

U.S. NUCLEAR REGULATORY COMMISSION

Region V

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WASHINGTON NUCLEAR PROJECTS Unit 1 and Unit 4

July 1, 1981 through July 31, 1982

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I. INTRODUCTION

a. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on an annual basis and evaluate licensee performance based on those observations with the objective of improving the NRC Regulatory Program and licensee performance.

The assessment period is July 1, 1981 through July 31, 1982. The prior assessment period was July 19, 1980 through June 31, 1981. The status of significant findings from the prior assessment are discussed in the applicable Performance Analysis (Section IV) functional areas.

Evaluation criteria used during this assessment are discussed in Section III below. Each criterion was applied using the "Attributes for Assessment of Licensee Performance," contained in NRC Manual Chapter 0516.

b. SALP Review Board Members

D. Sternberg, Chief, Reactor Projects Branch 1
R. Dodds, Chief, Reactor Projects Section 1
P. Narbut, Project Inspector
A. Toth, Senior Resident Inspector, Construction
R. Hernan, Licensing Project Manager

c. Background

The construction permit for WNP-1 (Docket Number 50-460) was issued on December 23, 1975 (CPR-134). Physical work on the plant was suspended for financial reasons on April 29, 1982.

The construction permit for WNP-4 (Docket Number 50-513) was issued on February 21, 1978 (CPR-174). Physical work on the plant was terminated for financial reasons on January 22, 1982.

Each reactor is a Babcock and Wilcox two-loop PWR rated at 3600 MWt, each housed in a reinforced concrete containment structure. The units are arranged as separate structures about one mile apart.

d. Licensee Activities

Over the duration of the assessment period the Washington Public Power Supply System held a construction permit for each of the units. Although major construction work ceased on Unit 1 in April 1982, record review and engineering review activities continued toward preserving the plant status and improving work control for later

work restart. Work on Unit 4 had been stopped in mid-1981, and then terminated in January 1982. Licensee efforts during this assessment period were predominantly oriented toward preservation of the integrity of the plant assets, including its licenseability.

e. Inspection Activities

There were a total of 1725 regional inspector-hours of inspection activity at the WNP-1/4 site. The inspection reports describing the details of the inspection that apply to this SALP period are Reports 50-460/81-06 through 50-460/82-11 for Unit 1 and 50-513/81-06 through 50-513/82-05 for Unit 4

A summary of regional inspection effort is delineated in Tables 5, 6 and 7. This includes the efforts of the resident inspector, who was assigned between October 1981 and June 1982.

During this assessment period about 28 percent of the inspection effort at the two sites was reactive to allegations, primarily involving the heating, ventilation, and air-conditioning contractor.

All regional inspections were in the construction area. There were no operations, health physics, environmental, security, or emergency preparedness inspections. A special team inspection was conducted in November 1981.

There were two nonregional special inspections conducted during this SALP period. IE Headquarters conducted an inspection relative to environmental qualification of Target Rock solenoid operated valves for WNP-1/4. This inspection was at East West Technology Incorporated, in West Babylon, New York. Region IV personnel conducted an inspection of on-site design activities. The findings of these inspections are included in this assessment. Manpower for these inspections is additional to that noted for the Region V inspection effort.

f. Licensing Activities

The staff docketed the WNP-1 operating license application July 16, 1982. This action recognized the suspended status of the project. Docketing was contingent upon the applicant agreement to conditions regarding compliance with future licensing rulemaking.

The staff did not revoke the construction permit for the Unit 4 project. This considered that, although further construction work has been terminated, the Washington Public Power Supply System plans to maintain the project in a licensable condition pending decisions on ultimate disposition of the assets involved.

II. SUMMARY OF RESULTS

WASHINGTON NUCLEAR PROJECT UNIT 1

<u>Functional Areas</u>	<u>Category</u>		
	<u>1</u>	<u>2</u>	<u>3</u>
1. Soils and Foundations	-	-	-
2. Containment and Other Safety-Related Structures	-	-	X
3. Piping Systems and Supports	-	X	-
4. Safety-Related Components	-	X	-
5. Support Systems	-	-	X
6. Electrical Power Supply and Distribution	-	X	-
7. Instrumentation and Control Systems	-	-	-
8. Licensing Activities	X	-	-

WASHINGTON NUCLEAR PROJECT UNIT 4

<u>Functional Areas</u>	<u>Category</u>		
	<u>1</u>	<u>2</u>	<u>3</u>
1. Soils and Foundations	-	-	-
2. Containment and Other Safety-Related Structures	-	-	-
3. Piping Systems and Supports	-	-	-
4. Safety-Related Components	-	-	-
5. Support Systems	-	-	-
6. Electrical Power Supply and Distribution	-	-	-
7. Instrumentation and Control Systems	-	-	-
8. Licensing Activities	-	-	-
9. Construction Delay Planning	X	-	-

III. CRITERIA

The following criteria were used as applicable in evaluation of each functional area:

1. Management involvement in assuring quality.
2. Approach to resolution of technical issues from a safety standpoint.
3. Responsiveness to NRC initiatives.
4. Enforcement history.
5. Reporting and analysis of reportable events.
6. Staffing (including management).
7. Training effectiveness and qualification.

To provide consistent evaluation of licensee performance, attributes associated with each criterion and describing the characteristics applicable to Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table I.

The SALP Board conclusions were categorized as follows:

Category 1 - Reduced NRC attention may be appropriate. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used such that a high level of performance with respect to operational safety or construction is being achieved.

Category 2 - NRC attention should be maintained at normal levels. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective such that satisfactory performance with respect to operational safety or construction is being achieved.

Category 3 - Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appeared strained or not effectively used such that minimally satisfactory performance with respect to operational safety or construction is being achieved.

IV. PERFORMANCE ANALYSIS

During this assessment period there were matters which were common to more than one functional area and which indicated management system weakness in recognizing quality system problems, and defining and implementing effective corrective actions. The management issues are presented in detail in Section VI of this report.

The overall performance assessment is that the Supply System's performance has improved in some areas, and demonstrated continued and new weaknesses in others. The influence of the new construction manager (Bechtel) since June 1981 has apparently also not been effective in preventing the noted weaknesses. Performance analysis by functional area follows.

