ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-397/95-19

License: NPF-21

Licensee: Washington Public Power Supply System
3000 George Washington Way
P.O. Box 968, MD 1023
Richland, Washington 99352

Facility Name: Washington Nuclear Project-2

Inspection At: Richland, Washington

Inspection Conducted: June 5-20, 1995

Inspectors: S. McCrory, Reactor Engineer, Operations Branch
Division of Reactor Safety

T. McKernon, Reactor Engineer, Operations Branch
Division of Reactor Safety

R. Lantz, Reactor Engineer, Operations Branch
Division of Reactor Safety

D. Proulx, Resident Inspector/WNP-2

Approved: Ian Barnes 7-20-95
for John L. Pellet, Chief, Operations Branch Date
Division of Reactor Safety

Inspection Summary

Areas Inspected: Nonroutine, announced inspection of control room operations during reactor startup.

Results:

Operations

- Command, control (which included procedure use and compliance), and communication of the control room shift operators were adequate for safe operation but marginal in some areas (Sections 1.2, 1.3, and 1.4).

- Corrective action measures to date continued to be ineffective in producing significant improvements in performance in command, control, and communication (Section 2).

- The operations staff continued to accept and tolerate conditions, conduct, attitudes, and performance that were conducive to errors (Sections 2.1 and 2.2).

- The operations organization did not effectively assert its leadership role at the facility, especially outside of the operations department (Section 3).

- The licensee's 50.59 evaluation, which allowed deleting the shift turnover procedure, was superficial and flawed (Section 1.3)

- Licensee oversight management observations, although fulfilling managements expectations, were not routinely at the level of detail and interaction required to improve individual performance of watchstanders (Section 4).

Summary of Inspection Findings:

- Violation 397/9519-01 was opened (Section 1.3).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Management Oversight Observation Summary

DETAILS

1 SUSTAINED CONTROL ROOM OBSERVATION (71715)

As a result of multiple plant events reflecting problematic licensee operating performance, the NRC determined that it was necessary to conduct an extended observation of licensee control room crew performance to confirm that control room operating crews were performing in accordance with licensee expectations and procedures. Recent events indicated that while the operating staff may have been aware of and cognitively attempted to meet licensee expectations, in times of increased stress they often reverted to habitual behavior patterns that were no longer acceptable. Those included, failure to maintain command and control, use of very informal communication techniques, failure to inform other crew and management of actions and issues, failure to use effective team-building techniques, and informal procedure use and adherence. The intent of the inspection was to observe control room crew performance during startup activities with a focus on human performance issues, including command and control practices, crew briefings, communication frequency and effectiveness, procedure use and adherence, and log-keeping.

Two inspectors were assigned to perform extended observations in the control room on a rotating basis. The inspectors used specific guidance, specially prepared for the inspection, to focus their observations. They took detailed observation notes which were provided to the team leader at the end of each observation period. Additionally, they debriefed with the team leader daily. After the departure of the inspection team, the resident inspector continued control room observations as a part of the inspection.

A third inspector, assigned as the team leader, was responsible for integrating the observations of the other inspectors and for interfacing with the facility licensee. In addition to reviewing the observation results, the team leader interviewed pertinent plant staff personnel, reviewed various licensee documentation, and observed daily outage closeout and startup status meetings.

1.1 Control Room Observations

During the period of June 5 - 12, 1995, the inspectors observed activities in the control room. These activities included operations surveillance testing, control room operators' communication practices, control board operations, shift-turnover, prejob briefings, outage activities, supervisory oversight, log taking, command and control, and others. During the observation period, the plant transitioned from outage activities to initial plant startup and power ascension to about 15 percent power. The inspectors observed various crew compositions on day and night shift periods.

During the refueling outage and preparations for reactor plant startup, two crews were assigned to the shift, with the additional licensed personnel utilized to help with the administrative requirements and production work of the shift. One crew was designated as the on-shift crew, including a shift manager, control room supervisor, lead reactor operator, and reactor operator.

