

Site Summary – Building 4886

Site Identification:

Sodium Disposal Facility (Sodium Burn Pit)
Building 4886

Operational Use/History:

- Constructed in the early to middle 1950s.¹
- From 1956 to 1978, the facility was used to clean non-radioactive metallic sodium and NaK from various scrap test components before they were disposed. It was also used to treat non-radioactive waste sodium and NaK and to burn non-radioactive combustible liquid waste, such as oils.
- The site has been remediated and re-vegetated.²

Site Description:

- Building 4886 consisted of a large, rectangular pit filled with water. This pit was surrounded by a concrete slab; shallow water-filled, unlined basins; a small building; and steam lance cleaning equipment.²

Relevant Site Information:

- The facility was not designed to use or store radioactive materials; however, during the course of normal treatment and disposal operations, radioactive materials were inadvertently introduced into the facility. This resulted in contamination of the soil.²
- In the 1960s, storage drums at the site were found contaminated with residual radioactivity. As a result, the site was sampled for radiological constituents. In 1978, contaminated scrap was removed from the facility. Following the scrap removal, soil sampling determined the pit was also radiologically contaminated.²
- On October 6, 1978, three contaminated sodium barrels were found in the sodium burn pit. The barrels had a maximum activity of 1 mrad/hr. The barrels were removed, and taken to the RMHF for disposal (A0075).

Radiological Surveys:

- After the discovery of contaminated items at the site, periodic radiation surveys and soil samples were performed during 1978-1983.²
 - Based on process history, the contaminants of concern are Cs-137, Sr and Th.
 - Results indicated low levels (56 pCi/g maximum) of radioactive contamination (principally Cs-137), primarily in the lower pond.

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- Contamination was not identified in areas outside the ponds.
- A comprehensive radiological survey was performed by Rocketdyne in 1987-1988 in areas surrounding the two open pits.³
 - No evidence of radiological contamination was found in surrounding areas.
 - Ambient gamma limits: 5 $\mu\text{R/hr}$ above background.
 - Soil activity limits: 46 pCi/g alpha, 100 pCi/g beta.
 - Water activity concentration limits: 1×10^{-4} $\mu\text{Ci/ml}$ alpha, 1×10^{-5} $\mu\text{Ci/ml}$ beta.
- In 1991, the California Regional Water Quality Control Board (RWQCB) issued an order under the California Toxic Pit Cleanup Act (TPCA) to remove all chemically contaminated material from the lower pond.
- A radiological survey to establish baseline levels of radioactivity at the burn pit was performed by Rocketdyne in 1992, including the upper and lower ponds, the western area, and northern drainage areas.⁴
 - Elevated radiation levels were found in the lower pond, with a maximum of 27.5 $\mu\text{R/hr}$ (approximately twice natural background levels).
- In 1992, all soil from the lower pond was excavated down to bedrock. Hazardous, radioactive and mixed waste soils were separated from clean soil for disposal offsite.
- On March 24, 1993, the California Regional Water Quality Control Board (RWQCB) sampled the lower pond to confirm all contamination had been removed.⁵
 - All analyses indicated that only background levels of radioisotopes remained.
- In 1993, Rocketdyne performed limited excavation in the upper pond and western areas based on locations of identified buried debris.
 - Although most of the soil was clean, some soil and debris was identified as contaminated and disposed of as radioactive waste. Contaminants found in the radiological waste soil included Cs-137, Sr-90, uranium isotopes, thorium isotopes, plutonium isotopes and tritium.
- On June 10, 1993, the California Department of Health Services (DHS) took confirmation soil samples from the lower pond and upper pond.^{6,7}
 - No contamination above natural background was found.
- Rocketdyne performed a final radiation exposure survey of the facility in 1994.⁸
 - No contamination was detected.
- In 1995, an independent contractor (ICF Kaiser) performed soil and bedrock sampling of the upper pond, lower pond, western area and both drainage channels. The Oak Ridge Institute of Science and Education analyzed these samples.²
 - The majority was at or below background levels.
 - Three samples (out of 78) were slightly above background for the area (Maximum contamination was 0.57 pCi/g of Cs-137), but well below regulatory agency approved residential cleanup standards.

- Rocketdyne prepared and submitted a soil sample report to DHS that recommended release of the facility for unrestricted use.⁹
- During the 1996 Area IV Radiological Characterization Survey, soil samples were taken at six different locations in the vicinity of the Former Sodium Disposal Facility (FSDF). 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 N001SRR140131.¹⁰
- On July 26, 1996, DHS took soil samples from the lower pond and drainage channels.¹¹
 - Results showed no radiological contamination above background.
- On September 16, 1997, DHS took soil samples (surface and sub-surface core samples) from the upper pond and western area.^{12,13}
 - Results showed no radiological contamination above background.
- Following confirmation sampling, the area was backfilled and revegetated.

