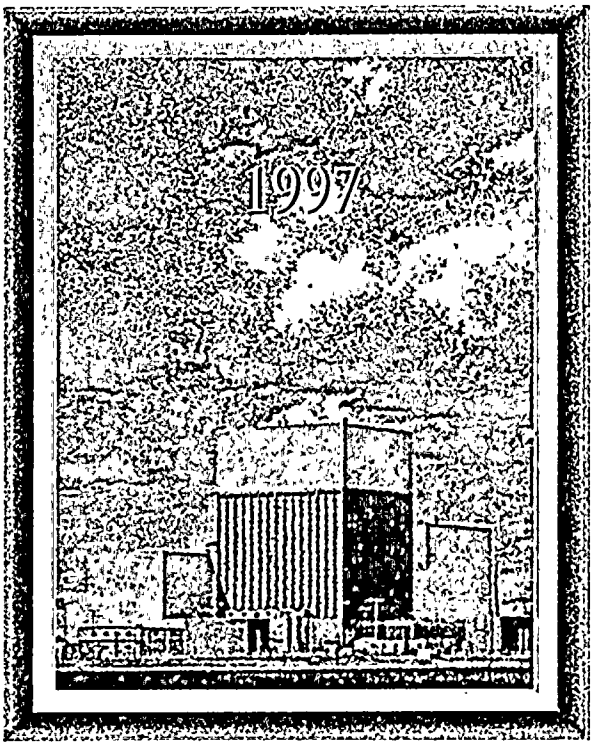

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

PERFORMANCE SELF ASSESSMENT

WNP-2

WNP-2

1997

PERFORMANCE

SELF ASSESSMENT

ASSESSMENT CONDUCTED OCTOBER 6 THROUGH 31, 1997

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ACAD	National Academy for Nuclear Training
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ASD	Adjustable Speed Drive
BEDPS	Backup Emergency Dose Projection System
CARB	Corrective Action Review Board
CNSRB	Corporate Nuclear Safety Review Board
CORC	Clearance Order Review Committee
CR/CT	Control Room Deficiency
CW	Circulating Water
DFW	Digital Feedwater
DRB	Design Review Board
DRD	Design Requirements Document
EDPS	Emergency Dose Projection System
EGM	Engineering General Manager
EO	Equipment Operator
EOP	Emergency Operating Procedures
EP	Emergency Plan
EPIP	Emergency Plan Implementing Procedures
ERO	Emergency Response Organization
ESP	Engineering Support Personnel
FAO	Followup Assessment for Operability
FCR	Field Change Request
FEMA	Federal Emergency Management Agency
FIN	Fix-It-Now
FSAR	Final Safety Analysis Report
HP	Health Physics
INPO	Institute Of Nuclear Power Operations
IRB	Incident Review Board
ITS	Improved Technical Specifications
LBID	Licensing Basis Impact Determination
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MOV	Motor-Operated Valve
MSDS	Material Safety Data Sheet
NRC	Nuclear Regulatory Commission
NSSS	Nuclear Steam Supply System
OER	Operating Experience Report
OI	Operating Instruction
OJT/OJE	On-the-Job Training/On-the-Job Evaluation
PER	Problem Evaluation Request
PES	Performance Enhancement Strategy
PGM	Plant General Manager
PIP	Performance Improvement Plan
POC	Plant Operating Committee
PQD	Personnel Qualification Database
PSO	Planning/Scheduling/Outage

GLOSSARY OF ABBREVIATIONS AND ACRONYMS (cont)

PSA	Plant Safety Analysis
PTL	Plant Tracking Log
QEDPS	Quick Emergency Dose Projection System
QRB	Quality Review Board
RCA	Root Cause Analysis
RFO	Refueling Outage
RPM	Radiation Protection Manager
RPT	Radiation Protection Technician
SALP	Systematic Assessment of Licensee Performance
SRO	Senior Reactor Operator
STA	Shift Technical Advisor
TAG	Training Advisory Group
UIW	Utility Identified Weakness
WIN	Work-it-Now
WOT	Work Order Task
WR	Work Request

WNP-2 1997 PERFORMANCE SELF-ASSESSMENT TEAM

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ASSESSMENT TEAM

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	Dennis Myers	Independent	Consultant
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	Tom Hoyle	Supply System	Supvr. Engineering
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Internal	Jim Engbarth	Supply System (E-Board)	Admin Auditor
	Steve Kirkendall	Supply System	Manager, PSO
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PLANT SUPPORT-EMERGENCY PLANNING			
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ASSESSMENT TEAM (cont)

FUNCTIONAL AREA	NAME	REPRESENTING	POSITION
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EXECUTIVE SUMMARY

WNP-2 performance during the last year is characterized as improving, but at a slower rate than expected, with a continuing need for management attention in certain key areas. The Performance Self Assessment (Assessment) found strengths in safety focus, Plant material condition, the continued improvement in operations, and engineering professionalism. Weaknesses were generally identified across the board concerning problem resolution, management involvement, work management, and work quality. With limited exception, management action taken in response to last year's Assessment findings were not tracked to determine completion or assessed to determine whether the prompting cause was eliminated. The internal self-assessment process was inconsistently applied and had no central focus, direction, or goal. The annual Assessment process must be used to assess progress toward institutional goals and objectives, rather than as a benchmarking exercise to determine where performance improvement initiatives should be implemented. WNP-2 Senior Management should set a terminal goal for marked progress toward the attainment of "World Class" performance as measured by the annual Assessment process.

History and Purpose

From October 6, 1997 through October 31, 1997 a special team, under the direction of the Vice President Operations Support/Public Information Officer, conducted an *Assessment* of key performance areas at WNP-2. The 30-plus member team was comprised of nuclear utility industry personnel supported by Supply System employees knowledgeable in the areas assessed. The goal of the *Assessment* was to obtain an independent and critical functional assessment of WNP-2 performance using industry and Nuclear Regulatory Commission (NRC) standards and methodologies. The *Assessment* identifies both the strengths and weaknesses that affect WNP-2's ability to achieve and sustain "World Class" commercial and regulatory performance. *Assessment* results are graphically presented on the rating charts in appendices "J" and "K".

The approach used by the team was to determine whether WNP-2 consistently sustained "World Class" performance. Even though actual performance has improved in most areas since the last *Assessment*, the progress was not as great as anticipated.

Summary of Results

The *Assessment* focuses on functional areas rather than departmental organizations. Therefore, performance issues identified are associated with the Plant-wide function and not with specific groups. The Work Management function, for example, directly af-

fects all major organizations on site. WNP-2 performance, in general, shows improvement, but at a slower rate than expected. In some areas, however, performance has declined requiring increased management attention.

The following themes were identified by the Assessment Team as needing improvement. First, the process of conducting self assessments, while a valuable tool, has not been successfully institutionalized. The annual *Assessment* process has, therefore, evolved into a benchmarking exercise during which opportunities for performance improvement are identified rather than an assessment of the effectiveness of self-identified performance improvement efforts. Secondly, the work process has become an obstacle to be overcome rather than a tool to facilitate the conduct of work. The Fix-It-Now (FIN) and Work-It-Now (WIN) teams, while highly effective and useful groups, illustrate the need for work process reform. Finally, management involvement has not retained its vigor, focus, or direction. Several examples are presented in the report where the lack of management involvement has contributed to performance declines.

Additionally, and because this is a process involving organizational and individual change, it is important to reemphasize that continued improvement in teamwork is required and recognize how individual daily effort supports Plant Operation.

The significant performance improvements realized with the Performance Enhancement Strategy (PES) are not the types of improvement one expects to see at this stage of the self-assessment process. The reason for this is that the PES was conducted at a time when WNP-2 was rife with significant issues which, when addressed, had a clearly evident effect on Plant performance. At the same time, the standards for determining whether performance has improved are greater then those set during the PES. The requirement is for daily demonstration of "World Class" performance across the range of tasks, from the mundane to the exotic. Consistent performance in accordance with this standard will result in improved performance as a matter of habit.

Licensee Controls

Performance in the Licensee Control Systems area was considered average for the period under review. This rating represents some improvement over the last *Assessment*. Notable among the improved areas was that of Corrective Actions. While certain concerns remain, the improvement in this area is principally due to the ability of the personnel tasked with implementing the corrective action system and the capability of the system itself as a tool for identifying trends. Despite the improvement, a number of areas require enhancement if the improvement is to remain stable for the future.

Operations

Operations overall performance has remained the same during the last 18 months. Improvements in Safety Focus, Quality of Operations, and Programs and Proce-

dures were observed. Management Involvement and Problem Identification and Resolution performance remains weak but shows increased attention. Further weaknesses remain in the areas of control room out-of-service components, management oversight observations, computerized work systems (Passport/Baseline), clearance order discrepancies, and station ownership.

Engineering

Overall performance in the Engineering area is average, reflecting improvement since the last *Assessment*. There is a continued reduction in work backlogs, fewer overdue responses, improvement in work product quality and Plant support, increased fulfillment of qualification and training requirements, and initiatives in the Engineering Strategic Plan to address many of the identified areas for performance improvement. These accomplishments have contributed to the recent breaker-to-breaker run; continued Plant operation since the last refuel outage; continued safety system availability in excess of station, Maintenance Rule and Institute of Nuclear Power Operations (INPO) goals; and a generally positive perception by other Plant organizations of Engineering support and technical competence. Though progress is being made, Engineering faces challenges in the areas of personnel turnover, retention of design basis knowledge, work product consistency, large backlogs, process inefficiencies, and emergent work.

Maintenance

The Maintenance functional area continues to improve as demonstrated by Plant material condition, safety system availability and minimal forced system outage time. Organizational effectiveness should be addressed to improve coordination among departments and the work control process. Personal accountability and responsibility should be better defined and implemented throughout the organization. Higher work standards are needed to continue improvement of Plant long-term reliability.

Plant Support

The Plant Support area is rated as average. Performance can be characterized as mixed with Training and Security demonstrating above average performance, while other areas demonstrate average or below average performance. The average rating for the Plant Support area should be viewed as a disappointment. Generally speaking, areas that were strong performers prior to initiating the *Assessment* process remained strong. Those areas demonstrating weak or inconsistent performance remained weak or inconsistent. However, in most cases areas requiring additional management focus have been internally self-identified and appropriate improvement programs have been initiated.

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INTRODUCTION

The purpose of the *Assessment* is to recognize strengths or needed improvements and identify impediments that affect WNP-2's ability to achieve, maintain and sustain commercial and regulatory performance.

The *Assessment* included a review of documentation specifically related to WNP-2's performance, observations of work in progress and personnel interviews.

The Assessment Team was comprised of over 30 members, which included a project manager and a team coordinator. The team members focused solely on this effort during the assessment period. Daily meetings were conducted to ensure integration of findings and conclusions.

The Assessment Team evaluated WNP-2 performance in five functional areas:

1. Licensee Control Systems
2. Operations
3. Engineering
4. Maintenance
5. Plant Support

Each functional area is divided into assessment categories as discussed in the following paragraphs:

Safety Focus is evaluated from two perspectives—nuclear safety and personnel safety. Typical areas addressed in this section are safe execution of work, conservative conduct of Plant evolutions and compliance with regulatory requirements.

Management Involvement focuses on the role and sufficiency of management in the day-to-day conduct of work activities. Typical areas addressed in this section are communication, reinforcement of expectations, teamwork, and accountability for success.

Problem Identification is a key assessment component which focuses on the adequacy and sufficiency of processes in place that identify and categorize problems, including trends. In addition, this area typically assesses workers' abilities and effectiveness in process application.

Problem Resolution assesses the effectiveness of correcting the causes of problems and preventing recurrence. Elements reviewed include problem cause determination, appropriateness of corrective actions taken, and effectiveness of implementing corrective actions.

Quality of Work compares the products and services provided by the functional area with similar work throughout the industry to ensure they meet WNP-2 expectations and goals.

Programs and Procedures evaluates the appropriateness and effectiveness of initiatives in the functional area as well as the quality of procedures guiding functional activities. Programs that cross organizational boundaries are also evaluated on their effect on other organizations.

Some areas in the report have additional sections which are defined within the body of that area's narrative.

Color-coded ratings used on the *Assessment* Functional Area Rating charts were based on the following scale:

- Green - Exceptional performance; demonstrating continuous improvement when compared to rising industry standards.
- White/Green - Above average performance; consistent, well-focused and showing improvement with rising industry standards.
- White - Average performance; consistent in many areas, but needing increased focus for improvement.
- White/Red - Below average performance; usually demonstrating repeat problems, weak program and process implementation, ineffective corrective actions, and cyclic human performance.
- Red - Acceptable performance for safe operation; needs immediate management involvement and focus for effective implementation of program and processes.

The ratings show where WNP-2 needs to place increased management attention. When an element fell between two ratings, the dual color rating was assigned. The bases for individual ratings are provided in the body of the report.

This report will be distributed throughout WNP-2. It will then be the responsibility of each department manager to read the applicable portions and develop corrective actions to address cited shortcomings. Those corrective actions, the responsible individual(s) and the due dates will then be placed in the Plant Tracking Log (PTL).

TEAM OBSERVATIONS

The Assessment Team recognizes the progress made by WNP-2 since the last *Assessment*. The rate of progress is not as great as that seen during the 1995-1996 time period; however, this is only to be expected. The road to "World Class" performance is both long and arduous and an overnight performance turnaround is not to be expected.

However, even recognizing that not all of the identified items could have been corrected since the last *Assessment*, the team feels that some efforts were not completed that could have hastened the Supply System toward "World Class" performance. For example, the process that resulted in action plans being developed in response to the PES was not followed after the latest *Assessment*. Had a follow-on strategy been employed, several of the 1996 *Assessment* findings would likely not have been repeated.

During discussions of the individual functional areas, the Team recognized that some issues had broad applicability and were important to WNP-2's desire to improve. These observations are presented below.

The process of conducting internal self assessments, while a valuable tool, has not been completely institutionalized. The annual external performance assessment process has, therefore, evolved into a benchmarking exercise during which opportunities for performance improvement are identified. The annual process should result in an assessment of the effectiveness of internal self-identified performance improvement efforts and the effectiveness of those efforts in moving WNP-2 toward "World Class" performance.

The work process has become an obstacle to be overcome, rather than a tool to facilitate the conduct of work. The work process treats all work as extremely complex and does not allow repetitive tasks to be performed quickly and efficiently. As a result, the FIN and WIN teams have been established to perform work that does not require the rigors of the existing work process. While the FIN and WIN teams are highly effective and useful groups and account for most of the work completed in the Plant, the existence of these groups illustrates the need for work process reform.

Teamwork was addressed in the previous *Assessment*. Teamwork is most evident when performing high visibility projects as distinguished from routine activities. When so focused, teamwork is considered to be exemplary. Nonetheless, teamwork is still an area that needs substantial improvement. Specific expectations should be disseminated to the worker level with clear defined responsibility and accountability. This is key to the attainment of "World Class" performance in all areas. Management has attempted to encourage teamwork through a reward system and there are some individual rewards that are tied to Plant operations. However, individual rewards are predominately based on individual performance using departmental goals and objectives rather than teamwork in support of Plant operations. The focus should be directed toward

Plant operations rather than on individual organizational accomplishment. Individuals should have goals that hold them accountable for achieving successful interdepartmental relationships.

