

SANTON NUCLEAR EXPERIMENTAL CORPORATION  
Operations Report for February 1969

1. GENERAL

The scheduled plant outage which was begun on October 18, 1968, was continued throughout this report period. The major effort was devoted to conducting the containment vessel leak rate test. The on-site Westinghouse computer was programmed for the test and the entire test was run using the computer for the data processing.

A continuity checkout of the electrical circuits of the recirculation system and the safety injection system modifications was completed on February 12.

The reactor vessel head cladding was inspected during the month and reinsulation of the primary system components was started on February 24.

Preparations were made for a junk shipment of previously irradiated subassembly support tubes. The underwater shear was checked out and two subassembly support tubes sheared. A remote readout, high level G-M tube was used to measure the radiation levels.

The number two rotary device for the flux mapping instrumentation was installed and tested.

2. OPERATIONAL TESTS

An integral leak rate test was conducted from February 13 to February 19 at a test pressure of 10 psig. The leakage rate was determined to be 0.129% per 24 hours when extrapolated to 30 psig. The Technical Specifications limit at 30 psig is 0.4% of the contained volume per 24 hours. A controlled leak rate measurement was initiated on completion of the test to verify the sensitivity and accuracy of the test.

The SNEC fire and evacuation alarms were tested on February 7, 14, 21 and 28.

The monthly test of the radiation monitoring system was completed on February 7.

3. MAINTENANCE

The principal items of mechanical maintenance during the month included cleaning the reactor vessel conoseal gasket surfaces; painting the reactor vessel head with primer paint; reinstalling the steam generator primary system manways; inspecting number two discharge tank internals; repairing pipe and gasket leads on the deaerator; lapping the seat and repacking the letdown flow control valve, IRC-21V; installing a new bellows and lapping the seat on pressurizer safety valve, V-373; installing new gaskets on the reactor vessel head; replacing the fan belts on the control room air handler; fabricating seals for UIC and CIC detector cans; and repairing the seal on a storage well pump; and oiling the pumps in the containment vessel.

The major items of electrical and instrument maintenance included servicing the site particulate monitor, RIC-8, filter paper drive motor and gears; installing a new force balance unit in the steam generator level column d/p cell and calibrating the d/p cell; checking the specific gravity of the station service batteries; cleaning the station service batteries; replacing vacuum tubes in the count room low level G-M scaler; meggering and reconnecting the pressurizer heater cables; removal and shipping of the anemometer for repair and calibration; cleaning and reinstalling the leak-off system d/p cell; replacing circuit boards in the count room liquid scintillation counter; replacing a diode in the pressurizer high power-low pressure scram circuit; installation and checkout of the instrumentation for the containment vessel leakage test; repairing the AP-4 alpha probe for a portable survey meter; measuring the voltages of the cathodic protection system; and replacing the pump vanes and repairing the meter relay in the charging room alpha monitor.

#### 4. CHEMISTRY

The main coolant system was in a cold shutdown condition throughout the entire month with the core transferred to the fuel storage rack. The main coolant was mixed with the storage well water. A summary of the analyses performed on the storage well during the month is given in the table below.

<u>Storage Well Samples</u>	<u>Minimum</u>	<u>Maximum</u>
pH at 25°C	5.36	5.40
Conductivity, umhos	8.03	8.75
Boron, ppm	1940	1974
Chlorides, ppm (one determination)	< 0.005	< 0.005
Gross Beta-Gamma (15 Min. Degassed) uc/cc	$3.10 \times 10^{-3}$	$5.01 \times 10^{-3}$
Tritium, uc/cc		

#### 5. RADIATION AND WASTE DISPOSAL

Radiation surveying consisted of routine plant surveys, the containment vessel and materials shipments. The following maximum radiation readings were taken:

<u>Location</u>	<u>Radiation Reading</u>
<u>C&amp;A Building</u>	
Waste Drum (baling machine)	0.5 mrem/hr beta-gamma
Charging Pump (contact with chamber)	19.5 mrem/hr beta-gamma
Sample Room (door of sample panel)	1.1 mrem/hr beta-gamma
Chemical Lab Hot Sink (1" from drain)	1.0 mrem/hr beta-gamma

Location

Radiation Reading

RWDF

Evaporator (under bottom)	12 mrem/hr beta-gamma
Evaporator (contact outside upper level)	5.0 mrem/hr beta-gamma
Drum Storage Area (at HRA fence)	5.0 mrem/hr beta-gamma

C.V.

Primary Compartment (general upper level)	110 mrem/hr beta-gamma
Primary Compartment (contact M.C. pump volute)	1100 mrem/hr beta-gamma
Primary Compartment (S.G. bottom)	350 mrem/hr beta-gamma
Primary Compartment (pressurizer bottom)	150 mrem/hr beta-gamma
Primary Compartment (general lower level)	85 mrem/hr beta-gamma
Primary Compartment (Regen. HX)	1000 mrem/hr beta-gamma
Primary Compartment (Non-Regen. HX)	35 mrem/hr beta-gamma
Auxiliary Equipment Compartment (S.C.H.X.)	7 mrem/hr beta-gamma
Auxiliary Equipment Compartment (D.T. top)	11 mrem/hr beta-gamma
Auxiliary Equipment Compartment (D.T. bottom)	41 mrem/hr beta-gamma
Auxiliary Equipment Compartment (general lower level)	5 mrem/hr beta-gamma
Reactor Deck (water level at grating)	160 mrem/hr beta-gamma
Reactor Deck (instrument ports)	1000 mrem/hr beta-gamma
Reactor Deck (waist level)	210 mrem/hr beta-gamma
Reactor Deck (storage well railing)	300 mrem/hr beta-gamma

