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PUBLIC SERVICE COMPANY OF COLORADO  
FORT ST. VRAIN NUCLEAR GENERATING STATION

ANNUAL OPERATING REPORT

NO. 10

1980

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INTRODUCTION

This report is submitted in accordance with Section AC 7.5.1.b of the Technical Specifications of the Fort St. Vrain Nuclear Generating Station, Unit No. 1, Facility Operating License No. DPR-34.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE

This report contains the highlights of Fort St. Vrain, Unit No. 1, operation under the provisions of the Nuclear Regulatory Commission Operating License, DPR-34. This report is for the year of 1980.

### 1.1 January

The reactor was taken critical on December 25, 1979, and power held at approximately 1.5% for primary and secondary coolant system cleanup. A reactor scram and Loop 2 shutdown occurred on December 30, 1979, following the operation of 1C circulator at speed. High moisture levels were attributed to an ingress which occurred on December 7, 1979. During this shutdown, maintenance was performed to correct the feedwater leakage at V-2256 and to stop the hydraulic oil leakage at HV-2254.

The reactor was taken critical again on January 5, 1980, but on January 8, 1980, the 1B circulator primary seal was discovered to be inoperable, and the reactor was placed in a shutdown condition. The outage to replace the 1B circulator started on January 17, 1980.

### 1.2 February

The outage for 1B circulator replacement continued through the month of February, 1980.

Decay heat removal continued, utilizing Loop 2 steam generator on condensate. Decay heat levels decreased to the point that secondary coolant flow could be removed for calculated periods of time to allow calibration of instrumentation.

The prestressed concrete reactor vessel was pressurized to 94 psia on February 12, 1980, and primary coolant cleanup was started.

Maintenance was completed on Loop 1, and it was returned to service on February 13, 1980.

Auxiliary boiler #1 repairs were completed, and the unit was tested and proven operational.

The reactor was brought critical on February 18, 1980, and training starts were accomplished by all licensed and license trainee personnel requiring reactor starts.

While the plant was shutdown for the circulator replacement, many maintenance items were completed. Maintenance work concentrated mainly on leaking valves.

On February 25, 1980, a small fire started on the service air compressure discharge header. The fire was contained without damage to the plant.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

1.2 February (Cont'd)

On February 28, 1980, the annual Radiological Emergency Response Drill was conducted in conjunction with the state and local entities. This drill tested many revisions instituted as a result of Three Mile Island-2, as well as the revised State Radiological Emergency Response Plan.

1.3 March

At the beginning of the month, preparations were made for plant start-up. On March 5, 1980, at 0250 hours, the turbine generator was synchronized, and the electric load increased to 80 MW. On March 6, 1980, the turbine generator actual overspeed tests were performed. The unit was resynchronized after the test, and the electrical load was increased to 100 MW.

Excessive oxidant contaminants in the primary coolant helium, as well as various control system problems caused the electrical load capability to be somewhat variable over the next several days of operation.

Early in the morning of March 11, 1980, the east side return water distribution header on the main cooling tower ruptured. Large amounts of circulating water spilled over the distribution box near the rupture onto the ground. The yard drainage system in this area did not have the capability to handle this quantity of water, allowing the water level in the surrounding area to reach a depth of several inches. Some of this water entered the manhole containing cables and associated conduits for the circulating water pump system. This water damaged several electrical motors of the circulating system. The main turbine generator was tripped and the reactor scrammed when it was evident that condenser vacuum could not be maintained. Repairs were made and the reactor was brought critical again on the same day, but because of the damage to the circulating water pumps and the loss of acceptable feedwater chemistry, reactor power could not be increased above 2% until March 15, 1980.

The turbine generator was synchronized on March 16, 1980, and load was gradually increased to 230 MW on March 18 and remained at that level until March 21, 1980.

Loop 2 shutdown due to a failed chip in a hot reheat radiation module of the plant protective system on March 21, 1980. The reactor scrammed from high hot reheat temperature when attemperation was taken off Loop 1 and remained shutdown until March 23. Low power operation continued until March 25, awaiting cleanup of secondary coolant. On March 26, 1980, the turbine generator was synchronized and electric load increased to 225 MW.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.3 March (Cont'd)

A leaking 1B circulator steam piping flange caused reactor power to be lowered to 50% on March 26. While 1B circulator was off, 1A circulator buffer seal malfunctioned. The 1A circulator and Loop 1 were shutdown manually and reactor power decreased to 2%. The 1A and 1B circulators were restored to service and Loop 1 was recovered on March 29. Reactor power was increased to 45%, and the turbine generator loaded to 140 MWe.

### 1.4 April

On April 1, 1980, the reactor power was increased from 45% to 60%, 190 MWe, and held approximately at this level pending cleanup of the primary coolant oxidants.

The "D" circulating water pump expansion bellows ruptured and required isolation pending repair.

On April 2, 1980, problems developed with the backup bearing water system, which was traced to improperly working control valves. The problem was corrected and backup bearing water system was returned to service.

On April 4, 1980, reactor power was being maintained at 68% when total oxidants increased sharply to approximately 50 ppm. Electrical load was reduced to 185 MW. The sudden increase in oxidants is believed to have been caused by a malfunctioning helium recovery compressor. The buffer flows to all circulators were reduced, and the recovery compressors vented. By April 5, primary coolant oxidants were reduced to 40 ppm, with reactor power being maintained at 56%. During this period, 1B circulator buffer knockout pot draining resulted in tripping 1B circulator off line. The 1B circulator was recovered for normal operation. At this time (April 7), it was decided to take 1B circulator down to investigate what effects it might have on the ability to reduce total oxidants.

On April 8, 1980, while operating at 150 MWe, a loop shutdown was received during an attempt to restart 1B circulator. The loop was recovered, and reactor power was increased to support 65 MWe load on April 9, 1980. Region outlet temperatures were held below 1200°F until total oxidants decreased below 10 ppm. Reactor power was changed over the next few days between 30% and 65% as dictated by primary coolant oxidant levels. The 1B and 1C circulators were removed from service during this period (April 10 to April 18, 1980) to observe the effect, if any, on moisture ingress. No effect was observed.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.4 April (Cont'd)

On April 18, 1980, while operating at 35% power, a turbine trip occurred from a spurious signal from the plant protective system while changing out a logic module. The same day, a Loop 1 shutdown occurred when buffer supply was disturbed to Loop 1 circulators by the relief action of 1A circulator penetration rupture disk.

The reactor remained in a relatively low power condition (2% to 10%) until April 21, 1980, to allow license candidates to complete required Nuclear Regulatory Commission reactor starts.

Reactor power was raised to approximately 30% on April 23. On this date, 1B circulator tripped from seal malfunction problems. The circulator was restarted and power raised to 50% until an increase in oxidants required lowering region outlet temperature below 1200°F.

On April 25, a loop shutdown occurred, caused by a faulty plant protective logic module. The loop was recovered and reactor power was increased to approximately 30%.

The plant was shutdown to one loop operation on April 28, 1980, again due to a malfunction in the plant protective system. Investigation revealed a failed chip in a logic module. The loop was recovered and load increased to 130 MW.

On April 30, 1980, another loop shutdown occurred when "A" and "B" bearing water pumps tripped off as a result of construction work being performed in the area of the Loop 1 surge tank. Recovery of the loop was accomplished, and the load was increased to approximately 130 MW.

### 1.5 May

On May 1, 1980, 1B circulator tripped on loss of bearing water due to an upset caused by changing the bearing water y-strainers. The 1B circulator was returned to service, the main turbine generator synchronized, and power was increased to 52%. Primary coolant oxidants then increased above 15 ppm, and reactor power was reduced to 45% and 130 MWe, with average region outlet temperature less than 1200°F. Radioactivity was detected in the low pressure separator with the source of the activity being 1D circulator buffer return flow, which was adjusted to correct the problem. During this event, activity was also detected in the Reactor Building due to valve packing leaks on the buffer helium dryer.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

1.5 May (Cont'd)

The plant continued to operate between 45% and 53% over the next seven days with power level dictated by primary coolant oxidant levels. On May 7, 1980, the pelton supply to the Loop 2 circulators was isolated to repair a steam leak on the pressure control valve piping. Plant conditions on May 8 were as follows; 46% power, 135 MWe, primary coolant oxidants greater than 10 ppm, average region outlet temperature less than 1200°F. As little progress was being made to reduce total primary coolant oxidants by the purification system, it was decided to change out the helium dryer desiccant and observe what effect, if any, this change would have on total primary coolant oxidants. No definite change was observed. Operation continued to be limited by primary coolant oxidants being greater than 10 ppm through May 13, 1980.

On May 13, 1980, #5 feedwater heater developed a tube leak. The secondary coolant flow path was routed to the emergency feedwater header. Operation continued in this manner through the remainder of this month.

On May 15, 1980, the backup bearing water bearing header was isolated to repair the backup bearing water safety valves. Reactor power was at approximately 50% and 130 MWe, and continued at that level until May 24. At that time, total primary coolant oxidants were 7.5 ppm and power was raised from 50% to 67% over a period of the next three days. Operation continued at approximately 200 MWe for the remainder of this month.

On May 21, 1980, an on-site public meeting was held with the Nuclear Regulatory Commission staff to discuss the Fort St. Vrain Radiological Emergency Response Plan.

Spent fuel shipping started with the first shipment on May 28, 1980.

The helium circulator, which was removed during the January, 1980, shutdown, was examined by General Atomic Company at San Diego, California, and confirmed to have a ruptured shaft seal bellows.

1.6 June

Reactor power was 54% with generator at 150 MWe on June 1, 1980.

On June 2, 1980, reactor power was increased to 60% with generator load of 172 MWe, followed by an increase to 68%, 200 MWe on June 3.

On June 5, 1980, purified helium leakage rates of the Loop 2 steam generator penetration approached Technical Specification limits. A variance was received from the Nuclear Regulatory Commission to increase LCO 4.2.9 limits from 400 pounds per day to 700 pounds per day.

100000 2000 27 60000

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.6 June (Cont'd)

On June 11, 1980, reactor power was reduced to 68% and 195 MWe because high ambient temperatures reduced the service and circulating water system capability.

On June 12, 1980, with reactor power at 68% and 194 MWe, main cooling tower blowdown was swapped from hot to cold side to comply with EPA temperature limits.

On June 17, 1980, 1B helium circulator tripped due to high buffer-mid-buffer, and approximately three hours later, 1A circulator tripped for the same reason, causing a loop shutdown. The turbine generator was manually tripped. Activity increased in the low pressure separator as did moisture in the primary coolant. Reactor power was reduced to 2% to recover Loop 1. The problem was traced to a ruptured diaphragm on the pressure differential transmitter for the 1B circulator main drain valve. Loop 1 was recovered and reactor power was increased to 5%.

