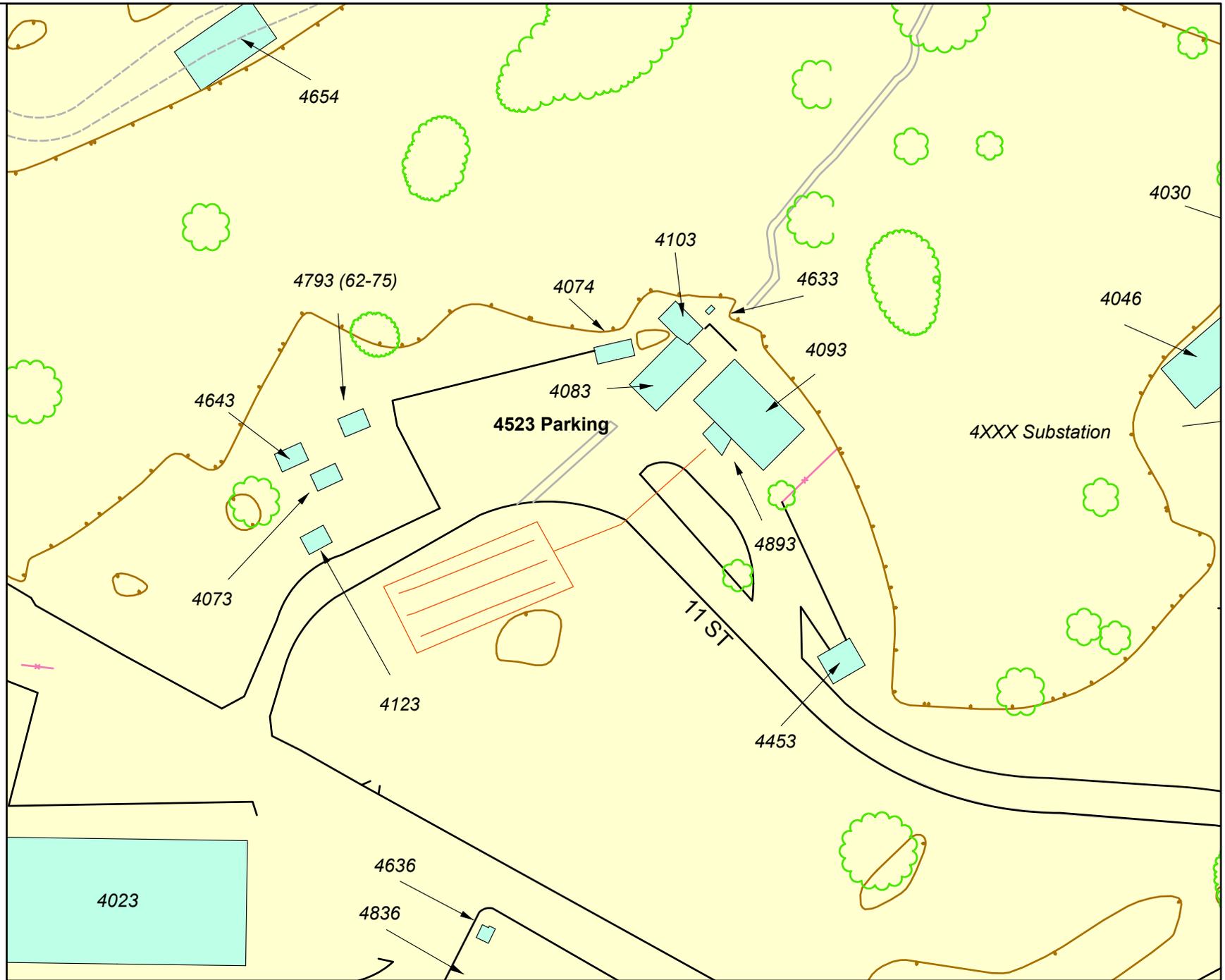
Legend

Labeled Features:
 (Based on SSFL Documents
 as of October 2004)

-  Buildings/Sites:
"Current"
-  Buildings/Sites:
"Demolished"

Unlabeled Features:

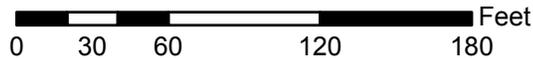
-  Leachfield
(Removed)
-  Tree
-  Rock
-  Concrete Curb
-  Gutter
-  Asphalt/Concrete
Berm & Paving
-  Sidewalk
-  Dirt Road
-  Fence
-  Stream/Pond
-  Drain
-  Area IV Boundary



