

DETAILS

1. Persons Contacted

Licensee Employees

- *J. L. Wilson, Station Manager
- *R. F. Saunders, Assistant Station Manager
- *G. E. Kane, Operations Superintendent
- *D. A. Christian, Superintendent of Technical Services
- *R. Driscoll, Director QA, Nuclear Operations
- D. Rickeard, Supervisor, Safety Engineering Staff
- S. Sarver, Health Physics Supervisor
- *F. Rentz, Station Quality Assurance Engineer

Other licensee employees contacted included control room operators, Shift Supervisors, chemistry, health physics, plant maintenance, security, engineering, administrative, records, and contractor personnel.

*Attended exit interview

2. Management Interviews

The inspection scope and findings were summarized on a biweekly basis with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Unit 1 Operations

Unit 1 operations were inspected and reviewed during the inspection period. During this time, the inspectors routinely toured the Unit 1 control room and other plant areas to verify that the plant operations, testing, and maintenance were being conducted in accordance with the facility Technical Specifications (TS) and procedures. Within the areas inspected, no violations were identified.

Specific areas of inspection and review included the following:

- a. Review of annunciated alarms in the control room and inspection of safety-related valve and pump alignments on the consoles and in the plant.

- b. Unit 1 experienced a reactor trip from full power on July 13, 1982, during performance of Periodic Test 8.1., "Reactor Protection Logic" testing. The trip occurred when the main reactor trip breaker opened as required during periodic testing; however, the B bypass trip breaker had not been fully racked in and thus certain auxiliary electrical contacts on the bypass breaker were not properly made up to block the reactor trip. To assure that the bypass breaker B and the auxiliary contacts were functioning as required, the inspectors requested that the breaker be retested prior to returning Unit 1 to power operations. The breaker was inspected and retested and performed satisfactorily. Following the reactor trip, the inspectors observed that the source range detectors did not automatically re-energize, since one of the intermediate range nuclear instruments did not decrease to 10^{-10} amps. The source range detectors were manually re-energized (made operable) by the reactor operator. The licensee is inspecting the intermediate range detector to ensure that the ion chamber is not undercompensated. The inspectors were also concerned with the magnitude of the cooldown of the primary system which followed the Unit 1 trip. Although the Technical Specification limit of 100°F/hr was not exceeded, the primary system temperature decreased some 72°F following the trip, causing primary pressure to decrease from 2235 psig to 1800 psig, and dropping pressurizer level to approximately 12%. The main steam dump valves appeared to function normally following the trip and no safety or power operated relief valves on the primary or secondary sides opened during the trip or cooldown.

The licensee is reviewing the cooldown and verifying proper calibration of the steam dump valves controls. The cooldown is aggravated by the addition of cool auxiliary feedwater to the steam generators as well as the removal of steam (energy) through the steam driven auxiliary feedwater pump, the moisture separator reheater isolation valves, and the auxiliary steam systems. Licensee actions to correct increasingly large cooldowns following reactor trips will be designated open item (280/82-22-01).

- c. Subsequent to the Unit 1 trip at 2:00 p.m. on July 12, 1982, and re-establishment of criticality at 4:12 p.m., a controlled shutdown was initiated when the primary system Iodine 131 dose equivalent activity exceeded the Technical Specification 3.1 limit of 10.0 microcuries/cc. Fuel "leakers" or defects has previously been identified in Unit 1, which is scheduled to be refueled in February 1983. During normal full-power operations, the Unit 1-131 (DE) activity has been 0.16 to 0.20 uci/cc. Significant reactor power changes, such as trips, enhance the release of fission products to the reactor coolant system, resulting in increased iodine activity. The activity peaked at 11.36 uci/cc some 4.5 hours after the trip, and took another 4 hours to decrease below 10 uci/cc. Unit 1 was restarted at 4:00 a.m. on July 14. The I-131 (DE) activity, decreased below 1.0 uci/cc at approximately 1:00 a.m. on July 15, 1982, within the 48 hour specification of TS 3.1.

6. Unit 2 Operations

Unit 2 operations were inspected and reviewed during the inspection period. During this time, the inspectors routinely toured the Unit 2 control room and other plant areas to verify that plant operations, testing and maintenance were being conducted in accordance with the facility Technical Specifications and procedures. Within the areas inspected, no violations were identified. Specific areas of inspection and review included the following:

- a. Review of alarms in the control room and inspection of safety-related valve and pump alignments on the consoles and in the plant.
- b. Unit 2 operation at or near full power during the reporting period. No reactor trips or shutdowns occurred during the month.
- c. Inspection and review of maintenance and testing during the reporting period.

7. IE Bulletin Review

The inspectors reviewed the licensee's response and actions to IE Bulletin 79-27, "Loss of Non-Class IE Instrumentation and Control Power Systems Bus During Operation." NRR review of the licensee's response was completed, and several design changes (eg-DC 80-92, 93, 94) were implemented by the licensee. The inspectors verified that the modifications to vital system instrumentation such as T_h , T_c and charging flow have been performed, that additional vital and semi-vital system alarms and indications have been installed, and that redundant power sources are now available for the Gai-tronics and emergency alarm notification systems. IE Bulletin 79-27 is closed.

