

# What was SNAP?

## Systems for Nuclear Auxiliary Power

Program initiated in 1955 to develop nuclear power for use in space.

*“The SNAP 8 Electric Power Generation System will provide power for advanced space missions, such as lunar stations or orbiting space platforms and for interplanetary communications.”*

—John F. Kennedy, January 1963



SNAP 10A was launched from Vandenberg, CA in April 1965.



## Testing at SSFL

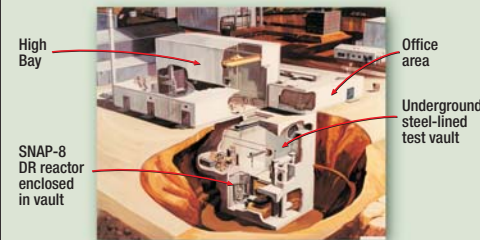
	SNAP EXPERIMENTAL REACTOR (SER)	SNAP DEVELOPMENTAL REACTOR (SDR)	SNAP 8 EXPERIMENTAL REACTOR (SBER)	SNAP 10A FLIGHT SYSTEM (FS-3)	SNAP 8 DEVELOPMENTAL REACTOR (S8DR)
<b>CRITICAL SHUTDOWN</b>	SEPTEMBER 1959	APRIL 1961	MAY 1963	JANUARY 1965	APRIL 1965
<b>THERMAL POWER</b>	50 kw	65 kw	600 kw	38 kw	43 kw
<b>THERMAL ENERGY</b>	225,000 kw-hr	273,000 kw-hr	5.1 x 10 <sup>6</sup> kw-hr	382,944 kw-hr	41,000 kw-hr
<b>ELECTRIC POWER</b>	-	-	-	402 watts	560 watts
<b>ELECTRIC ENERGY</b>	-	-	-	4028 kw-hr	574 kw-hr
<b>TIME AT POWER AND TEMPERATURE</b>	1800 hr AT 1200°F 3500 hr ABOVE 900°F	2800 hr AT 1200°F 7700 hr ABOVE 900°F	1 yr AT 1300°F 400 TO 600 kw	10,005 hr 1417 days	1000 hr
					7023 hr 1100-1300°F

# SNAP Testing at Building 59



## Building 59

- Facility construction completed in 1965
- Designed for long-term testing of SNAP reactors and later modified to perform non-nuclear testing
- Demolition of building began in October 2003



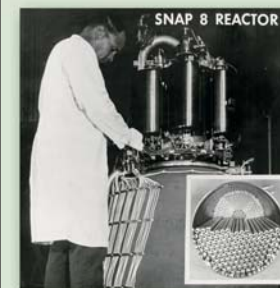
## Building 59 Internal Features

- Underground test vault, 55 feet below the surface
- Reactor vault and test cell constructed of 3-foot thick concrete and lined with steel
- Reactor tests performed in vacuum chamber to simulate outer space



## SNAP 8 Developmental Reactor

- Joint program between AEC & NASA
- The coolant was sodium-potassium alloy, the fuel was uranium-zirconium hydride
- Small scale reactor produced 600-1000 kilowatts
- Tested in Building 59 for 7000 hours in 1968-69



## SNAP 8 Developmental Reactor Operation

- Testing of the reactor ended in 1969 and post-operation examination found cracking in about one-third of the fuel cladding tubes.
- No release to environment; fission products were contained within the coolant.
- The concrete shield became radioactive during the test.
- Activated concrete may be a source of tritium in a nearby groundwater well.