Substantially above average background noise levels in the main control room were a historic and well known control room characteristic at WNP2. The noise was generated from various sources, including ventilation, the plant computer, and the physical configuration of the control room and back panels. At the beginning of the observation period, while the plant was in the last phase of an outage, it was apparent that the operators were challenged not only by the ambient noise, (e.g., ventilation and plant process computer) but also by the number of simultaneous functions being conducted in the control room area. These activities included surveillance testing of the fire protection system, standby gas treatment system work, shift technical adviser's work, operations work control activities, alarm annunciation response, and a number of other activities. It was apparent that the number of ancillary functions contributed to the congestion and noise level of the control room without contributing directly to the operation of plant systems or components.

1.2 Command and Control

The inspectors observed instances of weak command and control during the inspection period. There were several trainees in the control room at any given time, and they were frequently used to take logs, normally without direct supervision. At one point, operators-in-training were assigned the task of taking instrumentation recordings and data logging and failed to alert the control room supervisor or lead reactor operator of an out of limit drywell temperature condition. Average drywell temperature was required to be maintained above 70 degrees F for stress consideration of large support structures in the drywell. Across a full day of log-taking, encompassing three shifts, all average readings were below 70 degrees F, with no red circled readings and no action taken. The control room logs contained a large note (paragraph) that directed adjusting reactor component cooling flow to RCA-FC fan cooler units to maintain average drywell temperature greater than or equal to 70 degrees F. While preparing the next day's logs, the shift crew recognized the out-of-limit readings and secured the drywell fans to increase drywell temperature to specification. They then informed plant engineering and requested an evaluation of the consequences of the low temperatures. The inspector also noted that the day shift control room supervisor had not reviewed the logs. Control room shift management acknowledged the lapse in adequate oversight of the operator trainees and failure to review the data logs.

During the same time period, the inspectors observed another instance in which prompt and thorough action was not taken in response to an out-of-limit log reading. The control room logs for Battery Room 2 specified that IMMEDIATE action was required when room temperature was less than 74 degrees F (the Technical Specification minimum was 60 degrees F). Two consecutive log

readings indicated less than 74 degrees F during the day shift (8 hours apart). The readings were red circled, but no action was taken to increase the temperature. The day shift had noted that the room heater was not working. When the evening shift took the next log reading, which was still less than 74 degrees F, they investigated and found that only the heater controller was malfunctioning, in that it would not automatically shut off. A clearance had been prepared, but not hung. Therefore, the evening shift manager decided to turn on the heater to restore the room temperature and monitor heater performance and room temperatures more frequently. The inspector noted that although this was a positive action to restore and maintain the battery room temperatures above specified limits, the direction given to the operator for maintaining battery room temperature was vague. The control room supervisor only told him to maintain the temp above 74 degrees F. The direction did not give a range within which to control the temperature.

In another instance, a number of outage work or surveillance work packages were not logged out as completed by the control room staff. As a consequence, the control room supervisor and assistant control room supervisor had to subsequently retrieve the packages from the work control center. Corrective action was taken to change the sequence of package review and signout from the control room.

An inspector observed the control room supervisor receive a phone call from technicians in the field who were conducting main steam isolation valve position logic tests. The technicians requested status of the main steam isolation valve position indications in the control room, and requested the main steam isolation valve isolation logic push buttons be depressed to reset the logic. The control room supervisor went to the appropriate panel, noted the valve positions, and then reset the logic by depressing the two reset push buttons. The control room supervisor then reported his actions to the technicians. The control room supervisor told the reactor operator that the logic was reset when the reactor operator questioned the control room supervisor on the status of the test. This same control room supervisor stated later that he routinely depressed all main control board logic reset push buttons during turnover. This was confirmed during observation of turnover. The inspector asked the management oversight observer if the above actions by the control room supervisor were appropriate. The management oversight observer stated that it was inappropriate for the control room supervisor to operate panel switches except in cases of an emergency, and that the control room supervisor should remain in a position of oversight and direction of activities. (On March 3, 1995, management had communicated, in the form of an electronic memorandum, explicit expectations that shift supervisory personnel not operate equipment controls except in an emergency.) The practice of resetting logic during turnover was also noted as inappropriate, however, this expectation had not been promulgated to the crews prior to the inspector's observation.