Reactor power was held at 10%, with 1A, 1C, and 1D circulators operating and both loops in service on emergency feedwater on June 18. On June 19, reactor power was increased to 25% and the turbine placed on line. Heater #6 and the normal feedwater header were returned to service after repair of a leaking tube side vent valve.

On June 20, 1A circulator tripped causing Loop 1 to shutdown. Power was reduced to approximately 10% and held. Moisture in the primary coolant increased in excess of 100 ppm, and activity was noted in the low pressure separator. Power was reduced to 2% to recover Loop 1. The operable main drain differential pressure transmitter from the 1A helium circulator was installed on 1B helium circulator.

Primary coolant moisture levels decreased, and Loop 1 steam generator was returned to service on June 21, with reactor power at 3.5% and moisture down to 19 ppm. Power was increased to 8% and orifices were set. Primary coolant moisture leveled out at 40 ppm.

Reactor power was reduced to less than 2% on June 23, and Loop 2 was shutdown to repair leaking valves. Power was subsequently reduced to  $10^{-3}\%$  with condensate cooling Loop 2.

Valve repairs were completed June 24, and Loop 2 was recovered.

On June 27, with the reactor at 7% power, the main drain differential pressure transmitter was re-installed on 1A circulator. Primary coolant moisture increased rapidly when 1A circulator was brought up to speed. Reactor power was held steady at 8% awaiting primary coolant moisture reduction.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.6 June (Cont'd)

On June 29, reactor power was increased to 20%, and on June 30, the turbine generator was synchronized and power increased to 29% and 50 MWe. Reactor power was increased to 45% with a turbine generator load of 125 MWe, but was later reduced due to an increase in primary coolant moisture.

### 1.7 July

On July 1, 1980, with the reactor operating at 45% power (125 MWe), a gradual loss of vacuum necessitated a turbine generator load reduction during the period required for location and isolation of the condenser leak. A leaking valve was discovered to be the cause of the vacuum problem. After condenser vacuum was recovered, the turbine generator load was increased to the previous level of 45% (125 MWe).

Plant operation continued at approximately 45% and 125 MWe to hold the core region outlet temperature average below 1200°F, due to primary coolant oxidant levels greater than 10 ppm. On July 4, 1980, Table Mountain Load Dispatch requested a 30 MWe reduction in turbine generator output. This resulted in a reactor power reduction to approximately 37%.

On July 7, 1980, reactor power was increased to 65% (145 MWe), resulting in an increase of primary coolant oxidants to 55 ppm. The core region outlet temperature was greater than 1200°F at this power level; therefore, after experiencing the oxidant spike, reactor power was reduced sufficiently (approximately 33%) to obtain less than 1200°F outlet temperature. As a result of this power reduction, the feedwater control system became somewhat unstable, causing a steam turbine trip of all four circulators and a two loop trouble scram.

The reactor was brought critical on July 9, 1980, and operated at a nominal 2% until July 17, 1980. The delay in escalation of power was due to the inability to complete a required annual Surveillance Test on the emergency diesel generator set 1A. During the performance of this surveillance, a leaking heat exchanger was discovered and was replaced, but the main problem involved the governor control system and this took several days to resolve. Reactor power was increased to 8% on July 17, 1980, but shortly thereafter, a leak in the Loop 1 secondary coolant system necessitated shutting down Loop 1 for repairs and a return to 2% power.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.7 July (Cont'd)

Upon completion of the Loop 1 repairs, the reactor power was increased to 5% on July 20, 1980, 23% on July 21, and 29% on July 22, at which time the turbine generator was synchronized and loaded to 125 MWe as power was increased to 45%. During this power rise, a turbine trip occurred when the bypass valves inadvertently opened, causing low steam pressure at the main turbine. The main turbine generator was immediately returned to service at 125 MWe.

Plant operation for the remainder of July, 1980, continued in the range of 45% to 57%. Reactor power levels were principally dictated by primary coolant oxidant levels.

### 1.8 August

At the beginning of this month, the plant was operating at a reactor power level of approximately 50% and 135 MWe. The secondary coolant flow path was established through the emergency feedwater header due to feedwater heater #5 tube leaks. The average core region outlet temperature was maintained below 1200°F, as the primary coolant oxidants were greater than 10 ppm. At approximately 1630 hours on August 1, 1980, reactor power was increased to 52%, resulting in an average core outlet temperature of 1220°F, as primary coolant oxidants had been reduced to a total of 8.8 ppm. Operation continued with these conditions until 1115 hours on August 4, 1980, when a plant protective system action resulted in a reactor scram, steam turbine trip of all four circulators, and Loop 1 shutdown. The cause of the above upset was unstable feedwater control caused by the feedpump speed control system.

Preparations for a reactor restart were made almost immediately, and criticality was attained at 0200 hours on August 6, 1980. On August 6, reactor power was increased to 27%, and on August 7, 1980, the main turbine generator was placed in service. Reactor power level was increased to 47%, but a load decrease was necessary to hold the Reactor Building temperatures within acceptable limits, as the heat load exceeded the capability of the chilled water system. This problem was, for the most part, due to the undersizing of the service water piping supplying the Reactor Building chillers. An additional condition that developed, which also limited plant operation, was the presence of a bad bearing on "A" circulating water pump. This condition, coupled with the hot weather, caused high back pressure in the condenser, thus limiting turbine generator load.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.8 August (Cont'd)

Plant operation continued as dictated by conditions described above until August 12, 1980, when a turbine runback occurred as a result of an improperly set vacuum switch. This switch action is believed to have caused an upset in the feedpump control portion of the secondary coolant control system. Recovery from the turbine runback was made, and plant conditions remained stable until August 16, 1980.

On August 13, a public meeting was held with representatives of FEMA, Region VIII to discuss the State Radiological Emergency Response Plan.

On August 16, 1980, a hydraulic oil leak developed on the Loop 2 circulator steam turbine bypass valve (PV-2244) which necessitated isolating Loop 2 hydraulic oil system and Loop 2 group 2 secondary coolant loop. Reactor power was also reduced to 2%, and the reactor scrammed as prescribed by the Emergency Procedures. During the shutdown for repair of the hydraulic oil leak and oil cleanup, the leaking "B" boiler feedpump normal feedwater header isolation valve was repaired, along with repair of "A" boiler feedpump speed control. After completion of this work, preparations were made to bring the reactor critical, and criticality was achieved on August 18, 1980, at 1245 hours.

Reactor power was increased to 28%, and the turbine generator synchronized at 1135 hours on August 20. As soon as feedwater chemistry was within specification, the power level was increased to 57% and turbine generator loaded to 160 MWe.

On August 25, 1980, during the piping snubber surveillance, it was discovered that 12 snubbers were inoperable. Per Technical Specification requirements, these problems must be corrected within 72 hours or an orderly plant shutdown is required within 36 hours after expiration of the 72 hours. During this grace period on August 29, 1980, a problem developed with the electro-hydraulic control system for the main turbine generator with a loss of  $\pm 24$  V power. The main turbine generator continued to operate on the permanent magnet generation. At 1335 hours, while attempting to determine the cause of the loss of  $\pm 24$  V power, the plant electricians inadvertently caused a turbine runback. The resultant transient caused a circulator in each loop to be tripped by plant protective system action. The turbine generator was manually tripped at this time. Since the 12 inoperable snubbers discovered on August 25, 1980, could not be repaired within the allotted time, the "plant shutdown" planned for September 1, 1980, was initiated.

### 1.9 September

On September 1, with the reactor shutdown, the prestressed concrete reactor vessel was depressurized to 0 psig and Loop 1 steam generators and circulators were cleared for maintenance. Core cooling continued with Loop 2 steam generators and circulators discharging heat to the main condenser.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

1.9 September (Cont'd)

On September 9, all core forced cooling was stopped to verify core heat rise calculations. Calculations proved to be adequately conservative and core cooling was re-established.

On September 13, the bypass flash tank drains were directed to the decay heat exchanger, and on September 14, the condenser was taken out of service for maintenance.

On September 15, core forced cooling was stopped for approximately 3 hours to replace valves on the 150 psig header and on the condensate pumps. The main condenser was returned to service on September 16.

On September 17, core forced cooling was stopped for about 8.5 hours for instrument calibration.

On September 18, Loop 1 steam generator and circulators were placed in service and Loop 2 was shutdown.

Pressurization of the prestressed concrete reactor vessel was begun, and on September 20, the helium purification train was placed in service at approximately 100 psig.

On September 24, core forced cooling was stopped for 11 hours to work on the Loop 1 main steam power operated relief pilot valve.

On September 25, Loop 2 steam generator and circulators were placed in service, and Loop 1 was shutdown again to complete work on the pilot valve.

On September 26, Loop 1 was placed back in service, and on September 27, after work was complete on snubbers and the required surveillances were complete, the reactor was taken critical.

Ecolochem arrived on site to make-up water to the condensate system, and on September 28, reactor power was increased to 2% to facilitate water cleanup. Power remained at this level through the end of the month.

1.10 October

With reactor power at 2% following the scheduled maintenance period, power was increased to 5%. The increased operating temperatures aided the cleanup of feedwater and primary coolant impurities.

An internal oil leak developed on 1A helium circulator speed control valve, and the solenoid valves were repaired.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

1.10 October (Cont'd)

On October 4, a pressure switch (PS-11227) failure resulted in inter-space pressures equalizing with primary coolant pressures. The pressure switch was repaired, and reactor power was increased to 8%.

On October 8, the solenoid valves of 1A helium circulator speed valve developed additional leaks and were again repaired.

A power level of 23% was attained on October 9, and the turbine generator placed on line. The emergency feedwater supply to the helium circulators was removed from service to fix a small leak. The leak was repaired and emergency feedwater restored to service. Reactor power was increased to 49%.

On October 10, while the base mounting of the turbine generator main exciter bearing mount was being tightened, due to vibration problems, and an exciter control box was accidentally struck, causing the turbine generator to trip. The spike in voltage caused a trip of #3 non-interruptible bus inverter.

On October 11, the #3 non-interruptible bus inverter was placed in service, and the turbine generator was placed on line. Reactor power was increased to 27%.

On October 12, reactor power was increased to 60%, but later reduced to 40% due to an increase in primary coolant contaminants.

On October 14, reactor power was reduced to 29% to enable repair of buffer helium dryer valves.

Reactor power was raised to 57% on October 16, following repair of the dryer valves.

Due to a rise in primary coolant impurities to greater than 10 ppm, reactor power was reduced on October 21 in order to lower average core outlet temperatures to less than 1200°F.

On October 22, a Loop 1 shutdown occurred while testing ultrasonic pipe rupture detectors. Loop 1 was recovered and electric power generation was resumed.

On October 23, reactor power was reduced to 2% to repair hydraulic oil leaks on System 91 accumulator blind flange seals of Loop 1.