1. Soils and Foundations

Analysis

During the prior assessment period there were no performance weaknesses identified.

During the current assessment period there were no inspections conducted relative to this functional area for Unit 1 and Unit 4. Soils and foundations work was essentially complete prior to this period. There were no enforcement items.

During the current period the Supply System submitted no construction deficiency reports relating to this area.

Conclusion

Insufficient data to categorize this functional area.

Board Recommendation

Inspection program appears complete. No special additional inspection of this area appears to be warranted.

2. Containment and Other Safety-Related Structures

Analysis

During the current assessment period, two inspections were conducted regarding Unit 1 containment dome concrete placement. Three inspections were conducted regarding Unit 1 structural steel bolting and welding. There were no inspection activities related to this functional area for Unit 4.

There were three enforcement items relating to structural steel. These involved quality control personnel accepting undersize welds, closing nonconformance reports without sufficient basis, and proceeding with work prior to proper authorization. Closely related issues were also identified, such as differing and unacceptable methods of bolt tightening. The Supply System described actions to resolve these items, but subsequent NRC inspections showed that described actions had not been fully

completed. In the case of improper authorization of work, the corrective action improperly resulted in decreased control at the direction of the management contractor and contrary to approved written procedures.

During the current period, the Supply System submitted one construction deficiency report which involved omission of thermal expansion analysis of structural steel inside the containment building.

The concrete work showed rigorous control and documentation of work. However, the structural steel work demonstrated weaknesses in management involvement and control of quality procedures and policies, responsiveness to NRC initiatives in timeliness and repeated submittals, enforcement history repetition, and corrective action effectiveness. Structural steel work is essentially complete at Unit 1.

Conclusion

Category 3 (based on structural steel work).

Board Recommendation

Inspection program appears complete. No special additional inspection of this area appears to be warranted. Follow-up inspections of identified problems are required; notably in the areas of design change control and validity of acceptance inspections in the structural steel area.

3. Piping Systems and Supports

Analysis

During the prior assessment period it was noted that there were weaknesses in the WPPSS/UE&C reviews of contractor procedures, in the effectiveness and timeliness of corrective actions, and in the system of surveillance of contractors. These perceptions continued into the current assessment period, with the additional influence of a new construction manager (Bechtel) and the interface with the existing architect-engineer and licensee organizations. Adequacy of contractor training activities was also a perceived weakness; there was no indication of a continuing problem during the current period. Training staff and facilities, quality circles meetings, training films, and mockup practice showed serious attention to training of crafts.

Bypassing of hold points was a prior example of weak corrective action where the Supply System was slow to respond to NRC identified findings. During the current assessment period, various actions have been taken by the contractor to improve this area. However,

these have not been fully effective, as demonstrated by problems with improper release to start post-weld heat treatment and verification of material traceability, and general audit.

Control of temporary attachments, piping lug sizing, installation of service water heat exchanger washers, and weldolet installation criteria were examples of corrective actions which required repeated NRC prompting. Failure to define installation criteria for weldolet type items was a prior example of weak corrective action. The issue was not resolved during the current assessment period. Control of contamination of stainless steel piping is a current period example of weak corrective action where the Supply System was slow to respond to NRC identified findings. This matter was identified in several contexts with an eventual specific NRC Regional Office request for action. The Supply System had overlooked that request.

During the current assessment period, eight inspections were conducted of areas such as welding of piping and supports, post-weld heat treatment, procurement, corrective actions, and general quality assurance. Three enforcement items involved absence of skew weld acceptance criteria, heat treatment prior to resolution of a nonconformance report, and incomplete weld penetration on a pipe whip restraint.

During the current assessment period there was a combination of contractor and management efforts which identified discrepancies in the mechanical contractor's quality assurance program in late 1981. Corrective actions were initiated to resolve the questions regarding procurement and filed installation documentation. The contractor management was slow to define assignments and action plans in writing, but later on this improved. Review plans were completed in mid-1982, except for pipe support supplemental steel records. Management appears to have prioritized efforts and balanced resources. This effort has been retained active during the overall project slowdown, which started May 1, 1982. Site management personnel generally accepted this slowdown as an opportunity to permit resolution of the record discrepancies and to prepare for improved work continuation.

During the current assessment period there were three construction deficiency reports related to skew weld criteria, pipe whip restraint quality class, and deviations from stress analysis assumptions. Some design control failures were indicated.

There has been some effort to benefit from the lessons learned at the WNP-2 project, including some management level visits between sites and the hiring of key personnel from the WNP-2 mechanical contractor. This is an area where NRC has had to continually remind the Supply System of its commitments to NRC.

The piping systems and supports work demonstrated strengths in approaches to technical resolutions, reporting and analysis of events, staffing, and training. Some weaknesses were evident in management involvement and control of quality procedures and policies for installation and procurement work and records, timeliness and quality of responses to NRC initiatives, repeat enforcement history, and effectiveness of corrective action.

Conclusion

Category 2.

Board Recommendation

Resume a routine inspection program when work restarts. Implement records review routine program to assess decisions being made during records review activities planned during the next assessment period.

4. Safety-Related Components

Analysis

During the prior assessment period it was noted that there were weaknesses relating to contractor quality control inspection. Heat exchanger installation was mentioned; this specific problem has not been fully addressed during the current period. The prior assessment of this functional area considered the HVAC contractor efforts, which are addressed item 5. below.

During the current assessment period there were several inspections which addressed installation of piping and related components; these involved the same mechanical contractor and the general program analysis and of item 3, above, also applies to this functional area. One enforcement item involved failure to implement preventive maintenance requirements. An NRC inspection of environmental qualification testing of Target Rock valves identified a weakness in the Supply System follow-up actions regarding NRC comments on test performance or facility qualification for the test program.

During the current period the Supply System submitted one construction deficiency report relating to improper material on valve lockpins.