The inspectors noted frequent changes of the panel reactor operator between the shift crews, and in one instance, for approximately one minute, only the nondesignated reactor operator was in the "at the controls" portion of the control room. All of the other operators and senior operators were either outside the control room or at the work table in between the instrument panels. Management stated that this was permitted by Technical Specifications, but was not a desired situation. The inspector also noted that when the switch between panel operators was done, little or no status turnover was given to the operator taking the boards.

Towards the end of the observation period, the inspectors noted a marked improvement in control room decorum. A focused, alert, and directed effort was placed on transitioning into the plant startup procedure. Activity in the control room was orderly and nonintrusive to the activities of the control board operators. The prestartup briefings were focused and well conducted. Control of the approach to criticality was good as were the coordination of heatup, reactor core isolation cooling test preparation, and placing the turbine bypass valves in automatic.

1.3 Procedure Adequacy

While conducting main steam isolation valve isolation logic tests, the crew received an unexpected full main steam isolation valve isolation. The main steam isolation valves stroked from full open to full shut. After investigation, the crew discovered the procedure was inadequate if the reactor mode selector switch was not in the "Run" position. Additionally, the procedure did not identify expected main control board alarms. The inspector observed good response by the crew and others to evaluate the cause of the unexpected isolation signal. This was reported to the NRC and a Problem Evaluation Request was written.

While conducting reactor core isolation cooling turbine testing, the operators started the reactor core isolation cooling turbine and received an unexpected alarm which indicated low cooling water flow to the lubricating oil cooler. The procedure failed to establish cooling water to the lubricating oil cooler. During an automatic start of the turbine, this valve opens to supply lubricating oil cooling.

On June 9, 1995, an inspector observed the shift and relief turnovers in the control room. The inspector noted that most of the operators were on 8-hour shifts. However, one pair of reactor operators was on 12 hour shifts to cover the absence of the third reactor operator. This pair of reactor operators turned over in the middle of the shift rather than with the rest of the crew at the beginning of the shift. The inspector noted that the operators on 12-hour shifts did not fill out and sign a shift turnover checklist. The shift turnover checklists generally directed the operators to discuss important plant parameters to ensure that a formal and precise exchange of information occurred.

The inspector discussed this observation with the shift manager, the operations manager, and the plant manager. These licensee representatives stated that turnover between the operators on the 12-hour shifts without the checklist did not meet management's expectations. They stated that use of a separate shift turnover checklist was expected whenever an operator turnover occurred more than 30 minutes later than the crew turnover.

The inspector researched the licensee's procedures to ascertain what expectations concerning shift and relief turnover had been communicated by the licensee in plant procedures. The inspector noted that the licensee did not have a plant operations committee approved procedure that contained the requirements for shift and relief turnover. Technical Specification 6.8.1.a, referenced Regulatory Guide 1.33, and required a procedure for "Shift and Relief Turnover." In addition, Technical Specification 6.8.2 required each procedure of Technical Specification 6.8.1 to be reviewed by the plant operations committee and approved by the plant manager. Technical Specification 6.8.1.b required procedures to implement the requirements of NUREG-0737. Item I.C.2 of NUREG-0737, required turnover procedures to include a shift and relief checklist. Because the licensee did not have a plant operations committee approved procedure for shift and relief turnover that included a shift turnover checklist, this was a violation of Technical Specifications 6.8.1.a, 6.8.1.b, and 6.8.2 (Violation 397/9519-01).

In further researching this issue, the inspector noted that the licensee at one time had a turnover procedure for the operators, but this procedure had been deleted recently. The expectations for shift turnover had been relocated to Operating Instruction 19. Operating instructions were internal department instructions that were not reviewed by the plant operations committee. Mainly, they contained recommendations for good operating practices that the operators were not specifically bound to follow.

