U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/84-09

Licensee: Washington Public Power Supply System

P. O. Box 968

Richland, Washington 99352

Facility Name: Washington Nuclear Project Number 2 (WNP-2)

Docket No. 50-397

License No. NPF-21

Inspection at: WNP-2 Site near Richland, Washington

Inspectors: D. P. Hunt, Jr. 5/30/84
A. D. Toth, Senior Resident Inspector Date Signed

D. P. Hunt, Jr. 5/30/84
R. S. Waite, Resident Inspector Date Signed

Approved by: D. P. Hunt, Jr. 5/30/84
R. T. Dodds, Chief Date Signed
Reactor Projects Section 1

Summary:

Inspection on April 1-30, 1984

Areas Inspected:

Routine, unannounced inspection by the resident inspectors of control room operations, engineered safety feature status, surveillance program, maintenance program, power ascension test program, licensee event reports, special inspection topics, and licensee actions on previous inspection findings. The inspection involved 188 inspector-hours onsite by two resident inspectors, including 52 hours during backshift work activities.

Results:

Three items of noncompliance were identified in the areas of completeness of test procedures (paragraph 4.c), containment access control (paragraph 4.a), and deviation from fire protection system drawings (paragraph 4.b).

DETAILS

1. Persons Contacted

Washington Public Power Supply System

G. Afflerbach, Assistant Plant Manager
R. Corcoran, Operations Manager
K. Cowen, Technical Manager
J. Landon, Maintenance Manager
J. Martin, Plant Manager
J. Peters, Administrative Manager
P. Powell, Licensing Manager
C. Powers, Reactor Engineering Supervisor
J. Shannon, Director of Power Generation
D. Walker, Plant Quality Assurance Manager

*Personnel who attended the exit meeting.

The inspectors also interviewed various control room operators, shift supervisors and shift managers, engineering, quality assurance, and management personnel relative to activities in progress and records.

2. General

The Senior resident inspector and/or the resident inspector were onsite April 2-7, 8-13, 16-20, 22-27, and 30. Backshift inspections were conducted April 7, 8, 10, 12, 13, 16, 18, 19, 22, and 23.

Several regional office inspectors visited the site this month for routine inspection activities. Their activities were documented in other separate inspection reports. These included:

A regional office operations inspector (D. Willett) was onsite April 30 to review power ascension test procedures and NUREG-0737 action items.

Regional office inspectors (D. Willett, T. Polich, R. Kanow) were on site April 2-6 to review quality assurance program implementation.

The Regional Administrator (J. B. Martin) was onsite April 18-19.

3. Plant Status

The reactor had achieved initial criticality January 20 for a short period of open vessel testing of shutdown margins, control rod sequencing, and nuclear instrument low range performance. It was shut down shortly thereafter for completion of some preoperational tests and other conditions of the limited operating license. The reactor achieved criticality for initial heatup for power ascension testing at 7:12 p.m., April 10, with anticipation of reaching a 5% power level on April 14. The NRC authorized operations at 100% by letter dated April 13, 1984.

Power ascension was interrupted when reactor pressure reached 600 psig on April 14 due to excessive local air temperatures in upper elevation regions of the drywell. Power was reduced such that reactor pressure was 250 psig. On April 17 the reactor was brought subcritical to allow insulation modification work in the drywell under conditions of reduced radiation exposure to crafts. Resumption of power ascension testing occurred April 18. A reactor scram occurred April 23 due to improper installation of test apparatus for adjusting the feedwater control system. With the inadvertent shutdown, the licensee accomplished some maintenance work over a two day period and then resumed the power ascension test program.

4. Operations Verifications

The resident inspectors reviewed the control room operator and shift manager log books on a daily basis for this report period. Reviews were also made of the Jumper/Lifted Lead Log and Nonconformance Report Log to verify that there were no conflicts with Technical Specifications and that the licensee was actively pursuing corrections to conditions listed in either log. Events involving unusual conditions of equipment were discussed with the control room personnel available at the time of the review and evaluated for potential safety significance. The licensee adherence to limiting conditions for operation (LCO's), particularly those dealing with engineered safeguard features (ESF) and ESF electrical alignment, were observed. The inspectors routinely noted activated annunciators on the control panels and ascertained that the control room licensed personnel on duty at the time were familiar with the reason for each annunciator and its significance. The inspectors observed access control, control room manning, operability of nuclear instruments, and availability of onsite and offsite electrical power. The inspectors also made regular tours of accessible areas of the facility to assess equipment conditions, radiological controls, security, safety and adherence to regulatory requirements.