The safety-related components work was done by the same contractor, as was the piping systems and supports work, and was subject to similar management and surveillance. It demonstrated strengths in approaches to technical resolutions, reporting and analysis of events, staffing, and training. Some weaknesses were evident in management involvement and control of quality procedures and policies for installation and procurement work and records, responsiveness

to NRC initiatives in timeliness and the requirement for repeated submittals, enforcement history repetition, and corrective action effectiveness.

Conclusion

Category 2.

Board Recommendation

Resume a routine inspection program when work restarts. Implement records review routine program to assess decisions being made during records review activities planned during the next assessment period.

5. Support Systems (Heating and Ventilation)

Analysis

During the prior assessment period it was noted that there were weaknesses in the Supply System's ability to identify the need for support to the HVAC contractor and effectiveness and timeliness of corrective actions. These perceptions continued into the current assessment period, with emphasis on the system of surveillance of contractors.

During the current assessment period there were seven inspections and investigations which addressed installation of HVAC ductwork and equipment. There were six enforcement items which involved welding and material receiving contrary to procedures, inadequate procedures, improper procedure revisions, improper weld records, and lack of action on nonconformances. Five of these were identified following an NRC request for a particular action to improve the effectiveness of the management control system to detect and control problems of this nature.

During the current period, the Supply System submitted no construction deficiency reports for this functional area.

During the current period, the Supply System demonstrated weakness in the follow-up of commitments made in response to NRC identified items. This involved failures to: issue nonconformance reports for uninspected tack welds; implement revised procedures; and determine procedure departures from accepted codes and standards.

The heating and ventilation mechanical work demonstrated weaknesses in surveillance, management involvement and control of quality procedures and policies; installation work and records; responsiveness to NRC initiatives in timeliness and the requirement for repeated submittals; enforcement history repetition; and corrective action effectiveness.

Conclusion

Category 3.

Board Recommendation

Conduct special inspection of status of licensee corrective actions and management plans when work restarts.

6. Electrical Power Supply and Distribution

Analysis

During the prior assessment period, there were no significant weaknesses identified. It was noted that cable installation procedures did not include cable pull limits. There was no indication of a current problem in this area.

During the current assessment period, there were three inspections which addressed installation of electrical cable trays and supports and electrical penetrations. There were two enforcement items which involved management direction to depart from approved documentation procedures and failure to provide inspection of electrical cable handling during installation of electrical penetrations.

During the current period, the Supply System submitted five construction deficiency reports regarding the diesel generators and subsystems, and three other reports involving breakers, cable qualification, and cable penetrations.

During the current assessment period, the electrical contractor appeared to have a fully developed quality assurance program and apparently conscientious first-line inspection personnel. However, management attempts to achieve productivity and reduce excessive documentation involved a compromise of approved procedures, placing associated pressures on the quality assurance staff. This resulted in the unquestioned acceptance of resignation of the quality assurance manager. Management also failed to invoke the company quality assurance provisions for subcontracted electrical penetration installation work which resulted in the item of noncompliance described above. The Supply System and construction manager were slow to recognize and act on these matters, including failure to probe the resignation of the quality assurance manager.

The electrical systems work demonstrated some strength in the contractor corporate management involvement at the site, records maintenance, promptness of corrective action and staffing of key positions. However, there was some weakness in management involvement and control of quality procedures and policies for

installation work and records, prior planning, audit, and surveillance effectiveness.

Conclusion

Category 2.

Board Recommendation

Resume a routine inspection program when work restarts.

7. Instrumentation and Control Systems

Analysis

During the prior assessment period, there was limited inspection activity in this functional area and no weaknesses identified.

During the current assessment period, there were no inspections other than resident inspector observations during plant tours and a brief meeting with contractor management. No enforcement items were identified.

During the current period, the Supply System submitted one construction deficiency report for this area, involving emergency safety feature actuation set points.

During the current period, the instrumentation contractor mobilized at the site and commenced limited activities to install instrument tubing supports. The contractor construction management and quality assurance organizations were staffed by experienced personnel.

Conclusion

Insufficient data to categorized this functional area.

Board Recommendation

Resume a routine inspection program when work restarts.

8. Licensing Activities

Analysis

During the prior assessment period, it was noted that WPPSS needed to develop more confidence in making technical and administrative decisions relative to licensing matters. During the current period, strong management involvement with licensing matters has been evident. The WPPSS performance has been satisfactory in

the resolution of technical issues, responsiveness and staffing during the current period. Responses to the staff's requests have been timely and appropriate. An example was WPPSS incorporation of a section on class 9 accidents into the Environmental Report submitted at the time of docketing. This required a large amount of effort with a minimal amount of guidance from the staff.

During the current assessment period, the overall NRR involvement with the WNP-1 and WNP-4 projects has been minimal relative to other projects with construction permits. There have been three visits to the site by the licensing project manager (including the prior SALP meeting) and three meetings with the staff in Bethesda on technical and licensing issues. The three meetings were held at the request of the applicant. The following functional areas and events were considered in the assessment of the applicant's performance during the current period:

- Responses to NUREG-0737 requirements
- Human factors planning
- WNP-1 operating license application
- WNP-4 termination
- Emergency planning

The effort put forth by WPPSS management in pursuing NUREG-0737 requirements, proposing an independent design review program to the staff, implementing control room design (human factors) improvements, and upgrading the site emergency plan were positive indications of WPPSS concern for quality in the licensing related documents and aggressiveness in the pursuit of technical issues.

In conjunction with acceptance of the WNP-1 FSAR, WPPSS project management personnel made a presentation to the staff to explain the manner in which the document was developed and to discuss topics of interest to the staff. With regard to NUREG-0737 items, WPPSS took the lead in proposing a design for core cooling which gained conceptual approval by the staff. In addition, the FSAR dedicated an entire chapter to discussion of NUREG-0737 requirements and WNP-1 responses.

A significant effort has been expended by WPPSS to maintain the licensability of WNP-1 during the construction deferral status and of WNP-4 during the first phase of termination. The applicant has also been very active in the Babcock and Wilcox Owners Group in reaching resolutions acceptable to the staff.

Management reorganization, redefinition of responsibilities, and pursuit of highly qualified personnel to fill vacancies indicate an aggressive approach by the applicant in dealing with potential and actual problems.