The inspector found that the shift turnover procedure had been deleted as part of the procedures improvement program. The licensee's program included the goal of deleting or streamlining all procedures that appeared to be unnecessary or burdensome. When performing the 10 CFR 50.59 evaluation for deleting the shift turnover procedure requirements, the licensee performed an inadequate review of Technical Specification 6.8.1.a, Regulatory Guide 1.33, and NUREG-0737. As part of the 10 CFR 50.59 reviews, the licensee did not actually read the requirements. The reviewers performed a word search, using an electronic version of their licensing basis documents, to determine where requirements or commitments were located. In this instance, the reviewer used a word string that did not match the exact words of the Final Safety Analysis Report or Regulatory Guide 1.33. Therefore, the inspector noted that the licensee's system for performing 10 CFR 50.59 evaluations using the electronic database was not always fully effective in identifying requirements and commitments.

The inspector informed licensee management of this issue. The licensee acknowledged the inspector's finding and drafted a procedure for the shift and relief turnover. However, the licensee's new procedure for shift turnover still contained weaknesses, and was not in accordance with NRC requirements and licensee procedure writers guidelines.

To address the inspector's concern, the licensee issued a deviation to Plant Procedures Manual 1.3.1 "Conduct of Operations-Department Policies, Programs and Practices," to reinstate the shift and relief turnover requirements in formal plant procedures. The licensee added Section 4.20.1.h stating that if an individual relieved a position 30 minutes past the crew's turnover, a shift turnover checklist should be filled out.

However, the licensee did not appear to follow its own guidance in developing this procedure as shown in the examples below. WNP-2 Plant Procedures Manual 1.2.2 "Plant Procedure Preparation" defines the use of the word "shall" as "used to denote regulatory requirements, external commitments, and selective specific management direction." Plant Procedure Manual 1.2.2 defines use of the word "should" as "used to denote recommendations but not enforceable regulatory requirements and managements expectations." When these concerns were conveyed to the licensee, the licensee's response was to assert that most other licensees treated the situation manner similar to the one that they had chosen.

- The revision to Plant Procedures Manual 1.3.1, Section 4.20, stated that control room staff should fill out and sign a shift turnover checklist in accordance with Operations Instruction 19. The inspector noted that a shift and relief turnover checklist was a requirement of NUREG-0737 and was committed to by WNP-2 in their Final Safety Analysis Report.

- Section 4.20 of this procedure also stated that a licensed operator should only be relieved by a licensed operator. The Technical Specifications required certain positions to be filled only by licensed individuals.

- Finally, Section 4.20 stated that the operators should not take the watch if they were unfit for duty, and the offgoing operator should not allow himself to be relieved if he believed that his relief was unfit for duty. Fitness for duty requirements for licensed operators are found in 10 CFR 26, and 10 CFR 55.

1.4 Communications

1.4.1 Shift and Relief Turnover Observations

The oncoming crew individually conducted turnover, which included various log and equipment status reviews and a main control room board walkdown and discussion with the off-going watch. The inspectors noted good information exchange during operator turnovers while performing control board walkdowns.

The on-coming shift crew members were advised of specific control board status and on-going work activities. After all members of the oncoming crew relieved the shift, the entire crew assembled in the control room for a shift brief, which lasted from 10 to 30 minutes.

The brief was led by the control room supervisor, and each operator was given an opportunity to discuss his observations during turnover. Communications observed during shift briefings were marginally adequate. The inspectors noted that several of the briefers spoke too softly to be easily heard over the control room background noise. In some instances, either the shift manager or a management observer would request the briefer to speak louder, but this did not always occur, and that portion of the brief was missed by some of the crew. The day-shift manager conducted good post-Plan-of-the-Day meeting crew briefings that clarified the objectives for the day, lessons learned, and items of significance. However, in one instance, shortly after shift turnover on the night shift, an inspector asked the shift manager about the activities that were to be accomplished during the shift and their priorities. The shift manager admitted that he did not know and had to obtain the information from the management oversight observer.