The Team felt change management—both personnel and programmatic—was an area requiring immediate management attention. Several major programmatic changes have been made during the last year, including implementation of Improved Technical Specifications (ITS) and Baseline Passport. In the case of ITS, a multi-discipline team was established to address ITS issues; however, shortly after the formation of the team, resources were stripped and the process became a "two-person" show. The change was only re-emphasized when it finally became evident that implementation was in danger.

Baseline Passport implementation had a dramatic and negative effect on the operation of WNP-2. Not only did it remove valuable tools and protective measures from the previous system, but it slowed down virtually all work activities. If these repercussions were known prior to implementation, plans were not in place to communicate or address issues as they arose. If they had not been identified, it merely provides another example of inadequate change management. Even the training was marginal. Rather than providing meaningful training to individual groups, a generic training program was developed that satisfied no one.

During the coming year, WNP-2 is going to complete two major projects—Severe Accident Management Program and the Final Safety Analysis Report (FSAR) Upgrade Project. Hopefully, lessons learned during the ITS and Baseline Passport implementation will prevent the occurrence of similar issues with these programs.

The Team found no apparent evidence of Succession Planning. Numerous management changes and rotations had taken place since the last *Assessment*, and many of the new managers felt they had received inadequate preparation or turnover. Rotational programs are good ways to develop employees, but they should be well-thought out and planned. The Team saw no evidence of this thought or planning.

The Team considers the number of meetings to be both a distraction and an impediment to management's ability to conduct its core functions. Several meetings require attendance by individuals who do not have a material stake or interest in the meeting topic. All departments should review the number of meetings scheduled, conducted, and attended and the significance of those meetings in order to reduce or consolidate their number. Recognizing that meetings are an important method of communication, there should be a general empowerment of managers and supervisors to conduct effective communication outside a formal meeting format.

1.0 LICENSEE CONTROL SYSTEMS

Summary

Performance in the Licensee Control Systems area was considered average for the period under review. This rating represents some improvement over the last *Assessment*. Notable among the improved areas was that of Corrective Actions. While certain concerns remain, the improvement in this area is principally due to the ability of the personnel tasked with implementing the corrective action system and the capability of the system itself as a tool for identifying trends. Despite the improvement, a number of areas require enhancement if the improvement is to continue into the future.

Another part of Licensee Control Systems that helped improve the overall rating was in the area of Operating Experience Feedback. A number of enhancements were incorporated since the last *Assessment*, and the program appears to operate effectively.

The Trending and Evaluation area remained unchanged in its rating. Future improvement in this area will depend a great deal on the extent to which line organizations seek to utilize leading performance indicators and innovative predictive techniques.

Similarly, future improvement in the Licensee Control Systems area will depend greatly on how well the site-wide self-assessment program is implemented. This area improved, but could have (and should have) improved more rapidly since the last *Assessment*. Particularly important to future improvement will be additional senior management commitment and support, as well as full support and use by line organizations.

Finally, the area within Licensee Control Systems that showed no improvement was that of Root Cause Analysis (RCA). The Corrective Action Review Board (CARB) still rejects a substantial number of significant Problem Evaluation Request (PER) dispositions and personnel responsible for event review still demonstrate a lack of depth in their questioning attitude.

1.1 Problem Identification Through Self Assessment

WNP-2 uses a number of methods to identify problems, including self assessment and review by overview groups—both internal and external. In general, these efforts allow adequate identification of problems. However, the Plant's ability to identify problems would be substantially improved if the Self-Assessment Program received greater management support. Supporting the Plant's problem identification efforts are its Corrective Action Program and various trending and evaluation processes. Implementation of these programs and processes have resulted in satisfactory resolution of problems. The weakest link in the Licensee Controls area is the Plant's ability to perform root cause analyses. Prior corrective actions to improve this area have been less than effective. Greater management attention

is needed in this area. Overall, however, the Plant's performance in this area represents an improvement over that identified in the 1996 *Assessment.*

1.1.1 Review Groups (White)

Meeting minutes for 1997 were reviewed for the Corporate Nuclear Safety Review Board (CNSRB) and Plant Operating Committee (POC).

The CNSRB appeared to be formally conducted and decisions clearly documented. Open items are tracked and issues of concern are followed from meeting to meeting. An area of concern documented in several meeting minutes was the adequacy of performance of the Quality organization. The minutes of CNSRB addressed several discussions indicating a criticism of the depth of audit and surveillance activities as reflected in completed Quality audit and surveillance reports. The CNSRB minutes indicated that interviews were conducted and presentations were made by Quality staff to assist the Board's understanding and efforts to resolve concerns. Eventually a management change, personnel changes and a reorganization occurred in the Quality organization. The most recent minutes of the CNSRB indicate an improving trend in the quality of reports and confidence in recent changes.

Considering the length of time the CNSRB had concerns and the fact that the audit subcommittee meets only three times per year and performs a broad overview of activities, it might be advisable to request a detailed, documented improvement program. This program should identify technical and programmatic weaknesses and proposed corrective actions, to ensure sustained improvement within the Quality organization.

The CNSRB was established to provide independent "offsite" review responsibilities of activities occurring during Plant operation. The composition of the Board as a "standing committee" is required by WNP-2's commitment to Regulatory Guide 1.33, via its reference to American National Standards Institute (ANSI) N18.7, to be established such that "no more than a minority are members of the onsite operating organization." NOS-6, Section 6.1.3 states, "[n]o more than a minority of the members voting should have responsibility for operation of the facility." The procedure governing CNSRB, SWP-IRP-02, states the number of required members, but has no reference to a minority composition by "onsite" members. Currently the CNSRB has nine members, only four of which appear to be from outside the WNP-2 operating organization. A clear definition of "onsite" should be developed to ensure WNP-2 is in compliance with the ANSI standard. Additionally, the wording differences in the ANSI Standard, NOS, and Site-Wide Procedure should be reconciled.

With regard to the subject matter reviewed by the CNSRB, the POC should screen subjects of potential concern to independent reviewers and perform preliminary investigations. The Plant Manager, in carrying out his responsibility for overall safety of Plant operations, is responsible for timely referral of appropriate matters to independent reviewers of the

CNSRB. A recent request to Quality by a CNSRB member for an analysis of the Board's review requirements resulted in the issuance of a PER. The PER stated not all of the appropriate material was being reviewed. The process for routing of required material is currently under evaluation.

The POC minutes were reviewed for the year-to-date. One meeting of a POC sub-committee was attended. The process appeared to provide the oversight intended for the area reviewed. The use of the Quality Manager as the chairman of the POC sub-committee for corrective actions was not considered a strength. Since the Quality Manager is already a CNSRB member and the CNSRB POC sub-committee chairman, his chairing of the POC sub-committee for corrective actions does not provide optimum independence in these roles.

1.1.2 Operating Experience Feedback (White/Green)

A sampling of matters considered under the Operating Experience Report (OER) program shows that they were adequately addressed from a substantive standpoint. Based on the sampling and interviews of personnel involved with the program, it appears that operational events are being routinely identified and evaluated by knowledgeable individuals. In addition, an important enhancement was made in December 1996 to the program to require all potentially "impacting" operational events to be addressed through the PER process. This change came about due to benchmarking performed by WNP-2 personnel and allows for enhanced management focus, since the PERs are reviewed at the daily morning meeting. Another enhancement is the improved timeliness for review of the OERs. The trend has improved significantly in the last three months (i.e., June - September) and Quality has "raised the bar" for its performance goal of timeliness to further challenge the program.

While it appears that operating experience matters are being adequately addressed, several aspects of the OER process could be enhanced: (1) the OER procedure, PPM 1.10.4; (2) monitoring and oversight of the program; and (3) ability to maintain continuity of the program. In terms of the procedure, more detailed screening criteria would be helpful for determining when a particular operating experience matter should be addressed through a PER (note that the Audit 297-050 identified weaknesses in screening). In addition, more detailed guidelines on what should be considered when evaluating operating experience source documents would help to assure thoroughness and continuity of the reviews. Finally, certain terms used in the procedure (e.g., "acceptable level of risk" and "preferred avenue") could be clarified to better ensure uniformity in procedure implementation.

Concerning monitoring and oversight of the program, two enhancements should be considered. First, in fulfilling his responsibility under Section 3.2.2 of PPM 1.10.4, the OER Program Lead should include a review of selected OER dispositions that do not result in required action. This would help assure that the disposition of these matters is adequate.

Second, the OER Program Lead should assure that the annual program assessment (i.e., under Section 3.5.1 of PPM 1.10.4) includes a more in-depth review of OER dispositions (e.g., Audit 297-050 reviewed only six OER dispositions out of approximately ninety performed over a six-month period and found issue with three).

Finally, with regard to continuity of the program, a desktop instruction should be developed which allows successors to the OER Program Lead position to implement the program in a consistent manner (this effort was underway at the time of the *Assessment* and has since been completed).

1.1.3 Self Assessments and Independent Assessments (White/Red)

Since the last *Assessment*, WNP-2 has finalized a desktop instruction for the conduct and documentation of department self assessments and has assigned an individual to the role of Self-Assessment Program Coordinator. In calendar year 1997 to date, 35 self assessments have been completed (another 10 are scheduled to be completed before the end of the calendar year). The assessments cut across most of the WNP-2 organizations and range from issue-specific to programmatic in nature.

While the NRC found the 1996 *Assessment* to be a "significant improvement" over the previous self-assessment efforts, the maturation of the self-assessment program has been somewhat slow. For example, the desktop instruction was not finalized and made available throughout WNP-2 until almost eight months after the 1996 *Assessment*. Full implementation of the program, as embodied in the desktop instruction, did not begin in earnest until about July 1997—almost one year after completion of the 1996 *Assessment*.

In addition, management commitment to the program appears to be marginal. For example, a review of the PTL shows only one item clearly traceable to the 1996 findings. A review of over 20 departmental self assessments shows a substantial number of findings not clearly traceable to the PTL, in spite of guidance in the desktop instruction to specifically designate these items in such a manner. Other indications that the self-assessment program has not received full management support are demonstrated by the fact that Quality does not routinely monitor follow through on self-assessment findings and that some self assessments are being conducted but not documented. (The failure to institutionalize the self-assessment process is reflected in the NRC's viewpoint in the April 1997 Systematic Assessment of Licensee Performance (SALP) Report that "[s]elf assessments...were not successful in precluding repetitive problems.") It should be noted that this determination was made based on the previous year's activities and on evaluations conducted shortly after the Self-Assessment Coordinator position had been created and filled.

Despite the shortcomings mentioned above, a strength of the program is that a majority of the department self assessments appear to be thorough and generally well documented. For example, in a number of cases department managers have clearly identified which items have been placed in PTL and, for those not placed in PTL, an explanation is

included. Furthermore, several self assessments demonstrate excellent application in that they were used to assure readiness for key upcoming efforts (e.g., ITS Implementation and Refueling Outage [RFO] Mode Change Readiness—the latter effort was cited as a strength by the NRC). There were, however, a number of self assessments that arguably might not be similarly classified. For example, several assessments were conducted and apparently credited as satisfaction for biennial training program requirements. Also, several assessments were either an observation or evaluation of a single event and thereby seemed to narrowly focused to be fairly characterized as a self assessment. Finally, several assessments were too conclusory (i.e., they did not explain the basis for certain findings).

Overall, the self-assessment program illustrates the following weaknesses:

- Inconsistent management commitment and support.
- The lack of a formal approach to the conduct and documentation of assessments and an absence of traceability of follow through on items.
- Limited oversight by Quality.

Currently, the self-assessment program is being conducted informally (i.e., effectively on an "elective" basis). This informal approach was by design to allow the program to mature in a slow, methodical manner. While this approach can be effective at introducing self-assessment techniques to the workforce, there is a need for stronger commitment to the program by Plant personnel and management in order to propel the program forward and make it a consistently valuable tool.

1.2 Root Cause Analysis (White/Red)

During the period since the last *Assessment*, 79 significant PERs had associated root cause analyses performed. Previous areas of concern involved training of RCA performers and the depth of critical inquiry of RCAs.

In an effort to improve the RCA process, a strategy has been developed to establish a core of approximately 20 trained RCA personnel to oversee all of the RCAs performed. The effort is intended to bring consistency to the process and establish a collective base of people that could more quickly identify weaknesses in their own process and make rapid and effective improvement. The training was in process during the current assessment period. This effort addresses the previous *Assessment* issue. Effective evaluation will have to wait until full implementation.

Oversight of the adequacy of significant PER resolution is provided by the CARB. This board is a sub-committee of POC. A CARB meeting was attended and an interview was conducted with the CARB Chairman.

At best, the CARB has had mixed results in its attempt to bring about broad improvements in the quality of products submitted by Plant groups for approval and closure. A large

percentage of PERs are rejected by the group (≈30 percent). Presenters appear to feel an adversarial relationship with the CARB even though significant effort has been made by the CARB to promote a team approach. The use of CARB mentors for presenters during the dispositioning of PERs is an example. The CARB itself experiences problems in achieving consistent attendance by members. Not all members consider the CARB function a priority. Providing a significant level of very high management attention to providing the site with a dedicated corrective action review committee, with appropriate authority to set departmental priorities, is necessary to bring about sustained improvement in the quality of problem resolution at WNP-2.

Several PER RCAs have been reviewed to date. PER 297-0070 involved an Incident Review Board (IRB) and an RCA. The issue was the installation of a wrong component in a system. Observations were that evaluation of all facts and elimination of those that did not contribute to the event was not clearly documented. The surface issues identified may have had many underlying contributors that needed evaluation.

PER 297-0745 was reviewed after initial dispositioning was complete, but prior to presentation to the CARB. Significant deficiencies existed in the proposed resolution, such as not all of the identified deficiencies having corrective actions and the proposed corrective actions not addressing causes. The PER was subsequently withdrawn from the CARB agenda to continue corrective action resolution.

The CARB must also analyze the techniques of reviewers to ensure continuing improvement.

1.3 Trending and Evaluation (White)

WNP-2 uses a number of mechanisms for trending and tracking performance. For example, on a monthly basis, Quality prepares the WNP-2 Performance Indicator Report (i.e., a monitoring tool principally for management) and the WNP Performance Trend Report. The Performance Indicator Report is intended to provide management with data in selected key operational areas including safety, reliability, quality and efficiency. The report indicators are aligned with the WNP-2 Business Plan objectives. The Trend Report, on the other hand, focuses on human performance trends (it includes monitoring of Gold Cards). Input to these two reports is provided by the line organizations. In addition, most line organizations also maintain performance indicators that extend beyond those shown in the site-wide reports mentioned above.

Contemporaneous with the 1996 *Assessment*, management revised the Performance Indicator Report. This action was taken to achieve several objectives. First, the change provided better alignment with the key focus areas contained in the Business Plan. Second, the change reduced the size of the report so that management would have a simplified tool to aide its monitoring of Plant performance. Third, management intended for more detailed

monitoring to be the responsibility of the individual line organizations. These changes appear to have been generally effective.