Conclusion

Category 1.

Board Recommendation

Continue routine activities.

9. WNP-4 Deferred Construction

Analysis

The licensee announced termination of this project on January 29, 1982. The site was fenced and locked and procured equipment storage was consolidated. Equipment in custody of the licensee was maintained under the existing preventive maintenance program. Management staff and maintenance resources were assigned to administer the termination and custody activities and planning and control procedures developed to maintain integrity of the assets for possible future use on other nuclear projects. NRC inspections of the measures to assure integrity of equipment and the facility identified no items of noncompliance.

Conclusion

Performance in this area is rated Category 1.

Board Recommendation

The licensee demonstrated efforts to effect a controlled termination and preservation of assets warrant minimal NRC inspection, confined to assessing equipment integrity preservation.

V. SUPPORTING DATA AND SUMMARIES

1. Construction Deficiency Reports

Sixteen construction deficiency reports were submitted by the Supply System during the current assessment period. These are listed in Table 1. The report dealing with safety feature actuation set-points was not reported until requested by the NRC. Similarly, the report regarding flooding of the general services building was not revised to reflect recognition of broader scope until prompted by NRC. The report regarding defective valve springs incorrectly stated that tracking of corrective action had been incorporated into the Supply System startup procedure tracking system.

NRC Inspection Reports 81-06 and 81-10 note that commitment tracking required improvement.

2. Investigation Activities

During the current assessment period investigations or special inspections were conducted to follow-up on allegations received regarding the electrical contractor, the heating and ventilation contractor, the piping/mechanical contractor, and the Supply System design control. Most of this effort involved the heating and ventilation contractor, such that an unusual 28 percent of inspection resources were devoted to this area, as shown in Table 6.

3. Escalated Enforcement Actions

During the current assessment period there were no escalated enforcement actions. However, correspondence with the Supply System had requested special attention to the problems of the heating and ventilation contractor and to the issue of contamination of stainless steel piping.

4. Enforcement Items

Table 2 lists the enforcement data relating to functional areas. Table 3 summarizes the specific enforcement actions. Table 4 lists the chronology of enforcement actions; it shows that Supply System replies were generally late (average 15 days) and four of the seven replies were found incomplete.

VI. MANAGEMENT ISSUES THAT APPLY TO MORE THAN ONE FUNCTIONAL AREA

During this assessment period there were matters which were common to more than one functional area and which indicated management system weakness in recognizing quality system problems, and defining and implementing effective corrective actions.

1. Management Responsiveness to NRC

The Supply System did not appear to be responsive to some NRC issues which have become long standing, (such as the performance of the heating and ventilation mechanical contractor and control of chloride contamination of stainless steel piping). This is a continuation of a perception noted during the prior assessment period.

The following are specific examples of weakness in management responsiveness to NRC issues.

- a. An item of noncompliance (from the previous SALP period) dealing with excessive weld weave widths was inspected to verify the licensee's responses. Inaccuracies were identified and a revised response was requested at subsequent exit interviews conducted on December 19, 1980, July 10, 1981, April 30, 1982, and June 18, 1982. The revised response was sent July 2, 1982.

- b. In October 1981, management committed to write nonconformance reports for tack welds not inspected by the HVAC contractor. This action was not accomplished for Unit 1 and resulted in an item of noncompliance issued in May 1982.
- c. Follow-up Item 81-02/09 originally identified a need for improved controls by UNSI (HVAC contractor) for temporary attachment welds. The item was closed by inspection in September 1981 on the basis that the procedure had been changed to provide sufficient inspection criteria. Subsequent allegations revealed that the new procedure required inspections that were not being performed. This resulted in an item of noncompliance issued in May 1982.
- d. Enforcement Item 81-02-06 (from the previous SALP period) was followed up during this SALP period. The item dealt with deficiencies in the HVAC plenums. The licensee's letter of response committed to reinspect 100 percent of the plenums. Inspection revealed the licensee reinspected all the plenums at one elevation only and the results showed numerous problems. The licensee was solicited to commit to performing additional sampling of plenums because of the problems found. The licensee's letter originally committing to a "100 percent inspection" was considered misleading and the inspectors solicitation to commit to performance of additional sampling should have been a licensee initiative and not an NRC solicitation.
- e. The IE Headquarters Report 99000906/82-01, dealing with qualification testing of WNP-1/4 Target Rock valves, stated that there was a lack of WPPSS follow-up actions regarding NRC comments on test performance or facility qualification for the test program.
- f. There were several examples of lack of responsive action by the licensee to potential problems identified to the licensee by IE Circulars.
 - . Circular 79-11 required maintenance instructions for limiter torque valve operator contain directions for stacking locknuts. The licensee closed the circular but the vendor files to be used by maintenance did not have stacking instruction included for certain valve manufacturers. (Reference 82-11)
 - . Circular 78-16 described operational problems with limiter torque valve operators and recommended a procedure to verify the operator was functional. The licensee closed the circular without taking the recommended action or any alternate actions recommended by the licensee staff.

Board Recommendation

Improvement is required in management responsiveness to NRC issues.

2. Accuracy and Timeliness of Responses

Some formal replies to NRC findings were untimely and in some cases inaccurate in the characterization of facts or status of corrective actions. Actions described to NRC at one point in time would be modified without revision of the commitments. There were cases where the contractor had not implemented the actions stated by the Supply System. Similarly, for inspector questions that were formally presented to the Supply System as inspection findings, the subsequent Supply System actions were incomplete or otherwise not sufficient for the inspector to affirm acceptability of the matters in question.

The following are examples during this reporting period which indicate the need for improvement in accuracy and timeliness of WNP-1 reports to the NRC.

- a. Table 4 of the SALP report shows that the licensee's responses to inspection reports with items of noncompliance were all submitted later than the 30-day response period. Of the seven responses received, the responses were late by an average of 15 days. **Two** responses had not been received as of September 1, 1982. These two responses are late by an average of 65 days as of September 3, 1982.

Table 4 also shows that, of the seven responses received, four were unsatisfactory and required additional information be provided.

