



During the inspection period, the unit returned to full power operation following an extended outage that began on January 20, 1989. Weaknesses were noted in the following areas: control room logbook entries, housekeeping in the essential cooling water (EW) intake structure (see paragraph 4), properly securing safety and nonsafety-related electrical panel covers, and the practice of technicians leaving normally locked cabinets containing safety-related equipment open and unattended (see paragraph 6).

Inspection Conducted March 1-31, 1989 (Report 50-499/89-08)

Areas Inspected: Routine, unannounced inspection included plant status, licensee action on previously identified inspection items, and review of startup testing activities.

Results: Within the areas inspected, one violation was identified (failure to follow procedures for wearing badges, paragraph 4). The licensee went from Mode 3 to Mode 1 for the first time during this inspection period. Low power physics testing commenced and was being performed in a systematic and carefully planned manner (see paragraph 8).

DETAILS1. Persons Contacted

- \*M. A. McBurnett, Licensing Manager
- \*S. M. Dew, Manager, Operations Support
- \*G. E. Vaughn, Vice President, Nuclear Operations
- \*J. J. Nesrsta, Plant Engineering Manager
- \*J. W. Loesch, Plant Operations Manager
- \*J. T. Westermeyer, General Manager, Administration Support
- \*W. L. Giles, Manager, Unit 2 Plant Operations
- \*D. A. Leazar, Division Manager, Reactor Support
- \*W. H. Kinsey, Plant Manager
- \*C. B. Thiele, Reactor Performance Supervisor
- \*J. R. Morris, Reactor Engineer
- \*R. C. Munter, Principal Engineer/Support Engineer
- \*J. R. Lovell, Technical Services Manager/Technical Service
- \*C. A. Ayala, OSLD Supervisor Engineer
- \*P. L. Walker, OSLD Senior Licensing Engineer
- \*T. J. Jordan, Director/Nuclear Plant Operations Department
- \*J. E. Geiger, General Manager, Nuclear Assurance
- \*S. M. Head, Support Licensing Engineer
- \*M. H. Carnley, I&C Manager/Maintenance
- \*R. W. Patlovany, Engineer
- \*S. D. Phillips, Staff Engineer
- \*M. A. Ludwig, Manager, Materials Management/NPMM
- \*R. W. Chewing, Chairman, NSRB
- \*G. L. Parkey, Unit 2 Plant Supervisor

In addition to the above, the NRC inspectors also held discussions with various licensee, architect engineer (AE), constructor, and other contractor personnel during this inspection.

\*Denotes those individuals attending the exit interview conducted on March 31, 1989.

2. Plant Status

STP, Unit 1, operated at 100 percent (reactor) power during most of this inspection period. The unit reached 100 percent power on March 8, 1989, following an outage which began on January 20, 1989.

Unit 2 achieved initial criticality at 8:50 p.m. on March 12, 1989. During the week of March 13-17, 1989, a Region IV operational readiness assessment team (ORAT) was onsite to assess the first days of low power operation. Low power physics testing, less than 5 percent reactor power, was initiated and completed during this inspection period. Unit 2 received a full power license on March 28, 1989.

### 3. Licensee Action on Previous Inspection Findings

(Closed) Open Item 498;499/8887-01: This item concerned the licensee's lack of incorporating the Operations Support Center (OSC) logistics into base site procedures for Unit 2. The NRC inspector has verified that the procedures have been revised to reflect the logistics of both units with respect to the Technical Support Center (TSC)/OSC emergency plan.

(Closed) Open Item 498;499/8887-02: This issue concerned the incorporation of Unit 2 requirements into the emergency preparedness procedures. The procedures have been verified as having been revised to incorporate the Unit 2 functions and logistics requirements for emergency preparedness.

(Closed) Open Item 498;499/8887-03: During the inspection, it was noted that the Unit 2 Control Room (CR) and TSC did not have all of the emergency supplies and equipment in place. The NRC inspector took an inventory of the CR and TSC according to the requirements of Procedure DEPP02-ZA-0002, "Emergency Equipment and Supplies Inventory," Revision 6. Four pages (13-16) of inventory items were verified as being in place. Electrical equipment was tested by plant operators and found to be functional.

### 4. Operational Safety Verification - (71707)

The objectives of this inspection by the NRC inspectors were to conduct reviews and observe selected activities to verify that the facility is being operated in conformance with NRC requirements and the Technical Specifications (TS). This inspection also included verifying that selected activities of the licensee's radiological protection program were being implemented in accordance with approved procedures, and that the licensee was in compliance with its approved physical security plan.