DRAWN BY:



1 inch equals 75 feet



DATE:

May 2005

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

Site Summary – Building 4093

Site Identification:

Building 4093
Neutron Radiography Building
AE-6 Reactor
Reactor L-85
Includes Site 4893, Pad (AE-6)

Operational Use/History:

- Constructed in 1958.
- Building 4093 was constructed to house the AE-6 Reactor.
- The AE-6 Reactor was originally called the Water Boiler Neutron Source (WBNS) reactor. Built in 1952 in Downey, CA, the WBNS had a maximum power of 0.5 Wt. The WBNS was modified to produce a maximum power of 3 kWt and moved to Santa Susana Field Laboratory (SSFL), where it was referred to as the AE-6 Reactor.
- Ownership was transferred from AEC to Rockwell in 1972, and the reactor was renamed L-85.
- The NRC licensed the facility in 1972 (R-118 Docket No. 50-375) and it operated until February 29, 1980.¹
- Demolition began in 1982 with removal of uranyl sulfate. The rest of the building, excluding the foundation, was demolished in 1995.
- The sanitary leachfield for Building 4093 was removed in 1999.
- The site was released for unrestricted use by NRC and the NRC license was terminated March 19, 1987.²

Site Description:

- Building 4093 was constructed of steel beam frames, wood frames, sheet metal and concrete. It contained a 12 x 31-foot control room and a 31 x 38-foot high bay. The reactor had various forms of concrete structures for shielding (e.g., logs, blocks and walls).³ The building was connected to a sanitary leach field, which was removed in 1999.
- Serviced by Pad 4893.

Relevant Site Information:

- Reactor fuel for the L-85/AE-6 reactor consisted of U-235 (93.11% enrichment), dissolved as uranyl sulfate in 12.5l of 0.35 molar H₂SO₄ solution.³ The radionuclides of concern are Co-60, Cs-137, Eu-152, Eu-154, Sr-90, U-238 and U-235.

Group H

- There have been three incidents associated with Building 4093 that may have resulted in a release to the environment:
 - On March 25, 1959, fission gas was released into the air, contaminating part of the high bay and employees. Contamination levels were measured from 7.5 mR/hr to 13 mR/hr (A0275).
 - On July 30, 1982, rinse water contaminated with 5 ml of U-235 was spilled during the fuel draining operation, contaminating an employee and an area of the high bay floor. The area was partially decontaminated at the time and fully decontaminated during facility decommissioning (A0106).
 - On May 24, 1995, a radioactive high efficiency particulate air (HEPA) filter was found in a pile of debris. The filter was taken to RMHF, where it was packaged for disposal as low-level radioactive waste (A0661).

Radiological Surveys:

- In 1985, Rocketdyne conducted a final radiological survey, releasing the final report in March 1986. (The survey included buildings 4073, 4074, 4083, 4084, 4093, 4453 and 4453).¹
 - Soil samples showed no evidence of radioactivity due to facility operations.
 - Maximum average alpha: 63.0 dpm/100cm² (limit is 5,000 dpm/100cm²).
 - Maximum average beta: 3102 dpm/100cm² (limit is 5,000 dpm/100cm²).
 - The maximum ambient exposure rate was originally found to be 21.3 µR/hr (limit is 18.9 µR/hr). The concrete was removed from areas measuring over the limit and the re-survey showed them all to be under the limit, with the highest measurement at 18.2 µR/hr.
 - Survey results were below the acceptable limits.
- Oak Ridge Associated Universities conducted a confirmatory survey in 1986; the final report was released in December 1986. (The survey included Buildings 4073, 4084, 4093 and 4453.)⁴
 - The survey concluded that the L-85 reactor building (4093) had been remediated to the existing NRC criteria with the exception of exposure rate criteria. Restoration of the remediated area would reduce the exposure rate to the levels established by the Dismantling Order.
- NRC conducted a decommissioning inspection in 1987. The results of the inspection determined the maximum exposure rate to be below the limit of 5 µR/hr above background, meeting the criteria for unrestricted use.⁵
- In 1999, confirmatory samples collected after the removal of the septic tank found no detectable activity (limit was 20 dpm/100cm² for alpha and 100 dpm/100 cm² for beta).⁶

Status:

- NRC released site for unrestricted use March 19, 1987.²
- The facility was demolished leaving only the foundation in 1995.