On October 24, the hydraulic oil seals were repaired. Reactor power was raised to 5%, at which time a reactor scram occurred during calibration of hot reheat steam temperature elements. The reactor was brought to criticality and raised to 2% power.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

1.10 October (Cont'd)

On October 25, power was increased to 28% and electric generation resumed.

On October 30, reactor power was increased to 49%. Average core outlet temperatures were held to less than 1200°F, due to primary coolant oxidant levels in excess of 10 ppm.

1.11 November

At the beginning of the month, reactor power was 50%, and the turbine generator load was 140 MW, with the average core region outlet temperature being maintained at less than 1200°F. Power was limited because of a high level of primary coolant oxidants.

Plant conditions remained the same until November 5, 1980, at which time the total oxidants had decreased to approximately 6.6 ppm, and power escalation was resumed up to 60% reactor power with an electrical load at 170 MW(e). Primary coolant oxidants started trending upwards as a result of the increase in reactor power.

On November 5, 1980, the Maintenance Department started testing several vent stack snubbers. The snubbers were inoperable while they were removed for testing, and no further power increase was made until all the snubbers were returned to service.

The vent stack snubbers were returned to service on November 7, 1980, at 1830 hours. During this period, primary coolant oxidants decreased enough to allow power escalation to be resumed. Shortly thereafter, during an automatic transfer of buffer helium dryer towers, a high pressure condition occurred in the "off line" tower indicating leaking valves. The leakage between towers was traced to a regeneration valve (HV-21352). The problem was corrected, and reactor power was maintained at the same level until the morning of November 12, 1980, when a power reduction to 40% was made in preparation for reactor core fluctuation testing.

The next three days were spent at reactor power levels from 40% to 70% with various core orifice configurations to satisfy test criteria. Testing was completed on November 15, 1980, and resulting data forwarded to General Atomic Company for analysis. At the completion of testing, reactor power and turbine generator loads were increased to 66% and 208 MWe respectively. The dryer regeneration valve (HV-21352) again failed to close properly, causing a further increase in primary coolant oxidants. The problem was corrected by stroking the valve.

## 1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

### 1.11 November (Cont'd)

By November 18, 1980, primary coolant chemistry had improved sufficiently to allow reactor power to be increased to 69% with a turbine generator load of 220 MW. These conditions were maintained until the evening of November 24, 1980, when a power reduction was initiated to repair an oil leak on 1A circulator steam speed valve operator (SV-2105). The Maintenance Department was able to repair this leak by early morning of November 25, and reactor power and turbine generator loads were returned to their previous levels.

Turbine generator load was again reduced on November 27, 1980, and the generator taken off the line to repair a steam leak in Loop 1, steam generator/hot reheat header drain line. During the power reduction, the Loop 2 preflash tank pressure control valve failed to operate properly, causing the Loop 2 main steam safety valves to relieve. The problem was due to a loss of accumulator pressure on the valve operator and was corrected with the use of the main steam bypass valve to maintain pressure in the interim period.

Reactor power continued to be reduced to approximately 2%, at which time Loop 1 reheater was isolated and drained for repair. Loop 2 reheater and the evaporator, economizer, and superheater sections of each steam generator were maintained in service with one helium circulator in each loop at a "self-turbining" condition. The repair took approximately eight hours to complete. Loop 1 reheater was restored to service and power escalation commenced.

The return to 69% power went very smoothly with only a slight delay at 30% power to put the main turbine generator on line and to verify the acceptability of primary coolant and feedwater chemistry. Reactor power reached 69% and a turbine generator load of 218 MW on the evening of November 30, 1980.

### 1.12 December

At the beginning of the month, the plant was operating at 69% power and generating 215 MWe. It was necessary to bypass #5 feedwater heater due to suspected tube leaks. Plant conditions remained the same until power was reduced to 41% on December 12, 1980, to conduct fluctuation tests. Upon completion of testing, moisture ingress into the primary coolant system required the generator to be taken off line, and reactor power was reduced to 8%. Subsequent investigation found no source of moisture ingress. Reactor power was gradually increased to 68% as primary coolant oxidants permitted. Plant conditions remained the same until December 26, 1980, when power was reduced to 2% to repair a feedwater leak on a Loop 2 feedwater trim valve. After repairs, the reactor power was increased to 30%, and the generator was placed on line.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE (Cont'd)

1.12 December (Cont'd)

On December 27, 1980, a reactor scram on high reheat steam temperatures occurred due to control system problems experienced while increasing turbine load.

The reactor was taken critical the same day, the generator placed on line, and reactor power gradually increased to 68% by December 28, 1980.

On December 29, 1980, a faulty position transmitter on the Loop 2 circulator steam bypass valve caused a Loop 2 shutdown and turbine generator trip. Loop 2 was recovered, and the generator was placed on line after the transmitter was repaired.

During the turbine generator load increase, #2 reheat intercept stop valve became jammed in the mid position. On December 31, 1980, in an effort to move the valve, the generator load was reduced to 10 MWe. The stroke test failed to free the valve so the reactor was scrammed at this time, and the turbine generator tripped.

1.13 Safety Related Maintenance

Safety related maintenance not associated with plant outages or power reductions is tabulated on the following pages.

SIGNIFICANT MAINTENANCE SUMMARY

IDENTIFICATION NUMBER AND DATE	SYSTEM/ COMPONENT	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	NATURE OF MAINTENANCE	CORRECTIVE ACTION	TIME REQUIRED FOR COMPLETION	EFFECT ON SAFE OPERATION OF THE REACTOR
78-2-231 9-24-80	SV-2110	Normal Wear	Valve leaks through when controller calls for it to be closed.	Corrective	Replaced trim set.	1 Day	None
78-8-518 11-6-79	V-7295	Normal Wear	Valve leaked through.	Corrective	Replaced valve.	8 Hours	None
78-8-521 11-4-79	V-7296	Normal Wear	Valve leaked through.	Corrective	Replaced valve.	16 Hours	None
79-4-373 11-30-79	V-4642	Normal Wear	Valve leaks through.	Corrective	Replaced valve.	4 Hours	None
79-5-843 2-20-80	HV-2217	Normal Wear	Valve leaked through excessively.	Corrective	Rebuilt poppet block and cylinder.	2 Days	None
79-7-634 2-20-80	HV-2224	Normal Wear	Leak between cylinder and bottom block.	Corrective	Installed new "O" rings.	10 Hours	None
79-8-146 11-20-79	HV-2224	Normal Wear	Excessive leakage.	Corrective	Repaired seat and disc.	2 Days	None
79-8-487 12-6-79	V-2256	Bad seal ring and hinge pin on V-2256.	Valve leakage.	Corrective	Replaced seal ring and hinge pin.	1 Day	None
79-8-501 12-6-79	HV-2217	Valve leaked through due to seat and disc wear.	Leaking valve.	Corrective	Repaired seat and disc.	Approximately 10 Hours	None
79-8-520 11-6-79	V-72102	Normal Wear	Valve leaked through.	Corrective	Replaced valve.	18 Hours	None
79-8-521 11-4-79	V-72103	Normal Wear	Valve leaked through.	Corrective	Replaced valve.	16 Hours	None
79-9-13 11-20-79	HV-2224	Normal Wear	Bonnet seal leaks.	Corrective	Replaced bonnet seal.	2 Days	None

## SIGNIFICANT MAINTENANCE SUMMARY

IDENTIFICATION NUMBER AND DATE	SYSTEM/ COMPONENT	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	NATURE OF MAINTENANCE	CORRECTIVE ACTION	TIME REQUIRED FOR COMPLETION	EFFECT ON SAFE OPERATION OF THE REACTOR
79-9-30 11-20-79	HV-2224	Normal End of life.	Oil leaks at operator.	Corrective	Replaced all "O" rings.	2 Days	None
79-9-116 2-2-80	SV-2112	Normal Wear	Rod end seal leaked.	Corrective	Replaced seal.	2 Days	None
79-10-101 6-25-80	FE-1122	Normal Wear	Incorrect flow indication.	Corrective	Replaced flow element with spare.	3 Days	None
79-10-286 12-12-79	HV-2215	Seat and disc wear.	Valve leaked through.	Corrective	Repaired valve's seat and disc.	Approximately 10 Hours	None
79-11-109 11-28-79	HV-2217	Seat wear in 5-valve manifold.	Valves leaked through.	Corrective	Repaired seats.	Approximately 3 Hours	None
79-11-269 11-28-79	V-21115	Bad disc and bent stem.	Valve leaking through.	Corrective	Replaced disc and straightened stem.	8 Hours	None
79-11-270 11-28-79	V-21116	Bad valve disc.	Valve leaking through.	Corrective	Replaced disc.	1 Day	None
79-11-308 11-21-79	HV-21205-2	Bad coil in HV-21205-2.	Lights on HS-21205, 21193, 2189-1, and 2189-2 did not operate when circulator was tripped and brake and seal set.	Corrective	Replaced HV-21205-2.	1 Hour	None
79-12-401 12-19-79	CTI-BR4	Bad chip.	Low voltage at input discovered during test.	Corrective	Replaced chip Z-9.	1 Hour	None
79-12-449 12-27-79	HV-9316	Bad air solenoid valve.	Air solenoid valve to HV-9316 leaking.	Corrective	Replaced solenoid valve.	1 Day	None
79-12-493 7-3-80	S-7540	Normal Wear	Leaky tubes on standby diesel generator air handling unit.	Corrective	Plugged leaky tubes.	1 Month	None

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79-12-526 12-26-79	MIT-1120	Broken fitting.	MIT-1120 thermocouple failure light lit.	Corrective	Replaced thermocouple fitting at MM-1120 head.	3 Hours	None
79-12-532 1-9-80	MM-1120	Bad reflected and source light guides and reflected light pre-amp.	MM-1120 would not servo and was icing up.	Corrective	Replaced light guides and pre-amp.	1 Day	None
79-12-533 12-26-79	PDIS-21397	Plugged sense line and bad snubbers.	Faulty 1B circulator Y strainer differential pressure gauge.	Corrective	Blew down instrument sense lines and installed new snubbers.	1 Day	None
79-12-545 1-3-80	FAH-1107-10	Bad alarm card.	Alarm FAH-1107-10 on I-21C would not clear.	Corrective	Alarm card repaired.	2 Hours	None
79-12-554 12-29-79	FAH-21378	Bad alarm card.	Guard helium flow high alarm energized on 1C circulator.	Corrective	Replaced alarm card with spare.	1/2 Hour	None
79-12-573 9-25-80	PV-22167	Normal Wear	Valve leaks through.	Corrective	Repaired valve internally.	8 Hours	None
79-12-574 12-28-79	FIS-21378	Bad alarm card.	Guard helium flow high alarm energized on 1C circulator.	Corrective	Repaired alarm card.	1/2 Hour	None
79-12-576 12-27-79	HV-9316-1	Bad solenoid.	Air blowing out of HV-9316-1 and buzzing.	Corrective	Replaced solenoid valve.	2 Hours	None
79-12-586 12-28-79	HV-21205-2	Bad valve.	1B circulator brake and seal bottle pressure decrease.	Corrective	Replaced HV-21205-2 with a rebuilt valve.	1 Day	None
79-12-602 1-10-80	MIT-1120	Bad reflected and source light guides and reflected light pre-amp.	MIT-1120 would not servo.	Corrective	Replaced light guides and pre-amp.	1 Day	None