a. Containment Airlock Door Interlock

The Shift Manager's log stated that the primary containment personnel airlock interlock was reported broken at 10:30 p.m. on April 17. The Shift Manager notated that Technical Specification Limiting Condition for Operation Action Statement (TSAS) 3.6.1.3.a.1 applied at this time. TSAS 3.6.1.3.a.1 specifies that "with one primary containment airlock door inoperable maintain at least the operable airlock door closed". During a plant tour at 8:00 a.m. on April 18 the inspector observed that the outside door of the drywell airlock was open and the inner door shut. The inspector questioned the two guards posted at the access to determine if personnel access was being restricted by them in any way. They stated that if the person wishing to enter was authorized access per their access list and the health physics personnel were present they would not restrict the person's access. The security department access control log (20C access control point) documented that several entries had been made into the drywell since 10:30 p.m. on April 17, 1984. Entries were made on April 18 at 11:08 a.m. and 12:45 a.m. in which an operator had been present to operate the doors. An entry

was also made at 2:20 p.m. without the direction of an operator. Both the inner door and outer door were unlocked at this time because personnel were entering and exiting the drywell continuously. At 4:36 p.m. the personnel airlock was reported locked in the Shift Managers logs. At 8:00 p.m. the Shift Managers logs note that several personnel entered the drywell. At 10:30 p.m. on April 18 the airlock door was required to be operable or locked closed per TSAS 3.6.1.3.a.1. The airlock door was not reported operable at this time. An entry was made at 0:29 a.m. on April 19, 1984. During this entry four persons, including one operator, entered the airlock; the outer door was then shut, the inner door unlocked, and the chain and padlock locked on the outer door. Upon exit from the drywell the procedure was reversed. On April 19, 1984 at 11:00 a.m. the inspector noted that the outer door of the primary containment was open and the inner door closed. At 12:29 a.m. TSAS 3.6.1.3.a.3 required the plant to be in hot shutdown because as of 0:29 the operable door had been unlocked thus violating TSAS 3.6.1.3.a.1. At 1:20 p.m. the inspector observed the outer door open and the inner door closed and unlocked/unchained. Under the latter conditions personnel could have opened the inner airlock door without the outer airlock door being shut. At this time the inspector notified the Shift Manager about the door being unlocked; the shift manager stated that an operator was currently trying to locate a chain and padlock to lock the drywell inner door closed and that he had just learned of the door being unlocked himself. The inner door was relocked at 1:25 p.m. on April 19, 1984. At 5:00 p.m. the containment airlock interlock was repaired.

Technical Specification Limiting Condition for Operation 3.6.1.3 was not met; the appropriate Action Statement 3.6.1.3.a was not satisfied and this resulted in the airlock being in a degraded condition because the airlock interlock was inoperable and unable to prevent the opening of both airlock doors simultaneously. Administrative controls had been instituted where operators were to control entry and exit thru the airlock, and if they were not present to control exit and entry, to lock the inner door shut. However, two instances occurred where the operator was not controlling entry and exit and neither airlock door was locked, thus enabling both doors to be open at once. Further, the intent of the Technical Specication is that there be not containment entries with an inoperable airlock door(s). It appears that the licensee was alerted that he was in an action statement, but did not fully satisfy its requirements. This appears to be an item of noncompliance (50-397/84-09-01).

b. Fire Suppression System Design Control

During a plant tour on April 26 the inspector observed discrepancies in the supports of small bore piping associated with the six deluge valves of the fire suppression system for the standby gas treatment system filter units, and two deluge valves for the reactor building sump ventilation filter units. The control valves and piping had each been supplied by a vendor as integral units, with piping fastened in five places with U-bolts. The units had been wall mounted at elevation 572 of the plant, and tied into piping routed

to the charcoal filter units. The installed units were apparently then modified in accordance with Burns & Roe engineering directive PED-217-B-0242 dated February 18, 1983. The PED prescribed installation of certain UL listed valves, pressure switches, and wiring; no mention was made of the piping support U-bolts. The inspector found 12 of 38 piping U-bolts missing and 6 of 38 loose; the principal clamp of one deluge valve (reactor building vent associated) was also missing. Although the U-clamps subjectively appeared to serve little function once the vendor units were tied into the main piping system, their removal and looseness resulted in an installation not in accordance with the applicable design drawing D-54898-G (Farr Company). This appears to be an item of noncompliance. (50-397/84-09-02)