References:

- 1- Rocketdyne Report, N001SSR140087, "Radiation Survey for Release for Unrestricted Use – L-85 Reactor Facility," March 6, 1986.
- 2- Letter from F.J. Miraglia (NRC) to M.E. Remley, "Order Terminating Facility License R-118, for the Rockwell International L-85 Nuclear Examination Reactor," April 8, 1987.
- 3- Atomics International Document, AI-70-73, "Safety Analysis Report for L-85 Nuclear Examination Reactor," November 25, 1970.
- 4- Oak Ridge Associated Universities, no document number, "Confirmatory Radiological Survey of the L-85 Reactor Facility, Rocketdyne Division, Rockwell International Corporation, Santa Susana, California," December 1986.
- 5- Letter from Frank Wenslawski (NRC Region V) to Herbert Berkow, "Closeout Inspection for Rockwell International L-85 Reactor, Docket No. 50-375," March 19, 1987.
- 6- Boeing Radiation Survey Reports, L-85 Facility Septic Tank Area, July and September 1999.
- 7- Historical Site Photographs from Boeing Database.
- 8- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.

Photograph 1 – Building 4093



Photograph 2 – Building 4093

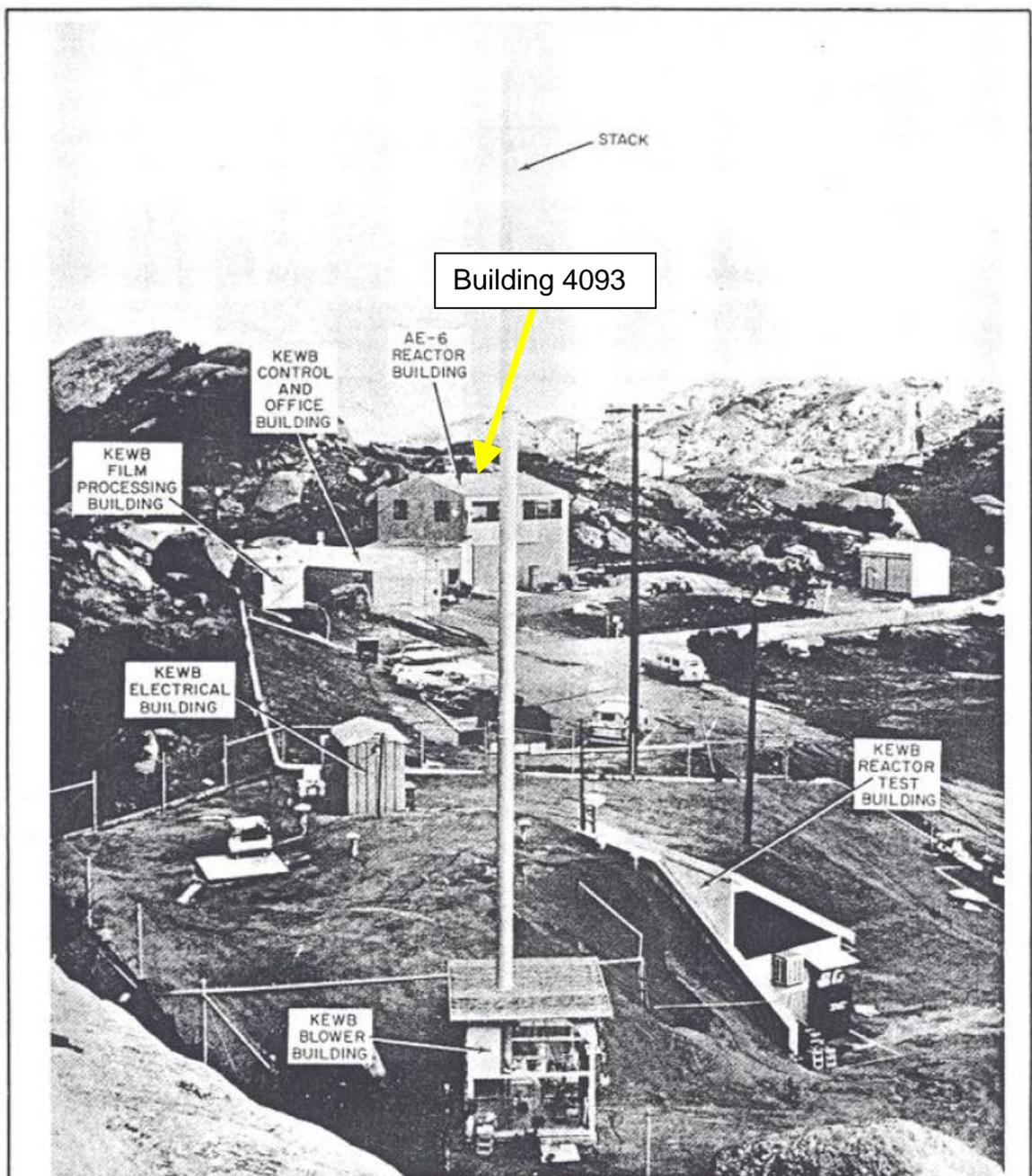


Figure 2 - Photograph of Kinetic Experiment Water Boiler Area and Facilities

FORM 719-P REV. 3-73

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Site Summary – Building 4453

Site Identification:

Building 4453
AE-6 Fuel Handling Building

Operational Use/History:

- Constructed in 1958.
- Fuel for the L-85 reactor in the form of uranyl sulfate was handled in Building 4453.
- Ownership of Building 4453 was transferred from AEC to Rockwell in 1972.
- The NRC licensed the facility on January 5, 1972 (R-118 Docket No. 50-375).¹
- Demolished in 1980. The foundation and concrete remain.
- Building 4453 was released for unrestricted use by NRC and the NRC license terminated March 19, 1987.²

Site Description:

- Building 4453 consisted of a steel frame covered in sheet metal.³

Relevant Site Information:

- Fuel for the L-85 reactor in the form of uranyl sulfate was handled in Building 4453. Accordingly, the contaminant of concern is uranium.¹
- There are no Use Authorizations associated with Building 4453.⁴
- No incidents in which contamination may have been released the environment occurred in Building 4453.⁴

Radiological Surveys:

- In 1985, Rocketdyne conducted a final radiological survey, releasing the final report in March 1986. (The survey included Buildings 4073, 4074, 4083, 4084, 4093, 4453 and 4453).¹