The inspector reviewed the LER's listed below to ascertain that NRC reporting requirements were being met and to determine the appropriateness of corrective action taken and planned. Certain LER's were reviewed in greater detail to verify corrective action and determine compliance with the Technical Specifications and other regulatory requirements. The review included examination of log books, internal correspondence and records review of SNSOC meeting minutes, and discussions with various staff members. Within the areas inspected, no violations were identified.

LER 280/82-12 concerned the decision to take PORV block valve MOV-1536 out of service by electrical isolation. The PORV leaked and the block valve had failed to close completely without manual assistance. The valve was subsequently cycled electrically to verify operability at cold shutdown and a new torque switch assembly was installed in the limitorque operator. This LER is closed.

LER 280/82-24 concerned an improper rad monitor lineup during Design Change 80-64A implementation which resulted in the rad monitor sample point selector being left in the wrong position. Upon discovery the sample point

was returned to the proper position. The importance of proper review of Design Changes prior to placing them in service was emphasized to Station Projects Department and Architectural Engineer personnel. This LER is closed.

LER's 280/82-28 and 280/82-75 concerned rad monitors RM-CC-105/106 setpoints being two times greater than background due to fluctuations in activity levels caused by excess letdown heat exchanger leakage. Backup instrumentation was verified as being within allowable limits. The setpoints were reset. These LER's are considered closed.

LER 280/82-29 concerned inoperable main steam flow instrument during reactor startup due to personnel error and inadequate procedures. Additional administrative checks have been implemented to ensure the operability of engineered safeguards and reactor protection instrumentation prior to startup. Appropriate personnel were re-instructed in the use of existing administrative controls for maintenance and related activities. This LER is closed. (See Violation in Inspection Report 50-280/82-04).

LER 280/82-36 concerned steam header pressure indicator PI-1468 drifting low. The transmitter was checked for fitting leaks and a channel calibration was performed. The indicator was returned to service. As a result of a similar instrumentation drift problem reported in LER 281/82-41 an engineering study was initiated to review the method of splicing stranded field cable to solid wire from transmitters. LER 280/82-36 is considered closed.

LER 280/82-38 concerned the failure of power range instrument channel N-41 due to a broken lead inside containment. The lead was subsequently repaired and the detector returned to service. This LER is closed.

LER 280/82-40 concerned the failure of 1-FW-P-3A to automatically start on an inadvertent safety injection during startup on March 25, 1982. The pump was manually started from the control room. Electrical testing did not reveal any malfunctions. Subsequent operation has been satisfactory. This LER is closed.

LER 280/82-48 concerned predicted criticality below the minimum control rod insertion limits during reactor startup. Due to increased primary makeup demands resulting from cooldown from a previous reactor trip, the primary grade water flow to the blender was increased without a corresponding increase in boric acid flow. This caused dilution below the minimum rod insertion limit boron concentration. Due to a mathematical error and the use of inaccurate xenon worth in the ECP calculation, the dilution was not detected until the subsequent approach to criticality. The controlling bank was inserted, the ECP reviewed and the error which indicated low boron concentration was identified. The RCS was borated and the startup continued. Personnel were reinstructed in the necessity to maintain blended flow concentration the same as existing RCS concentration and operators were retrained on ECP calculations. This LER is closed.

LER 280/82-58 concerned the failure of the component cooling system radiation monitor, RM-CC-105, to alarm at the setpoint due to the alarm and oscillator cards drifting out of calibration. The cards were calibrated and the instrument was verified operable and returned to service. This LER is closed.

LER's 280/82-56 and 280/82-67 concerned inoperable charging pump service water pumps due to clogged suction strainers, possibly from a previous cleaning evolution on the upstream supply piping. The strainers were cleaned and the pump returned to service. These LER's are closed.

LER 280/82-57 concerned high dose equivalent I-131 activity in the primary coolant following reactor trips. The iodine spikes were caused by known fuel element defects in the core. The activity was monitored every 4 hours until the level returned to less than 1.0 microcuries/cc. This LER is closed.

LER 280/82-59 concerned a malfunction of the process vent flow recorder due to a seized recorder motor bearing due to lack of lubrication. The bearing was replaced and lubricated. A new monthly periodic test to inspect and lubricate recorders has been implemented. This LER is closed.

LER 280/82-61 concerned erratic indication on the 'A' Core Cooling Monitor caused by a failed printed circuit board. The defective board was replaced and the monitor returned to service. This LER is closed.

LER's 280/82-62, 280/82-63, 281/82-38, and 281/82-27 concerned heat tracing failures in which the failed components were replaced within the time limits of Technical Specifications and the circuits returned to service. Design changes to the heat tracing systems are in progress. These LER's are closed.