The PED which instructed the changes to the vendor supplied units was labelled "Quality Class II". This was not consistent with Note #6 of the applicable flow diagram M-544, Revision 31 (FSAR Figure Number 3.2-16) and Note #2 of FSAR Figure 9.5-1, which identify supports for piping, valves and associated equipment in the reactor building as Quality Class I. The inspector found that the system engineer was in the process of preparing a document which questions the quality class notations on drawing M-544 (Plant Modification Record). This matter appeared to be under review, and related to the similar quality class matter discussed in NRC inspection report 84-07 for which the licensee has initiated corrective actions. (Prior noncompliance item 84-07-02)

c. Feedwater Transient From Instrumentation Testing Activities

On April 23 the reactor experienced a scram due to high neutron flux on an intermediate range monitor (IRM), arising from reactivity effects from sudden cold water injection by the feedwater system. A GE engineer had directed installation of a step-function test box between the reactor water level sensor and a 12-inch feedwater bypass flow control valve (which had been experiencing control problems). The bypass switch on the test box was apparently not closed, such that upon installation of the box, its amplifier inserted a signal which promptly and fully closed the feedwater valve to the reactor. Following a drop in reactor water level, the technician apparently moved the bypass switch to its correct position. The controller then sensed the low water level and promptly and fully opened the feedwater control valve. The resultant inrush of cold water resulted in a reactivity increase and a subsequent high neutron flux reactor trip.

The Eneral Electric engineer was apparently not working to an approved plant procedure for his test activity. The licensee subsequently identified approved (January 16, 1984) plant test procedure 8.2.23A as the procedure applicable to this test activity. The sections on prerequisites and precautions did not contain instructions for setting the bypass switches and potentiometers of the test box prior to its insertion into the circuitry of the operating power plant. Section 8.2.23A.9.A.1.b of the procedure was to address the description and adjustment and use of the feedwater test box.

However, the section on "Adjustment and Use" was absent and noted "(later)". The incomplete procedure had been/reviewed by the General Electric Lead Engineer, Supply System Test Engineer, Reactor Engineering Supervisor, Plant Operations Committee and the Plant Manager. The failure to establish and implement appropriate written procedures for the test activities of the GE test engineer appears to be an item of noncompliance. (50-397/84-09-03)

d. Review of Clearance Orders

The inspector performed a review of the licensee's clearance order (tagout) procedure (1.3.8) and examined several orders to verify that they were properly prepared and conducted in accordance with this procedure. Special attention was given to items where the licensee might inadvertently remove parallel components from service in safety related systems. One order was found that stated that a caution tag was hung on the outer door of the personnel airlock of the primary containment. The inspector found no evidence of the tag and brought it to the attention of the shift manager who promptly cleared the clearance order and removed it from the open order book stating that the tag was no longer necessary; it had only been used prior to startup on April 10. The clearance order procedure states that on the first of the month (plus or minus 1 week), a person designated by the Operations Manager will review the clearance order logs and take appropriate action to clear any unnecessary Clearance Orders. Apparently this review had not yet been completed for the month and no determination can be made as to whether this particular clearance order would have been cleared by this review. The clearance order program will be examined in more detail during future inspections. (Followup Item, 50-397/84-09-04)

e. Valve Lineup for Operation

The inspector examined the plant startup procedure 3.1.1 to ascertain that prerequisite valve lineups had been achieved prior to commencing power ascension. The following six residual heat removal system (RHR) isolation valves were verified for proper position as prescribed by the locked valve checklist of associated procedure 1.3.29: RHR-V-11A, 113, 124A, 124B, 170, and 172A. Valves RHR-V-8, 9A, LS-11A, B, C, D were also examined for proper position.