 - Soil samples showed no evidence of radioactivity due to facility operations.
 - Maximum average alpha: 17.2 dpm/100cm² (limit is 5,000 dpm/100cm²).
 - Maximum average beta: 1987 dpm/100cm² (limit is 5,000 dpm/100cm²).
 - The maximum ambient exposure rate was originally found to be 23.1 μR/hr (limit is 18.9 μR/hr). The ambient exposure rates over the limit were attributed to the nearby RMDF and do not represent residual contamination.
 - Survey results were below the acceptable limits.
- NRC conducted a decommissioning inspection in 1987. Results of the inspection determined the maximum exposure rate to be below the limit of 5 μR/hr above background meeting the criteria for unrestricted use.⁵

Group H

Status:

- NRC released Building 4453 for unrestricted in 1987.²
- Building 4453 was demolished in 1995.

References:

- 1- Rocketdyne Report N001SSR140087, "Radiation Survey for Release for Unrestricted Use – L-85 Reactor Facility," March 6, 1986.
- 2- Letter from F.J. Miraglia (NRC) to M.E. Remley, "Order Terminating Facility License R-118, for the Rockwell International L-85 Nuclear Examination Reactor," April 8, 1987.
- 3- Atomics International Document, AI-70-73, "Safety Analysis Report for L-85 Nuclear Examination Reactor," November 25, 1970.
- 4- Review of Radiation Safety Records Management System, 2003.
- 5- Letter from Frank Wenslawski (NRC Region V) to Herbert Berkow, "Closeout Inspection for Rockwell International L-85 Reactor, Docket No. 50-375," March 19, 1987.
- 6- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
- 7- Historical Site Photographs from Boeing Database.

Photograph – Building 4453



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Site Summary – Parking Lot 4523

Site Identification:

Site 4523
Parking Lot

Operational Use/History:

- Constructed in the 1950s.^{1,2}
- Site 4523 was a parking lot used by personnel working in L-85, KEWB and the adjacent facilities.
- Site 4523 was demolished.^{1,2}

Site Description:

- Site 4523 was located between the L-85 and KEWB facilities.

Relevant Site Information:

- There are no Use Authorizations and no Incident Reports associated with Site 4523.³

Radiological Surveys:

- Radiological surveys specific to Site 4523 have not been conducted.

Status:

- Site 4523 has been demolished, and the area is now covered with vegetation.