- b. In regards to 10 CFR 50.55(e) reports, twenty-one were initiated during the reporting period as shown in Table 2. The 50.55(e) report of March 15, 1982 (dealing with emergency safety features actuation setpoints) was not reported to the NRC by the licensee until the licensee was requested to do so on March 5, 1982.

The 50.55(e) report of January 11, 1982 (dealing with the general services building flooding) required a revised final report be submitted by the licensee when inspection revealed additional equipment had been affected by the flooding which had not been addressed in the licensee's initial "final report".

The team inspection report 81-10 indicated construction management personnel were not knowledgeable of reportability requirements.

Report 81-06 documents cases where the licensee's tracking of commitments made in 50.55(e) reports required improvement. The 50.55(e) report of October 2, 1981 (dealing with defective valve springs) was closed in the licensee's final report dated November 11, 1981. The letter stated an inspection point for the valve spring had been added to a startup procedure tracking system but inspection revealed this action had not yet been taken.

- c. In addition to the four unsatisfactory items of noncompliance received from the licensee during this reporting period (discussed in paragraph 2a), the following responses which had been accepted, were found to be inaccurate upon confirmatory inspection during this period.
- . Enforcement Item 80-15-03 dealt with the failure to establish acceptance criteria for weld configuration on weldolets. The WPPSS response letter stated that certain procedures would be revised and additional nonconforming conditions would be identified. Follow-up inspection showed that not all applicable procedures were revised and that the committed review had not been done.
 - . Enforcement Item 80-15-01 dealt with failure to install washers for equipment holddown. The WPPSS response letter stated a review would be done of all quality class equipment. Follow-up inspection showed no such review had been done, nor had such a requirement been added to a tracking system.

Conclusion: Improvement is required in the timeliness and accuracy of the licensee's response statements.

3. Ineffective Corrective Action

Corrective actions established by the licensee were often not effective in resolving the issues. For NRC issued circulars, the Supply System actions failed to incorporate controls to assure actions by the future operations/maintenance departments. The following are examples of ineffective action taken during this SALP period.

- a. The previous SALP report described the investigation of allegations of the HVAC contractor and indicated that the licensee had been ineffective in identifying and providing the necessary support to weak contractors.

During this SALP period, allegations in the HVAC area continued and six additional items of noncompliance were cited. Additionally, after the first item of noncompliance in the HVAC area during this SALP period, the NRC report cover letter requested special actions, stating:

"It appears that the quality performance of your heating and ventilation contractor needs additional attention. Subsequent to the initial allegation in January 1981 which resulted in six items of noncompliance, additional allegations and inspections have determined that significant quality problems are continuing. Consequently, in your reply you should describe in particular those actions taken or planned to improve the effectiveness of your management control system to detect and control problems of this nature."

Subsequent to the WPPSS response, five additional items of noncompliance were identified and allegations were ongoing.

b. Both the first and second SALP reports addressed the need to assure that craft and inspection personnel are sufficiently disciplined and knowledgeable in the execution of work and inspection procedures. During this SALP period, the following additional examples of procedural deviations were identified:

- (1) Report 81-06 described Shurtleff and Andrews structural steel bolting crews using three different methods of tightening bolts, two of which were unsatisfactory and not described by procedure.
- (2) Report 82-07 describes extensive disregard for the procedure for inspection of tack welds at UNSI.
- (3) Report 81-07 describes circumvention of the UNSI receipt inspection procedure by the UNSI Project Manager.
- (4) Report 81-07 described authorization of work by memorandum contrary to procedure by the UNSI Quality Assurance Manager.
- (5) Report 82-04 describes use of memorandum to revise welding procedure specification requirements by UNSI.
- (6) Report 82-05 describes verbal changes to procedures for post weld heat treatment by J. A. Jones.
- (7) Report 82-05 describes bypassing a material traceability hold point by J. A. Jones.
- (8) Report 82-05 describes extensive recording of the wrong welder identity by UNSI craft foreman. The foreman stated he had not been trained. The licensee had received a "hotline" notification of this problem in October 1981 and essentially completed their actions in December 1981. Wrong welder identities were identified in January of 1982 and led to an item of noncompliance issued in March 1982.
- (9) Report 82-06 describes Foley, Wismer and Becker (FWB) management departure from approved procedures for documentation of conduit support weld inspections.
- (10) Report 82-08 describes performance of structural work without authorization contrary to procedure by Shurtleff and Andrews structural steel.
- (11) Report 82-09 describes installation of electrical cable in penetrations without procedures or inspection.

- c. The NRC cover letter for Report 50-460/81-02 in March 1981 made a special request that the Supply System describe actions taken to assure UNSI procedures adequately comply with industry codes and standards. The Supply System's response was examined during this SALP period in Report 81-06 in July 1981. It was determined that UNSI had done a self-audit, but that neither WPPSS nor Bechtel reviewed the adequacy of that self-audit. It was later shown, in Report 82-07 in April 1982, that UNSI weld procedures did not meet industry codes and standards as was verified by UNSI.
- d. Item of Noncompliance 81-07-07 was issued in November 1981 because procedure requirements for work authorization were circumvented by a memorandum at UNSI. The licensee response of December 1981 stated that the use of memorandum for directing work activities had always been forbidden and that on January 27, 1981, the Program Director had issued a special memorandum on the subject to all site contractors. Additional actions were cited. In March 1982, two additional examples of UNSI circumvention of procedure requirements by memorandum were identified, one of which was an item of noncompliance.
- e. Item of Noncompliance 82-03-01 was issued in June 1982 dealing with corrective work on structural steel being authorized contrary to the procedure for authorizing work. The licensee response stated the method of controlling work had been revised to a work package system. Verification inspection revealed the method of controlling work had been revised but was not described by a new procedure and was contrary to the existing procedure. The corrective action appeared less controlled than the original item of noncompliance. The corrective action involved management personnel, whereas the original item of noncompliance involved working level craft and inspection personnel.
- f. The previous SALP report identified missed hold points as an example of weak corrective action where "the licensee was slow to respond to NRC identified findings and an item which worsened until it became an item of noncompliance." An item of noncompliance was issued during this SALP period for bypassing a hold point on post-weld heat treatment (82-05-01).