The NRC inspector was in the control room on a daily basis and verified:

- ° Proper control room staffing was maintained.
- ° Control room was free from distraction such as nonwork-related reading material.
- ° Operators were adhering to approved procedures for ongoing activities.
- ° Operability of reactor protective systems and engineered safety components was as required.

On March 6, 1989, during a review of the Control Room Logbook, the NRC inspector noted that an offsite notification made to NRC Headquarters on March 3, 1989, had not been entered into the Control Room Logbook. The NRC inspector had brought this concern to the attention of licensee management during a previous inspection (see NRC Inspection

Report 50-498/89-02; 50-499/89-02). Plant operation Procedure OPOP01-ZQ-0030, Revision 5, Step 6.2.36, states in part, that any official offsite notification or potential reportable occurrence is a required entry in the Control Room Logbook. Contrary to the above, a call made to NRC pertaining to a missed surveillance test on Valve PS-FV-4456 was not entered into the Control Room Logbook. However, the licensee initiated corrective action by inserting a check off block on the Event Notification Worksheet instructing the operators to enter event notifications in the Control Room Logbook. The licensee also issued night orders (instructions) to all shift personnel informing them of the importance of Control Room Logbook entries. This violation will not be cited because the criteria specified in Section V.A of the General Statement of Policy and Procedure for NRC Enforcement Actions were satisfied. No written response to this violation will be required.

Tours were conducted in various locations of the plant to observe work and operations in progress. Radiological work practices, posting of barriers, and proper use of personnel dosimetry were observed.

The NRC inspector verified, on a sampling basis, that the licensee's security forces were functioning in compliance with the approved physical security plan. Search equipment such as X-ray machines, metal detectors, and explosive detectors were observed to be operational. During a routine tour through the Unit 2 FHB, on March 6, 1989, the NRC inspector identified a visitor who was not wearing his badge. The visitor had removed his jacket, which had his badge attached, and left it on the floor. The visitor was being escorted by an HL&P employee; nevertheless, this represents a failure of the visitor to adhere to the requirements of Station Procedure OPGP03-ZS-0001, Revision 5, "Personnel Access Control," and is considered a violation (499/8908-01).

EW system Train B was inspected to ensure the system valves and electrical power supplies were in their correct positions, as required by the system operating procedure and plant drawings. The EW system Train B was compared to the Train B Checklist, 1POPO2-EW-0001-2, Revision 8. Several minor discrepancies were observed, including:

- ° Several errors were noted on system piping and instrument Diagram 5R289F05038 No. 1, Revision 15, "Essential Cooling Water System." For example, Valve EW-0415B was labelled as EW-0415C on the Piping and Instrument Diagram (P&ID). Valve EW-0201 was shown but was not labelled on the P&ID. Also, Valve EW-0224 was shown on the P&ID but was not listed in the valve lineup (Valve EW-0224 is the Diesel Generator (DG) No. 12 EW Outlet Test Connection Valve).
- ° Power supply breaker Nos. 2 and 5 of Distribution Panel DPB 335, located at MCC E1B3, should have been added to the electrical lineup. The breakers supply power to the EW screen wash valve and room air dampers. The Distribution Panel DPB-135 nameplate, located at MCC E1B1, listed Breakers 7 and 8 as spare. The two breakers actually provide power to two EW valve servo amplifiers.

In summary, all EW Train B valves and power supplies were in their correct position for Mode 1 operation. The labelling errors were brought to the licensee's attention for inclusion in the procedure improvement program. Housekeeping was generally maintained; however, during this inspection (and previous inspections) standing water was observed in the EW intake structure. The stagnant water was observed mainly around all three EW pumps and discharge strainers. For personnel safety reasons (i.e., potential for electrical shock and/or slipping hazards), the licensee should eliminate the source of water or increase the frequency of structure cleanup.

During routine plant walkdowns, the following safety and nonsafety-related electrical boxes were noted to be missing bolts or were improperly fastened:

- Cover for A1XV1AKSP09 was missing 5 of 18 bolts.
- Splice box for A1CV-FT-0205 was missing 7 of 8 bolts.
- Cover for N1CHTB007 was missing. The nonsafety-related terminal strip and connections inside the panel were rusted.
- Cover for N1WLTB0060 was improperly latched in place.

These concerns were brought to the attention of licensee management for Unit 1. The discrepancies did not involve EQ equipment.