During one turnover, an off-going shift manager gave permission for personnel to enter the drywell under vessel area, to remove shielding and other materials. This permission was given over the phone directly from the shift manager to the technicians requesting the entry. The off-going control room supervisor had received the request by phone originally, and had attempted to get the shift manager's permission by talking loudly across the control room. Both the control room supervisor and shift manager had to request a repeat of the other's request/report due to inability to hear clearly. Finally, the shift manager picked up the phone and took the call directly. After granting the permission, the shift manager did not make a positive report to the control room supervisor that he had granted the permission. After turnover, the inspector asked the new shift manager why personnel had entered the drywell, to which he stated for inspection and evaluation of potential needed work: he did not know the reason for entry primarily was to remove staged material. The inspectors noted several other examples where turnover information was either incorrect or incomplete.

During another turnover, a high pitched, recurrent alarm at a back panel of the control room initiated two-three times per minute throughout the turnover. The alarm was a security alarm, which was the result of security testing badges whose access had been revoked. This was an unnecessary distraction to the turnover.

1.4.2 General Communications

Control room communications were sometimes difficult because of multiple activities being conducted simultaneously and the background noise level. At times, inconsistent acknowledgements of control panel alarms were observed. Typically, communications conducted during more formal settings such as the performance of surveillance tests were more disciplined. Communications were

generally adequate; however, the inspectors observed several examples where communications reverted to informal jargon or lax discipline that was sometimes ineffective and did not meet management expectations. Communications recipients accepted inappropriate communications, indicating a lack of questioning attitude.

During testing of relays for proper operation of Valve RCC-V-6, the reactor operator controlling the test in the control room directed the assisting reactor operator to "watch the 6 valve, need it open when I start the pump." After the evolution was completed, the inspector asked the assisting reactor operator what he understood the direction to mean, to which he stated he was not sure, but thought that he was being told to verify Valve RCC-V-6 opened after the second reactor component cooling pump was started. The reactor operator stated that he thought it only had an auto-close feature, but that the direction he received made him think it might auto-open. A shift technical advisor in senior reactor operator upgrade observation training stated that he too thought the valve would auto-open based on the direction given by the first reactor operator. When the valve did not auto open, the reactor operator attempted to open the valve. After the third attempt, Valve RCC-V-6 stroked open. The reactor operator then checked the appropriate valve logic prints and verified that the valve would only auto close, and had a 10-second time delay for both an auto-close and manual open. The original direction from the reactor operator was unclear and confusing.

Several instances were noted when nonspecific communication were used. "Still got 176 (no system or units)," "the valve position relays? (no system said)," watch Valve 6 (no system)," "1825, CRD Pump Swap (configuration not specified)," were examples of communications observed that were not specific and subject to misinterpretation. The inspector also noted a frequent lack of positive feedback from the performer of an order that the task was accomplished. For example, after a pump was started as ordered, the reactor operator did not routinely report back to the control room supervisor that the pump started normally. Several instances were noted when the control room supervisor did not acknowledge reports, and the reactor operator did not insist on an acknowledgement. All of these were contrary to the communications expectations of licensee management.

The inspector noted that operators in the control room did not utilize headphones. The inspector also noted the practice of yelling across the control room from the back panels while conducting the main steam isolation valve logic checks. Phone jacks were available, but not utilized. When questioned, the operators stated that they had always conducted this test in the manner observed, and did not know if the phone jacks worked. Similarly, the inspector observed that phone jacks were not utilized during testing of the reactor core isolation cooling turbine. After the reactor core isolation cooling turbine was started from the control room, a muffled noise came over the radio in the control room. The control room supervisor keyed the mike and requested a repeat, to which the reply came slowly but still not very clear, "STOP THE RCIC TURBINE." The control room supervisor then ordered the turbine tripped. The poor communications delayed tripping the turbine for

approximately 30-45 seconds. The inspector asked if phones were considered for this or other tasks, especially in high noise areas. The operators stated that phones were not used, and that they were not sure that the capability existed. When the test was attempted again, the operators used the control room phone and a local phone in the reactor core isolation cooling room for direct communications between the control room and the reactor core isolation cooling pump room. The reactor operator stated that the communications were much clearer.