Discussions of bypassed hold points are also contained in Report 82-05 dealing with bypassing a material traceability hold point and in Report 82-07 dealing with bypassed weld inspection hold points.

- g. There have been several inspection reports which dealt with NRC findings which were examined and found to be not ready for closure. An effort was made early in the SALP period to establish a common understanding with licensee personnel but no significant gains in licensee performance were obtained.

Data which supports this conclusion is as follows:

- . Report 81-12 describes three items presented for closure which were not closeable due to actions not complete.
- . Report 82-08 describes 13 items presented for closure, seven of which were not closeable. Actions were not complete on six items. Insufficient information was available on one item.
- . Report 82-10 describes four items presented for closure but were not closeable due to insufficient information.
- . Report 82-11 describes five items presented for closure. Three of the items were not closeable. Two of the items were not closeable because actions had not been completed. One of the items was not closeable because the inspector had additional concerns.

In summary, in the reports described, the licensee was given opportunity to present items which in his estimation were closeable, not items picked at random by the inspector. Of a total of 25 items, 17 were not closeable. Eleven were not closeable because stated actions had not been accomplished. Five items were not closeable because of insufficient information available (to both the licensee and the NRC). Only one was not closeable due to additional inspector concerns.

Board Recommendation

Improvements are required to ensure effective corrective action.

4. Quality Control Inspector Accuracy

Two particularly disturbing items of noncompliance occurred during the SALP period involved multiple Quality Control inspectors accepting work which did not meet basic quality standards.

- . Report 82-04 describes HVAC inspectors performing inspections without drawings and accepting butt weld installations where fillet welds were required.
- . Report 82-03 describes structural steel inspectors accepting undersize welds.

Board Recommendation

Increased management attention to Quality Control inspection accuracy appears warranted.

5. Design Control

Licensee action identified significant design change control problems in 1980. The documented corrective actions for those problems omitted corrective action for completed work. However, the licensee had initiated actions to provide a vehicle to assess completed work (the Document Control System (DCS)). Report 81-12 addresses certain discrepancies in the generation of the DCS but the licensee's actions were considered generally good.

The licensee's actions are not complete and warrant special NRC attention through completion since the licensee's program places heavy emphasis on post construction as-built configuration and design reverification analysis rather than in-process design control. Report 82-03 and Region IV Report 99900510/82-01 provide further information on this matter.

Board Recommendation

Continued management attention to design change control and as-built design reverification is required.

6. Vendor Supplied Hardware

Report 82-11 discusses ten examples of enforcement items and 10 CFR 50.55(e) reports which identify significant deficiencies in vendor supplied hardware. These examples indicate that the vendor controls and vendor assessment may warrant strengthening.

Report 81-10 discusses weakness in vendor audits and vendor evaluation.

The licensee has committed to consider instituting additional measures for vendor items. (Reference 82-11)

Board Recommendation

Increased management attention to vendor supplied hardware quality appears warranted.

7. Management Awareness of Quality Issues

There appeared to be a weakness in the Supply System surveillance of contractor activities, such that significant management/quality system events were not brought to the Supply System management attention in a timely manner. For example, the electrical contractor quality assurance manager resigned under questionable circumstances, and major problems developed with mechanical contractor work controls and records. Under pressures of production the management of three contractors instructed personnel to bypass approved procedures, in some cases

in spite of existing Supply System prohibitions of this practice (reports 82-05 and 82-06). The contractor field personnel were well aware of the problems but the Supply System appeared insulated from the issues.

There was evidence of Quality Control (QC) personnel unrest, indicating unresolved quality problems which were not detected by the management systems in place. An example of the above is given in report 82-02, where the J. A. Jones grouting procedure was changed to allow engineering verification of quality verification hold points. Report 81-07 provides an example of QC unrest where UNSI QC inspectors were perceived to be intimidated. In both of these cases, the licensee and his construction manager were unaware of the unrest. Report 81-09 records that this subject was discussed with the Program Director in October 1981.

The licensee's letter of December 31, 1981 (G01-81-424), provided a substantial response to the NRC's request that the licensee identify actions to improve the detection of problems by licensee management. However, the management's lack of awareness of quality problems appeared to continue.

Board Recommendation

Further management attention is required in this area.

TABLE 1

CONSTRUCTION DEFICIENCY REPORTS

Docket No(s). 50-460

50-513

NOTIFICATION DATE	DESCRIPTION OF CONDITION	INTERIM REPORT DATE	FINAL REPORT DATE
R 08/24/81 (0)	Buffalo Forge Fans require thicker housings for missile protection	09/25/81 01/18/82 04/21/82 07/27/82 R	Open (Annual)
PR 10/02/81 (C)	DeLaval Diesel Generator, defective valve springs	N.A.	11/11/81 R telecon
PR 10/02/81 (C)	GE HEA Relays have malformed spring	N.A.	11/03/81 (NR) telecon
PR 10/23/81 (0)	Loss of EA or FB bus will make both buses inoperable	N.A.	10/30/81 (NR)
PR 11/06/81 (0)	Lack of acceptance criteria for skewed weld joints	12/08/81 01/15/82 03/10/82 07/16/82 P.R.	Open (Annual) telecon
11/10/81 (0)	Pipe Whip Restraints purchased Quality Class 1 vs 2	N.A.	12/04/81 (N.D.)
PR 11/12/81 (0)	Diesel Generator Current Transformer can operate outside allowed temperature	12/15/81 04/02/82 06/28/82 R	Open (Annual)
R 12/28/81 (0)	Structural Steel in containment not analyzed for LOCA thermal expansion	N.A.	01/28/82
PR 01/11/82 (0)	Unit 1 Flooding of GSB (Unit 1 only)		02/11/82 06/30/82 (Revised Response)
PR 01/14/82 (0)	Deviations from stress analysis assumptions	03/05/82 R	Open (Semiannual)
R 01/26/82 (0)	WKM valves have lockpins made of wrong material	02/26/82 06/02/82 R	Open
R 01/26/82 (0)	Electrical cable in penetrations may fail (Unit 4 only)	02/26/82 04/21/82 07/02/82 R	Open (Annual)
R 01/26/82 (0)	Cooler for Diesel Generator may become airborne	02/26/82 04/20/82 R	Open
PR 01/26/82 (C)	DuBois steel tubing has linear indications	N.A.	02/26/82 (PR) telecon