During the 1996 *Assessment*, a concern was raised that the Performance Indicator Report was not well aligned with the areas for improvement suggested by the 1995 PES. If the Performance Indicator Report is the correct vehicle for management to monitor *Assessment* issues, then this earlier concern still remains. Currently, there is no report that periodically reinforces to management and the site as a whole the key 1996 *Assessment* issues. This situation suggests a lack of management attention to these matters and parallels the findings discussed in Section 1.1.3 of this report. Like the Trend Report, which focuses on a key area of concern to management (and is a strength in the trending/monitoring area), some means is needed to visibly track *Assessment* issues (and perhaps other important departmental self-assessment findings).

As mentioned above, WNP-2 line organizations have developed more detailed performance indicators to monitor their day-to-day progress. On their face, the indicators generally appear to be useful. However, there is some evidence that the indicators are not fully used and/or certain indicators do not provide worthwhile feedback. Department managers should review the indicators and their use to assure maximum effectiveness. One clear weakness is that the Operations Department uses a less comprehensive set of performance indicators than other line organizations. Given the importance of Operations to the Plant, more comprehensive monitoring is warranted.

An important tool for monitoring Plant performance is the PTL, which is maintained by Quality. Within the last year, Quality has made a number of enhancements such as creating the ability to initiate and disposition a PER electronically. These enhancements have made more information available to users for trending purposes (this includes the ability to perform full-text searches of PER resolutions). The Quality staff has also continued to make daily improvements to PTL in response to the needs of line organizations (e.g., expand the database fields available for documenting information and creating trending/cause codes). These efforts demonstrate proactive efforts on the part of Quality staff responsible for PTL upkeep. The NRC's findings appear consistent with these conclusions (i.e., Inspection Report 96-202 stated that the "[t]racking of issues and trending of problems using cause codes are strengths and help identify adverse trends").

While the PTL as a tool is basically effective, some weaknesses have been self-identified concerning the use of the system. For example, Audit 297-050 identified there is insufficient guidance on "how to search the PER database on PTL to achieve consistent, repeatable, and complete results." This finding is currently being addressed, in that the Quality staff has developed a draft desktop instruction with expanded guidance on using PTL.

1.4 Corrective Action Systems (White)

Corrective action program procedures and processes were satisfactory and reflected changes typical of a growing and improving program. The overall number of PERs issued was typical of several other sites using similar programs and reflects an involved workforce and an appropriate threshold for action initiation. Consideration could be given to assessing, on a routine basis, the organizational level at which PERs are being initiated. This would ensure a continuing effort to drive the identification of issues toward the working level of the operating organization.

The number of people dedicated to the administrative aspects of the program (i.e., reviewing incoming PERs for keywords, reviewing the category of importance, doing basic database reviews for obvious prior occurrences, etc.) is small but efficient. Interviews indicated very good understanding of the program and management expectations. The capabilities of the corrective action system as a tool for identifying trends are quite good. Effective use of the system is comparable to other sites, but continues to present many challenges to WNP-2. Improvements are necessary.

Issues discussed in the previous *Assessment* involved two major areas which still remain concerns to management and corrective action program personnel. The concerns are that some PER issues are identified on Gold Cards without generating a PER and many PERs identify repeat occurrences. Gold Cards are discussed below and repeat occurrences are discussed in the Root Cause Analysis section.

During the assessment period, Quality was conducting a review of Gold Cards issued during the year. Some 7000 were reviewed, of which 60 appeared to need more investigation to determine if a PER should have been issued. Significant emphasis continues to be placed on establishing a clear-cut threshold on what precisely is the criteria for initiating a PER. This emphasis does not coincide with the general tendency of the site to keep procedures as flexible as possible in order to minimize the possibility of noncompliance. SWP 1.3.12 provides reasonable identification criteria for PERs, but should not be expected to provide guidance for every variation of occurrence. The periodic review by Quality with feedback to management, coupled with the attitude that if in doubt about a Gold Card issue, initiate a PER, provides assurance that adverse issues are being identified and corrected. There were no instances where a significant condition adverse to quality was identified on a Gold Card and not on a PER.

The tracking and accounting of corrective actions proposed by PERs was well defined and understood. The number of PERs opened and closed year to date was good. The associated corrective actions were tracked very closely.

The guidance for some special cases of corrective action, while not always clearly documented, was understood by affected program personnel. An example of such a special case is precise linking of issues that are identified on one PER and rolled over to another

PER which addresses the generic issue. These "rollover" issues have caused significant problems at other sites where they have lost track of the details of the transferred issue and not always fully implemented appropriate corrective actions.

An attitude observed at WNP-2 is also typical of other sites using similar corrective action systems. That is the tendency to feel that once an issue is documented on a PER, the system will take care of it. It becomes impersonal. The attitude that the corrective action system "paper" drives the work at WNP-2 contributes to the difficulties in the program. A "World Class" corrective action system is one where people aggressively and collectively pursue issues and corrective actions and the system "paper" follows behind, documenting what has been completed. Many PERs should be documented and completed within a couple of days, rather than waiting for the approach of a 30-day deadline.

The use of IRBs (PPM 1.1.8) surfaced during the assessment period because an event which occurred on one shift and then reoccurred on the following shift (PER 297-0745). The event appeared to meet IRB criteria but none was initiated. Another example was identified during discussions with Operations members of the team.

The initiation criteria for the IRB is general and provides flexibility in its use; however, during the period between September 1, 1996 to present, ten IRBs had been initiated for the thousand plus PER issues documented. While an exhaustive investigation was not performed of the PER/IRB process, the perception of several team and staff members was the IRB did not reflect the lower threshold of initiation of the on-shift "critique type" process used for initial information acquisition following an event. This is a process that, if performed in a disciplined fashion, will provide an enhanced base from which root cause analysis can begin and, in many cases, would be all the investigation and documentation necessary to adequately resolve many PER conditions. The critique/IRB promotes peer-level relationships and interactions by using collective and timely resolution of issues and may well be the most underutilized asset in the continuing improvement of the corrective action program. Industry information exists on the critique process.

2.0 OPERATIONS (White)

Summary

Operations overall performance has remained the same during the last 18 months. Improvements in Safety Focus, Quality of Operations, and Programs and Procedures were observed. Performance in Management Involvement and Problem Identification and Resolution remains weak, but shows increased attention. Further weaknesses remain in the areas of control room out-of-service components, management oversight observations, computerized work systems (Passport/Baseline), clearance order discrepancies, and station ownership.

Identified strengths include consecutive breaker-to-breaker runs, Shutdown Risk Assessment ownership, zero mode change and refueling errors in spite of numerous challenges, zero Plant startup errors, and an excellent control room command and control routine. These indicate a high level of procedure adherence, good prejob briefs, and good coordination and cooperation between Operations and all other disciplines.

2.1 Safety Focus and Management Involvement

2.1.1 Safety Focus (White/Red)

This section examines the various aspects of nuclear and personnel safety applicable to the Operations department. Operations has missed opportunities within the nuclear safety area, as evidenced by a fuel bundle insertion error (296-0391), foreign objects discovered in the wetwell post close-out inspection (297-0315), two control rod mispositioning events (297-0055 and 297-0636) and a small power excursion during Moisture Separator Reheater realignment (297-0186). Procedures are in place and appear to be adequate to prevent recurrence. Operations has continuing problems with tagging errors. In fact 40 percent of Operations PERs are related to clearance orders, both in the field and during administrative duties.

Prior to startup from the R-12 outage, Operations management selected a team of Senior Reactor Operators (SROs) to evaluate the operability of systems prior to mode change. As a result, there were no PERs related to mode changes during R-12 (two mode change incidents from R-11 were reported in the last *Assessment*).

Shutdown Risk Assessment has shown an improvement since the last *Assessment*. Operations, as well as WNP-2 Plant management, is extremely sensitive to Shutdown Risk Assessment. Operations reviews the daily schedule to ensure it reflects the Shutdown plan. To heighten the awareness of all station personnel, placards have been located in the control room and throughout the Plant and in

out buildings displaying the defense in depth associated with shutdown systems availability.

Operations has had two personnel safety incidents since April 1996, one of which resulted in a lost-time accident. Additionally, fire extinguishers were identified with expired annual inspection dates (PER 296-0397) and a sodium hypochlorite spill resulted from inattention to detail (PER 296-0559). No injuries were sustained from this event. Operations continues to conduct monthly on-shift safety meetings at which the current safety issues and occurrences are discussed.

In some instances, Operations has shown a lack of a questioning attitude. One example is an incident involving a control room annunciator for Low Pressure Core Spray Service Water Low Flow, SW-FS-19. This annunciator remained in alarm during pump operation (Work Order GSM7). Rather than addressing the problem, control room staff dispatched an Equipment Operator (EO) to monitor cooling flow on the running pump. This operator workaround was not addressed in Operating Instruction (OI)-14 and was treated like "business as usual."

Operators do not consistently take ownership of problems. Control Room deficiencies (CR/CT) have remained at a level greater than the WNP-2 goal of $\leq$18. Review of other Plants and operator interviews revealed that a goal of less than 10 CR/CTs should be considered. While many examples exist of operators having a questioning attitude and avoiding problems or getting problems resolved, this behavior is inconsistently displayed among Operations shift staff.

Operations is sensitive to conservative decision making, as indicated by observed pre-job briefs, shift meetings and collective discussions during Plant maneuvering. Even with this heightened sensitivity, a few instances of less than adequate conservatism were observed, including a post-shutdown scram on low level (PER 297-0245), surveillance tracking deficiencies (PER 297-0059) and a failure to enter a required action statement (PER 297-0752).

OI-22, Plant Pre-Job Brief, appeared to be adequate. Operations uses the pre-job brief form for many evolutions. Control Room Supervisors go into detailed description of what is to be expected and the normal and abnormal procedures to be used, as well as thoroughly reviewing precautions and limitations, what to look for, and how to react when an uncertainty arises.

Work schedule review still allows conflicts to go unnoticed. An example of a conflicting schedule occurred in October 1997 when half-scram surveillances were scheduled at the same time as control rod scram time testing. In accordance with procedures and as placed on the schedule, scram timing requires no half scrams for the 24 hours prior to the time test. Operations appears to be attentive to keeping the schedule worked and on track. Operators work hard at coordinating

with craft personnel. Some holdups have existed, but mostly the Operations staff is schedule sensitive.

Licensed Operator training reviews related industry events and incorporates these into the operators' training week. Along with industry events, Operations is required to respond to applicable Significant Operating Event Reports (SOERs). Since the last *Assessment*, 12 OERs have been sent to Operations staff for disposition with only 2 currently open.

2.1.2 Management Involvement (White/Red)

Management involvement appears to be on a downward trend. Operations management involvement appears to be less than aggressive, with a lack of ownership taken or assigned to obvious problems such as operator workarounds (decreased but still incomplete), control room deficiencies (too many and continued ownership problems), clearance order discrepancies (continues at a high rate) and management oversight observations (a tremendous decrease).

Operations management routinely meets with the crew during the training week and is part of the assessment team that critiques crew performance during simulator evaluated scenarios. Operations management has separate meetings with the Shift Managers, Control Room Supervisors, Reactor Operators and Equipment Operators. Interviews with on-shift personnel indicated that Operations management is not seen in the control room as frequently as liked (the same was indicated about Senior Management), but the staff does enjoy the time set aside during the training week for the Operations Boss Talk.

Operations management expectations depicted in PPM 1.3.1, Operations Policies, Programs and Practices, and OI-26, Management Expectations, appear to be weak and somewhat duplicative. Supervisory and peer oversight activities have dropped significantly. In 1996, approximately 500 oversight forms were completed compared to less than 100 this year.

OI-9, Expectations For Supervisory and Peer Oversight, appears to be adequate but is currently being upgraded. Completed OI-9 oversight forms have dropped off significantly during this *Assessment* period. The majority of the oversight observations were performed in the control room, while only three percent were on EO rounds. A lack of interest in supervisory oversight related to EO rounds is a recurring theme noted by INPO assist visits both in 1994 and 1995.

OI-14, Operator Workarounds, discusses and lists Operations procedure and equipment workarounds. Ten workarounds are currently listed and, as indicated earlier, no ownership is attached to these workarounds. Some workarounds still do not have scheduled completion dates, a recurring issue noted in a 1995 INPO as-

sist visit. Operator workarounds are down from the 44 indicated in the last *Assessment*.

Management attention to the equipment backlog has been poor in the past, but the creation of the WIN Team should add focus to this issue. The team is designed with the expectation and goal of reducing the backlog to a more manageable number.

Control room staff were observed to function well as a team. Command and control in both the Plant and simulator shows this practice is in place and continually monitored and evaluated. Good communication skills were observed both vertically and horizontally. However, during a recent training observation, the Shift Manager became so involved in the details of the exercise that he failed to recognize entry into the Emergency Operating Procedures (EOPs).

2.2 Problem Identification and Resolution

2.2.1 Problem Identification (White)

Operations staff is aggressively identifying problems in the Plant. In fact, the Operations organization is writing most of the PERs and Work Requests (WR). Operations needs to continue its emphasis on this practice. With increased management encouragement and oversight, this process can be elevated to the next level of performance.

A gray area exists between PERs and Gold Cards relating to identifying procedural non-compliance issues. Some Operations department members believe the PER resolution process is too cumbersome and requires unnecessary work. Frequently the problem is documented and fixed via a Gold Card.

In support of the PER process, Operations staff recently attended a week-long RCA training session to enhance their ability to perform accurate root-cause assessments.

Three self assessments were performed by Operations staff. The Clearance Order Process (SA-97-021) assessment resulted in five PTL action items, four are closed and only one was assigned to Operations. A review of this assessment showed no work performed on historic, current or recurring problems, but rather on how the process is performed. Consequently, this assessment did little to aid in the prevention of clearance errors as referenced by PER 297-0730. The Mode Change Readiness (SA-97-025) assessment was requested by the Plant General Manager to address mode change issues that had occurred during the 1995 and 1996 refuel outage. The third self assessment, Operations Training Program (SA-97-010), resulted in eight recommendations.

2.2.2 Problem Resolution (White/Red)

Problem resolution in Operations needs increased attention. PERs are being resolved, but recurrence in some areas still continues. Clearance order and procedural non-compliance problems continue to persist. These two categories account for approximately 80 percent of Operations PERs. During this report period, Operations received a Level IV violation from the NRC dealing with untimely problem resolution and failure to document degraded or inoperable conditions in a PER.

Operations shows interest in problem fixing, but ownership of these issues is not apparent. Discussed earlier were examples of a lack of ownership associated with CR/CTs and Operator workarounds. Follow-up Assessment for Operability (FAO) also shows little Operations ownership. Operations needs to take ownership, become more of a demanding customer and get problems resolved in a timely manner.

Since April 1996, 120 PERs were dispositioned by Operations with 27 still open awaiting action. The oldest open PERs are dated June 1996. The PER coordinator felt this was not a significant backlog.