References:

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

Photograph – Site 4523

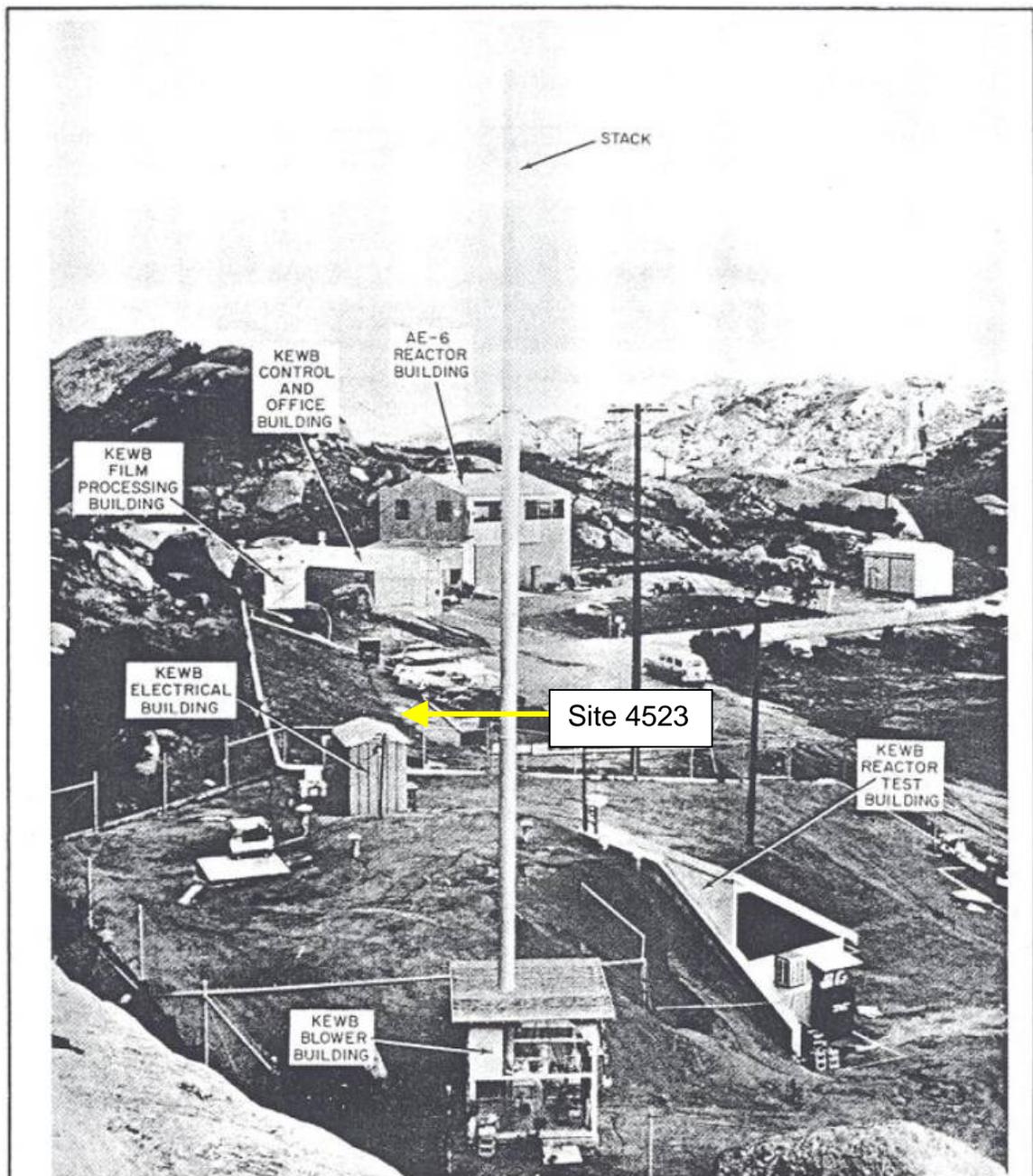


Figure 2 - Photograph of Kinetic Experiment Water Boiler Area and Facilities

FORM 719-P REV. 3-73

Site Summary – Site 4633

Site Identification:

Site 4633
Reactor Cooling Water Pad

Operational Use/History:

- Constructed prior to 1962.¹
- There is no record of activities associated with Site 4633.
- Demolished in the late 1980s.

Site Description:

- Site 4633 was located northeast of Parking Lot 4523.

Relevant Site Information:

- Regulated radiological materials were not handled in Site 4633.
- There are no Use Authorizations and no Incident Reports associated with Site 4633.²

Radiological Surveys:

- Radiological surveys specific to Site 4633 have not been conducted.

Status:

- Site 4633 was 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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