A note on the microfiche printer in the control room said do not use the print feature since it burned paper. However, the note was not conspicuous, and did not cover the button to print. The shift technical advisor used the printer which resulted in a strong smoke smell in the control room. That invoked action from the control room supervisor, a reactor operator, and security personnel. Although the response by control room personnel was rapid and appropriate, the incident was an unwarranted distraction to the crew that could have been prevented through adequate communication of the equipment deficiency or proper controls to prevent operation of the print button.

2 IMPACT ON PERFORMANCE

The preceding information provided numerous examples of weak performance on the part of WNP2 personnel that help to form the basis of the NRC conclusion that operational performance has not improved significantly from that summarized in NRC Inspection Report 50-397/95-07. The lead inspector integrated and analyzed these observations with information obtained through interviews, review of licensee documents, and observation of peripheral activities such as the morning and afternoon status meetings. After completing the integration and analysis, the inspection team concluded that several conditions existed that created an environment favorable to a high frequency of performance errors and high consequences when errors occurred. The conditions and the resultant behaviors did not create an immediate safety concern nor constitute a failure to comply with regulatory requirements, with one exception as described in Section 1.3 above. However, they did represent conditions and behaviors conducive to poor performance that could result in or aggravate adverse operational consequences.

2.1 Conditions Conducive to Poor Performance

The high control room ambient noise level has been recognized for some time as a condition that adversely impacts communication in the control room. Further, such a condition can induce an additional stress level for operators required to work in such an environment for extended periods of time. This can increase the incidence of errors.

The layout of the personal work stations in the control room near the systems controls, indicators, and alarms increased the vulnerability to operational errors. The placement of the shift technical advisor work station and administrative processing work stations in near proximity to the control room watch stations increased the amount of activity in the area that was not related directly to controlling the plant.

Two different standards of conduct of operations were implicitly promoted by procedures and policy. There was a definitive checklist of required communication techniques in Section 4.10.3 of Plant Procedures Manual 1.3.1, "Conduct of Operations," which began with the statement: "In addition to standard Communication Techniques, the following are required During Abnormal Conditions or (when) Entry into the EOPs is necessary." Further, an inspector who had recently observed crew performance in the licensee's simulation facility, observed a significantly different level of performance in the control room during extended observations. Actual control room behavior was much less formal and rigorous.

An observation by a licensee control room management oversight participant regarding inconsistent and poor electrical distribution component labeling prompted management to consider training plant staff to cope with inconsistent or poor labeling rather than revising the priority or pace of the label upgrade schedule to correct the problem. Poor labeling had been previously identified as contributing to errors made while establishing a clearance for electrical maintenance (NRC Inspection Report 50-397/95-07). Other equipment and component labeling concerns or weaknesses have also been reported in NRC Inspection Reports 50-397/94-12, 94-26, and 94-27.

NRC inspection activities regularly identified procedural inadequacies, deficiencies, or weaknesses that affected plant operations and activities in the plant. (Refer to NRC Inspection Reports 50-397/94-12, 14, 17, 19, 21, 24, 27, 32, 34, 95-03, 05, 07, and 09.) During the inspection, additional procedural problems were identified, some of which contributed to unplanned plant responses. Licensee management indicated that there was a focused program for improving alarm response and abnormal operating procedures; however, improvement of other procedures was expected to result from the regular biennial reviews. None of the procedural problems identified during the inspection related to alarm response or abnormal operating procedures. While many of the procedural problems were licensee identified and some had direct impact on system or equipment operation or testing, the licensee was not pursuing a comprehensive approach of enhanced identification and correction of nonalarm or abnormal procedural problems.

The plant and operation managers reenforced a policy of making shift supervision and licensed operators responsible for correcting the various performance weaknesses identified by both the licensee and NRC inspectors, in this and previous inspections. However, it was unclear that the licensee had assured that the shift operators and supervisors were adequately trained and equipped to carry out that responsibility. After the crew involved in the April 9, 1995, reactor water cleanup system event (NRC Inspection

Report 50-397/95-17) was reconstituted, the new crew received a day of team building training which consisted largely of discussion topics and reviews of previous events. Apart from that and an expressed intent to implement a general reconstitution of crews in October 1995, operations management did not identify to the inspectors any aggressive efforts in progress or planned to enable operators to correct the operational performance weakness identified in this and other recent inspection reports.