Operations assesses each new work request and assigns the priority. A team, consisting of the Work Control Shift Manager (SRO), the duty Shift Manager (SRO), FIN Supervisor and Work Week Leader, reviews the previous night's initiated work requests and assigns the priority. The duty Shift Manager will bring to the group concerns from the night shift on priority assignments to troubled equipment. Any Operations crew member can discuss a priority rating with the Shift Manager for a change if needed.

Upgrading Operating Instructions and other enhancement programs are in place to help resolve some of the long-standing and repeated Operations issues. Other programs include a Refueling Operators and Supervisors annual refresher session, a procedure writers annual conference, and a Shift Managers development course at INPO. Operations personnel have attended WESTRAIN sessions for control room command and control functions. The INPO Shift Managers Development Course program was positively viewed by several interviewees.

The effect of these enhancements is still in question. The Oversight Program, detailed in the Operating Instructions, has been less than adequate due to a lack of compliance. Root cause analysis training will need to be reevaluated in the future, but is a positive step for Operations. The level of detail of normal and abnormal operating procedures and the procedure backlog reduction provide evidence of the effectiveness of some enhancements. The refuel refresher course appears worthwhile. With hundreds of fuel and component moves, including cell disassemblies

and Low Power Range Monitor replacements, only one fuel error in R-11 was made (full core off load) and none in R-12.

Another ongoing and positive program at WNP-2 is live fire fighting. Many facilities are required to go offsite to perform a live fire fight. This training is a requirement for Fire Brigade Leaders.

Operations needs to become more of a demanding customer. Operations on-shift staff are inconsistent in their approach to problems. Operations management should continue to reinforce desired behavior, possibly through the use of license training scenarios in which control room staff could be forced to be a more demanding customer or the scenario would fail.

2.3 Quality of Operations (White)

Operations performance is improving as evidenced by two consecutive breaker-to-breaker runs, zero refuel errors and zero mode change errors. With increased management oversight encouraging and enforcing good watchstanding skills and work practices, this section could advance to White/Green. Management expectations are clear in striving for excellence; however, a clear definition of "World Class" has not been provided.

Operations still must focus on the clearance order process issues and human performance errors related to procedure non-compliance. Operations is a high-quality organization made up of high-quality personnel, but appears to be on a track to remain average.

During this assessment period, Operations has been assigned 120 PERs, most of which were caused by Operators taking incorrect actions (e.g., valves and/or switches left out of position or not returned to the correct position). Other causes for PERs include Operations personnel not performing good watchstanding practices or leaving and/or missing opportunities to correct errors.

Operations training is very effective. Several simulator scenarios were observed. Good command and control, procedure usage, board operation and communications were demonstrated. Licensed and non-licensed operators are satisfied with the training program. An end-of-week meeting is held with the crew and Training to discuss strengths and weaknesses observed by both departments and enhancements to future training. Training also has incorporated a self-check skid used by both Operations and Maintenance to enhance skills in the area of Self-Checking/STAR.

With the implementation of ITS, Operations has had extensive training, including mock ITS events. Operations has been conservative with this implementation by

frequently calling Licensing for back-up to ensure compliance. Quite often the on-shift SROs and STAs discuss technical specifications and operability issues with each other and with the Reactor Operators. Operability issues have arisen since the last reporting period, as evidenced by several PERs. Examples include a component that was declared operable without completing all required testing (PER 297-0600), an unidentified leak-rate monitor found isolated (PER 297-0642), containment isolation valve (TIP-V-6) not verified closed (PER 297-0653), identified leak-rate determination unnecessarily delayed (PER 297-0752), and a broken seal wire discovered and inoperability determination delayed on CIA-PCV-2B (PER 297-0663). Operations is aggressive in addressing issues when found, but not as aggressive at finding and preventing inoperable situations.

Three-way communication is assessed by an OI-9 observation form and challenged and evaluated constantly during the training week. Operations shift crew members remind each other to use three-way communications and enforce this method when interfacing with other departments.

2.4 Programs and Procedures (White/Green)

Programs and Procedures show improvement with an improving trend. Operations programs and procedures are continuing to be upgraded and appear to be quite good. The procedure writers are willing to respond to Operations' needs. Procedure workarounds are minimal and in some areas, especially Radwaste, have been removed. The procedure change backlog is small. Twenty PERs, relating to procedural enhancements for Operations, were found, with only two currently open. With continued support and oversight in procedures and programs, this section can be Green.

All major procedural changes are made immediately. During interviews, procedure writers said that many Plants had well over 1000 backlog issues with some having over 1500. Approximately 60 items are currently on the Operations Procedure Change Request backlog. Although procedure workarounds still exist, few were found and the trend is improving.

Electronic logs are not fully implemented. The EOs are using this system and are experiencing problems with the new Windows 95 application. The control room has yet to convert to electronic log taking, but the control room narrative logs are kept electronically and this is well received by Operations and the Plant. Equipment required by Technical Specification, such as Limiting Conditions for Operation (LCO), License Control Specification, Offsite Dose Calculation Manual, Required for Operability, and Maintenance Rule Effected are logged and tracked electronically when removed from service or declared inoperable. Currently, valve and electrical lineups are being converted to the electronic log hand-held system. The availability of this tool should reduce the number of repetitive equipment checks, the chance

of missing components, and dose. Management support for this conversion is needed.

3.0 ENGINEERING (White)

Summary

Overall performance in the Engineering area is average, reflecting improvement since the last *Assessment*. There is a continued reduction in work backlogs, fewer overdue responses, improvement in work product quality and Plant support, increased fulfillment of qualification and training requirements, and initiatives in the Engineering Strategic Plan to address many of the identified areas for performance improvement. These accomplishments have contributed to the recent breaker-to-breaker run; continued Plant operation since the last refuel outage; continued safety system availability in excess of station, Maintenance Rule and INPO goals; and a generally positive perception by other Plant organizations of Engineering support and technical competence. Though progress is being made, Engineering faces challenges in the areas of personnel turnover, retention of design basis knowledge, work product consistency, large backlogs, process inefficiencies, and emergent work. As identified through a review of recent inspection reports, assessments, and Licensee Event Reports (LERs), Engineering has demonstrated some strengths, but continued weaknesses are noted.

Management expectations, defined roles and responsibilities, and certification and training requirements are well aligned. Involvement in the 12-week planning process has improved, as has troubleshooting and technical support of the Plant. System improvement plans have been prepared and are maintained, but several older issues are contained in these plans that should be resolved or evaluated for continued applicability. System performance monitoring, a formal system turnover process, and consistent organizational performance were identified as areas for continued improvement.

Backlogs, while excessive, are under control and work product quality has improved. While work products tend to be technically correct, inconsistencies in work product quality still persist. These inconsistencies are due in part to the need for improved training and tools to support design and license basis understanding. Overall work backlog continues to decline, but progress in select areas has not continued over the last twelve months. Some work process improvements have been identified that have not been implemented. Lessons learned from the Adjustable Speed Drive (ASD)/ Digital Feedwater (DFW) modification have been incorporated into how the organization performs work. Consistency in work products, design basis documentation, process streamlining, and design information indexing and retrieval systems are identified as areas needing improvement.

Recent inspections, audits, and surveillances have rated the implementation of various programs from adequate to excellent. More timely implementation of identified process improvements and improved documentation of program bases were identified as areas for continued improvement.

Improved market conditions have resulted in an increased loss of qualified engineering personnel. Actions have been taken to address many of the issues associated with turnover, but continued actions are required to better institutionalize design and license knowledge. Actions to consider include increased emphasis on training, design document indexing, documenting design basis, maintenance of System Notebooks, mentoring, and formal turnover of Plant systems. Focus in these areas will improve design and license understanding and result in overall improvement in all areas of Engineering performance (work quality, effective problem resolution, problem identification, etc.). While these actions can mitigate the consequences of turnover, they cannot stop turnover from occurring.

3.1 Safety Focus and Management Involvement

3.1.1 Safety Focus (White)

Safety Focus has continued to remain strong over the assessment period. Plant personnel are confident they receive management support when safety concerns are identified. Examples were noted where both industry data and System Engineering walkdowns were used to detect and correct equipment deficiencies. Engineering backlog in areas that affect Plant operation have declined overall but continued progress has not been observed over recent quarters. Engineering operability determinations and 50.59 safety evaluations are technically correct, but improvements in documenting the basis for follow-up corrective actions and configuration control were noted. Additionally, examples of the need for increased sensitivity to the importance of an accurate FSAR and license basis were noted. A Quality Department Surveillance identified that one Equivalent Change and one Temporary Modification were incorrectly screened as not requiring a 50.59 safety evaluation. Neither resulted in an unreviewed safety question; however, the screening process was strengthened to prevent future recurrence. There have been no significant human performance errors in Engineering during the last three months (July through September).

Operability determinations are technically correct and decisions of operability are rigorously challenged. Areas for improvement include providing the basis for increased monitoring activities, clearly indicating to what extent such activities are required to support operability, better understanding the effect of corrective actions on the license basis, and enhancing long-term configuration control corrective actions to prevent recurrence. For example, a recent FAO on the Source Range Monitor-C detector concluded the testing performed to date demonstrated operability. In the same section of the FAO, it was further noted that twice-weekly testing would provide on-going confirmation. The FAO is not clear on whether testing was required, who was to perform this testing, nor for how long. In other FAOs, increased monitoring was established for a specified period to demonstrate operability, but the basis for the established frequency was not provided (e.g., to detect degradation prior to reaching a state of inoperability).

Engineering work priorities are generally aligned to support the station and reduce challenges to safe operation. The number of outstanding temporary modification requests continues to drop (six total) and the number of active FAOs is low. The number of operator workarounds has remained relatively constant over the assessment period (nine open). Continued progress is required to meet the Engineering Strategic Plan goal of less than five.

Plant personnel generally regard Engineering as responsive and focused on addressing key station concerns. Engineering has begun to track and report the number of modifications not closed within 90 days of installation in the field on a monthly basis. This number has trended downward, as would be expected post outage. Focus areas for improvement include continued reductions in operator challenges and a review of maintenance and other department challenges to safe work activities. Continued tracking is warranted.

With the exception of concerns on the legibility of select sets of vendor drawings (Heating/Ventilating/Air Conditioning drawings) and the accuracy of the FSAR, Plant documentation is generally considered current and accurate by various site organizations. A major project was initiated to review and revise the FSAR that includes involvement of Engineering. Though the overall backlog of Engineering work is trending down, the number of outstanding drawing changes remains relatively constant and has increased recently. Additionally, the number of calculations with more than five outstanding Calculation Modification Records has also remained relatively constant.

Overall performance in the area of Maintenance Rule implementation was noted as adequate in a recent inspection, but required improvements in training and guidance were identified. System engineers have a good understanding of materiel condition and an improvement plan for resolution of key concerns. In the first quarter of 1997, the number of a(1) systems increased from four to seven. As of the third quarter, the total remains at seven, but corrective action plans have been established to resolve many of the identified concerns. An initiative is included in the Engineering Strategic Plan to resolve issues identified during the Maintenance Rule inspection.

The Plant Safety Analysis (PSA) group continues to be a strength in assessing the risk of on-line maintenance and shutdown activities. Examples were cited by work planners. Members of the PSA group are contacted for support by various site organizations. PSA insights have been used in select modifications, LERs, programs (Motor Operated Valve [MOV] Program, Check Valve Program, etc.), and 50.59 safety evaluations.

3.1.2 Management Involvement (White)

Management involvement in the Engineering area has improved since the last *Assessment*. Management is aware of the key issues affecting both Plant and Engineering performance and is generally applying resources to address these issues. Perform-

ance is being maintained or improved in areas previously assessed as requiring management attention. Challenges facing Engineering include attrition of key personnel, work product consistency, large backlogs, and emergent work. Management is taking actions to address these challenges. Additional areas for management attention include improving design and license basis knowledge through improved documentation, training, and mentoring, improving select work processes to perform work more efficiently, mentoring Engineering personnel for improved performance consistency and developing long-term issue sponsors at lower levels in the organization.

Job rotation, 100 percent attendance at required training, high percentage of completed qualification cards for various engineering job functions and the relevancy of topics presented in continuing training are all examples of management commitment to improving Engineering capability and career development. Qualification requirements of System, Design, and Project engineers align to defined procedural responsibilities, management expectations, perceived job responsibilities, and initiatives contained in the Engineering Strategic Plan. Top work priorities were understood by Engineering personnel, as reflected in positive comments received from Plant customers and the use of a common priority list by the Plant. Though some opportunities for improvement were noted, Plant personnel generally have a favorable view of Engineering support. Long-term Plant improvements continue to receive management attention, such as Hydrogen Water Chemistry and the installation of the ASD/DFW control systems. Initiation and sponsorship of long-term improvements resides largely with senior management and should be developed at other levels in the organization.

System Engineering involvement in the 12-week work planning schedule has improved. Supervisors are assigned as a point of contact during the work week windows and system engineers are actively participating in work prioritization and planning. Operations and Maintenance have both noted routine presence of system engineers on a weekly basis in the control room and maintenance shops to discuss system performance. Improvements in system walkdowns and Plant interface have been made, but performance is not consistent across the entire organization.

Management has applied contracted resources to reduce engineering backlogs with demonstrated results. Engineering has maintained this performance, as demonstrated by continued overall reduction in backlog. Backlogs are still high, however, and a noted area of concern, particularly by Reactor Engineering personnel.

Increased personnel turnover was noted as a significant concern by Engineering and other departments. Engineering management is undertaking initiatives to acquire additional personnel and address incentives. Some efforts are underway which will partially compensate for the loss of personnel, such as improved design basis training and review of Design Requirements Documents (DRD) content. These efforts are not sufficient to institutionalize design and license knowledge. For example, the System Engineering turnover process has not been formalized. Management has established the

expectation that system engineers are the system "design basis authority." Clear guidance on the specifics of this expectation and the associated tools and training needs have not been fully defined.

Engineering has established a set of performance indicators that are issued on a quarterly basis showing trends in work backlog, training attendance, dose, significant PERs, etc. These indicators are useful in demonstrating organizational performance and progress towards Engineering Strategic Plan goals. However, opportunities to improve various indicators and their use were noted. For example, outstanding work backlog is not one of the inputs to the system condition window. Also drawing backlog is measured as a percentage of total active drawings versus the more commonly used drawing sets, such as top-tier drawings. These indicators have been used to present Engineering performance to outside organizations, but have not been fully used as a management tool within Engineering.

3.2 Problem Identification and Resolution

3.2.1 Problem Identification (White)

Engineering performance in the area of problem identification continues to remain adequate over the *Assessment* period. The number of PERs initiated by Engineering remains relatively constant (24 percent through mid-October 1997 versus 28 percent in 1996), as does the percentage with respect to other site organizations (second to Operations in total number identified). The number of emergent work items, however, remains relatively high, which may indicate the need for a range of actions, including increased attention to proactive performance monitoring and preventive maintenance activities. Though specific examples were not found, a high work backlog can contribute to ineffective problem identification. Continued management focus on reducing this backlog is warranted.

In response to concerns noted in the previous *Assessment*, a Technical Instruction was issued on performing troubleshooting and preparing a troubleshooting plan. Implementation of this instruction, combined with the ongoing certification of Engineering in the operator-type certification class, have resulted in improved plans, contingency actions, and test execution, as noted by other Plant organizations.