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79-12-644 1-9-80	MIS-1115	Bad disc in PDV-2549.	MIS-1115 mirror temperature below setpoint and constantly decreasing.	Corrective	Replaced valve disc.	1 Day	None
79-12-711 1-2-80	P-9106X	broken flex conduit.	Flex conduit to motor for P-9106X broken.	Corrective	Replaced flex conduit.	2 Hours	None
79-12-714 1-4-80	HV-2254	Worn "O" rings.	HV-2254 flange leakage inside protective cover.	Corrective	Installed new "O" rings in inlet piping to poppet blocks.	2 Days	None
80-1-4 1-4-80	V-2256	Bad seal.	Emergency condensate header check valve leaking at pin.	Corrective	Honed pin hole and installed new seal.	1 Day	None
80-1-8 1-2-80	HV-21416-1	Broken tubing.	Air supply tubing to HV-21416-1 broken.	Corrective	Replaced broken tubing.	4 Hours	None
80-1-18 1-4-80	Region 2 CRD	Bad alarm card.	Hopper pressure high light would not come on when tested from panel.	Corrective	Replaced alarm card.	2 Hours	None
80-1-27 1-5-80	HV-31207	Bad valve seat.	HV-31207 not operating properly, apparently due to bad seat.	Corrective	Replaced valve seat, cleaned stem and disc, and replaced "O" rings.	1 Day	None
80-1-49 2-20-80	HV-2215	Normal Wear	Valve leaked by.	Corrective	Rebuilt valve.	1 Day	None
80-1-65 1-9-80	CR-173-1A	Bad chip.	Relay CR-173-1A sticking.	Corrective	Put in spare XCR. Replaced Q-2.	2 Hours	None
80-1-73 1-8-80	BFS-219E	Leaky snubber and loose fittings.	Snubber leaking oil.	Corrective	Repaired leak, tightened fittings.	4 Hours	None

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80-1-81 1-9-80	BFS-218E	Snubber leak, loose fittings.	Snubber leaking oil.	Corrective	Repaired leak, tightened fittings.	3 Hours	None
80-1-104 1-25-80	PV-2229	Seat and disc wear.	Valve leaked through.	Corrective	Replaced and repaired parts.	Approximately 10 Hours	None
80-1-105 2-15-80	PV-2230, 22130, 22154	Worn seats and discs.	Valves leaked through.	Corrective	Repaired or replaced parts.	Approximately 10 Hours	None
80-1-152 2-20-80	HV-2223	Normal Wear	Leaking oil.	Corrective	Rebuilt operator.	2 Days	None
80-1-160 2-9-80	PS-11234	Instrument Drift	Trip out of specification.	Corrective	Replaced switch and recalibrated.	1/2 Hour	None
80-1-168 2-20-80	HV-2217	Normal Wear	Valve leaked through.	Corrective	Rebuilt valve.	2 Days	None
80-1-193 9-24-80	FV-21333	Normal Wear	Valve leaked through.	Corrective	Lapped valve seat.	8 Hours	None
80-1-203 1-28-80	PDV-2551	Disc and seat wear.	Valve leaked past.	Corrective	Replaced disc.	Approximately 4 Hours	None
80-1-224 2-7-80	C-8201S	Normal Wear	Machine was noisy.	Corrective	Overhauled compressor.	5 Days	None
80-1-240 1-25-80	HV-21236	Faulty "O" ring in operator.	Valve would not open.	Corrective	Replaced "O" ring.	Approximately 2 Hours	None
80-1-293 2-18-80	VSS-117	Normal Wear	Leaking oil and inoperable snubber.	Corrective	Replaced with another snubber.	1 Day	None
80-2-22 2-20-80	V-91454	Normal Wear	P-9106X could not maintain system pressure.	Corrective	Replaced.	3 Hours	None

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80-2-120 2-27-80	P-9105X	Normal Wear	Hydraulic leak at pump.	Corrective	Rebuilt pump.	2 Days	None
80-2-168 2-19-80	C-8203	Solenoid and pressure switch failed due to normal wear.	"C" instrument air compressor would not load.	Corrective	Replaced solenoid and pressure switch.	3 Hours	None
80-2-213 2-23-80	PV-22129/ 22153	Normal Wear	Valves leaked through.	Corrective	Replaced seats, plug, and stem.	12 Hours	None
80-2-223 3-5-80	C-8203	Normal Wear	Air compressor inoperable.	Corrective	Rebuilt the air compressor.	3 Days	None
80-2-295 3-19-80	S-2115	Increased resistance in connector.	Lost speed indication for 1B circulator water turbine drive (1 channel only).	Corrective	Replaced cable connector and re-balanced circuit.	2 Hours	None
80-2-305 9-25-80	P-2105	Normal Wear	Seal leakage excessive.	Corrective	Replaced pump seal.	16 Hours	None
80-2-324 7-20-80	V-22184	Normal Wear	Upstream relief valve leaking.	Corrective	Replaced gasket.	1 Day	None
80-2-332 2-29-80	RWP Logic,	Failed chip Z48 in module - Natural end of life.	RWP light would not clear.	Corrective	Replaced chip.	1/2 Hour	None
80-2-338 3-3-80	P-9101X	Shaft out of alignment.	Pump motor burned up.	Corrective	Replaced motor.	2 Days	None
80-3-44 3-3-80	K-9201	Faulty control panel (Woodward 2301).	"A" emergency diesel generator would not load properly.	Corrective	Replaced control panel with spare.	2 Hours	None
80-3-61 3-5-80	HV-2223	Normal Wear	Oil leak from operator.	Corrective	Replaced "O" rings in operator.	2 Days	None

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80-3-95 10-8-80	HV-2251	Normal Wear	Valve leaks at seal ring.	Corrective	Replaced seal ring and honed seating surfaces.	150 Hours	None
80-3-107 6-23-80	HV-22222	Normal Wear	Valve leaked.	Corrective	Replaced seat and gaskets.	4 Hours	None
80-3-122 3-10-80	TDSL-22105	Bad chip/normal end of life.	Single channel trip for reheat temperature differential.	Corrective	Replaced chip.	2 Hours	None
80-3-125 10-8-80	HV-2215	Normal Wear	Valve leaks through.	Corrective	Repaired valve seat.	96 Hours	None
80-3-142 12-19-80	FE-1117	Normal Wear	Moisture monitor flow element failed.	Corrective	Replaced flow element.	8 Hours	None
80-3-126 3-9-80	HV-21353	Normal Wear	Valve leaks through.	Corrective	Replaced disc.	3 Hours	None
80-3-140 3-10-80	TE-22144	Shorted out due to normal wear.	The temperature channel failed down scale.	Corrective	Replaced element.	2 Hours	None
80-3-141 6-25-80	MM-1122	Normal Wear	Insufficient flow for moisture monitor.	Corrective	Replaced flow element and cleaned unit up.	Approximately 2 Days	None
80-3-188 3-12-80	SM-21172	Normal Wear	Lost one speed channel for circulator trip.	Corrective	Repaired bad connection at pin 24 of SM-21172. Replaced cable.	3 Hours	None
80-3-216 4-1-80	K-9203	Normal Wear	"A" emergency diesel generator high oil temperature alarms spuriously.	Corrective	Replaced bad alarm card.	2 Hours	None
80-3-224 8-27-80	PV-21244	Normal Wear	Valve leaked through.	Corrective	Rebuilt valve seat and disc.	16 Hours	None

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80-3-271 3-17-80	SC-2111	Normal Wear	Loss of circulator speed signal.	Corrective	Repaired connection.	1 Hour	None
80-3-232 3-14-80	V-82473	Normal Wear	Air compressor C-8203 inoperable.	Corrective	Valve replaced.	4 Hours	None
80-3-247 3-16-80	SV-2111	Normal end of life for a directional solenoid.	Valve went closed and would not open.	Corrective	Replaced solenoid.	2 Hours	None
80-3-334 7-2-80	V-9172	Normal Wear	Valve inoperable.	Corrective	Replaced valve stem and handle.	Approximately 3 Hours	None
80-3-343 5-16-80	PV-21243/ 21244	Normal Wear	Valve leakage on PV-21243 and 21244.	Corrective	Replaced 2" valve trim with 1 3/8" valve trim.	15 Hours	None
80-3-344 6-10-80	HV-2303	Overload on breaker stuck.	Valve would not operate.	Corrective	Replaced overload.	Approximately 2 Hours	None
80-3-347 9-5-80	HV-2302	Normal Wear	Valve would not close.	Corrective	Rewound operator motor and replaced position switch.	32 Hours	None
80-3-348 6-27-80	MM-1122	Normal Wear	Low sample flow indication.	Corrective	Replaced with spare.	3 Days	None
80-3-377 4-2-80	P-2109	Normal Wear	Large leak in mechanical seal on emergency booster pump.	Corrective	Repaired seal.	1 Day	None
80-3-378 4-9-80	P-2110	Normal Wear	Pump carrier bearing making excessive noise.	Corrective	Replaced bearings, seals, and cask.	18 Hours	None
80-3-382 3-25-80	1A Diesel Generator	Normal Wear	Unit remained running after being shutdown from Control Room.	Corrective	Replaced relay.	2 Hours	None

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80-3-431 3-29-80	C-2102	Normal Wear	Steam leak at circulator flange.	Corrective	Installed new flex gaskets.	27 Hours	None
80-3-433 5-16-80	PV-21243	Normal Wear	Leakage through PV-21243.	Corrective	Replaced trim in valve.	4 Hours	None
80-3-435 3-28-80	HV-21352	Normal Wear	Valve leaks.	Corrective	Replaced teflon valve seat.	4 Hours	None
80-3-436 3-28-80	RIS-93252-11	Normal end of life.	No fail light out.	Corrective	Replaced AI on detector pre-amp.	2 Hours	None
80-3-463 4-16-80	C-8201S	Normal Wear	1B instrument air compressor noisy.	Corrective	Performed 5-year inspection. Rebuilt and repaired parts as necessary.	2 Weeks	None
80-3-464 4-8-80	FE-1117	Normal Wear	Flow element failed.	Corrective	Replaced flow element.	8 Hours	None
80-4-19 4-3-80	CT-2A2	Normal end of life.	Low input voltage on chip.	Corrective	Replaced Z-41.	2 Hours	None
80-4-61 4-5-80	SSL-21167-2	Normal end of life.	Switch would not trip correctly.	Corrective	Replaced A-101 amplifier and Q-102 transistor.	3 Hours	None
80-4-62 4-5-80	CC-2A1	Normal end of life.	Low input voltage on logic chip.	Corrective	Replaced Z-43 logic chip.	2 Hours	None
80-4-119 4-11-80	HV-2224	Normal Wear	Hydraulic oil leakage at HV-2224.	Corrective	Replaced "O" rings.	1 Day	None
80-4-124 5-1-80	ME-9308	Loose connection.	MI-9308 pegged down-scale.	Corrective	Repaired wire.	2 Hours	None
80-4-129 9-26-80	SV-2109	Normal Wear	Valve leaks through.	Corrective	Replaced timer on valve.	16 Hours	None