#### 5. Monthly Maintenance Observations - Unit 1 (62703)

Maintenance activities were inspected to ascertain whether the activities were being conducted in accordance with approved procedures and TS. The activities observed included:

- Maintenance Work Request (MWR) CH-75740, which requested replacement of tubing and a toggle switch in an essential chiller panel.
- Preventive Maintenance (PM) EM-1-CC-86015145, Revision 2A, to inspect, test and lubricate Valve A1CCMOV0052.
- OPMP05-ZE-0300, Revision 5, "Limitorque MOV Motor Inspection and Lube," performed on Valve A1CCMOV0052.

During the inspection, the performance of the work requests and procedures by licensee personnel was observed. Additionally, the applicable procedures and completed data packages were reviewed. During the review of MWR CH-75740, it was noted that page 1 of the MWR indicated the work was Environmentally Qualified (EQ) related while page 3 indicated the work was not EQ related. The work was found to be EQ related and was performed in accordance with the MWR.

Observations noted during the inspection and review of maintenance on Valve A1CCMOV0052 included:

- ° Step 4.3.2 of PM EM-1-CC-86015145 listed the wrong section of TS. The correct section was 4.7.3 not 4.7.2.
- ° Step 6.9.9.1 of OPMP05-ZE-0300 was missing the primary signoff blank.
- ° Technicians found the local mechanical position indicator 90 degrees out of position. The finding should have been noted in the REMARKS section of the Data Sheet OPMP05-ZE-0300-1. This was required by the note prior to Step 6.1, which states, ". . . all discrepancies found during the performance of this procedure shall be noted in the REMARKS section of DATA SHEET (-1)."
- ° A followup inspection on plant housekeeping was performed following completion of maintenance and testing of Valve A1CCMOV0052. Ten washers were found on top of the valve, apparently left following valve diagnostic testing. The electrical maintenance group was reminded to ensure that housekeeping was maintained during and after maintenance activities.

In conclusion, Limiting Conditions of Operations (LCOs) were not violated, tagouts were obtained as required, technicians appeared knowledgeable and competent, and data taken was within acceptance criteria limits.

No violations or deviations were identified in this area of the inspection.

#### 6. Monthly Surveillance Observations - Unit 1 (61726)

An inspection of licensee surveillance activities was performed to ascertain whether the surveillance of safety significant systems and components were being conducted in accordance with TS and other requirements. The following surveillance tests were observed and reviewed:

- ° 1PSP06-PK-0004, Revision 3, "4.16 KV Class 1E Undervoltage Relay Channel Calibration/TADOT - Channel 4"
- ° 1PSP05-MS-0516, Revision 2, "Steam Pressure Loop 1 Set 3 Calibration (P-0516)"

The NRC inspector verified that testing was performed using approved procedures, final test data was within acceptance criteria limits, and testing was performed within the frequency of TS requirements.

During the performance of 1PSP05-MS-0516, Step 7.10.2 required the technicians to monitor the Qualified Display Processing System (QDPS) display located in the Auxiliary Shutdown Panel (ASP) room. While in the room, the NRC inspector observed several analog meter indications

oscillating up and down in value on the ASP. The meters would indicate normal readings for a few minutes, then swing in unison to the offscale high position for a few minutes. The meters that were affected included the Reactor Coolant System (RCS) wide range pressure, Residual Heat Removal (RHR) 1B temperature and flow, and the RCS cold leg temperature meters. This condition, although not affecting operability, was reported to the licensee for evaluation. This is an open item (498/8908-01).

During observations of surveillance activities, it was noted that technicians would routinely break for lunch around 11:30 - 11:45 a.m. Test equipment, repositioned toggle switches, and open cabinets would be routinely left unattended for up to 1½ hours. Although the equipment was considered out of service, the practice of leaving normally locked cabinets open and unattended should be reconsidered by the licensee. This concern was brought to the attention of licensee management.

No violations or deviations were identified in this area of the inspection.