2.2 Behavior Conducive to Poor Performance

During an outage/startup status meeting, the electrical maintenance manager displayed a lack of awareness of or sensitivity to shutdown risk concerns. The manager complained that the control room was interfering with the timely and efficient completion of some relay testing by prohibiting his workers from starting some of the work in accordance with their schedule. An operations representative at the meeting had to point out to the manager that the actions of his workers would have rendered both diesel generators inoperable during the time the testing was being performed. Even after that, the manager continued to focus on getting operations to cooperate to permit his people to complete their scheduled work.

On two separate occasions, control room observers (one, a licensee management oversight observer) witnessed periods in which only one licensed operator was in the control room in the vicinity of the equipment controls, instruments, and annunciators. In both cases, when the situation was pointed out to the on-shift crew, the response was essentially that Technical Specifications only required one operator to be in the controls area while shutdown. In both cases, the shift was staffed with an augmented crew, and in neither case was an emergency condition present that warranted leaving the area of the controls staffed with only one operator. In the instance observed by the NRC inspector, the sole operator was engaged in a surveillance test and not fully attentive to general plant indications. Neither case appeared an appropriate allocation of augmented crew resources available.

As previously discussed, an inspector observed a shift manager and control room supervisor shouting to one another across the control room while the control room supervisor attempted to be a link with another party on the telephone. After two failed attempts at information exchange, the shift manager came to the phone and spoke with the party directly.

An inspector observed two operators performing a surveillance test which required them to be on opposite sides of an electrical cabinet. Rather than using the phone jacks installed to assist communications for that type of activity, the operators shouted over and around the cabinet.

During a test of the reactor core isolation cooling system, operators were using radios to communicate between the control room and local areas of the plant where conditions for radio communication were known to be poor. The local operator called for a trip of the reactor core isolation cooling turbine during the test but because of poor radio conditions, it took an additional 30 to 45 seconds to clarify the communication and then trip the turbine.

Instances of nonadherence to procedures were observed with regard to the battery room and drywell temperature logs as noted in Section 1.2 above.

An additional instance of confusing communications during a valve relay test is described in Section 1.4.2 above.

3 OPERATIONS ORGANIZATION LEADERSHIP ROLE

NRC Inspection Report 50-397/95-07 noted that operations department ownership of the plant was not evident and gave several supporting examples. During an interview for this inspection, the operations management expressed strong disagreement with that perspective. The principal example of how ownership was being exercised was to point out that augmenting the control room crews during the outage had been effective in controlling outage activities. A closer examination of that situation by the inspectors revealed that augmented crews were more effective in dealing with the challenges and obstacles created by support organizations. Many of those challenges and obstacles arose as a result of poor planning and scheduling, lack of sensitivity to operational impact, or a lack of recognition of operations' leadership authority. Moreover, operations had not communicated, at middle and upper management levels, standards of conduct and performance for activities in the plant control and equipment spaces that applied to all site personnel regardless of their organizational alignment. To the extent that any such attempt was made, it relied on the on-shift operators to police and correct performance deficiencies on the part of support personnel. It has already been noted that the operators themselves did not sustain the desired level of performance and leadership by example, without the added responsibility to effect performance and behavior changes in support organization personnel.

4 LICENSEE MANAGEMENT OVERSIGHT EFFECTIVENESS

The inspectors observed management oversight of the operating crews. The inspectors noted that, in most instances, feedback took the form of end-of-shift briefings with the shift manager and written input to operations department management of broad issues and performance suggestions. The inspectors witnessed some management oversight feedback briefings during shift turnover. The oversight managers appeared to be fulfilling their role in accordance with management expectations. However, their activities had not been focused on feedback to improve individual operator performance, such as were described in Section 2.2 above.