A recent project was initiated to review the FSAR to identify and correct inaccuracies. The initiation of this effort is responsive to previously identified concerns regarding the accuracy of the FSAR. The initial reviews are performed by contractors, with a review of the results by Engineering. Work priorities, the need to support the Plant and the need to address backlog concerns are competing for time to devote to the FSAR reviews. Increased management involvement is required to ensure Engineering reviews are thorough and subsequent action is timely and corrects inaccuracies.

Operating experience reviews are performed in a timely manner. Recent LERs have been issued as a result of these reviews demonstrating acknowledgment of Plant applicability and use of a questioning attitude. A recent Quality audit concluded that the OER Program appears effective in preventing industry-related occurrences at WNP-2. System engineers continue to demonstrate strong ownership of system hardware concerns through participation in the 12-week window and use of system improvement plans. Examples of equipment performance issues identified in routine system walkdowns were noted in a sampling review of recent PERs.

The Engineering Strategic Plan includes the conduct of self assessments in each organizational area for 1997. The Engineering Calculation Self Assessment was recently completed within the Design Engineering organization. The assessment identified improvement areas in indexing, filing, and document linking to better support future document retrieval and access by less experienced personnel. The subject areas of future self assessments are well aligned to evaluate areas where needed improvements have been identified (e.g., outage readiness, equivalency process, and system performance monitoring).

3.2.2 Problem Resolution (White)

Engineering problem resolution has improved since the prior *Assessment*. The previously identified accomplishments provide evidence of this improvement. A special project team was established to resolve ASD/DFW modification concerns to achieve required system performance goals. Plant materiel condition continues to remain good.

Engineering is continuing actions to reduce the backlog though it remains high in many areas. Some system improvement plan actions are three to four years old or more. A separate Plant team has been established to address the high corrective action work order backlog.

In January of this year, Quality identified an adverse trend in the number of overdue PER actions, primarily from Engineering. The number trended upward from 5 in June 1996 to 33 by January 1997. In response Engineering contracted additional resources to resolve the issue.

Long-term issues, such as hydrogen water chemistry, continue to receive management attention due in part to their continued sponsorship by senior management. Sponsorship for these issues was not routinely apparent at other levels in the organization.

A review of PER assessments concluded the assessment and actions taken were, in general, adequate. A recent Quality audit concluded that resolutions to equipment problems were effective, but corrective actions to address human errors were not always effective. Some opportunities to improve PER scope and corrective actions were identified. For example, a PER was issued to correct instrument setpoint discrepancies

in an FSAR Figure (as compared to controlled Instrument Master Data Sheets). Corrective actions included correcting the FSAR Figure and discussing the issue in 50.59 training. The PER did not expand the review to identify discrepancies to the setpoints of other systems contained in the same set of figures. As this PER was not closed, actions were taken to expand the review and address these additional figures. As discussed in Safety Focus, concerns with the quality of specific FAOs were also noted, indicating the need for continued improvement.

3.3 Understanding Design (White/Red)

Continued improvements were noted in understanding design and license basis. Significant actions are still required to improve tools, training, and turnover processes to maintain Engineering as an effective design basis authority. Many of the actions undertaken by other utilities to prepare design basis documents, improve design document indexing and retrieval, acquire Nuclear Steam Supply System (NSSS) design information, and perform internal Safety System Functional Inspections have not been pursued at WNP-2. Investments to better control and understand safety and operational margins are becoming more critical as personnel turnover increases. Problems with work product quality still persist that can be largely eliminated through increased design understanding and sensitivity to the importance of license basis documents.

Understanding design and license basis is key to quality of engineering work, effective problem identification and resolution and safety focus. Though improvements have been made in other areas, some problems still persist in work product quality, thoroughness of evaluations, and sensitivity and knowledge of license basis documents. This is reflected in concerns expressed by the CNSRB regarding 50.59 safety evaluation quality, inconsistent quality in modifications as noted by the Design Review Board (DRB), the need for license submittal clarifications, and weaknesses identified in recent inspection reports. Two recent LERs were issued as a result of improper calculation assumptions which resulted in non-conservative instrument settings. However, it should be noted that these calculations were prepared prior to this assessment period.

Emphasis on Engineering training and certification has improved and the attendance rate at required continuing training is 100 percent. The topics covered in continuing training address many of the technical areas where improvements in design understanding have been identified. Improvements to training and mentoring are still required, however, to improve work product consistency. Increased personnel turnover is contributing to weakness in the area of understanding design. Actions are in progress to improve training, address personnel turnover and review the content of select design documents for possible enhancements, but additional effort is required.

Engineering is performing self assessments in many key areas where weaknesses have been identified (e.g., equivalent change process and outage readiness). However, the planned assessments do not address the use and knowledge of design and

license basis directly. In response to the NRC 10CFR50.54(f) letter, it was noted that the benefits of additional Safety System Functional Assessments and DRD reviews would be evaluated. However, no commitment to perform such assessments was included. The Engineering Strategic Plan includes actions to develop an improvement plan for Design Bases, but this plan is currently an accumulation of related actions without a clear focus toward improvement of design understanding.

DRDs were prepared to provide a road map to other document sources for key system design information. It has been noted in more than one inspection that these documents require update and could be improved by including additional information on design considerations. For example, Generic Letter 89-10 requirements for MOVs has not been incorporated into the affected DRD. Although useful as a road map, these are not design basis documents and do not provide the bases behind the selection of specific design requirements. Some key topical areas are not covered by existing DRDs, such as Station Blackout and Anticipated Transient Without Scram. A recent Engineering self assessment of the calculation process concluded improvements are needed in the indexing, filing, and linking of calculations to other design documents for improved use by personnel who do not possess a long history of Plant familiarity.

3.4 Quality of Engineering Work (White)

Engineering work products are adequate and have improved since the prior *Assessment.* During the NRC sponsored A/E Design Inspections, it was concluded that the design of systems was generally acceptable and the systems reviewed were capable of performing their intended safety functions. In general, work products are technically correct and resolve the issues, but concerns with consistency in quality still persist, as noted through a sampling review of 50.59s, PERs, Field Change Requests (FCRs), FAOs, DRB meeting minutes, inspection reports, and meeting minutes of the CNSRB. Improvements in Engineering work products in support of license submittals are also needed. WNP-2 technical position and basis is not always clearly communicated leading to confusion and the need for subsequent follow-up submittals and clarifications.

A sampling review of PERs was performed. Although the documents were found to be adequate, improvement in the scope of reviews was needed and one case was identified that resulted in the need to expand the defined corrective actions. Root cause evaluations are improving, as reflected in a reduction of the number of CARB rejections.

Five FCRs were selected, based on title, to assess the need to revise the original modification 50.59. All five FCRs correctly determined that revision of the 50.59 safety evaluation was not required. As noted in Safety Focus, recent FAOs were reviewed and various opportunities for improvement were noted.

A Design Review Board was established in Engineering to review modifications prior to submittal to the POC and ensure a consistent quality package is produced. Actions of this Board have improved the quality of modification packages and reduced the number of submittals initially rejected by POC. A large number of modifications are initially rejected by the DRB because of the need for required enhancements unrelated to safety significant issues.

The CNSRB 50.59 Committee requested the issuance of a PER to investigate the quality of 50.59s and identify any weaknesses found to the organizations performing the evaluations. In response to this PER, the specific safety evaluations were corrected and additional training was provided to the group in question. Enhancements to the training on 50.59s and a new continuing training course on use of design basis have also been initiated. Concerns remain with the quality of 50.59s done by individuals who do not perform them on a frequent basis or rely heavily on outside vendors.

3.5 Programs and Procedures (White)

Improvements in Engineering Programs and Procedures were noted since the previous *Assessment*. Although areas for improvement were noted, results of the Maintenance Rule inspection, NRC sponsored A/E Design Inspections, Quality Department Surveillance and Audit Reports and a recent PSA Peer Team assessment indicate program implementation ranges from adequate (Maintenance Rule) to excellent (PSA). A recent Fire Protection Audit concluded the program is effectively implemented and adequate procedures are in place.

Recent process improvements have been implemented to require a complete modification package, including all FSAR and procedure changes, be prepared prior to POC submittal. This provides added assurance the package is closed in a timely fashion and provides complete aspects of the modification for POC review. A DRB was established to review the quality of modifications prior to POC review. Although the number of modifications rejected by the Board is still relatively high, the overall quality of modifications is improving and the rejection rate by POC is dropping. Further actions are required to improve modification quality to the point that the DRB can be eliminated.

Prior Engineering self-assessment and benchmarking activities have identified design modification process improvements. Some of these needed improvements have not been addressed. For example, additional emphasis should be placed on a scope freeze date for Engineering design in support of the outage. This will improve organizational efficiency and help ensure only truly emergent items are added subsequent to the freeze date, not re-prioritized issues.

Vendor manual updates are performed in a timely manner and no concerns were noted by the various organizations interviewed. PSA results continue to be factored into online and outage risk assessments. Personnel are using PSA results in the modification,

50.59, and LER processes on a select basis. Preliminary results from a recent assessment performed by the BWR Owners Group PSA Peer Review Team indicate the PSA model is supportive of current applications, the maintenance and update process are excellent, software is useful, and the documentation framework and structure are excellent.

The previous *Assessment* noted System Engineering did not have a formal process for turnover of Plant systems and some cases of inadequate or non-existent turnover were noted. A formal process for turnover still does not exist, nor is it a specific initiative in the Engineering Strategic Plan. This action is more critical in light of increased personnel turnover.

4.0 MAINTENANCE (White)

Summary

The Maintenance functional area continues to improve, as demonstrated by Plant material condition, safety system availability and minimal forced system outage time. Organizational effectiveness should be addressed to improve coordination among departments and the work control process. Personal accountability and responsibility should be defined and implemented throughout the organization. Higher work standards are needed to continue improvement of Plant long-term reliability.

4.1 Safety Focus and Management Involvement

4.1.1 Safety Focus (White)

Safety system performance (as defined by INPO) consistently exceeds industry goals and is considered a strength. This focus on safety system equipment performance is one result of the work prioritization system and 12-week rolling schedule implementation.

The recent changeover to the Baseline Version (5.0.2) of Passport made it possible to change the status of work from "ready to work" to "working" in the field electronically without signing on to the clearance order for the work. This could have led to loss of control of work by Operations and Maintenance. Operations and Maintenance management resolved this potential issue by requiring a face-to-face sign on to clearance orders. This ensures that Operations is aware of all ongoing work in the Plant. The recognition and resolution of this potential issue indicates a safety focus by Maintenance management.

Non-outage control room instrumentation out-of-service has remained at unacceptable levels for the evaluation period. The current Plant goal is $\leq$18 out-of-service CR/CTs, and reducing to $\leq$10 by the second quarter of 1998. In July 1997, the FIN Team was assigned the task of repairing control room instrumentation as priority work. The number of instruments out-of-service has been reduced by more than half (35 to 14) from July 1997 through October 1997; however, this number frequently rises above the goal. Although improvement is noted in this important safety category, additional management attention will be required to maintain the number in the acceptable range.

The current backlog of Work Order Tasks (WOTs) >180 days old is around 200 and has remained at this level for the evaluation period. This backlog indicates a need for management attention to ensure system safety is taken into account on all work scheduled.

The station has not established a specific goal for clearance order violations; however, the management expectation for these errors is zero. During the evaluation period, five PERs were written for clearance order violations. There were also 23 PERs written for personnel errors. This area calls for increased management attention, craft training, and attention to detail.

The Maintenance Department lost-time accident rate meets corporate goals, which are aggressive when compared to industry (INPO) goals. This indicates a management focus on personnel safety. Also, during the assessment period, a computer program entitled "Sentinel" was brought on line to evaluate challenges to the PSA by maintenance work performed. This is another indication of Plant safety focus by Maintenance management.

One of the most notable improvements during the assessment period is Plant personnel dose reduction. Significant improvement in this area indicates a coordinated management effort by all Plant departments to achieve industry standards. The challenge to pursue "World Class" standards, especially with current requirements for an annual refueling outage, will require significant management commitment.

The following are examples which show the Maintenance organization needs to continue its focus on safety:

- A contractor used a wrench extension (cheater bar) to tighten a live-steam flange.
- A contractor was observed working on the wrong safety-related component on the wrong system.
- The Plant continuously changes the daily schedule with little planning or notice to involved groups.
- Operations did not hang clearance orders on weekend work due to power changes that had been scheduled for several months.

4.1.2 Management Involvement (White/Red)

Management involvement is measured against parameters established in the Plant General Manager's (PGM) Strategic Plan. Action items were developed to support the plan, assigned to department heads, and then entered into the PTL. Work Control and management commitment to the Plan are areas requiring attention. This Plan has the commitment of the PGM and department heads and is reviewed continually.

Although the Plan's action items are tracked and reviewed regularly, many of the important action items are significantly overdue (>six months). In addition, communication of the goals and their significance has not been effective in obtaining a general awareness of the Plan , nor department-wide buy-in to the goals at the supervisory and junior management levels within the organization.

Management has implemented the WIN Team in an effort to reduce the backlog of components effected work orders and the number of WOTs >180 days old. The team is comprised of representatives from all departments which enables work planning and control to be done by the team. This team, however, was formed in September 1997, and it is simply too soon for it to have shown significant progress toward backlog reduction. It is anticipated that this multi-discipline team will be successful in reducing backlog and, if successful, will be a prototype for a future approach to all work performed in the Plant.

Achievements in this area during the evaluation period include implementation of the 12-week rolling schedule and planning countdown, the Sentinel program, the work-week team concept, Passport Baseline and the WIN Team. Also, consistent excellent performance by the FIN team represents an ongoing achievement.

Schedule implementation problems, however, still exist. Schedule conflicts among the maintenance shops still affect daily schedule effectiveness and adequate shop loading. Schedule discipline (i.e., Plan the Work and Work the Plan) is not evident. Frequently, scheduled work is not performed and a significant amount of work, called "emergent" or "management prerogative," is performed without adequate planning, walkdowns, or parts.

Participation in, and commitment to, the daily schedule by all departments involved (Operations/Maintenance/Planning, Scheduling, Outage [PSO]/Health Physics/etc.) is not evident. Schedules which have gone through the 12-week process are changed daily without significant management involvement. Walkdowns of scheduled work are not always performed in accordance with procedure. Craft supervisors are not removing barriers to performing work. In general, craft supervisors are not spending enough time in the field. Most supervisors spend <25 percent of their time in the field. Some spend significantly less. The adequacy of pre-job briefs is spotty. Some are excellent, while some are performed by rote and, thus, do not communicate the appropriate need for attention to detail.

The Plant has no dedicated area set aside for storage of specialty tools. As a result, specialty tools (e.g., turbine, feedwater pumps) are scattered and not kept in sets available for work on this equipment. When work is scheduled, significant time and effort is expended locating the specialty tools.