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80-4-130 9-6-80	SV-2115	Normal Wear	Valve leaking through.	Correc- tive	Replaced trim and calibrated.	4 Hours	None
80-4-131 9-19-80	SV-2116	Normal Wear	Valve leaks through.	Correc- tive	Replaced trim set on annual calibration.	1 Day	None
80-4-147 4-16-80	V-46297	Normal Wear	Service water outlet valve of bearing water cooler will not turn.	Correc- tive	Freed up valve stem.	2 Hours	None
80-4-148 9-13-80	V-21476	Normal Wear	Loop 1 bearing water safety valve leaking through.	Correc- tive	Repaired valve.	3 Days	None
80-4-160 5-16-80	P-9106X	Normal Wear	Pump tripped.	Correc- tive	Replaced bad motor.	3 Hours	None
80-4-170 4-16-80	CTI-BR4	Normal end of life.	Low input voltage.	Correc- tive	Replaced Z-35 and Z-37.	3 Hours	None
80-4-225 4-25-80	HV-21205-4 /21193-4	Normal Wear	1B circulator brake and seal bottle depletion.	Correc- tive	Replaced valves.	1 Day	None
80-4-226 5-12-80	PV-21244-1	Normal Wear	Valve cycling and creating pressure fluctuations on Loop 2 emergency feedwater header.	Correc- tive	Rebuilt and calibrated valve.	1 Day	None
80-4-254 5-2-80	P-9102X	Normal Wear	Pump vibrating excessively.	Correc- tive	Replaced pump coupling.	1 Day	None
80-4-264 5-23-80	P-2109	Normal Wear	Mechanical seal leakage on pump.	Correc- tive	Replaced seal.	12 Hours	None
80-4-297 5-2-80	CS-1A2	Normal Wear	Loop shutdown while attempting to reset RIS-9325-11.	Correc- tive	Replaced defective components Z-48 and Z-32.	1 Hour	None

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80-4-304 4-25-80	Alarm	Normal Wear	Loop 2 reheat steam pressure high-low alarms when between setpoints.	Corrective	Repaired faulty alarm card.	1 Hour	None
80-5-17 10-10-80	V-2245	Normal Wear	Valve leaks through.	Corrective	Rebuilt valve seat and disc.	16 Hours	None
80-5-29 9-13-80	V-21958	Normal Wear	Packing leak.	Corrective	Repacked valve.	1 Hour	None
80-5-66 5-5-80	M-92835	Normal Wear	Moisture trap on starting air line for "B" diesel generator blew off petcock.	Corrective	Installed new trap.	1 Hour	None
80-5-83 5-12-80	MM-1115	Sample flow valve adjusting pot operating poorly.	Sample flow control operating abnormally.	Corrective	Replaced DC power supply filter capacitor.	4 Hours	None
80-5-85 5-9-80	PV-21244-1	Normal Wear	PV-21244-1 leaking at approximately 1/2 gpm.	Corrective	Replaced pipe downstream of valve.	4 Hours	None
80-5-179 9-3-80	V-75600	Normal Wear	Packing leak.	Corrective	Repacked valve.	2 Hours	None
80-5-195 5-16-80	V-21268-1	Normal Wear	Safety valve leaking through.	Corrective	Valve repaired and adjusted.	16 Hours	None
80-5-196 5-16-80	V-21268-2	Normal Wear	Safety valve leaking through.	Corrective	Valve repaired and adjusted.	16 Hours	None
80-5-224 5-16-80	PV-21243	Normal Wear	Valve leaking between seat ring and body.	Corrective	Put devcon on gasket surface. Replaced valve.	1 Day	None

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80-5-234 8-31-80	TI/TC-2226	Normal Wear	Low indication on TI-2226 and to TC-2226.	Corrective	TT-2226-3 repaired, calibrated, and re-installed.	2 Hours	None
80-5-248 5-20-80	TSL-1175	Normal Wear	Circulator inlet temperature low alarm function not working.	Corrective	Replaced CR-10 and checked module.	2 Hours	None
80-5-259 6-11-80	MSS-149	Normal Wear	Low oil level in snubber.	Corrective	Rebuilt cylinder and valve.	4 Hours	None
80-5-277 5-23-80	CC-2A1	Normal Wear	Low voltage at input to pin Y.	Corrective	Replaced Z-44.	2 Hours	None
80-5-278 5-23-80	CT-1AC2	Normal Wear	Low voltage at input to pin P.	Corrective	Replaced Z-37.	2 Hours	None
80-5-287 5-28-80	HV-2293	Normal Wear	Oil leak from line west of valve body.	Corrective	Relief valve replaced.	1 Hour	None
80-5-293 6-19-80	PS-1106-7	Switch leaks.	Reserve shutdown bottle lost pressure due to leak.	Corrective	Replaced switch.	2 Hours	None
80-5-305 5-27-80	CT-1AR2	Normal Wear	Testing could not be completed due to chip.	Corrective	Replaced Z-31.	1 Hour	None
80-5-306 9-2-80	SC-8201	Normal Wear	Purge flow on "A" instrument air dryer not working properly.	Corrective	Replaced Humistat at sensing element.	2 Hours	None
80-5-312 5-27-80	LAHL-21135	Normal Wear	Loop 1 bearing water surge tank level alarming continuously with tank level 3" above low level alarm.	Corrective	Repaired and reset alarm card.	3 Hours	None

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80-5-349 6-2-80	CT-1BL3	Normal end of life.	Low input voltage on chip inputs.	Corrective	Replaced Z-9 chip.	Approximately 2 Hours	None
80-5-350 6-2-80	CTI-BR4	Normal end of life.	Low input voltage on chip's inputs.	Corrective	Replaced chip.	Approximately 2 Hours	None
80-6-6 6-6-80	FE/FT-21138	Normal Wear	Faulty indication on IC helium circulator backup bearing water.	Corrective	Replaced upper seal and force motor and calibrated transmitter.	4 Hours	None
80-6-12 6-9-80	ISL-93207-1	Normal Wear	"A" dump system logic trouble alarm would not come up with ISL-93207-1 energized.	Corrective	Replaced K1, Q1, CR11, CR9, C3.	4 Hours	None
80-6-18 6-4-80	H-1301	Normal Wear	Faulty impact limiter.	Corrective	Impact limiter repaired.	1 Day	None
80-6-35 6-3-80	HOS-30	Personnel using equipment as stepping platform.	Snubber upside down (cylinder rotated).	Corrective	Filled snubber with oil and installed correctly.	4 Hours	None
80-6-45 6-4-80	HV-46246-1	Normal Wear	Valve would not operate because the valve stem separated from operator.	Corrective	Reconnected valve stem to operator.	Approximately 2 Hours	None
80-6-158 6-10-80	PI-4216	Normal end of life.	Local gauge failed to indicate discharge pressure.	Corrective	Replaced gauge calibrate.	Approximately 2 Hours	None
80-6-190 6-11-80	HV-2217	Normal Wear	Leakage on 5-valve manifold of HV-2217.	Corrective	Replaced seat and "O" ring in 5-valve manifold. Replaced L-valve.	1 Hour	None

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80-6-197 6-16-80	FT-2211	Normal Wear	Flow transmitter leaked at blowdown fitting.	Corrective	Replaced fitting.	Approximately 2 Hours	None
80-6-208 9-1-80	V-21298	Normal Wear	Backup bearing water relief valve leaking through.	Corrective	Repaired valve per procedure.	12 Hours	None
80-6-224 6-16-80	1" L21606-D21	Wear at pipe elbow.	Pipe leaked.	Corrective	Replaced elbows.	Approximately 4 Hours	None
80-6-225 6-18-80	PV-21243	Normal Wear	Inability to maintain setpoint on PV-21243.	Corrective	Devconed under seal ring gasket.	4 Hours	None
80-6-236 6-27-80	PDT-2177-1	Bellows of PDT-2177-1 failed, allowing bearing water into the buffer helium system.	Buffer helium upset on Loop 1 and trip of Loop 1 circulators.	Corrective	Replaced bellows assembly.	Approximately 3 Hours	None, caused loop shut-down and increased moisture in the primary coolant, but would not prevent a safe shut-down.
80-6-256 6-17-80	TE-22139	Normal end of life.	Single channel scram from plant protective system.	Corrective	Replaced TE with new TE.	Approximately 2 Hours	None
80-6-259 6-24-80	P-9105X	Normal Wear	Pump unable to operate.	Corrective	Replaced motor.	Approximately 5 Days	None
80-6-293 9-9-80	V-7221	Normal Wear	Valve leaks through.	Corrective	Replaced valve.	24 Hours	

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80-6-323 6-25-80	HV-21193-2	Normal Wear	Valve leaked by.	Corrective	Replaced valve.	Approximately 4 Hours	None
80-6-324 10-10-80	V-2214	Normal Wear	Valve leaks at flange.	Corrective	Repaired valve flange.	16 Hours	None
80-6-346 6-26-80	HS-2238	Normal Wear	Spring broken on "spring-return" type handswitch.	Corrective	Repaired spring.	2 Hours	None
80-6-350 6-27-80	C-8203	Normal fouling of the water cooling system.	Instrument air compressor tripped on high discharge temperature.	Corrective	Acid cleaned the cooling water line.	Approximately 8 Hours	None
80-6-353 8-25-80	TS-8245	Normal Wear	Temperature switch for "C" instrument air compressor broken at temperature element.	Corrective	Replaced and calibrated new switch.	2 Hours	None
80-6-363 6-27-80	System 93	Normal end of life.	30% RWP trip out of specified limits.	Corrective	Replaced amplifier A51 (702) and calibrated per procedure.	Approximately 1 Hour	None
80-6-370 6-30-80	C-8201	Normal Wear	Packing leaked air and a knock was detected.	Corrective	Replaced packing and one of the discharge valves.	Approximately 5 Hours	None
80-6-384 9-4-80	HV-22225	Normal Wear	Valve leaks at flange.	Corrective	Repaired valve seat, disc, and flange.	16 Hours	None
80-6-393 7-2-80	V-9170	Valve stuck closed.	Valve stem broken.	Corrective	Replaced valve bonnet and stem.	8 Hours	None
80-6-400 7-2-80	PC-22192	Normal end of life for auto-manual relay.	Controller would not go into automatic operation.	Corrective	Replaced auto-manual relay.	Approximately 1 Hour	None