TABLE 1

CONSTRUCTION DEFICIENCY REPORTS

Docket No(s). 50-460
50-513

NOTIFICATION DATE	DESCRIPTION OF CONDITION	INTERIM REPORT DATE	FINAL REPORT DATE
PR 02/10/82 (0)	Powell Electric Co. breakers have misaligned connectors		03/04/82 N.R. telecon
PR 03/01/82 (0)	Attachments made to containment shell with concrete anchor bolts	N.A.	03/22/82 (NR)
R 03/02/82 (0)	GE Circuit Breaker AKR 30 & 50 may fail	04/02/82 R	Open
R 03/15/82 (0)	Emergency Safety Features Actuation Setpoint may be changed	N.A.	03/18/82
R 04/02/82 (0)	Diesel Generator Air Starting Line not seismically qualified	05/14/82 R	Open
PR 04/02/82 (0)	Okanite electrical cable may fail	06/02/82 07/16/82 PR	Open (Annual)
PR 06/18/82 (0)	Diesel Generator starting air valve inoperative due to long capscrew	07/16/82 PR	Open (Annual)

R = Reportable
PR = Potentially Reportable
NR = Not Reportable
(O) = Open, inspection not complete
(C) = Closed, inspection complete

TABLE 2

ENFORCEMENT DATA

UNIT 1 DOCKET NO. 50460

FUNCTIONAL AREA	INSPECTION MAN HOURS	VIOLATIONS (SEVERITY LEVEL)						
		VI	V	IV	III	II	I	DEVIATION
SOILS AND FOUNDATION	0	-	-	-	-	-	-	-
CONTAINMENT AND OTHER SAFETY RELATED STRUCTURES	205	-	3	-	-	-	-	-
PIPING SYSTEMS AND SUPPORTS - INCLUDES WELDING, NDE AND PRESERVICE	317	-	3	-	-	-	-	-
SAFETY RELATED COMPONENTS - INCLUDES VESSEL, INTERNALS, AND PUMPS	168	-	1	-	-	-	-	-
SUPPORT SYSTEMS - INCLUDES HVAC, RADWASTE, FIRE PROTECTION	509	-	6	-	-	-	-	-
ELECTRICAL POWER SUPPLY AND DISTRIBUTION	30	-	2	-	-	-	-	-
INSTRUMENTATION AND CONTROL SYSTEMS	0	-	-	-	-	-	-	-
LICENSING ACTIVITIES	0	-	-	-	-	-	-	-
OTHERS (List)								
Design	181	-	-	-	-	-	-	-
Quality Assurance	82	-	-	-	-	-	-	-
Management Meetings	11	-	-	-	-	-	-	-
Construction Delay	0	-	-	-	-	-	-	-
Total:	1503	-	15	-	-	-	-	-

Numbers indicate NRC Inspection Report Number.

TABLE 2
ENFORCEMENT DATA

UNIT 4 DOCKET NO. 50-513

FUNCTIONAL AREA	INSPECTION MAN HOURS	VIOLATIONS (SEVERITY LEVEL)						DEVIATION
		VI	V	IV	III	II	I	
1. SOILS AND FOUNDATION	0	-	-	-	-	-	-	-
2. CONTAINMENT AND OTHER SAFETY RELATED STRUCTURES	6	-	-	-	-	-	-	-
3. PIPING SYSTEMS AND SUPPORTS - INCLUDES WELDING, NDE AND PRESERVICE	14	-	-	-	-	-	-	-
4. SAFETY RELATED COMPONENTS - INCLUDES VESSEL, INTERNALS, AND PUMPS	3	-	-	-	-	-	-	-
5. SUPPORT SYSTEMS - INCLUDES HVAC, RADWASTE, FIRE PROTECTION	0	-	-	-	-	-	-	-
6. ELECTRICAL POWER SUPPLY AND DISTRIBUTION	13	-	-	-	-	-	-	-
7. INSTRUMENTATION AND CONTROL SYSTEMS	0	-	-	-	-	-	-	-
8. LICENSING ACTIVITIES	0	-	-	-	-	-	-	-
OTHERS (List)								
9. Design	26	-	-	-	-	-	-	-
10. Quality Assurance	103	-	-	-	-	-	-	-
11. Management Meetings	24	-	-	-	-	-	-	-
12. Construction Delay	33	-	-	-	-	-	-	-
Total	222	-	-	-	-	-	-	-

Numbers indicate NRC Inspection Report Number.

TABLE 3
DESCRIPTION OF ENFORCEMENT ACTIONS*

Docket No. 50-460

NRC INSPECTION REPORT NO.	SEVERITY LEVEL	DESCRIPTION	F.A.
81-07-07	V (1)	Failure to follow procedure. Work on a defective ventilation item was authorized by a memorandum. (Failure of contractor management to follow procedure). (Management Personnel)	5
81-09-05	V (1)	Failure to provide acceptance criteria in procedure for skewed joint welds in structural steel. (Procedure)	3
81-12-01	V (1)	Failure to follow procedure. Nonconformance reports were verified complete whereas all specified actions had not been performed. (Quality Control Personnel)	2
82-03-05	V (1)	Failure to follow procedure. Undersize structural welds accepted by Quality Control. (Quality Control Personnel)	2
82-04-01	V (2)	Failure to follow procedures. Wrong welder identity recorded for ventilation welds. (Craft Personnel)	5
82-04-02	V (2)	Failure to correct a nonconformance. Excessive out of oven time for low hydrogen weld electrodes was not followed up. (Management Personnel)	5
82-04-03	V (2)	Failure to follow procedure. The requirements of a welding specification were circumvented by a memorandum. (Management Personnel)	5
82-05-01	V (2)	Failure to follow procedure. A nonconforming weld condition was not hold tagged. (Quality Control Personnel)	3
82-06-01	V (2)	Failure to follow procedure. Vendor supplied pipe whip restraint had undersize welds. (Quality Control Personnel)	3
82-06-02	V (2)	Failure to follow procedure. Conduit support weld inspections were not documented on proper forms. (Management Personnel)	6
82-05-03	V (2)	Failure to follow procedure. Preventative maintenance not performed on some components. (Management Personnel)	4
82-07-01	V (2)	Failure to document nonconformances. Attachment welds for ventilation were not inspected. (Management Personnel)	5

(1) Interim Enforcement Policy, 45 FR 66754, dated October 7, 1980.