4.2 Problem Identification and Resolution

4.2.1 Problem Identification (White)

Several programs are in place to identify problems and raise them to the appropriate management level for resolution. However, the sporadic implementation of corrective action programs, inconsistent quality in reporting problems and the lack of timely issue

resolution has caused frustration for craft workers and supervisors. Many do not believe the implementation of these programs is effective. These are issues regarding change management which need to be addressed. Adequate training of Plant personnel and follow through in problem resolution need to be significantly improved. Mechanical issues (i.e., equipment/technical problems) are addressed quickly, while "soft issues" (e.g., management, planning, time management, and behavior management) are not addressed in a timely manner.

4.2.2 Problem Resolution (White/Red)

The work management process does not currently deliver enough work to keep the maintenance shops fully utilized. Schedule conflicts between shops for work on the daily schedule occur frequently. On most occasions, this is electrical or I&C work scheduled on a system that is tagged out for mechanical work.

The FIN team has been in place for 18 months. At the time the FIN team was established, the Maintenance backlog was 219 component-affecting non-outage work orders. In August 1997, the backlog was 172 work orders. Although the WIN team has been established, given the FIN team experience, a significant backlog reduction cannot be expected without substantial changes in the work control process. As a minimum, changes to the daily schedule must be eliminated in order to achieve a sustained overall backlog reduction.

Many packages arrive at the shop for walkdown well after X-3. Some arrive during the actual work week in which the work is scheduled. This does not allow for adequate maintenance/planning interface, nor time to order parts for the work. Increased maintenance staff involvement in developing and refining the work schedule early in the process is needed to improve schedule effectiveness. In addition, if work packages were walked down by the shops at X-4, the craftsman assigned to perform the work could walkdown the package. This would improve communication with planning and increase worker efficiency significantly.

One major performance indicator for the Maintenance and PSO departments is daily schedule effectiveness. This indicator, however, should be used with caution. It can encourage workers to close out an existing work order and initiate a new work request instead of fixing an emergent problem found while performing a WOT.

A Strategic Plan identifying the work control process as an area of focus for departments reporting to the PGM was developed in 1997. Some action items associated with this plan are significantly overdue. The timeliness of resolving these issues has contributed to the problems of getting adequate work to the shops with appropriate planning and impedes organizational buy-in to the work-week schedule. These issues have been brought up in previous self assessments, INPO audits and the recent USA audit without resolution.

Succession planning and training of back-up personnel to take over key supervisory/management positions is inadequate as personnel turnover increases to industry average. This problem will gain increased significance as turnover continues and the workforce approaches retirement age.

System Engineering is routinely available for problem resolution during maintenance work. This interface appears to be working well, with maintenance being fully supported by Engineering for resolution of technical problems.

4.3 Material Condition (White/Green)

The material condition of the Plant is improving, as demonstrated by equipment performance indicators, a second breaker-to-breaker run and recognition that the general appearance of the Plant is important to safe and efficient work.

The general Plant appearance (e.g., paint, lighting, general neatness) would support an extraordinary rating in this category (i.e., Green). Few plants present the excellent housekeeping appearance of WNP-2.

However, it should be noted that many oil systems have known leakage problems and a significant number of pumps throughout the Plant have tygon-type tubing running to floor drains. These precursors, combined with the high component effected backlog and high WOT backlog, indicate a continuing need to focus on equipment maintenance and performance in the Plant.

4.4 Quality of Maintenance Work (White)

The quality of maintenance work continues to improve. The Plant has had two breaker-to-breaker runs with excellent safety system performance and a low rework record. The general skill of the craft is very high due to a workforce with significant tenure at WNP-2. There is a two-year training program for craftsworkers, and rework trends have been incorporated into the training programs. During this assessment, two occasions were noted where maintenance supervision/management stopped jobs in progress to regroup, review job requirements and identify any emergent items that might not have been planned as part of the job. This attitude of staying safe, adhering to procedures, and not proceeding in the face of adversity indicates a desire to provide high quality, safe and efficient work product.

The following items have been self-identified and indicate a need for more craft supervisor time in the field, additional training for the craft, and/or effective design change:

- The trend PER on pump seals
- Recognition that in-house pump alignment skills are weak requiring routine vendor assistance

- Continuing rework items such as Off Gas Analyzers and Feedwater pump seals
- Five PERs on clearance order violations
- Twenty-three PERs on human performance errors
- General focus in the shops on the daily schedule effectiveness performance indicator rather than quality work
- Lack of supervisory requalification training

4.5 Programs and Procedures (White/Red)

Programs and procedures are in place for maintenance activities. A general upgrade of all procedures was completed prior to the assessment period. There is a site-wide procedures program which ensures consistent numbering, tracking, format, etc. The Passport Baseline electronic system integrates work control, scheduling, clearance orders, procurement, etc. in a common database. Full implementation of the system would represent a state-of-the-art approach to the work control process at WNP-2.

Nonetheless, the work control process is not functioning well. Coordination among the various groups is limited, resulting in continually changing work schedules, frequent priority changes and lack of support to get the work done. Work on backshift and on weekends is frequently not done due to poor cooperation between departments, lack of involvement/commitment to scheduling efforts and "management prerogative" emergent work. Availability of Measuring and Test equipment is poor throughout the Plant but improving.

5.0 PLANT SUPPORT

Summary

The Plant Support area is rated as average. Performance can be characterized as mixed, with Training and Security demonstrating above average performance, while other areas demonstrate average or below average performance. The average rating for the Plant Support area should be viewed as a disappointment. Generally speaking, areas that were strong performers prior to initiating the *Assessment* process remained strong. Those areas demonstrating weak or inconsistent performance remained weak or inconsistent. However, in most cases, areas requiring additional management focus have been internally self-identified and appropriate improvement programs initiated.

One weakness shared by the Plant Support area is the almost universal failure to adopt tracking and trending mechanisms for actions taken in response to *Assessment* findings. Management should establish an expectation concerning the time-frame within which improved performance will be demonstrated. Continued inconsistent performance results at the conclusion of the next *Assessment* should not be accepted. The tools to achieve improved performance are in place, and there is rank-and-file motivation to attain the goal of "World Class" performer.

The details relating to the areas covered under Plant Support are provided in appendices "A" through "I".

5.1 Safety Focus and Management Involvement

5.1.1 Safety Focus (White)

Plant Support safety focus is average. Strong performance was noted in Training and Security. Safety focus in Radiation Protection declined over the assessment period. This decline was reflective of inconsistent performance and repeat occurrences.

5.1.2 Management Involvement (White/Red)

A common theme in this area is the failure of line management to assume ownership and control of work processes and procedures under its control. A subsidiary theme is the failure to assure that the functional areas fully and completely discharge their responsibilities in a manner consistent with the attainment of "World Class" standards. Clarity of focus is required, along with continued reinforcement of positive behaviors. In a more positive light, management is viewed as highly motivated and is obviously willing to devote more than the minimum required to fulfill Senior Management expectations.

5.2. Problem Identification and Resolution

5.2.1 Problem Identification (White)

Problem Identification is average. Strengths were noted in most areas; however, the common negative theme appears to be a lack of utilization and consistency. The self-assessment process, for example, is viewed as a strength; however, utilization and consistency across the organization requires improvement. There appears to be an overall effort to meet a higher management expectation with regard to problem identification. The fact that the standard has been raised and efforts are being made to meet the higher standards is considered a strength.

5.2.2 Problem Resolution (White/Red)

The number of areas with less than average performance is a significant concern requiring immediate and long-lived attention. Work Management, Radiation Protection, and Emergency Preparedness all demonstrated less than average performance. Several issues were repeat occurrences, some relating to the inability to identify and correct the root cause. Management has had its attention focused on this area for a prolonged period of time without a change in behavior. A focus of personal accountability for repeat problems may be warranted.

5.3 Quality of Work (White)

Quality of work is average, but marked by inconsistent performance across the Plant Support functional areas. Work quality is typically high where significant management attention is focused. In contrast, routine day-to-day activities generally do not exhibit the same type of quality. A notable exception to this general observation is Chemistry's containment control at the Feedwater/Condensate sample panel. The example set by Chemistry during the performance of this low visibility routine task demonstrates the ability to achieve high quality standards throughout all work evolutions.

5.4 Programs and Procedures (White)

Plant Support functions are rated average in the area of Programs and Procedures. The common theme again is inconsistency. For example, the work management process suffers from a significant weakness in the Baseline computer system and the lack of details on work orders. Security, on the other hand, has reduced the number of Security Post Instructions and is consolidating the Security Plan Implementing Procedures with the Security Operating Procedures and Security Post Instructions.

APPENDIX A, PLANT SUPPORT
RADIATION PROTECTION

The Radiation Protection (RP) functional area as a whole is rated white/red.

This assessment report includes information on the radiological performance of both the Radiation Protection Department and the line organizations who do radiological work in the station. Radiological performance is a combination of the program and the performance of the workers.

The emphasis and efforts taken by all levels of the WNP-2 organization and Supply System Senior Management to reduce collective dose and minimize contaminated areas have been effective. A similar level of attention and cooperation will be necessary to improve practices in radioactive contamination control, control of radioactive material and tools and access to high radiation areas.

Field operations supervisors spend little time overseeing radiological work. The ALARA (As Low As Reasonably Achievable) process is cumbersome and complex. Radiological engineering is not routinely begun early in the planning process. Levels of radioactive contamination are determined using low-sensitivity field instruments, without routine backup using more sensitive counting equipment to determine low levels of contamination or isotope analysis.

A new Radiation Protection Manager (RPM) has been appointed and has initiated an improvement plan. The field organization (Radiation Protection Technicians [RPT]) is reacting from staff reductions and the technical depth of the support organization is limited. Field monitoring instrumentation was in short supply because of a backlog in the calibration process.

Program changes endorsed by the industry and as supported by INPO have not yet been made. Several issues, such as control of tools and the use of discrete radioactive material storage areas, have been under "study" for several years.

WNP-2 has a process in place for investigating events (Incident Review Board), but investigations have only been conducted ten times in 1997. The system was not used to capture the facts surrounding contamination events and the failure to re-lock a locked high-radiation area door that occurred during the assessment. Further, there was no evidence that the investigative process is used to capture lessons learned from successful evolutions.

The self-assessment process is sometimes not effective in identifying areas needing improvement. Analysis of several recent events identified a failure to identify causal factors and then to match them with corrective actions to prevent recurrence. In particular, blame was placed on "management" or "policy" instead of addressing the issues of

procedure adherence and personnel accountability. A review of some selected recent problem resolutions noted weaknesses in addressing personnel accountability issues.

A.1 Safety Focus and Management Involvement

A.1.1 Safety Focus (White/red)

Two aspects of safety focus were identified and analyzed. The first is the technical quality of the radiation protection program which includes radiological engineering to support field operations and the application of engineering controls for radiological work. The second is the support of operators and workers who need current surveys of radiological conditions, clear worker protection requirements and appropriate monitoring by the RPTs.

Safety focus varies from excellent to poor. An example of excellent safety focus was the consistent emphasis on minimization of radiation exposure throughout the organization. Examples of below average sensitivity were control of high-radiation areas, the high number of contamination events, control of radioactive material and tools, readiness and use of monitoring instrumentation and industrial safety issues. Industrial safety issues were incorporated into the scope of this section, because in a radiological emergency the condition or operability of emergency equipment (e.g., eye washers, emergency showers) can play an important role in mitigating the consequences.

A number of cases were observed and analyzed, in which personnel either failed to follow the established process or failed to perform as the process intended. Corrective actions were later developed to remind personnel to follow the process, require management to again make its expectations clear, or to improve the process. These failures to deal with accountability issues not only added administrative burden to a busy workforce, but did not prevent the same situation from happening again.

A.1.2 Management Involvement (Red)

Management involvement within the Radiation Protection organization has been marginal. Another RPM has been appointed and changes have continued to be made in several of the supervisory positions.

Positive aspects were noted, in that the new RPM is energetic, experienced at other facilities and INPO and has commenced his improvement program. Another important positive aspect was the apparent verbal support for the new RPM by other department managers. It was not possible to determine whether these managers were able to elicit that level of support for RP from their subordinates. On the other hand, current problems maintaining radiation area barriers in place would indicate a less-than-total support at all levels in the organization.

Overall, RP staffing has not yet stabilized because of needed improvements and vacancies. However, staff reductions appear to be complete.

RP operations supervisors have not been staffed or aligned to support the technicians or radiological work fully. In the two months before the assessment, RP Operations supervisors spent less than 15 minutes per day per person in the radiologically controlled area, while technicians averaged 2.34 hours per day per person. The RPM has scheduled additional contract supervision to assist in this area.

Management observations have been less than last year and the peer observation program has not been initiated.

Communications within the organization continue to be poor, with discussion of confusion about management expectations, duties and responsibilities. In some cases, attitudes are poor and enthusiasm is low.

RP management has been primarily reacting to issues instead of developing personnel, supervising quality routine work, achieving continuous improvement or performing self assessments.

Although cooperation and common purpose among department managers appeared excellent, teamwork among groups and individuals varied considerably. The high standards and expectations discussed by the managers were not consistently transmitted through organizations. At the work level, considerable criticism was noted relative to the constant process changes.

A.2 Problem Identification and Resolution

A.2.1 Problem Identification (White/Red)

Since the previous *Assessment*, a significant expansion of performance indicators was noted. This system was effectively identifying some problem areas. Also, during the current period, the number of problems identified (PERs) and dispositioned by the RP organization has increased.

Weaknesses were noted in the area of problem identification. Management expectations for self assessments were not aligned with the basic concept of a self assessment resulting in resource inefficiencies and a loss of effectiveness. The management and supervisor observation program is less than effective in identifying problems. Finally, the performance indicators mentioned above were not developed soon enough to detect significant program weaknesses.

A.2.2 Problem Resolution (Red)

During the assessment period, the Radiation Protection Department was dealing with recurring problems involving radiological barriers, instrumentation, radioactive material control and the timely disposition of PERs. Increased management attention is warranted. Problems have been repeatedly identified by both WNP-2 and outsiders, but resolutions have often been ineffective. In many cases noted, corrective actions were developed and implemented that did not treat appropriate causal factors. Therefore, corrective actions have not only been ineffective, but have consumed significant resources. This is further exacerbated by reductions in management involvement noted earlier.

It was noted that some management attention has already been initiated to correct degradation of the root-cause analysis process through a recently offered course. The goal is to develop more effective corrective actions and reduce the resources required for resolution.

In some cases, self assessments and PER resolutions were not disseminated within the organization and did not reach the individuals responsible for implementing corrective actions.

Poor teamwork among organizations has contributed to ineffective corrective actions affecting radiological practices across departments. One response to problems which warrants immediate management attention is the consistent deflection of causal factors away from the performance of personnel and the failure to follow procedures. This has been exacerbated by corrective actions that were not matched with the causes to prevent recurrence.

A.3 Quality of Work (Red)

The quality of RP work and support are adequate to support safe operation, but in most cases observed, improvements could and should be made to improve conditions for the health and safety of workers.

During the assessment, it was noted that little reference was made to the administrative or technical procedures and instructions which control the program, even after events occurred. Causes were rarely assigned to failure to follow or meet the intent of the procedure or process. In most cases, blame was placed on failure to clarify expectations, instead of personnel performance and knowledge of requirements.