LER 280/82-74 concerned the failure of a charging pump service water pump to auto start due to drift of the low pressure setpoint in pressure switch PS-SW-105. The pressure switch was replaced and the pump retested satisfactorily. This LER is closed.

LER 280/82-79 concerned a rod control system malfunction in which an urgent failure alarm occurred and the control rods from cabinet 2AC would not respond to a demand signal. A faulty phase control circuit card in the 2AC power cabinet was identified and replaced. This LER is closed.

LER 280/82-78 concerned erratic indication on the 'B' Core Cooling Monitor caused by the failure of a relay on a plug-in module on a circuit board. The failed relay was replaced and the monitor was returned to service. This LER is closed.

LER 281/82-08 concerned the loss of 'B' Reserve Station Service Transformer caused by brackish water spraying on the terminating insulators for the feeder cables to the transformer. This caused one phase to flashover to ground and to an adjacent phase, causing isolation of the transformer. The

spray was caused by ice formation at the high level intake traveling screen causing a blockage of the fish flume which caused the water to spout through a vent hole near the RSS transformer. The flume blockage was eliminated. A deflector cap was placed on the vent hole. Underground cables from the switchyard for the two affected phases were replaced and the 'B' RSS transformer was returned to service. This LER is closed. This event was discussed in previous report 50-281/82-01.

LER 281/82-13 concerned a late iodine sample following a power increase of greater than 15% in 1 hour. The ramp was initiated on the midnight shift when no chemists were on site. Day shift personnel were to take the sample but were delayed due to traffic problems and arrived late. The sample was taken 28 minutes later than allowed by Technical Specifications. A policy change in the chemistry department was made to ensure samples during off-normal hours will be obtained in a timely manner. This LER is closed.

LER 281/82-24 concerned a weld leak on the 'A' steam generator channel head drain piping at 2-RC-159. The unit was taken to cold shutdown, the defective weld was ground out, and the valve rewelded. The cause is believed to be a small defect in the initial pass of the split pass weld. See IE Inspection Report 50-280/82-17. The weld was repaired and inspected. The RCS integrity test was performed satisfactorily and the unit returned to operation. This LER is closed.

LER 281/82-25 concerned the overfilling of the 'B' safety injection accumulator to 62% when the control room operator's attention was diverted during accumulator filling. Level was restored to the Technical Specification limit and the operator was reinstructed in the fill procedure for accumulators. This LER is closed.

LER 281/82-26 concerned an improperly sealed electrical penetration. Personnel installing telephone cable punched a hole through an existing penetration seal and failed to reseal the penetration or post a fire watch. The penetration was subsequently sealed and tested. New procedures for control of fire barrier penetrations have been placed in effect. This LER is closed.

LER 281/82-29 concerned three snubbers declared inoperable due to low oil reservoir levels. The 'O'-ring on the valve block for the common reservoir of two of the snubbers was replaced. A leaking fitting was tightened on the third snubber. The reservoirs were refilled and the snubbers declared operable. This LER is closed.

LER 281/82-32 concerned low pressure in the nitrogen bottle supplying emergency air to the steam driven Auxiliary Feed Pump air operated valves. The loss of pressure was due to fitting leaks in the air lines which were subsequently tightened. The nitrogen bottle was replaced and bottle pressure was added to the operators Outside Log Data Sheet to ensure pressure is monitored daily. This LER is closed.

LER 281/82-41 concerned a malfunctioning steam generator level instrument caused by a broken wire at a splice of stranded field cable to solid wire from the transmitter. The bistables were placed in trip and the defective splice was replaced. The channel was returned to service. An Engineering Study was initiated to review the method of splicing solid to stranded wire. This LER is closed.

LER 281/82-34 concerned a control rod urgent failure in which Control Banks 'A' and 'C' and Shutdown Bank 'A' would not respond to demand signals. The cause was a blown fuse and a failed phase control circuit card in the 2AC power cabinet. The fuse and card were replaced and the rods were tested and returned to service. This LER is closed.

9. Review of NUREG 0737 Items:

- (a) NUREG 0737 item II.K.3.12 concerned the confirmation of the existence of an anticipatory reactor trip upon turbine trip. Surry Units 1 and 2 have anticipatory reactor trips on turbine trip. This item is closed.
- (b) NUREG 0737 item II.K.3.10 concerned a proposed modification of the anticipatory trip setpoint to confine the range of use to high power levels, and required an evaluation from those licensees proposing the modification. Since no increase in the setpoint for the reactor trip on turbine trip is contemplated this item is closed for Surry Units 1 and 2.

10. Plant Physical Protection

The inspector verified the following by observations:

- a. Gates and doors in protected and vital area barriers were closed and locked when not attended.
- b. Isolation zones described in the physical security plans were not compromised or obstructed.
- c. Personnel were properly identified, searched, authorized, badged and escorted as necessary for plant access control.

No violations were identified.