## SIGNIFICANT MAINTENANCE SUMMARY

IDENTIFICATION NUMBER AND DATE	SYSTEM/ COMPONENT	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	NATURE OF MAINTENANCE	CORRECTIVE ACTION	TIME REQUIRED FOR COMPLETION	EFFECT ON SAFE OPERATION OF THE REACTOR
80-6-404 7-1-80	CT-2A2	Normal end of life.	Input voltage zero with no modules tripped.	Corrective	Replaced Q11 in LRD-1. Checked operation per RP-86.	Approximately 2 Hours	None
80-6-405 7-1-80	LRD-1 402-P2	Normal end of life.	Single channel trip on 1D circulator.	Corrective	Replaced Q11 in LRD-1 404-P2 and checked per RP-86.	Approximately 2 Hours	None
80-7-29 7-3-80	FC-2205/ 2206	Normal end of life of several electrolytic capacitors.	The Loop 1 and Loop 2 feedwater flows separated approximately 100 Klb/hr.	Corrective	Replaced capacitors and a resistor.	Approximately 2 Hours	None
80-7-60 7-5-80	CT-2A2	Normal end of life.	Low voltage on chip inputs.	Corrective	Replaced Z-42 and checked RP-80 and RP-433.	Approximately 1 Hour	None
80-7-71 7-7-80	HV-21352	High temperature and excess wear caused valve disc to leak.	Cross tower leakage in the buffer helium dryer.	Corrective	Replaced teflon disc with a brass disc.	Approximately 2 Hours	Increased moisture level in the primary coolant.
80-7-96 7-10-80	HV-22225	Normal Wear	Valve blowing steam.	Corrective	Repaired steam leak.	2 Hours	None
80-7-100 7-9-80	SV-2111	Normal Wear	SV-2111 would not open via SC-2111.	Corrective	Replaced solenoid valve.	1 Day	None
80-7-101 7-24-80	Alarms	Normal Wear	1B circulator penetration pressure high alarm would not clear.	Corrective	Replaced chips in CT-2 module.	1 Hour	None
80-7-115 7-11-80	SV-2105	Normal Wear	Broken hydraulic return line.	Corrective	Replaced hydraulic flex line.	2 Hours	None
80-7-142 7-24-80	Plant Protective System	Normal Wear	Low voltage at logic inputs.	Corrective	Replaced chips in logic module.	1 Hour	None

## SIGNIFICANT MAINTENANCE SUMMARY

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80-7-144 7-28-80	K-9204X	Normal Wear	After cooler leakage.	Corrective	Replaced after cooler per service manual.	3 Days	None
80-7-145 7-14-80	Plant Protective System	Normal Wear	Low voltage at logic module.	Corrective	Replaced logic chip.	1 Hour	None
80-7-172 9-24-80	HV-1102-27 /HV-1104-27	Normal Wear	Valves leak through.	Corrective	Replaced valve discs and packing.	4 Hours	None
80-7-173 9-24-80	V-11677	Normal Wear	Region 27 "M" valve leakage makes helium cylinder change-out difficult.	Corrective	Polished stem and seat, installed new disc, and re-installed valve.	4 Days	None
80-7-218 8-20-80	HV-2245 Operator	Normal Wear	Valve inoperable.	Corrective	Replaced valve operator motor.	2 Hours	None
80-7-233 7-24-80	C-8201	Normal Wear	"A" instrument air compressor tripping due to high water temperature.	Corrective	Replaced capillary tube assembly.	4 Hours	None
80-7-255 9-3-80	V-22184	Normal Wear	Valve leaks through.	Corrective	Lapped seat and replaced disc.	16 Hours	None
80-7-257 9-1-80	PV-22167	Normal Wear	Pilot valve leaks.	Corrective	Rewelded pilot tubes.	16 Hours	None
80-7-296 7-25-80	Plant Protective System	Loose connection.	Channel A and B single channel scram did not energize during Surveillance Test.	Corrective	Repaired loose connection and retested.	2 Hours	None
80-7-297 9-6-80	V-211092	Normal Wear	Valve leaks through.	Corrective	Replaced valve.	8 Hours	None

SIGNIFICANT MAINTENANCE SUMMARY

IDENTIFICATION NUMBER AND DATE	SYSTEM/COMPONENT	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	NATURE OF MAINTENANCE	CORRECTIVE ACTION	TIME REQUIRED FOR COMPLETION	EFFECT ON SAFE OPERATION OF THE REACTOR
80-7-311 7-25-80	Reserve Shutdown System Bottle Connection	Normal Wear	Brass fitting at reserve shutdown system bottle connection leaks.	Corrective	Replaced fitting.	1 Hour	None
80-7-314 9-30-80	V-45200	Truck ran over valve.	Valve broken off.	Corrective	Replaced valve bonnet.	8 Hours	None
80-7-315 9-30-80	V-45203	Truck ran over valve.	Valve broken off.	Corrective	Replaced valve bonnet and stem.	8 Hours	None
80-7-319 9-30-80	TIC-75107	Normal Wear	Controller inoperable.	Corrective	Replaced controller.	4 Hours	None
80-7-320 7-28-80	Plant Protective System	Normal Wear	Low voltage on circulator trip module.	Corrective	Replaced chip Z-28.	2 Hours	None
80-7-321 7-28-80	Plant Protective System	Normal Wear	Low voltage at circulator trip module during Surveillance Test.	Corrective	Replaced chip Z-35.	2 Hours	None
80-7-330 9-15-80	PV-21243	Normal Wear	Valve body requires rework.	Corrective	Repaired valve per procedure.	1 Day	None
80-7-346 7-28-80	C-8201S	Normal Wear	Compressor stays loaded and heats up.	Corrective	Replaced discharge valves.	1 Day	None
80-7-374 9-23-80	V-21280-1	Normal Wear	Valve leaks through.	Corrective	Lapped valve seat and disc.	16 Hours	None
80-8-30 8-6-80	V-21268-1	Normal Wear	Leakage through safety relief valve V-21268-1.	Corrective	Repaired seat, disc, and valve body.	1 Day	None
80-8-31 8-6-80	V-21268-2	Normal Wear	Leakage through safety relief valve V-21268-2.	Corrective	Repaired seat, disc, and valve body.	1 Day	None

## SIGNIFICANT MAINTENANCE SUMMARY

IDENTIFICATION NUMBER AND DATE	SYSTEM COMPONENT	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	NATURE OF MAINTENANCE	CORRECTIVE ACTION	TIME REQUIRED FOR COMPLETION	EFFECT ON SAFE OPERATION OF THE REACTOR
80-8-36 8-5-80	MM-1121	Normal Wear	Heater power controller for MM-1121 blowing fuses.	Corrective	Replaced component A2 and checked out per procedure.	2 Hours	None
80-8-57 8-19-80	HV-2245	Normal Wear	1A circulator steam inlet valve will not open.	Corrective	Installed new motor and tested valve.	4 Hours	None
80-8-67 9-18-80	V-7209	Normal Wear	Valve leaks through.	Corrective	Replaced valve.	16 Hours	None
80-8-68 9-15-80	Control Rod Drive Region 23	Normal Wear	Position indicator inoperable for region 23 control rod drive.	Corrective	Changed out control rod drive.	3 Days	None
80-8-69 8-6-80	K-23-1	Normal Wear	In-limit position indication faulty for region 23.	Corrective	Installed and tested new K-23-1 relay.	1 Hour	None
80-8-74 9-10-80	V-21453	Normal Wear	Valve leaking through.	Corrective	Lapped valve seat and disc.	15 Hours	None
80-8-97 9-18-80	V-7216	Normal Wear	Valve leaks through.	Corrective	Removed, repaired, and re-installed valve.	16 Hours	None
80-8-100 8-6-80	HV-2292	Normal Wear	Hydraulic oil leak on HV-2292.	Corrective	Replaced poppet block "O" rings.	2 Hours	None
80-8-157 8-13-80	Plant Protective System	Normal Wear	Low voltage at circulator trip module during Surveillance Test.	Corrective	Replaced chip Z-36 and Z-37.	2 Hours	None
80-8-161 9-10-80	V-21268-2	Normal Wear	Valve V-21268-2 leaking through.	Corrective	Repaired valve seat and disc.	12 Hours	None
80-8-190 9-19-80	V-22185	Normal Wear	Valve packing leaks.	Corrective	Repacked valve.	12 Hours	None

## SIGNIFICANT MAINTENANCE SUMMARY

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80-8-191 9-19-80	SV-2110	Normal Wear	Valve leaks through.	Corrective	Replaced trim set during annual calibration.	1 Day	None
80-8-199 8-18-80	PV-2244	Inproper installation.	Oil line to PV-2244 broken.	Corrective	Installed new pipe nipple and bushing.	4 Hours	None
80-8-221 8-18-80	MM-1115	Normal Wear	MM-1115 heater failure.	Corrective	Replaced fuse.	1/2 Hour	None
80-8-264 9-19-80	V-2246	Normal Wear	Valve leaks through.	Corrective	Replaced disc, machined and lapped seat.	16 Hours	None
80-8-275 9-1-80	Linear Channel IV	Bad solder joint.	RWP trip received at 24% indicated power.	Corrective	Repaired solder joint. Checked connection, reset RWP trips.	2 Hours	None
80-8-291 8-22-80	V-8218	Normal Wear	"A" instrument air compressor discharge relief valve blowing through.	Corrective	Replaced disc, guide and guide follower.	8 Hours	None
80-8-298 8-21-80	Plant Protective System	Normal Wear	Low voltage input to CC-2B2.	Corrective	Replaced chip Z-43, checked module per procedure.	1 Hour	None
80-8-302 8-21-80	Plant Protective System	Normal Wear	Low voltage at CC-2A2.	Corrective	Replaced chip Z-43, checked module per procedure.	1 Hour	None
80-8-303 8-21-80	Plant Protective System	Normal Wear	Low voltage at CT-1BL3.	Corrective	Replaced chip Z-9, checked module per procedure.	1 Hour	None
80-8-340 9-16-80	MSS-191	Undetermined	Snubber piston out of tolerance.	Corrective	Installed shim.	2 Hours	None