No items of noncompliance were noted.

f. Control Room Staff Priority Reading File

The inspector examined the April 3 status of the control room staff priority reading file. This included evidence that the staff had generally been accomplishing review of items such as: the Salem ATWS, Vermont Yankee secondary containment compromise, a french study that operator errors appear to be most prevalent during the first two hours of a shift (with an admonition that WPPSS staff should be duly attentive during such periods), NRC escalated enforcement action at Quad Cities nuclear plant; revised procedures for shift turnover activities. In the inspector's opinion, the subjects appeared varied and appropriate.

No items of noncompliance were identified.

g. Shift Turnover Activities

During the power ascension testing activities there have been large numbers of personnel congregating in the control room, associated with routine surveillances, instrument repairs, individual system testing functions, and engineering analysis. The presence of relief shifts of control staff and equipment operators, to assist in testing activities, was included. The general noise level and the repeated demands for the attention of the operators and supervisors appeared to impact the orderliness and continuity of the shift turnover process. During the last part of this month (April) the inspector initiated routine participation in the turnover activities at 6:30 a.m. and has observed an increasing orderliness in this activity. This activity will continue to be monitored. (Followup item (50-397/84-09-05)

h. Temporary Electrical Wiring

During plant tours the inspector noticed temporary extension wiring for lighting and welding cable leads in electrical cable tray areas. This arrangement of such cabling appeared to allow for compromise of cable separation features of the permanent plant installations. The plant quality control organization promptly surveyed the areas and effected improved routing and support of the cables to prevent such problems.

No items of noncompliance were identified.

i. Water Tank RCC-TK-1

During plant tours the inspector noted that reactor building closed cooling system head tank RCC-TK-1 contained exterior notations regarding arc strikes and welding quality. At the inspector's request the plant quality control organization performed an inspection of the marked areas. The licensee identified the tank as Quality Class II, as shown in drawing M-525, and the Burns and Roe engineer accepted as-is the discrepancies (arc strikes and local weld undercut).

The inspector identified no items of noncompliance.

j. Reactor Operator Control Panel Instrument Checks

The inspector examined revision 4 (April 13, 1984) of procedure 7.0.0, Shift and Daily Instrument Checks, relative to acceptance criteria of the technical specifications sections referenced therein. This procedure (including prior revisions) has been in use by each of three operating shifts each day since fuel load of December 25, 1983. The inspector identified the following discrepancies in the latest revision:

(1) Step No. 23 requires each shift to check offgas post-treatment and pre-treatment radiation monitors "During Offgas"; it references technical specification 4.3.7.12.1.A. The referenced technical specification includes footnote notations

(* and **) that require such checks "At all times" for the post-treatment monitors, and "During main condenser offgas treatment system operation" for the pre-treatment radiation monitor. However, the associated operability section of the technical specifications (3.3.7.12) include footnote notations (**) that require operability of both the post-treatment and pre-treament monitors only "During main condenser offgas treatment system operation". The completed surveillance records for April 1-23 show obvious plant operations staff confusion as to whether the post-treatment checks are required when the condenser offgas treatment system was not operating. The licensee stated that this matter would be submitted to NRC for technical specification clarification. (Unresolved item (50-397/84-09-06)

(2) Step Nos. 34 and 36 require each shift to check RCIC equipment and RHR Pump Room temperatures; it references technical specification 4.7.8.D. The referenced technical specification requires the area temperatures to be maintained less than 150F. Although revisions 1 through 3 of the procedure 7.7.0 included the 150F criteria, the latest revision 4 omitted this requirement. The completed checklists between April 1-23 showed that the temperatures had been recorded on each shift and in all cases were lower than 150F. The licensee representative stated that the omission in the procedure was an oversight during the revision process and would be corrected. (Followup item (50-397/84-09-07)

(3) Step 24 did not include identification of the applicable technical specification reference, and step 5 identified the incorrect panel locations of two instruments to be checked. The inspector considered these two discrepancies insignificant, other than as an indicator of the level of detail for reactor operator feedback of such matters to management and corrective action.