Much effort across the organization has yielded generally low exposures to personnel. In many cases, these have been achieved in spite of the systems and processes to prepare for and execute work.

Improvements noted across the industry for enhanced work planning and management are conspicuously missing or not fully developed. These include the use of a work control center to make the work ready and establish the Plant conditions, ALARA reviews and radiological engineering during planning, engineered controls, integrated Plant schedules, consistent event critique processes, active supervision of work teams and systems to ensure proper equipment and tools are in place when needed. INPO assist visits have previously identified these items.

Observations of both routine operations and radiological work were made. These included steam leak repairs in high-radiation areas for which station power had been reduced. The power reduction was endorsed throughout the station, demonstrating the commitment to dose reduction. Several aspects of this work were noteworthy: RPTs made initial entries to ensure current radiological information, worker teams were equipped with remotely-monitored dosimeters and constant radio communication, remote cameras (including one on a robot) were used to monitor the workers from low-dose areas and one "stop work" was exercised to communicate expectations more clearly. Conversely, the work areas were not officially posted as contaminated areas. As such, the work practices and work area exit points were not consistently controlled. Three individuals who were dressed for work were sent to the access point to obtain revised dose assignments, several people had to be located to attend the pre-job brief after it had started, and a job to remove interference for the Furmanite crew had to be revised after it started. This is indicative of confused ownership and inconsistent standards.

Observations of a flush process yielded both positive and negative aspects of work quality.

In the period immediately prior to the assessment, several contamination events occurred which resulted in internally-assigned doses to two workers. During the assessment, an unlocked high-high radiation area door was found by the NRC.

A. 4 Programs and Procedures (White/Red)

The opportunities for improvement identified in this assessment focus on the areas of program enhancement and procedure implementation.

Radiation protection policy, procedures and instructions are in place to support the program. A review of the PER database indicated that few of the identified problems were noted to have been caused by procedure weaknesses, but many were caused by less-than-expected performance.

In the area of program enhancements, ALARA reviews are inefficient, cumbersome, ill-timed and contained questionable trigger points. Also, ALARA reviews are not far enough up-front in work planning (occur at week X–4), which results in a reduced abil-

ity to plan, design, and implement shielding, flushing, use of mockups, and training before the job is planned for work or before the next group of job tasks reach week X-4. The program that ensures the availability of operational instruments for radiological surveys is less than effective. The RP program currently does not meet the industry standard for tool control or control of radioactive materials within the RCA. Because previous corrective actions in the area of tool and radioactive material control were less than effective in making needed changes, management attention will be needed to bring these programs up to the level of the industry as a whole. Refinements and expansion are warranted in the area of performance monitoring to further challenge Plant personnel and to provide management with a clear indicator of the effectiveness of recent initiatives.

In response to a large number of Nuclear Safety Issues Program complaints filed by RP personnel, a program was developed to resolve concerns generated by RPTs that did not reach the PER threshold. This program was to provide a mechanism for RP personnel to raise issues with their supervision and provide a mechanism for responding to those issues. No evidence of use of this program could be found during this assessment.

Since the previous *Assessment*, procedure compliance has not been emphasized by management. Personnel appear to have a reduced sensitivity to administrative and technical procedure compliance.

Because the Corporate Chemist has been in SRO Certification, the cobalt source-term reduction program has lost a central driving force.

APPENDIX B, PLANT SUPPORT
EMERGENCY PREPAREDNESS

The Emergency Preparedness (EP) functional area was rated White.

The Emergency Plan continues to provide an adequate vehicle for ensuring public safety. WNP-2 continues to receive acceptable ratings on emergency exercises. One primary weakness noted in the previous *Assessment* was the lack of succession planning and the unwillingness of the supervisor to share information and responsibilities with his subordinates. This weakness was addressed late in the *Assessment* cycle and a new supervisor is in the process of addressing the issues resulting from this transition.

B.1 Safety Focus and Management Involvement

B.1.1 Safety Focus (White)

The organization has had no lost-time or recordable accidents during this past year. So far this fiscal year, the Supply System is exceeding its Lost-time Accident Rate goal and is meeting its Recordable Accident Rate goal.

One NRC violation was received this past year in the area of Emergency Preparedness. The issue associated with this violation was self-identified in the February 1997 self evaluation of Emergency Preparedness. (Refer to PER 297-0110 for the details of this PER. PPM 1.3.1 was inappropriately revised regarding the minimum required on-shift staffing, resulting in violation of the WNP-2 Emergency Plan.)

B.1.2 Management Involvement (White/Red)

Every month for the past several months, Emergency Response Organization (ERO) qualifications for some (5-20) ERO members have been allowed to lapse. This demonstrates a lack of ownership on the part of ERO members in maintaining their ERO qualifications and inadequate controls by management in allowing it to occur.

The following provide identified examples where the roles and responsibilities of the vice presidents, line managers, and emergency response center managers do not appear to be clearly defined, uniformly understood, or consistently implemented, in relation to achieving and maintaining the ability of the ERO to respond in an emergency:

- The manner in which EP works with the line managers, center managers and ERO members regarding the scheduling of initial and requalification training, drill participation, exercise scenario development and drill and exercise control varies based on convenience, urgency and Plant staff workload and priorities.

- To "fill holes" in the ERO team and conduct makeup training for ERO team members, EP staff are continuing to schedule ERO members for ERO training on an expensive and inefficient one-on-one basis.

- Due to some cases where drill players and controllers are either not provided or do not show up, it appears drill activities may not be properly prioritized by line managers and supervisors within certain work groups in the Plant.

No clear group goals exist for the EP Department. In addition, no specific initiatives focused on proactively improving ERO and EP performance were found as part of this assessment. Rather, it appears the EP group responds to self assessments and Quality audit findings.

Although the EP group does produce a monthly "annunciator-style" EP Program Status Report, this is not widely distributed to the management team and is not visible outside of the EP group, even though ERO performance is a company-wide activity. Emergency Preparedness status is not routinely communicated to the WNP-2 management team. The assignment of vice presidents to the teams should alleviate this problem.

In the EP group, there are instances of high single-person dependence, such as in the areas of dose assessment, Automatic Notification System maintenance, ERO member staffing qualification maintenance and Emergency Action Levels. There is a need to improve the skills and knowledge of EP staff personnel. No formal professional development plans focused on improving the knowledge and skills for emergency planners is in place. Noteworthy, however, is the fact that the lead emergency planner just completed the SRO Management Certification Class.

Recently, the Emergency Planning group's activities have been redirected to deal with two pressing issues rather than the previously scheduled work tasks. These issues are focusing on filling approximately 80 open ERO positions (and conducting the associated training) and correcting the accuracy of the Personnel Qualification Database (PQD) system in tracking ERO member qualifications. These tasks have taken some resources away from completing the previously assigned tasks of upcoming drill preparation, work on completing two new exercise scenarios by the end of 1997, Emergency Information System implementation, FSAR review and validation and general EP program maintenance. EP staff workload and EP staffing should be reviewed to ensure proper alignment.

Recently, the Emergency Planning group has, as a group, prioritized all its open action items, assigned due dates, and assigned them to responsible individuals in the organization as part of its effort to ensure corrective actions and initiative-based improvement actions are completed. Additionally, the current focus of the new EP Manager has been to deal aggressively with high priority issues, then to address the balance of items identified in recent self assessments and audits. It appears that recent changes by EP

management will result in resolving some long-standing, unresolved issues in Emergency Preparedness (e.g., staffing the ERO, validating the accuracy of PQD).

An adequate plan is currently in place to ensure proper implementation of the Severe Accident Management Guidelines in 1998.

B.2 Problem Identification and Resolution

B.2.1 Problem Identification (White)

The 1997 EP Self Assessment and Quality audit were effective in identifying weaknesses and areas for improvement in Emergency Preparedness. Performance in this area has been average with an improving trend.

B.2.2 Problem Resolution (Red)

No documentation was found, nor any information obtained from staff interviews, that indicate the 1996 *Assessment* was used in a systematic or programmatic way to address identified issues or to improve the Emergency Preparedness group and the way it does business.

Problems and issues have been identified by internal mechanisms, such as self assessments and audits. The subsequent assessment, characterization and resolution of some of the problems and issues identified have been inadequate based on the number of times they have been identified in one form or another and left unresolved. Contributing to this has been a lack of management initiative, oversight and tracking regarding correcting problems and weaknesses. While recent changes in Emergency Preparedness management have resulted in aggressive follow-up in some of these areas, several self-identified issues still need to be addressed. For example, a February 1996 EP Self Assessment identified that ERO personnel qualifications were not accurately reflected in the PQD. A second assessment performed one year later showed the same problem. While the EP organization and the PQD project engineer from Nuclear Training have been working to update PQD data for the past three or four months to make it accurate, the problem with PQD inaccurately reflecting the qualifications of ERO members has continued for a period of 20 months, and remains unresolved. (Currently, a separate database is maintained by the EP organization for tracking the qualifications of ERO members.)

PER 295-0500 was opened to address the inoperability of a Plant Support Facility (PSF) liquid effluent radiation monitor. The Quality audit performed April 1997 identified that the PER was closed with the monitor remaining inoperable. Per 297-0198 was then written to address the problem left unresolved by PER 295-0500. PER 296-0633, PER 297-0110, PER 297-0538 (significant trend PER) and PER 297-0789 have been written in the last year with regard to failure to staff all the essential ERO positions during noti-

fication drills. PER 297-0538 has been dispositioned and corrective actions to solve this problem have been identified as part of the corrective actions. RP Technicians and Chemistry Technicians have been given pagers to improve notification of these individuals during an emergency and many groups of ERO responders have received refresher training on how to respond properly to an emergency notification. Since these actions, there have been four notification drills conducted and all the essential ERO positions have been filled. The actions taken to date appear to be effective in correcting the problem.

The 1997 Quality Audit of Emergency Preparedness identified instances of Emergency Plan and implementing procedure non-compliance: (1) the Emergency Plan requirement for written examinations as part of initial training of essential ERO personnel was not being adhered to in PPM 13.14.5, nor as part of Quick Emergency Dose Projection System (QEDPS) training, (2) the PPM 13.14.5 requirement that instructors meet the requirements of TPP 6.1.1 with regard to instructor qualifications, was not adhered to by the primary EP instructors, and (3) the PPM 13.14.9 requirement that the State, County and DOE be contacted annually to solicit their review of the Emergency Plan was not documented. While these findings represent a difference between procedures and actual practice, they were not identified as non-compliance. Quality suggested either the programs be changed to match the procedures or the procedures be changed to match the programs.

Differences between dose projections exist when using Emergency Dose Projection System (EDPS), QEDPS and Backup Emergency Dose Projection system (BEDPS) dose calculation software. This issue was identified in February 1997 and is still not resolved. It should be noted, however, that EP has hired a contractor to complete an upgrade to the dose projection software modeling by the end of January 1998.

B.3 Quality of Work (White)

Generally, the quality of work has been good. The Emergency Plan was reviewed and revised this year. Emergency Plan Implementing Procedures (EPIPs) continue to be updated and revised to improve their quality. Feedback received from participants in recent exercises has indicated the EPIPs are complete, accurate and useable. In addition, the 1997 EP Self Assessment identified EPIPs to be, "99 percent complete, concise, and logically arranged."

Several training drills have been conducted this year to provide practice for ERO team members. Based on feedback from ERO team members, these drills have been very effective in improving ERO team performance by allowing "hands-on" practice.

A Medical Emergency Response Drill was conducted in September 1997 and was evaluated by the Federal Emergency Management Agency (FEMA). This drill was coordinated with the local fire company, the county and a local hospital. This drill demon-

strated solid performance of all involved and resulted in FEMA closing three previously identified weaknesses.

The 1997 EP Self Assessment identified the need to provide additional training in the area of dose assessment for select ERO personnel. In addition, ERO classroom training feedback has communicated that opportunities exist to improve in this area, through minor adjustments to various lesson plans and improved delivery by ERO instructors.

ERO instructors recently completed initial instructor training. They are now qualified instructors per the instructor qualification program. This was in response to a recent Quality audit and as part of an effort to improve the quality of instruction for ERO team members. In addition, the EP Manager intends to have EP instructors participate in annual continuing instructor training aimed at enhancing instructional skills. Actions taken to improve EP training appear positive.

B.4 Programs/Procedures (White/Green)

The automated entry of ERO personnel into the emergency facilities was seen as a very positive practice by utility peers participating on the 1997 EP Self-Assessment team. Additionally, it was recognized that the printing of the Automatic Notification System report in each emergency center is an excellent tool for managing the activation phase of an event's response. EPIPs continue to be updated and revised to improve their quality. Recent drill feedback indicates that the EPIPs are complete, accurate and useable.

The WNP-2 Emergency Plan has been reviewed annually and maintained current. The Emergency Plan properly incorporates and implements the regulatory guidance for emergency preparedness. Emergency facilities were found to be in good condition and properly organized during the 1997 EP Self Assessment. No specific initiatives focused on systematically improving ERO and EP performance were found as part of this assessment. Specific plans and initiatives need to be put in place to improve WNP-2 Emergency Preparedness in a proactive and methodical manner.

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APPENDIX C, PLANT SUPPORT
FIRE PROTECTION

This area was not assessed separately as part of this *Assessment*. Fire Protection has been included as part of the Engineering section of this report. In addition, a detailed self assessment of the Fire Protection Program and a self assessment of Fire Brigade Team Training have been conducted within the last year.

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APPENDIX D, PLANT SUPPORT
SECURITY

The Security functional area is rated White/Green.

Security performance during this assessment period has shown improvement in the areas of safety focus and problem identification. However, one LER and two PERs detracted from an otherwise solid performance.

Security has been successful in reducing its internal procedures and is currently working on combining two tiers of procedures into one, further reducing the numbers of procedures. Security self assessments have been thorough, have identified problems and have resulted in effective corrective actions.

D.1 Safety Focus and Management Involvement

D.1.1 Safety Focus (White/Green)

WNP-2 has implemented and continues to maintain an effective Continued Behavior Observation Program. During a 1997 NRC inspection, an inspector rated the program as "excellent." Security detection equipment is maintained to enable the Security Department to provide protection to the Plant and personnel.

The safety record of the Security Department has improved since the last *Assessment*. Security management's emphasis on personal safety and implementation of a B-Safe program, which involved supervisors and line personnel, is credited with a reduction in recordable and lost-time injuries (1996 *Assessment*: 3 recordable and 1 lost-time injury; 1997 *Assessment*: 2 recordable and 0 lost-time). This equates to an INPO standard recordable injury rate of .76, which is below the established Plant goal of 1.25.

Three other utilities were benchmarked and their injury statistics were similar to those experienced at WNP-2.

Also strong emphasis on firearms safety has enabled the Security Department to maintain a zero firearms incident safety record. Within the past year, one utility has experienced an unintentional discharge of a firearm during weapons maintenance and within the past two years another utility had a firearms accident where a security officer discharged a firearm while on duty.