Contamination surveying consisted of routine plant surveys, surveys of materials shipped, tools, equipment and the containment vessel. The clean areas were within the "Clean Area" limits. The controlled area was generally within the "Clean Area" limits. The controlled area was cleaned frequently to keep and/or to return it to the "Clean Area" limits. The exclusion areas were cleaned periodically to minimize the amount of smearable contamination. The following contamination levels were observed:

Location

Contamination Reading

C&A Building

Charging Pump Chamber	20100 d/m/smear beta-gamma
Charging Pump Chamber	< 10 d/m/smear alpha
Charging Room Floor	1440 d/m/smear beta-gamma
Sample Room Sink	67700 d/m/smear beta-gamma
Sample Room Sink	< 10 d/m/smear alpha
Sample Room Floor	409 d/m/smear beta-gamma
Chemical Lab Hot Sink	462 d/m/smear beta-gamma
Chemical Lab Hot Sink	< 10 d/m/smear alpha

SNEC Operations Report for  
February 1969 . . . . . #4

Location

Contamination Reading

RDF

Pump Room Floor  
Shipping Room Floor

737 d/m/smear beta-gamma  
< 10 d/m/smear beta-gamma

C.V.

Operating Deck  
Operating Deck  
Reactor Deck (head)  
Reactor Deck (head)  
Reactor Deck (grating)  
Reactor Deck (grating)  
Primary Compartment (grating)  
Primary Compartment (grating)

200 d/m/smear beta-gamma  
< 10 d/m/smear alpha  
1210 d/m/smear beta-gamma  
< 10 d/m/smear alpha  
31320 d/m/smear beta-gamma  
< 10 d/m/smear alpha  
7880 d/m/smear beta-gamma  
< 10 d/m/smear alpha

Liquid and gaseous effluents from the SNEC site for the month of February 1969 were as follows:

<u>Effluent Type</u>	(Curie) Activity <u>This Month</u>	(Curie) Activity <u>Year to Date</u>	(Curie) Activity <u>Last Twelve Months</u>
Liquid	0.000386	0.000504	0.008426
Tritium	0.020850	0.020850	4.686931
Air, Xe	0.028648	0.039860	16.463393
Air, I-131	0.000000	0.000000	0.000321
Air, M.F.P.	0.000286	0.000398	0.164633

Five barrels of waste were drummed for temporary storage. No drums were shipped from the site.

Radiation exposure for all SNEC personnel as measured by film badges for the month of January 1969 were a maximum of 910 mrem with an average of 194.2 mrem.

Radiation exposure for all visiting personnel as measured by film badges for the month of January 1969 were a maximum of 0 mrem with an average of 0 mrem.

The average radiation exposure for all personnel as measured by film badges for the month of January 1969 was 151.6 mrem.

SAXTON NUCLEAR EXPERIMENTAL CORPORATION

OPERATING STATISTICS

MONTH FEBRUARY YEAR 1969

<u>NUCLEAR</u>	<u>UNIT</u>	<u>MONTH</u>	<u>YEAR</u>	<u>TO DATE</u>
TIMES CRITICAL	NO.	0	0	823
HOURS CRITICAL	HRS.	0	0	22,948.49
TIMES SCRAMMED (MANUAL)	NO.	0	0	449
* TIMES SCRAMMED (INADVERTANT)	NO.	0	0	42
THERMAL POWER GENERATION	MWt	0	0	429,077.53
AVERAGE BURNUP	MWD/MTU	0	0	18,029.03
CONTROL ROD POSITIONS AT END OF MONTH AT EQUILIBRIUM POWER OF <u>0</u> MWt				
MAIN COOLANT BORON <u>1973</u> PPM				

RODS OUT - INCHES

NO. 1 <u>0</u>	NO. 2 <u>0</u>	NO. 3 <u>0</u>
NO. 4 <u>0</u>	NO. 5 <u>0</u>	NO. 6 <u>0</u>

<u>ELECTRICAL</u>	<u>UNIT</u>	<u>MONTH</u>	<u>YEAR</u>	<u>TO DATE</u>
GROSS GENERATION	MWH	0	0	73,529.3
STATION SERVICE	MWH	86.21	178.20	15,351.60
STATION SERVICE	%	0	0	20.88
AVG. PLANT EFFICIENCY - MWH(e)/MWH(t)	%	0	0	17.14
AVG. GENERATION RUNNING ( <u>0</u> HRS)	KW	0	0	3,461.11
PLANT LOAD FACTOR - (AVG. GEN. FOR MONTH/MAX. LOAD)	%	0	0	19.35

AUXILIARY STEAM SUPPLY - NUCLEAR

STEAM SUPPLIED BY REACTOR	HRS.	0	0	19,259.74
RWDF EVAPORATOR OPERATION	HRS.	6.75	36.88	7,444.99

\* REMARKS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

AVERAGE REL. OR POWER - 100

(UPPER CURVE)

SUNBELT INDUSTRIES, INC. - INITIAL CORPORATION

DAILY AVERAGE POWER LEVEL FOR FEBRUARY, 1969

--- INTERMITTENT OPERATION

--- CONTINUOUS OPERATION

AVERAGE ELECTRICAL POWER (GROSS) - 100

(LOWER CURVE)