5. Engineered Safety Feature Verification

The inspector verified the operability of the RHR system by performing a walkdown of several accessible portions of the system, including valves, instrument racks and electrical switchgear and motor control centers. Valve positions were compared to positions prescribed by valve lineup lists and as shown on the flow diagram. Instrument rack instrument operability was noted, including positions of instrument isolation valves. In-progress work by licensee instrument technicians performing surveillances was monitored and in cases they assisted by manipulation of valves to confirm open or shut conditions. Electrical power supply was confirmed for valve motors by checking positions of breakers in motor control centers. Control room position indicators and annunciators were checked daily.

No items of noncompliance were identified.

6. Survillance Program implementation

The inspectors ascertained that surveillance of safety-related systems or components was being conducted in accordance with license requirements. In addition to observation of, and sometimes witnessing and verifying daily control panel instrument checks, the inspectors observed portions of several surveillance tests by operators and instrument and control technicians. Typical activities included the following:

a. The inspector witnessed the performance of channel functional test of the secondary containment isolation reactor building vent radiation detection and trip instrumentation. Four channels were checked: instruments REA-RIS-609A, B, C and D. The technicians followed the latest approved procedure 7.4.3.2.1.15, including steps which directed specific discussion with and approval by the control room operator and shift manager for bypass and alarm activities. The technicians adjusted the trip settings within the allowable values of technical specification 4.3.2.1.2.A. The logarithmic downscale alarm could not be cleared on channels B and D, due to the specified set point being higher that the background radiation levels. The technicians instituted appropriate actions to obtain management direction in accordance with approved procedures. The inspector also observed the reset of the downscale set point in accordance with procedure 10.24.18 and independently verified the setting and the proper return of the systems to operation.

b. The inspector witnessed calibration of an Eberline RAS-1 continuous air sampler number R508 at location RW8R. A calibrated flowmeter was used to assure minimum sample flow and marking of flowrate setpoint on the installed device. A gasket in the charcoal sample holder was replaced to improve sealing around the charcoal cartridge.

c. The inspector witnessed a channel functional test (setpoint check) of the ADS Trip System LPCI Pump B and C Discharge Pressure (Procedure 7.4.3.3.1.48). Settings were within the acceptance criteria of the approved procedure.

No items of noncompliance were identified.

7. Monthly Maintenance Observation

Portions of selected safety-related systems maintenance activities were observed. By direct observation and review of records the inspector determined whether these activities were violating LCOs, that the proper administrative controls and tagout procedures were followed, and that equipment was properly tested before return to service; and independently verified that the equipment was returned to service. The inspector also reviewed the outstanding job orders to determine if the licensee was giving priority to safety related maintenance and that backlogs which might affect system performance were not developing. The systems selected for maintenance observation are listed below.

a. High Pressure Core Spray (HPCS) System

Corrective maintenance was being performed on HPCS valves HPCS-V-10 and HPCS-V-11 by the Instrumentation and Control group. The meters were required to be removed for internal adjustment. The inspector observed the procedure used for removal of the meters from the control room. This procedure required an entry to be made in the jumper/lifted lead log and the control room supervisor to be notified of the removal of the instrument. The meters were adjusted internally and returned to service with the proper testing. The inspector independently verified the correct operation of these indicators.

No items of noncompliance were identified.

b. Maintenance Workloads

The inspector noted that the number of maintenance work requests (MWR's) outstanding has increased from about 950 on April 2 to 1250 on April 26. In addition, the inspector noted several minor conditions around the plant which would have been subject of additional MWR's if noticed and properly acted upon by plant staff (e.g. Broken stairwell emergency light RB-SW-A-6-12-a, leaking air supply piping union at outside air isolation valve operator ROA-V-1, leaking fire hose in northeast stairwell elevation 441, missing indicator needle on local pressure switch MSLC-PS-25). The trend for MWR's and undocumented hardware discrepancies will be further considered during routine inspections. (Followup item (50-397/84-09-08)

8. Power Ascension Test Program

The inspectors examined equipment, interviewed personnel, and reviewed records and procedures relative to conduct of the power ascension program described in Chapter 14 of the FSAR.

a. Open Vessel Testing Records

The inspector examined the completed records for tests associated with "Cold test or open RPV" activities listed in the FSAR Table 14.2-4. Each test record had been reviewed by the Plant Operations Committee and approved by the Plant Manager as prescribed by the FSAR. The inspector ascertained that the documented test reults were within the Level I acceptance criteria listed in the FSAR.