## SIGNIFICANT MAINTENANCE SUMMARY

IDENTIFICATION NUMBER AND DATE	SYSTEM/ COMPONENT	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	NATURE OF MAINTENANCE	CORRECTIVE ACTION	TIME REQUIRED FOR COMPLETION	EFFECT ON SAFE OPERATION OF THE REACTOR
80-8-342 9-26-80	HRS-129	Undetermined	Snubber piston out of tolerance.	Corrective	Repaired snubber per procedure.	4 Hours	None
80-8-343 9-16-80	HRS-158	Undetermined	Snubber piston out of tolerance.	Corrective	Installed shim per procedure.	2 Hours	None
80-8-351 9-14-80	CRS-262	Undetermined	Snubber piston out of tolerance.	Corrective	Removed 3/4" from piston rod end and re-installed.	4 Hours	None
80-8-353 8-28-80	MSS-421	Undetermined	Snubber piston rod bent.	Corrective	Replaced with new snubber.	1 Hour	None
80-8-370 9-16-80	BFS-412	Undetermined	Snubber piston out of tolerance.	Corrective	Repaired snubber per approved procedure.	4 Hours	None
80-8-373 9-16-80	V-21268-1	Normal Wear	Relief valve leaks through.	Corrective	Repaired valve seat and disc.	20 Hours	None
80-8-395 9-13-80	P-9102X	Normal Wear	Coupling on P-9102X bad.	Corrective	Replaced coupling.	1 Day	None
80-8-406 9-25-80	HV-2302	Normal Wear	Valve stuck closed.	Corrective	Repaired manual override.	16 Hours	None
80-9-33	C-8201S	Normal Wear	Compressor trips on high discharge temperature.	Corrective	Replaced broken discharge check valve.	5 Hours	None
80-9-73 9-18-80	Reserve Shutdown Bottle Connection	Normal Wear	Connector leaks.	Corrective	Repaired connector.	3 Hours	None
80-9-80 9-9-80	V-21522	Normal Wear	Seat and disc of V-21522 required repair.	Corrective	Machined valve seat and disc.	16 Hours	None
80-9-91 9-10-80	C-8201S	Normal Wear	Discharge pressure low.	Corrective	Replaced broken discharge valve.	5 Hours	None

## SIGNIFICANT MAINTENANCE SUMMARY

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80-9-120 9-9-80	C-8201	Normal Wear	"A" instrument air compressor loading/unloading constantly.	Corrective	Replaced pressure switch and solenoid.	2 Hours	None
80-9-121 9-9-80	HV-2187-2	Normal Wear	Air regulator leaking on HV-2187-2.	Corrective	Replaced leaking regulator.	2 Hours	None
80-9-123 9-8-80	PDE-1166	Normal Wear	1C circulator differential pressure element out of tolerance.	Corrective	Replaced element and calibrated.	2 Hours	None
80-9-125 10-9-80	HV-46259-2	Normal Wear	Handwheel slips.	Corrective	Replaced handwheel key.	2 Hours	None
80-9-170 9-12-80	TIC-75107	Switch wires shorted out.	Switch does not operate.	Corrective	Replaced thermostat.	2 Hours	None
80-9-230 10-2-80	C-7521	Normal Wear	Motor burned up.	Corrective	Found short in motor and repaired.	4 Hours	None
80-9-244 9-29-80	HV-22113 Operator	Normal Wear	Operator leaks air.	Corrective	Tightened diaphragm seal and replaced air tubing.	4 Hours	None
80-9-349 10-10-80	Hydraulic Snubber MSS-433	Normal Wear	Snubber lower reservoir seal leaks.	Corrective	Tightened seal.	4 Hours	None
80-9-375 9-26-80	HRS-205	Undetermined	Snubber piston out of tolerance.	Corrective	Extended stanchion 1/4".	4 Hours	None
80-9-376 9-27-80	HOS-10	Undetermined	Snubber piston out of tolerance.	Corrective	Installed new pipe stanchion.	6 Hours	None
80-9-389 9-27-80	HOS-86	Undetermined	Snubber piston out of tolerance.	Corrective	Pipe clamp moved 1 5/8" towards anchor pin.	2 Hours	None

SIGNIFICANT MAINTENANCE SUMMARY

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80-9-390 9-27-80	VSS-123	Undetermined	Snubber hitting I-beam interference.	Corrective	Raised collar up 1/2".	2 Hours	None
80-9-400 9-29-80	HV-2254 Position Switch	Normal Wear	Switch inoperable.	Corrective	Replaced switch.	1 Hour	None
80-9-401 10-1-80	PI-21248	Normal Wear	Indicated pressure wrong.	Corrective	Replaced gauge.	2 Hours	None
80-9-412 9-27-80	LC-21306	Normal Wear	Controlled level too high.	Corrective	Retubed controller.	2 Hours	None
80-9-430 10-2-80	SV-2111 Hydraulic Operator	Normal Wear	Valve will not open.	Corrective	Replaced valve operator solenoid.	8 Hours	None
80-9-431 10-7-80	HV-2245 Operator	Normal Wear	Valve inoperable.	Corrective	Replaced operator motor.	4 Hours	None
80-9-448 9-30-80	PI-21536-2	Normal Wear	Indicated pressure wrong.	Corrective	Replaced gauge.	2 Hours	None
80-9-460	HV-4507	Normal Wear	Valve leaks through.	Corrective	Cleaned valve internals.	1 Hour	None
80-9-471 10-1-80	PC-31213	Normal Wear	Not controlling properly.	Corrective	Repaired controller.	2 Hours	None
80-10-3 10-1-80	SV-2105	Normal Wear	Hydraulic oil leak at valve operator.	Corrective	Repaired solenoid valve.	7 Hours	None
80-10-32 10-3-80	K-9203 Ex- haust Temperature Switch	Normal Wear	Switch failed to trip engine during test.	Corrective	Replaced failed relay.	1 Hour	None
80-10-35 10-9-80	P-2109	Normal Wear	Pump output less than acceptable limit.	Corrective	Replaced pump impeller and mechanical seal.	16 Hours	None

SIGNIFICANT MAINTENANCE SUMMARY

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80-10-50 10-7-80	HV-21205-2	Normal Wear	Valve leaks through.	Correc- tive.	Replaced valve.	4 Hours	None
80-10-59	HV-21205-2	Normal Wear	Valve leaks through.	Correc- tive	Replaced valve.	4 Hours	None
80-10-93 10-8-80	SV-2105	Normal Wear	Hydraulic oil leak at valve operator.	Correc- tive	Replaced operator solenoid valve.	12 Hours	None
80-10-118 10-9-80	1" L21605- D2B	Normal Wear	Line leaks.	Correc- tive	Replaced half inch pipe nipple.	10 Hours	None
80-10-150 10-11-80	E-8223X Knock Out Pot	Normal Wear	Knock out pot would not drain.	Correc- tive	Cleaned pot, re- placed eroded pipe nipple.	12 Hours	None
80-10-162 10-13-80	V-21909	Unknown	Vent valve broken off filter housing.	Correc- tive	Replaced pipe nip- ple.	1 Hour	None
80-10-241 10-15-80	HV-21247/ 21248	Normal Wear	Valves leaked through.	Correc- tive	Replaced valve disc.	8 Hours	None
80-10-402 10-23-80	V-21268-1	Normal Wear	Valve leaks through	Correc- tive	Replaced valve seat and disc.	12 Hours	None
80-10-409 10-23-80	Loop 1 Group 1 "O" Ring	Normal Wear	Hydraulic oil leak.	Emer- gency	Replaced "O" ring.	6 Hours	None
80-10-247 10-24-80	V-9141	Valve handwheel missing.	Valve inoperable.	Correc- tive	Replaced valve handwheel.	1 Hour	None
80-10-431 10-24-80	TE-22145	Internal short.	Loss of temperature in- dicattion.	Correc- tive	Replaced failed thermocouple.	8 Hours	None
80-10-484 10-28-80	V-91696/ V-91697	Normal Wear	Valves leak through.	Correc- tive	Replaced in kind.	4 Hours	None
80-10-503 11-7-80	HV-21235	Normal Wear	Valve leaks through.	Correc- tive	Machined valve disc, lapped seat.	16 Hours	None

SIGNIFICANT MAINTENANCE SUMMARY

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80-10-515 11-6-80	LV-21114	Normal Wear	Valve operation erratic.	Corrective	Replaced valve operator diaphragm.	8 Hours	None
80-10-524 11-3-80	Plant Protective System Module CT-1BR4	Normal Wear	Module failed tripped.	Corrective	Replaced failed integrated circuits.	4 Hours	None
80-11-8 11-5-80	HV-21192-4	Normal Wear	Valve leaks through.	Corrective	Replaced valve.	4 Hours	None
80-11-9 11-5-80	HV-21194-4 /21206-4	Normal Wear	Valve leaks through.	Corrective	Replaced both valves.	8 Hours	None
80-11-27 11-3-80	Diesel Engine Exhaust Temperature Switch	Normal Wear	Switch failed to trip engine during test.	Emergency	Replaced switch and input thermocouple.	3 Hours	None
80-11-63 12-1-80	Hot Reheat Hanger HR-136	Normal Wear	"U" bolt broken.	Corrective	Replaced bolt.	32 Hours	None
80-11-67 11-6-80	LV-21114 Operator	Normal Wear	Valve operator would not completely close valve.	Corrective	Replaced ruptured valve operator diaphragm.	4 Hours	None
80-11-119 11-24-80	SV-2105 Hydraulic Operator	Normal Wear	Oil leak in return line.	Corrective	Replaced failed return line.	16 Hours	None
80-11-170 11-24-80	Plant Protective System Module CT-2	Normal Wear	Module failed test.	Corrective	Replaced failed integrated circuit.	4 Hours	None

## SIGNIFICANT MAINTENANCE SUMMARY

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80-11-259 11-21-80	Plant Protective System Module	Normal Wear	Module failed test.	Corrective	Replaced failed integrated circuit.	2 Hours	None
80-11-265 11-24-80	TSH-22135	Normal Wear	Spurious trip.	Corrective	Replaced grounded thermocouple with spare.	4 Hours	None
80-11-318 11-28-80	Line 1" L 22171-D3	Thermal growth.	Line cracked.	Emergency	Replaced failed line section.	3 Days	None
80-11-342 11-28-80	HV-2224	Normal Wear	Oil leak at "O" ring.	Corrective	Replaced "O" ring.	4 Hours	None
80-11-373 11-30-80	HV-2292 Hydraulic Operator	Normal Wear	Oil leak at cylinder relief valve.	Corrective	Replaced relief valve.	4 Hours	None
80-12-7 12-1-80	TDSL-22103	Normal Wear	Instrument indication erroneous.	Corrective	Cleaned electrical contacts.	4 Hours	None
80-12-60 12-10-80	P-9105X	Normal Wear	Hydraulic oil pump rough and noisy.	Corrective	Replaced pump and coupling.	5 Days	None
80-12-106 12-6-80	HV-2293 Hydraulic Operator	Normal Wear	Oil relief valve leaks.	Corrective	Replaced valve.	2 Hours	None
80-12-108 12-16-80	SV-2111 Hydraulic Operator	Normal Wear	Oil leak at poppet block.	Corrective	Replaced failed "O" ring.	5 Hours	None
80-12-256 12-23-80	Reserve Shut down Region 31 Bottle Connector.	Normal Wear	Connection would not seal.	Corrective	Replaced bottle connector.	1 Hour	None