#### 7. Initial Criticality - Unit 2 (72592)

At 8:50 p.m. (CST), on March 12, 1989, Unit 2 achieved initial criticality utilizing Station Procedure 2PEP04-ZX-0002, Revision 1, "Initial Criticality." After establishing a baseline neutron count rate, the shutdown and control banks were withdrawn at 50-step intervals until Control Bank D was 170 steps withdrawn (approximately 100 pcm worth remaining). At each interval an inverse count rate ratio (ICRR) was plotted. Criticality was subsequently achieved by boron dilution which commenced by the addition of approximately 60 gpm of demineralized water. Boron was sampled every 15 minutes while maintaining plots of ICRR vs. water addition and ICRR vs. time. When the ICRR on a source range channel equaled 0.1, the dilution rate was reduced to 20 gpm and the ICRR data was taken at 5-minute intervals. Dilution continued until criticality was achieved at a boron concentration of 1260 ppm. The calculated and measured boron concentrations were in reasonable agreement. Once criticality was achieved, neutron flux level was increased by control rod withdrawal and reactor power was leveled at 10E-8 amps on the Intermediate Range Channels. The NRC inspector witnessed the approach to criticality and subsequent control room activities and found the witnessed activities to be indicative of a knowledgeable and professional crew. Management and quality assurance department attention were evident during the witnessed activities. Low power physics testing, at less than 5 percent reactor power, commenced after the reactor was brought to a critical configuration and was completed on March 23, 1989.

On March 28, 1989, after receiving approval from the NRC office of the Commission, NRC's office of Nuclear Reactor Regulation (NRR) issued a license, NPF-80, to HL&P authorizing full power operation of STP, Unit 2.

At 6:13 p.m. on March 28, 1989, South Texas Project, Unit 2, increased reactor power above 5 percent for the first time. Mode 1 was declared at

1.9 X 10E-5 amps when 5 percent reactor power was indicated by core Delta T measurements.

8. Startup Test Witnessing and Observation - Unit 2 (70302)

The NRC inspector observed the performance of portions of four startup tests in order to ascertain whether the licensee was correctly implementing the startup test program. The following specific activities were observed:

- ° The rod cluster control assembly pseudo ejection test conducted per Station Procedure 2PEP04-ZG-0008, Revision 1. This test was conducted to verify the conservatism of the assumed worth of an ejected rod at zero power from the configuration assumed in the Safety Analysis Report. As a part of this test, a flux map analysis, using the moveable incore detector system, was performed after raising reactor power to the point of adding heat. This was accomplished using Station Procedure OPOP02-II-0001, Revision 2, "Moveable Incore Detection System Operation." The NRC inspector witnessed the flux mapping, which used six detectors simultaneously, from Pass Nos. 7 through 17. The mapping was accomplished by inserting six detectors to the top of the core in the scan mode and withdrawing in the record mode. With the detectors moving, a chart of the signals generated was recorded for subsequent analysis. Each chart recording was stamped for identification and the incore instrumentation panel parameters were recorded. On completion of the test, the detectors were secured and the flux level was reduced to the zero power measurement range by insertion of the withdrawn control rod.
- ° The calibration of Westinghouse Reactivity Computer 7746A utilizing Station Procedure OPEP02-ZX-0001, Revision 2. This test was witnessed in order to assess the accuracy of the computer prior to utilization and to assess the performance of the test personnel.
- ° The demonstration of the ability of the RCS to remove decay heat from the reactor core and to obtain coolant flow and temperature distribution data under a condition of loss of forced convective cooling utilizing Station Procedure 2PEP04-ZX-0010, Revision 1. The reactor was brought to a critical condition with the power level approximately 3-percent rated thermal power ( $\Delta T = 2^\circ\text{F}$ ) and all four reactor coolant pumps (RCPs) running and steam generators being fed by auxiliary feedwater. The RCPs were tripped and a stable natural circulation was established. The NRC inspector witnessed the entire test, from control room briefing to the establishment of natural circulation.
- ° The demonstration of the capability for sample collection and analysis within the required 3 hours using the postaccident sampling system (PASS). This demonstration utilized Station Procedures OPCP08-AP-0006, Revision 1, "Backup Determination of Boron

Post-Accident," 2PCP08-AP-0005, Revision 0, "Post-Accident Sampling of Liquids and RCB Atmosphere at PASS." The NRC inspector witnessed the collection of an RCS sample and subsequent analysis for boron, pH, isotropic activity, and dissolved oxygen, and also the collection of a containment atmosphere sample and subsequent analysis.

The licensee's performance of the witnessed startup tests was successful and indicated that there is good prior planning and adherence to procedures. The licensee's activities also included independent verifications of adherence to procedures and management involvement in the overview of the startup program. Overall, the NRC inspector noted that the licensee's performance was professional and resulted in a technically sound implementation of the startup program.

No violations or deviations were identified in this area of the inspection.

9. Exit Interview

The NRC inspector met with licensee representatives (denoted in paragraph 1) on March 31, 1989. The NRC inspectors summarized the scope and findings of the inspection. The licensee did not identify as proprietary any of the information provided to, or reviewed by, the NRC inspectors.