No items of noncompliance were identified.

b. Pipe Supports and Restraint Systems Clearances

The licensee's program for testing of pipe supports and restraint systems during the heatup phase of the power ascension program was reviewed by the inspector. This review included inspection at operating pressure and temperature of several installed pipe supports and restraints, and examination of the licensee's inspection results and any corrective action taken by the licensee to resolve discrepant conditions discovered during the inspection.

The following pipe supports and restraints were visually examined for evidence of: (1) deformation or detrimental indications on welded surfaces, (2) bolts, nuts, washers tight and secure, (3) fasteners and locking devices not loose or removed, and (4) pipes, supports, or other associated equipment or components not in contact or causing rubbing due to thermal expansion.

Dynamic Pipe Supports (Snubbers)

RRC-SA-6
RHR-383
RRC-SA-16
RRC-SA-20
RHR-387
RFW-151
* + RHR-147
\+ RHR-158

Fixed Pipe Supports (Spring Hangers)

LPCS-63
LPCS-64
RWCU-139
PWS-28-7A (pipe whip restraint)
PWS-28-7B PWS-27-7A PWS-27-7B
\+ RHR-157
* + RHR-187

Component Support Structures (Frames, Boxes)

RRC-SB-6 (100K loading
RRC-SA-6
MS-SC-2 (100K loading)
* + RHR-159
* + RHR-148
\+ RHR-149

*Also examined at ambient conditions in inspection report 50-397/83-44.
+Located outside Primary Containment.

No deficiencies were identified that had not already been identified by the licensee as part of the licensee's program for the testing of pipe supports and restraint systems during the heatup phase of the Power Ascension Test Program.

No items of noncompliance or deviations were identified.

c. Operational Preparations for Power Ascension

Prior to achieving reactor criticality for heatup, the inspector examined the completed Master Startup Checklist (Procedure 3.3.3) and several associated valve lineup checklists. He independently verified the position of locked valves listed on the locked valve checklist 1.3.29 (RHR-V-8, 9, 11A, 113, 124A, 124B, 170, 172A, and

root valves for instruments LS-11A, B, C, and D.) He verified that inoperative or troublesome control room annunciators had been evaluated by the operations management and that at least the safety related ones were corrected where necessary. The inspector noted that detailed instrument rack checklists had been completed to verify proper positions of individual valves for sensors and transmitters in the plant areas. Management signatures attested to completion of all prerequisite surveillances; the inspector reviewed the documentation of nine of these to ascertain that the required frequency had been met and that significant technical issues were not left unresolved (Surveillances numbered 7.4.3.3.1.21, 3.3.1.46, 3.3.1.48, 3.3.1.51, 3.3.1.53, 3.2.1.1, 3.7.5.1, and 8.3.2).

No items of noncompliance were identified.

d. Control Rod Scram Tests

The inspector examined the recorder charts for individual control rod scram tests performed at open vessel conditions, and ascertained that the licensee had identified the slowest four rods in group A and group B, and that the group B rods had been selected for scram timing tests at subsequent pressure and temperature conditions of the plant. The inspector witnessed the tests at 585 psig for these rods, and ascertained that the scram times met the technical specification requirements.

No items of noncompliance were identified.

e. Reactor Core Isolation Cooling Tests

The inspector witnessed testing of the RCIC system at 150 psig and 600 psig reactor pressure, and examined system performance recorder charts for these and rated pressure condition tests. Following initial problems with turbine overspeed control, the tests were successfully performed and met the FSAR Level I acceptance criteria.

Initial testing from CST to CST (Condensate Storage Tank) revealed that there was initial pump runout for as much as 10 seconds at rated flow, apparently due to unidentified draining of piping down through the discharge valve to the CST. The problem was overcome somewhat by not opening the discharge valve until just before activating the RCIC pump. This condition is not anticipated for conditions of injection to the reactor vessel.

No items of noncompliance were identified.

9. Licensee Event Reports

The inspector reviewed each of the LER's issued from January 1, 1984 to the current report period. Each of these is considered to be closed unless noted otherwise below. The inspector verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, generic applicability had been considered, and the LER forms were complete. Additionally, for those reports identified by asterisk, a more detailed review was performed to verify that the

licensee had reviewed the event, corrective action had been taken, no unreviewed safety questions were involved, and violations of regulations or Technical Specification conditions had been identified.