Status:

- The site has been remediated and revegetated.
- DHS released the facility for unrestricted use in May 1998.^{14,2}

References:

- 1- SSFL Area IV, ETEC Industrial Planning Maps, 1962-1992.
- 2- DOE Document, RD99-179 DOE/CD-ETEC-4886, "Draft Docket For The Release Of Building 4886 As Part Of The ETEC Closure," September 1999, Revised 2000.
- 3- ETEC Document, GEN-ZR-0004, "Radiological Survey of the Sodium Disposal Facility – Building T886," June 27, 1988.
- 4- Rocketdyne Report, N704SRR990034, "Baseline Radiological Survey of the Sodium Disposal Facility (T886)," August 31, 1992.
- 5- RWQCB, no document number, "Summary Table of CEP Results of Samples Taken by RWQCB," March 24, 1993.
- 6- California DHS/RHB, Internal memorandum, "Soil Released from Lower Pond of Sodium Burn Pit at SSFL," from S. Hsu, June 17, 1993.
- 7- DHS/RHB Laboratory Results, February 14, 1994.
- 8- Rocketdyne Report, 886-ZR-0007, "Post-Remediation Ambient Gamma Radiological Survey of the Former Sodium Disposal Facility (T886)," January 5, 1995.
- 9- Rocketdyne Report, 886-ZR-0009, "Post-Remediation Soil Sampling and Analysis for the Former Sodium Disposal Facility (T886)," Revision A, April 8, 1997.
- 10- Rocketdyne Report, A4CM-ZR-0011, "Area IV Radiological Characterization Survey Final Report," August 15, 1996.
- 11- California DHS/RHB, Internal memorandum, "Comparison of Soil Results for Sodium Burn Pit Area," from H. Kocol to F. Toyoma, December 30, 1996.
- 12- California DHS/RHB, Survey Report, "Confirmatory Survey: Soil Samples from the Former Sodium Disposal Facility," September 16, 1997.

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- 13- California DHS/RHB, Internal memorandum, "Former Sodium Disposal Facility Located at Area IV Santa Susana Field Laboratory – ETEC," from R. Lupo to F. Toyoma, May 1, 1998.
- 14- DHS/RHB, letter, "Confirmation of the release of the Sodium Disposal Facility for unrestricted use," from G. Wong (DHS/RHB) to P. Rutherford. May 15, 1998.
- 15- Historical Site Photographs from Boeing Database.

Photograph – Building 4886 and Surroundings



Legend

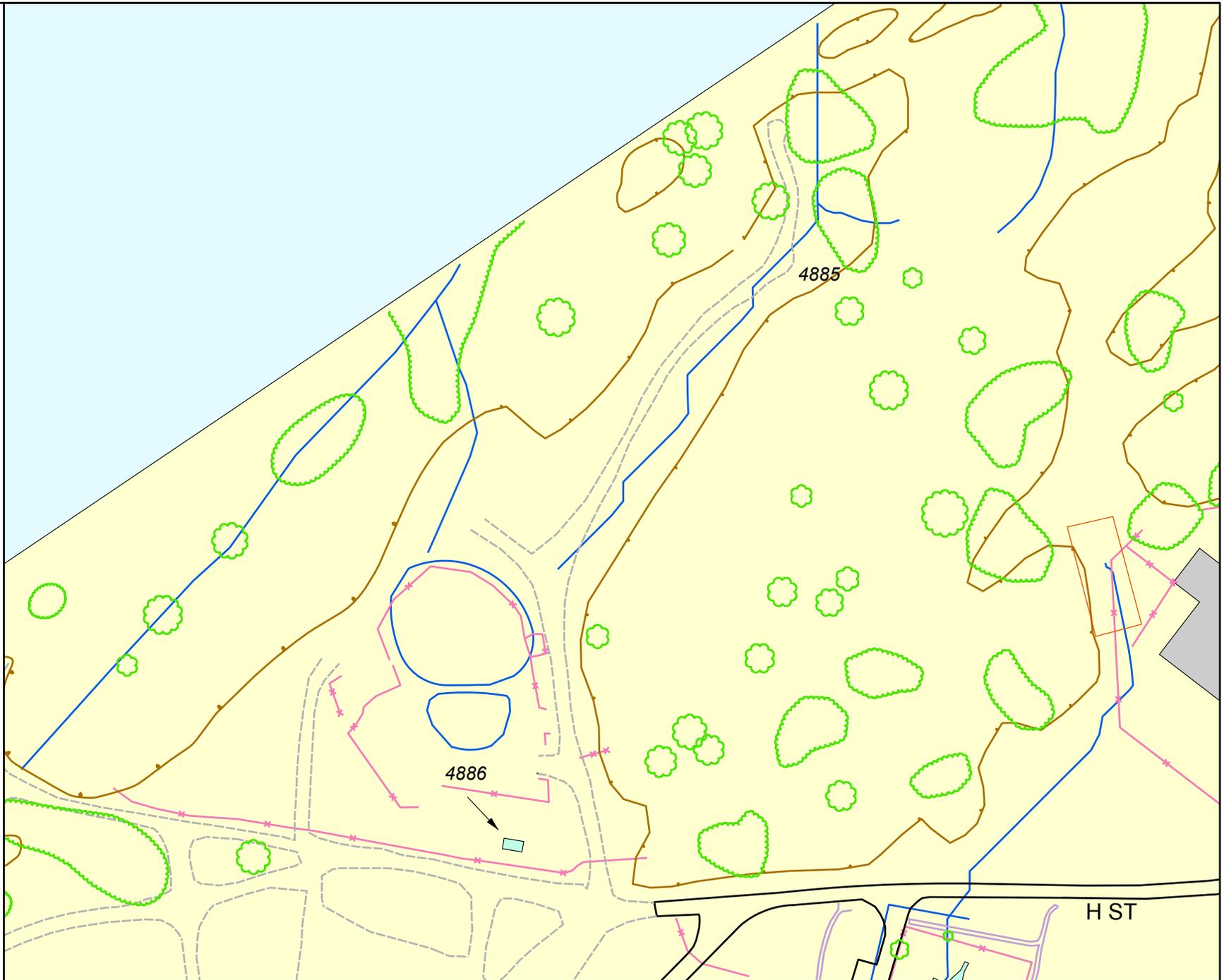
Labeled Features:
(Based on SSFL Documents
as of October 2004)

 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:

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1 inch equals 125 feet



DATE:

May 2005

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AREA IV
Santa Susana Field Laboratory, CA