An inspector reviewed the written feedback provided by the oversight managers. The inspector concluded that management oversight activity had produced many

good findings. The operations manager summarized the strengths and weaknesses from the oversight observations which is provided in Attachment 2. However, the inspector concluded, after discussions with the plant and operations managers, that the licensee did not consider aggressive action warranted to address most of the observed weaknesses identified by the oversight managers. Moreover, the observations of the NRC inspectors highlighted earlier in this report contradicted some of the strengths summarized from the oversight observations:

- Communications:lax or informal communications
- Crew turnovers:important information not transferred
- Procedure compliance:failure to act promptly for log readings
- Questioning attitude:failure to understand battery room temperature control capability
- Surveillance Tracking:test completions not logged initially

5 CONCLUSIONS

Operations management had taken some corrective actions to improve the performance of operations department staff, including a performance measurement process to track and trend performance data that provided comparisons between operating crews. However, most of the corrective actions taken or planned were of low intensity and loosely structured or focused. Many of the observations made by the inspectors were similar to previous observations made during recent inspections. The inspectors concluded that a number of conditions existed that presented continual challenges to successful operating crew activities and decision making. Those continual challenges were characterized as conducive to potential failure because they represented barriers to successful operating activities or provided incentives to err. The operations organization was often ineffective when attempting to assert its leadership role due to weaknesses within operations and resistance or insensitivity from support organizations.

ATTACHMENT 1

Persons Contacted and Exit Meeting

1 PERSONS CONTACTED

Washington Public Power Supply System

*V. Parrish, Vice President Nuclear Operations
*P. Bemis, Regulatory and Industry Affairs Director
*J. Swailes, Plant General Manager
*C. Schwarz, Operations Manager
*D. Swank, Licensing Manager
*B. Hugo, Compliance Engineer

U.S. Nuclear Regulatory Commission

*K. Brockman, Deputy Director, Division of Reactor Safety
*J. Pellet, Chief, Operations Branch, Division of Reactor Safety
*J. Clifford, Project Manager, Office of Nuclear Regulatory Research
*D. Corporandy, Acting Chief, Reactor Projects Branch E, Division of Reactor Projects

The inspectors also interviewed various control room operators, shift supervisors, shift managers, management observers, and management personnel.

*Denotes those who attended the exit meeting on June 20, 1995.

2 EXIT MEETING

An exit meeting was conducted via teleconference on June 20, 1995. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee acknowledged the inspectors' findings. The licensee did not identify as proprietary any of the information provided to, or reviewed by, the inspectors.

ATTACHMENT 2
(Developed by the Licensee)

MANAGEMENT OVERSIGHT OBSERVATION STRENGTHS

1. Increase in performance in communications (three (3) part, formality).
2. Crew turnovers: good quality.
3. Annunciator response
4. Management involvement in critical activities.
5. STAR techniques - pulling fuses, hanging tags.
6. Procedural compliance - crews ensuring strict compliance with procedures.
7. Professionalism.
8. Crew briefs for evolution.
9. Questioning attitude - excellent for nonroutine evolutions - need improvement for routine.
10. Ops crew interactions with management personnel.
11. Attention to detail - good STAR techniques caught problem with NCTL.
12. Technical Specification awareness/reference for evolutions.
13. Surveillance Tracking - annunciator/test in progress.
14. Response to emergencies - injured personnel.
15. Teamwork during outage improving.
16. Computerized T/S/LCO logs.
17. Attitude.

MANAGEMENT OVERSIGHT OBSERVATION WEAKNESSES

1. Communication - three (3) part communication, inconsistent for routine evolutions.

2. Support personnel needs improvement in support of Operations activities such as LOOP/LOCA testing.

3. Look ahead at evolution - prepared for activities coming up.

4. Procedure compliance - analysis paralysis.

5. MCR noise level high, hindering communications.

6. Lead CRO - some inconsistencies between crews in providing leadership for shift.

7. Backing each other up - inconsistent between crews. I.e., S/D clg removal from service.

8. Schedule discipline - need to be more knowledgeable of schedule.

9. SM involvement in low valve (*value*) activities, provide more oversight.

10. Admin load for CRS high, needs work.