LER-84-001 * Refueling bridge interlock setpoints were incorrect.

LER-84-002 Spurious activation of control room emergency filtration units from electrical noise.

LER-84-003 Reactor trip from disconnect of instrument cable.

LER-84-004 * IRM failures identified during initial criticality.

LER-84-005** Inadvertent start of HPCS diesel generator.

LER-84-006 Circuit breaker latch lever guide tube failure.

LER-84-007 * Reactor trip from loss of reactor level instrument.

LER-84-008 * Suppression pool level exceeded limits.

LER-84-009** Start of diesel generator without prelube/warmup.

LER-84-010 * Excess flow check valves installed in incorrect locations.

LER-84-011 * Reactor trip from failed contact on relay.

LER-84-012 * Diesel generator fuel oil chemistry data lateness.

LER-84-013 * Incorrect fuse size on hydrogen recombiners.

LER-84-014 * Reactor trip from improper RPS power transfer.

LER-84-015 Isolation valve action from incorrect power transfer.

LER-84-016 * Reactor trip and ESF from incorrect power transfer.

LER-84-017 * Spurious activation of control room emergency filtration units from failure to reset relays.

LER-84-018 * Spurious activation of control room emergency filtration units from failure to reset relays.

LER-84-019 Spurious activation of control room emergency filtration units from indicator bulb replacement current surge.

LER-84-02 * Unlocked door left unattended.

LER-84-021 * Scram discharge volume drain line blockage.

LER-84-022 Inadvertant start of diesel generator from bump of relay in local cabinet.

LER-84-023** Start of diesel generator without prelube/warmup.

LER-84-024 Spurious activation of control room emergency filtration units from bump of sensor power cord.

LER-84-025 * Spurious activation of control room emergency filtration units from electrical noise.

LER-84-026 Inadvertant water on standby gas treatment charcoal filters due to fire system preaction.

LER-84-027 ** Electrical grounds in MSRV solenoids.

* Items which were examined on site and which are closed.
**Items which were examined on site and which are open.

The following items were examined on site by the resident inspectors.

(Closed, 84-001) - The inspectors examined equipment, procedures and drawings and interviewed personnel relative to the setting of the trip points for the interlocks. The error appeared to be a simple misinterpretation and an isolated event. Significant licensee technical attention was given to this issue, and fueling actions were appropriately suspended until the issue was resolved.

(Closed, 84-002) - See discussion of LER-84-025, below.

(Closed, 84-004) - The inspectors had examined a typical IRM and interviewed instrumentation personnel relative to the failure modes, in January 1984. The failures appeared to be as described in the LER.

(Open, 84-005) - NRC action on this item was described in NRC inspection report 50-397/84-01.

(Closed, 84-007) - The inspector examined drawings and instrument sensor installations and interviewed randomly selected instrument and control technicians relative to valving of instruments for surveillance and maintenance. Of four technicians interviewed, they appeared knowledgeable of the event and necessary precautions for preventing recurrence of similar events.

(Closed, 84-008) - The inspector examined records and the instrumentation and recorder that had been deactivated without the operator's knowledge. The time stamp entries placed upon the recorder chart each shift had appropriately revealed the inoperability of the recorder. The inoperability is an example of details of review of jumper and lifted lead actions, as further described in NRC open item (50-397/84-09-09, (paragraph 10 of this report).

(Open, 84-009) - NRC action on this item was described in NRC inspection report 50-397/84-06.

(Closed, 84-010) - NRC action on this item was described in NRC inspection report 50-397/84-06.

(Closed, 84-011) - NRC action on this item was described in NRC inspection 50-397/84-06.

(Closed, 84-012) - The inspector attended meetings and interviewed personnel regarding this matter. The licensee considers that only Phoenix Laboratory could provide adequate test results. However, this laboratory is in Chicago and transport and testing times exceeded the technical specification times for having test results available. The licensee has implemented provisions to obtain the test results by telephone with subsequent confirmatory correspondence. The licensee corrective action appeared appropriate.