SIGNIFICANT MAINTENANCE SUMMARY

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80-12-299 12-22-80	C-8201	Normal Wear	Instrument air compressor trips on high after-cooler temperature.	Corrective	Repaired.	6 Hours	None
80-12-334 12-26-80	TV-2228-2	Normal Wear	Water leak at grease fitting.	Corrective	Replaced grease fitting.	1 Hour	None
80-12-359 12-31-80	PS-1106-20	Normal Wear	Bourdon tube leak.	Corrective	Replaced switch.	2 Hours	None
80-12-391 12-29-80	PV-2244 Position Indicator	Normal Wear	Indicated valve position erratic.	Corrective	Replaced position element.	4 Hours	None

## SIGNIFICANT MAINTENANCE SUMMARY

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CWP-465 2-27-80	C-2102	Sockets cut down during circulator removal.	Sockets require weld buildup.	Corrective	Weld circulator steam outlet pipe in upright position.	48 Hours	None
CWP-486 5-16-80	PV-21243	Normal Wear	Valve leakage through PV-21243.	Corrective	Valve seat repaired.	2 Hours	None
CWP 80-32 10-1-80	PV-21243	Normal Wear	Valve leakage.	Corrective	Weld repair of valve seat.	8 Hours	None
CWP 80-34 11-13-80	V-21268-1	Normal Wear	Valve body erosion/valve leakage.	Corrective	Weld repair to valve body and seat.	16 Hours	None
CWP 80-35 10-28-80	PV-22167	Normal Wear	Valve leakage.	Corrective	Weld repair to valve gasket seal area.	8 Hours	None
CWP 80-45 9-24-80	HV-31119	Normal Wear	Leakage past seat and disc.	Corrective	Repaired valve seat and disc.	4 Days	None

2.0 PLANT OUTAGES OR FORCED REDUCTIONS IN POWER

NUMBER	PROXIMATE CAUSE	SYSTEM	MAJOR COMPONENT	RELATED REPORTABLE OCCURRENCE	CORRECTIVE ACTION TAKEN TO REDUCE THE PROBABILITY OF RECURRENCE	OPERATING TIME LOST	MAJOR SAFETY RELATED CORRECTIVE MAINTENANCE PERFORMED DURING THE OUTAGE	RADIATION RELEASE ASSOCIATED WITH OUTAGE WHICH ACCOUNTS FOR MORE THAN 10% OF ALLOWABLE ANNUAL VALUE
79-14	Maintenance and region constraint device installation shutdown continued in 1980 for replacement of helium circulator.	Primary Coolant	Helium Circulator	50-267/80-01/01-T-0	Replaced helium circulator.	1538.8 hours in 1980	Replaced helium circulator. Replaced speed cables on 1A, 1B, and 1D circulators. Repaired leaking HV-2215 and HV-2217.	None
80-01	Turbine over-speed test.	Power Conversion	Main Turbine	None	None	4.15 Hours	None	None
80-02	Circulating water tower pipe rupture.	Circulating Water	Distribution Pipe (Wood)	None	Repaired pipe.	123.8 Hours	None	None
80-03	Spurious scram.	Plant Protective System	Integrated Circuit	None	Replaced chip.	56.8 Hours	None	None
80-04	Loss of condensate vacuum.	Condensate	Boiler Feed-pump Turbine Drain	None	Closed valve.	49.25 Hours	None	None
80-05	Helium circulator trip.	Primary Coolant	1A Helium Circulator	None	None	53.2 Hours	None	None

2.0 PLANT OUTAGES OR FORCED REDUCTIONS IN POWER

NUMBER	PROXIMATE CAUSE	SYSTEM	MAJOR COMPONENT	RELATED REPORTABLE OCCURRENCE	CORRECTIVE ACTION TAKEN TO REDUCE THE PROBABILITY OF RECURRENCE	OPERATING TIME LOST	MAJOR SAFETY RELATED CORRECTIVE MAINTENANCE PERFORMED DURING THE OUTAGE	RADIATION RELEASE ASSOCIATED WITH OUTAGE WHICH ACCOUNTS FOR MORE THAN 10% OF ALLOWABLE ANNUAL VALUE
80-06	Helium circulator trip and loop shutdown.	Primary Coolant	1A Helium Circulator	None	None	30.0 Hours	None	None
80-07	High primary coolant oxidants.	Primary Coolant	None	None	Intentional power reduction.	-----	None	None
80-08	Spurious turbine trip.	Plant Protective System.	Logic Module	None	Replaced module.	0.6 Hours	None	None
80-09	Helium circulator trip.	Primary Coolant	Helium Circulator 1A	None	None	118.7 Hours	None	None
80-10	Spurious loop shutdown.	Plant Protective System	Logic Module	None	Replaced module.	5.9 Hours	None	None
80-11	Loop shutdown from helium circulator trip.	Primary Coolant	Bearing Water Surge Tank	None	None	18.8 Hours	None	None
80-12	Loop shutdown from helium circulator trip.	Primary Coolant	Helium Circulator 1A	None	Replaced failed differential pressure transmitter.	313.4 Hours	None	None

2.0 PLANT OUTAGES OR FORCED REDUCTIONS IN POWER

NUMBER	PROXIMATE CAUSE	SYSTEM	MAJOR COMPONENT	RELATED REPORTABLE OCCURRENCE	CORRECTIVE ACTION TAKEN TO REDUCE THE PROBABILITY OF RECURRENCE	OPERATING TIME LOST	MAJOR SAFETY RELATED CORRECTIVE MAINTENANCE PERFORMED DURING THE OUTAGE	RADIATION RELEASE ASSOCIATED WITH OUTAGE WHICH ACCOUNTS FOR MORE THAN 10% OF ALLOWABLE ANNUAL VALUE
80-13	Reactor scram.	Secondary Coolant	Feedwater System	None	None	339.9 Hours	Emergency generator heat exchanger leak repair.	None
80-14	Low steam pressure.	Secondary Coolant	Depressurization Valve	None	Reclosed depressurization valve.	0.4 Hours	None	None
80-15	Excess feed water flow.	Secondary Coolant	Feedwater Pumps	None	None	65.2 Hours	None	None
80-16	Hydraulic oil line leak.	Secondary Coolant	Circulator Bypass Valve	50-267/80-45/03-L-0	Repaired oil leak.	102.7 Hours	None	None
80-17	Electro-hydraulic turbine control failure. Scheduled shutdown started.	Turbine	24 Volt Power Supply	None	None	959.2 Hours	Repaired purification train inlet valve. Replaced one control rod drive. Overhaul engine driven fire water pump. Repair leaking steam generator dump valve. Repair hydraulic snubbers.	None

2.0 PLANT OUTAGES OR FORCED REDUCTIONS IN POWER

NUMBER	PROXIMATE CAUSE	SYSTEM	MAJOR COMPONENT	RELATED REPORTABLE OCCURRENCE	CORRECTIVE ACTION TAKEN TO REDUCE THE PROBABILITY OF RECURRENCE	OPERATING TIME LOST	MAJOR SAFETY RELATED CORRECTIVE MAINTENANCE PERFORMED DURING THE OUTAGE	RADIATION RELEASE ASSOCIATED WITH OUTAGE WHICH ACCOUNTS FOR MORE THAN 10% OF ALLOWABLE ANNUAL VALUE
80-18	Turbine taken off line to check stop valve.	Secondary Coolant	#2 Stop Valve Solenoid	None	Replaced solenoid.	2.2 Hours	None	None
80-19	Exciter breaker opened.	Secondary Coolant	Exciter	None	None	30.5 Hours	None	None
80-20	Low primary coolant pressure.	Primary Coolant	Helium Inventory	None	Increased helium inventory.	-----	None	None
80-21	Spurious loop shutdown.	Plant Protective System	Ultrasonic Noise Trip	None	Restored system after testing.	1.9 Hours	None	None
80-22	Hydraulic oil leak.	Hydraulic Power Unit	Blank Flange	None	Replaced "O" ring.	134.9 Hours	None	None
80-23	Testing	Primary Coolant	Core	None	None	-----	None	None
80-24	Testing	Primary Coolant	Core	None	None	-----	None	None
80-25	Hydraulic oil leak.	Secondary Coolant	Circulator Speed Valve	None	Repaired leaking line.	17.0 Hours	None	None
80-26	Steam leak.	Secondary Coolant	Hot Reheat Drain Line	None	Rewelded line.	36.7 Hours	None	None
80-27	Testing	Primary Coolant	Core	None	None	-----	None	None

2.0 PLANT OUTAGES OR FORCED REDUCTIONS IN POWER

NUMBER	PROXIMATE CAUSE	SYSTEM	MAJOR COMPONENT	RELATED REPORTABLE OCCURRENCE	CORRECTIVE ACTION TAKEN TO REDUCE THE PROBABILITY OF RECURRENCE	OPERATING TIME LOST	MAJOR SAFETY RELATED CORRECTIVE MAINTENANCE PERFORMED DURING THE OUTAGE	RADIATION RELEASE ASSOCIATED WITH OUTAGE WHICH ACCOUNTS FOR MORE THAN 10% OF ALLOWABLE ANNUAL VALUE
80-28	Excessive primary coolant moisture.	Primary Coolant	None	50-267/80-75/03-L-0	None	30.9 Hours	None	None
80-29	Feedwater leak.	Secondary Coolant	Steam Generator Trim Valve	None	Repaired valve.	15.0 Hours	None	None
80-30	Reactor scram.	Plant Protective System	Hot Reheat Steam High	None	None	27.3 Hours	None	None
80-31	Loop shut-down.	Secondary Coolant	Circulator Bypass Valve	None	Repaired valve position detector.	5.7 Hours	None	None
80-32	Steam leaks.	Secondary	Circulator Trim Valve and Main Steam Drain Valve	None	Repaired leaking valves.	6.9 Hours	None	None

3.0 RADIATION EXPOSURES

During the report period, two personnel received exposures in excess of 100 mrem. Below is a tabulation of the information required by Technical Specification AC 7.5.1(b)3.

<u>Number of Personnel</u>	<u>Total Exposure</u>	<u>Man-Rem Exposure</u>	<u>Duty Function</u>	<u>Dose Assignment</u>
1*	100 mrem	. 1	Portable radiation instrument calibration.	100%

<u>Number of Personnel</u>	<u>Extremity Exposure</u>	<u>Man-Rem Exposure</u>	<u>Duty Function</u>	<u>Dose Assignment</u>
1*	120 mrem	.12	Portable radiation instrument calibration.	100%
1	250 mrem	.25	In-core thermocouple traverse.	100%
1	230 mrem	.23	In-core thermocouple traverse.	100%

\*Same individual.

No other personnel received exposures greater than 100 mrem/year for the report period.

4.0 FUEL EXAMINATIONS

There was no indication of fuel failure found during examination of one irradiated fuel element.