(2) NRC Enforcement Policy, 10 CFR 2 Appendix C, 47 FR 9987 dated March 9, 1982.

*This table is for DN 50-460 only; there were no nonconformances for DN 50-513.

TABLE 3
DESCRIPTION OF ENFORCEMENT ACTIONS

Docket No. 50-460

NRC INSPECTION REPORT NO.	SEVERITY LEVEL	DESCRIPTION
82-07-02	V (2)	Inadequate Procedures. Ventilation welding procedures did not meet code and standard requirements. (Procedure)
82-08-01	V (2)	Failure to follow procedures. Structural work proceeded prior to authorization. (Craft and Quality Control Personnel)
82-09-01	V (2)	Failure to follow procedure. Electrical cable in penetrations was installed without procedures or inspection. (Management Personnel)

TABLE 4
RESPONSES TO ENFORCEMENT ACTIONS

Item of Noncompliance <u>No.</u>	<u>Date Issued</u>	<u>Response Required</u>	<u>Response Sent</u>	<u>Response Quality</u>
81-07-07	11/20/81	12/21/81	12/23/81	S
81-09-05	12/03/81	01/02/82	01/15/82	U
81-12-01	01/06/82	02/05/82	02/11/82	S
82-03-05	03/18/82	04/17/82	05/10/82	S
82-04-01	05/17/82	06/16/82	07/02/82	U
82-04-02	05/17/82	06/16/82	07/02/82	U
82-04-03	05/17/82	06/16/82	07/02/82	U
82-05-01	04/27/82	05/27/82	NR	NA
82-06-01	06/08/82	07/08/82	none*	-
82-06-02	06/08/82	07/08/82	none*	-
82-06-03	06/08/82	07/08/82	none*	-
82-07-01	05/03/82	06/02/82	07/02/82	U
82-07-02	05/03/82	06/02/82	07/02/82	U
82-08-01	06/07/82	07/07/82	07/26/82	U
82-09-01	06/24/82	07/24/82	none*	-

*as of 9/1/82

TABLE 5
NUMBERS AND TYPES OF INSPECTIONS PERFORMED

Type of Inspection	No. of Inspections	No. of Inspections
<u>Type of Inspection</u>	<u>WNP-1</u>	<u>WNP-4</u>
1. Region, Construction		
a. Routine	1	0
b. Reactive	1	0
c. Routine & Reactive Combined	6	4
2. Resident, Construction		
a. Routine	4	3
b. Reactive		
c. Routine & Reactive	3	2
3. Special Inspections		
a. Team Inspection	1	1
b. Design Inspection, Region IV	1	1
c. Management Meetings	1	1
d. Headquarter Inspection, Equipment Qualification	1	1
4. Operations	0	0
5. Health Physics	0	0
6. Security and Safeguards	0	0
7. Emergency Preparedness	0	0
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Total	20	13

TABLE 6

SUMMARY OF INSPECTOR MANHOURLY USEAGE

1. Site Shares
 - a. WNP-1: 87% of total manhours
 - b. WNP-4: 13% of total manhours
2. Regional/Resident Shares
 - a. Region: 72% of total manhours
 - b. Resident: 28% of total manhours
3. Type of Inspection Shares
 - a. Module Inspections: 36% of total manhours
 - b. Allegation Inspections: 28% of total manhours
 - c. Followup Inspections (including Bulletins and Circulars): 25% of total manhours
 - d. Independent Inspection: 11% of total manhours

TABLE 7
MANPOWER USEAGE BY FUNCTIONAL AREA

<u>Functional Area</u>	<u>WNP-1/4 % of Inspector Hours</u>
1. Soils and Foundations	0%
2. Containment and other safety related structures	12%
3. Piping Systems and Supports includes welding and NDE.	19%
4. Safety Related Components includes vessel; internals and pumps	10%
5. Support Systems includes HVAC, radwaste, fire protection	30%
6. Electrical power supply and distribution	2%
7. Instrumentation and control systems	0%
8. Licensing Activities	0%
9. Design	12%
10. Quality Assurance	11%
11. Management Meetings	2%
12. Construction Delay Plant Maintenance	2%

TABLE 8
CHRONOLOGY OF PROJECT ACTIVITIES

Major project activities for the SALP reporting period are presented chronologically as follows:

1. July 1981 - Work on Unit 4 essentially terminated, Unit 4 "mothballed"
2. October 1981 - NRC Senior Resident Inspector assigned to the WNP-1/4 site
3. October 1981 - WPPSS "Hotline" Program established ("Hotline" is a program to allow site personnel to bring quality concerns to management's attention anonymously)
4. November 25, 1981 - WPPSS tendered application for operating license for WNP-1
5. December 31, 1981 - WPPSS requests construction permit for WNP-1 be extended to June 1986
6. January 22, 1982 - WPPSS terminates WNP-4
7. January 25-29, 1982 - ASME survey of WPPSS for "Owners N Stamp" certification is conducted (resulted in certification)
8. March 9, 1982 - WPPSS Director of Projects for WNP-1-3 appointed
9. April 29, 1982 - WPPSS delays WNP-1 construction for up to 2 years.
10. May 28, 1982 - WPPSS approves a July 1983 restart of construction for Unit 1 with a 2 to 5 year delay in completion
11. June 18, 1982 - NRC Senior Resident Inspector reassigned to another facility
12. July 16, 1982 - WNP-1 OL application accepted for docketing with the provision that WNP-1 will satisfy the requirements of any future regulations issued between the date of docketing and the resumption of construction