(Closed, 84-013) - The inspector interviewed the system engineer regarding details of this matter. The motors were of acceptable size in accordance with design and special testing confirmation; however, the nameplate data was incorrect and undersize fuses were installed in the field in accordance with the nameplate data. The licensee actions appeared appropriate.

(Closed, 84-014) - NRC action on this item was described in NRC inspection report 50-397/84-06 (paragraph 8.c).

(Closed, 84-016) - The inspector examined the RPS transfer switch and interviewed the reactor operator regarding the overtravel on the switch which resulted in an inadvertant dead bus. The operator had attemped to move the switch very rapidly from the left to the mid position, and inadvertently closed the contacts in the right-side position. The discussion of this matter between the various operating crews appears appropriate to avoid recurrence.

(Closed, 84-017) - Activation of control room emergency filtration fan. (See 84-018 below).

(Closed, 84-018) - This event first occurred March 6, and the licensee initiated a revision to the procedure for surveillance testing to assure that certain relays are reset before continuation of testing. While the procedure was in the review process, a subsequent surveillance was performed on April 18 and a similar error and fan

actuation occurred. The procedure has been revised and the inspector witnessed a subsequent test, noting that the procedure included appropriate cautions, and the technicians took care to verify actual reset of the relays. The licensee could have initiated immediate interim actions pending the issuance of the revised procedure, which may have reduced the possibility of the repeat event.

(Closed, 84-020) - The inspector interviewed the security management and examined the interior door that was left unattended and verified that the incident was insignificant. The licensee actions were appropriate and timely.

(Closed, 84-021) - Licensee investigation of excessive drain times revealed blockage of the drain valves by seven small cloth sacks (approximately 3" by 3") of desiccant. These were identified as those provided by the vendor who had supplied the prefabricated scram discharge header. The LER did not discuss the possibility of the blockage of the normally open valves to prevent closure during a reactor scram. The inspector examined the sacks and diagrams of the valves, and interviewed personnel who had witnessed the valve disassembly, to assess the probability of such blockage. These indicated that the valve plugs move within internal machined cylinders with strainer holes to prevent entry of foreign material to block the valve seat. The cloth sacks were torn and stained by friction forces, suggesting that portions may have been caught between the valve plug and the strainer sleeve. However, there are two valves in series, such that material would have to pass completely through the first valve strainers in order to block the second valve. This appears to be improbable. The licensee could not explain the failure to remove the desiccant during construction/ installation.

(Open, 84-023) - NRC action on this item was described in NRC inspection report 50-397/84-06.

(Closed, 84-025) - Control room emergency filtration units automatically started from high-high radiation signal from the outside air intake monitors, due to electrical noise. The inspector later witnessed a similar event which occurred when a valve was operated, and witnessed repeat starts conducted by the operators to verify this as the source of the electrical signals. Investigations have continued to identify

and resolve grounding loop problems, including installation of diodes in the grounding connections.

(Open, 84-027) - NRC action on this item was described in NRC inspection report 50-397/84-06 (paragraph 5.a).

No items of noncompliance were identified.

10. Licensee Actions on Previous NRC Inspection Findings

The inspectors reviewed records, interviewed personnel, and inspected plant conditions relative to licensee actions on previously identified inspection findings:

a. (Open) Followup item (50-397/83-60-03) - Forms for documenting jumpers and lifted leads did not appear to provide sufficient space for presenting data important to the review/approval decision.

Revision 4 of plant procedure 1.3.9 (dated December 22, 1983) requires that proposed jumpers and lifted leads be documented in a log, and that column 4 of the log list "The specific reason for lifting the lead(s) and function affected." The log entries to date generally have been rather cryptic such that the reason and function affected are not readily identifiable. As just one example, the column 4 entries for tags #31 and #32 for location HPCS-0395 simply state "Test". The need to identify the specific function affected was once again discussed with the licensee who agreed with the need to initiate action on this matter.

11. Unresolved Items

Unresolved items are matters about which more information is required in order ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspections is discussed in paragraph 4.J.

12. Management Meeting

On April 27 the inspector met with the plant manager and his staff to discuss a summary of the inspection findings for this period. Attendees at this meeting are identified in paragraph 1 (*). On May 1 the senior resident inspector met with the plant manager to discuss additional inspection findings since the April 27 meeting.