D.1.2 Management Involvement (White)

As mentioned during the last *Assessment*, the CEO and VP, Plant Support, attend security shift turnover meetings on a quarterly basis. This practice provides an opportu-

nity for the security officers working rotating shift to have direct contact with senior management.

Security management has expanded the security training through the construction of a shooting house. This shooting house challenges the security officers to make decisions under stress by identifying threat versus non-threat targets prior to the application of lethal force.

A recent Quality audit suggested Security Programs management should provide more oversight by attending training sessions at the security training complex. This challenge is being accepted by the security management team and will be evaluated during the next assessment .

D.2 Problem Identification and Resolution

D.2.1 Problem Identification (White/Green)

The last *Assessment* identified the need for self-assessment findings to be formally tracked using the PTL system. A review of self assessments conducted during 1997 found that findings are being placed in the PTL system and tracked to completion. Self assessments have identified potential problems and enabled the security organization to take corrective actions.

Security is trending alarms, equipment failures and personnel errors in an effort to identify and correct deficiencies. Current tracking of personnel errors indicate Security is exceeding its goal of .45 per 10,000 man hours worked. Alarm trending is being used to identify security components which show signs of degradation. Work orders are prepared to correct identified equipment deficiencies. This trending was recognized by the NRC Security Inspector during a 1997 audit stating, "[t]rending and analysis of information was very good."

D.2.2 Problem Resolution (White/Green)

Components identified during the trending process are documented on work orders and corrective actions are initiated. The system engineer provides periodic review of uncompleted security work orders to assure proper work priorities are assigned. In addressing the unfavorable increase in alarm activity during outages, Security developed a training video and provided training to contractors. This training led to a reduction of alarms generated by outage workers.

During the last *Assessment*, it was noted that officers did not understand the procedure change process. As a result, officers were asked to participate in an evaluation of procedures and suggest changes to those found deficient. This review has been completed and will be further discussed in the Programs and Procedures section.

D.3 Quality of Work (White)

Trending of alarms resulted in Security's ability to correct equipment deficiencies and improve equipment reliability. Recent installation of a new model tamper switch on targeted equipment appears to have greatly reduced, if not eliminated, alarms from components identified through the trending process.

Security needs to continue to focus on improving the security system and component reliability. As indicated in the 1996 *Assessment*, the security system is not scheduled for replacement until the year 2001. Security has been successful in appropriating $135,000, which replaced obsolete hardware and extended productive use of the security system by approximately five years.

One LER relating to failure to initiate compensatory measures within the specified time and one PER for ineffective corrective actions detracted from the overall quality of work. Security has initiated corrective actions to address both incidents.

D.4 Programs and Procedures (White/Green)

The last *Assessment* identified the need to combine like procedures, eliminate typographical errors and remove unnecessary guidance. The Security Department has completed this effort, which reduced the number of Security Post Instructions from 44 to 27.

Also, there is an effort underway to combine the Security Plan Implementing Procedures with the Security Operating Procedures and Security Post Instructions. This would further reduce the number and tiers of procedures. This area should be reviewed during the next assessment period.

The PER mentioned above, resulted from an error found in a Security Plan Implementing Procedure. The efforts currently being taken to consolidate Security Plan Implementing Procedures with the Security Operating Procedures and Security Post Instructions is expected to correct this deficiency.

APPENDIX E, PLANT SUPPORT
QUALITY

The Quality functional area is rated White.

Overall, the performance in the Quality area has not improved substantively since the 1996 *Assessment*. Quality staff and management possess sufficient skills and knowledge to maintain the current Quality program status quo, and recent management changes may lead to significant program improvement. The findings of the assessment indicate that the Quality program, for the most part, operates to achieve the minimum set of established requirements. Even though those activities have been satisfactory when assessed against criteria established in 10CFR50, Appendix B and ANSI N18.7, the organization has recently added six additional audits to its schedule. In order to improve performance to the level of industry top performers, a comprehensive vision for the organization must be established which lays out the fundamental quality assurance tenets that will guide the day-to-day activities of the Quality organization.

E.1 Safety Focus and Management Involvement

E.1.1 Safety Focus (White)

The Quality Organization's performance in this area remains the same as in the 1996 *Assessment*. However, with the management changes made in 1997, Quality appears to be much more proactive and taking a more aggressive stand with the line organizations by insisting that Quality issues be acted upon in a timely manner.

To enhance the perspectives of both Quality and the line organizations, a personnel rotational practice has been established; however, this effort continues to lag in implementation. At this time, no one from the line organization has been rotated into the Quality organization. Additionally, no one from the line organization has ever been rotated for any significant duration.

Emphasis has been placed on using line and outside personnel in audits to broaden the perspective and enhance the expertise of the audit teams. It appears this PES objective is being meet. WNP-2, through the Utilities Service Alliance, provides quality audit personnel to be part of audit teams at the other six member utilities. A full outside audit team was brought in to audit Maintenance. The objective of using outside personnel to supplement Quality personnel in the performance of audits is being met.

Quality management continues to be involved in a number of day-to-day activities, from which it obtains information on where to focus resources for the best safety performance. Quality usually has managers attend the daily Plant Manager's meeting, the morning Plant status meeting and, POC meetings.

In order to enhance the internal self-assessment program, the Quality organization established a Self-Assessment Program Coordinator position. Even though this process appears to be moving slowly, establishing this position was a positive action which "jump started" the program and gave it official status. A desktop instruction has been developed so that all personnel will be working from a common basis. Plans are in place to formalize the self-assessment process during the next calendar year.

E.1.2 Management Involvement (White)

Quality management has gone through substantial change (the department manager and both program supervisors have been replaced and a Self-Assessment Coordinator has been named) since the previous *Assessment* and at this time appears to have the appropriate level of involvement. A monthly department all-hands meeting is among several routine department meetings conducted to disseminate information and to provide a forum for feedback to management from the staff and among members of management.

Quality's presence is also apparent at morning Plant meetings, project reviews, POC, CARB and the PER daily review. Quality actively participates in these fora (e.g., Quality discusses recent industry events at the morning meeting). Quality management was involved in evaluating the plan for Plant restart at the end of the last refueling outage, provided oversight of the process, and provided some direct involvement by gathering data for evaluation by others.

The new Quality Manager is routinely available to his staff and the line organizations to discuss Quality issues. Since his arrival, a noted change in assertiveness toward issues not limited to Quality is apparent, in that he demands all issues be resolved in a more timely manner.

Quality management appears to be on track; however, with only roughly six months of new management and new enhancements, it is too soon to tell if it will have a dramatic effect on the ratings in this area.

E.2 Problem Identification and Resolution

Quality's effectiveness for problem identification and resolution was evaluated from two principal and interrelated perspectives. First, the reviewer considered the viewpoint of oversight groups, such as CNSRB. Second, the reviewer evaluated PERs written against Quality and corrective actions or recommendations assigned to Quality for disposition.

E.2.1 Problem Identification (White)

Concerning oversight groups, CNSRB has been critical of the quality of audits and surveillances for some time (reference CNSRB meeting minutes 97-01, 97-03, 97-06 and 97-07). The 97-03 minutes indicate that Quality's principal response was documented in the form of a Performance Improvement Plan (PIP) for one of the supervisors. An interview with the CNSRB Chairman indicated this PIP had been largely successful. He stated, "the improved quality of the audits has allowed the CNSRB to shift its focus from audit quality to findings and corrective actions."

E.2.2 Problem Resolution (White)

Concerning PERs written against Quality programs and related corrective actions, the reviewer evaluated a number of PERs written against Quality and various corrective actions/recommendations assigned to the organization for disposition. Only one example of an inadequate resolution was identified. This matter involved a recommendation from Audit 295-079, which called for Quality to develop a comprehensive audit schedule. As discussed above, Quality did develop a schedule, but it fell short of assuring that all Appendix B criteria were fully reviewed for the period 1995 through 1997. Recently, six additional audits have been placed on the schedule in order to remove these concerns.

Although the evaluation of this area was not comprehensive, it appears that little improvement has been achieved since the 1996 *Assessment*.

E.3 Quality of Work (White)

The quality of work appears adequate. However, several areas for enhancement were identified.

First, the quality of audits could be improved by creating a better linkage between the critical elements under review and the stated findings within the report. On the face of the audit reports, it is not clear whether this weakness results from a lack of detailed findings relative to the critical elements or from a failure to review against the elements.

One example of this lack of linkage likely resulted in the inadequate audits is PER 297-0828 (identified by Quality on October 15, 1997). The PER documented that a license condition had been eliminated in 1992 without NRC concurrence. A review of applicable audits performed since that time indicates that Quality personnel focused on technical specifications and did not adequately address license conditions.

Second, audit plans and reports are reviewed by the Quality Review Board (QRB) before implementation or issuance, respectively. In the reviewer's opinion, the QRB is a valuable asset to the quality process. However, the effectiveness of QRB could be im-

proved if the Quality participants would spend more time focusing on Quality-related concerns, rather than trying to help solve the technical issues raised during QRB meetings.

Third, the strategy of rotating managers through the Quality Programs organization, while appropriate in theory, has been less than effective. For example, within the last several years, there have been three Quality managers. Most of the issues associated with these rotations are organization-wide and deal with the planning of these rotations and the development of the individuals who fill the positions.

E. 4 Programs and Procedures (White/Red)

The Quality Programs organization has taken some steps to improve the quality of audits and surveillances. For example, a peer review committee was established to evaluate scheduled activities and draft reports prior to implementation and issuance, respectively. Another example involves the changes made to strengthen the organization. In addition, Quality's involvement with the CARB has been positive. During an NRC inspection earlier this year, the Staff observed that the CARB "provided adequate oversight of root cause analyses and proposed corrective actions" (reference Inspection Report 50-397/96-202). Even with these improvements, this assessment identified a number of weaknesses.

One area requiring further attention is WNP-2's compliance with Appendix B, Criterion XVIII of 10CFR50. This requirement states, in pertinent part, that a "comprehensive system of planned and periodic audits" must be carried out to assure the compliance with and effectiveness of the Quality program. NRC Regulatory Guide 1.33 specifies an acceptable means to accomplish this requirement and the Plant is committed to the Regulatory Guide. Traditionally, WNP-2's approach to meeting the regulatory requirement and its commitment under the Regulatory Guide is by conducting a biennial audit of the Operational Quality Program. This biennial audit involves reviewing other audits performed during the preceding 23 months and determining whether all 18 criteria of Appendix B were fully addressed. If any Appendix B criteria were not covered, a "wrap-up" audit is performed to assure fulfillment of the Criterion XVIII requirement. During the last biennial audit (AU-295-079), it was observed that this traditional approach had resulted in several Appendix B criteria not being reviewed.

This finding suggests that, during the period under review, WNP-2 employed an audit approach that was not well planned. By not fully planning all of the needed audits, the Plant ran the risk of not identifying weaknesses in the Operational Quality Program, or at least identifying them long after they should have been identified. In response to this issue, Quality added six additional audits to its schedule.

In addition to the planning concern, WNP-2's approach to complying with Criterion XVIII involves heavy reliance on surveillances to augment the audit findings. Such reli-

ance does not squarely meet the intent of the Appendix B requirement. Support for this can be found in current industry Quality standards. Specifically, ANSI/ANS-3.2-1988 (a later revision to ANSI N18.7-1976 to which WNP-2 is committed), distinguishes audits from surveillances. In the case of audits, the ANSI standard defines these as a "planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation."

On the other hand, the ANSI standard defines a surveillance as the "act of monitoring or observing to verify whether an item or activity conforms to specified requirements." Thus, as the ANSI standard states, an "audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance." Structured, systematic and planned compliance-based audits are what Appendix B, Criterion XVIII calls for and this is consistent with WNP-2's commitment under Regulatory Guide 1.144.

An example of where over-reliance on surveillances causes the biennial review approach to fall short is in the procedures area. The traditional WNP-2 philosophy has been that a functional area surveillance (e.g., Operations) also provides an adequate review of the procedures in that area. While it is true that procedures are typically examined during a surveillance, the very nature of a surveillance does not provide for comprehensive review. Moreover, a systematic and comprehensive review of procedures for all functional areas cannot be properly accomplished by simply combining the cursory examination of procedures obtained from various surveillances. (This latter point has been recently raised by the NRC in an inspection at another utility - reference NRC Inspection Report 50-334 and 50-412/96-07).

Another observed area of weakness involves compliance with 10CFR50.54(a)(3). This regulation allows licensees to make changes to Quality plans without NRC approval if the change does not decrease the effectiveness of the plans. In this regard, several Section 50.54(a)(3) evaluations were reviewed. One of the reviews involved the transfer of the Quality Receipt Inspection and Supplier Quality Audit responsibilities to the line procurement organization. This change was documented in both a Screening for License Basis Changes document and a Licensing Basis Impact Evaluation Form. Both documents concluded that prior NRC approval was not required. The change caused the affected responsibilities to move from management oversight by Quality Programs to that of another organization. This change appears inconsistent with the intent of Appendix B, Criterion I and ANSI N18.7, both of which seek to establish independent quality oversight of such activities. In addition, organizational changes in general appear to be matters which the NRC wants to review (reference the NRC's guidance found in a proposed rule change to Section 50.54 [40 Fed. Reg. 32,106, January 20, 1975]). This responsibility has recently been returned to Quality.

Related to this issue is the level of oversight provided by CNSRB. In particular, while CNSRB routinely reviews correspondence to the NRC requesting proposed changes to the Quality plan, the oversight group does not review changes deemed not requiring prior NRC approval. Routine review of this latter category of changes may help assure continued compliance with the regulation.

Taken together, the weaknesses described above indicate a need for additional management attention in the Quality area. The recent changes in management positions within Quality and some of the activities that have taken place since those changes appear to be having a positive effect on the organization.

APPENDIX F, PLANT SUPPORT TRAINING

The Training functional area is rated White/Green.

During the past twelve months, management involvement has continued to improve through the increased quantity and quality of observations performed by line managers and supervisors. Senior management (VPNO, PGM, EGM, NTM) observations of simulator training and evaluations has also improved significantly over this period. However, observations of classroom training and in-Plant On-the-Job Training/On-the-Job Evaluation (OJT/OJE) continues to need significant focus, as identified in the latest Operations and Engineering Support accreditation self-evaluation report. Observations and "critical" feedback to Training from senior managers improves the overall quality and content of the training provided and ensures sustained improvement in this functional area.

INPO granted accreditation renewal of the Maintenance, Health Physics (HP - this relates to training provided to members of the RP organization) and Chemistry training programs in October 1995. The Operations and Engineering Support training programs will be presented for accreditation renewal in January 1998. Accreditation renewal "without concern" is the current expectation.

F.1 Safety Focus and Management Involvement

F.1.1 Safety Focus (Green)

The Nuclear Training Department has not had a lost-time accident or recordable injury during the past year. Also, the students attending training have not had a lost-time accident or recordable injury while in training. Each Training section holds routine safety meetings that are focused on job-related and home safety issues.

Design and development of all training materials includes management expectations and requirements for safe work practices and procedures. Before implementation, training materials receive technical reviews to ensure both technical accuracy and management expectations for operation of WNP-2 are included. Formal communications, procedural compliance, conservative decision making, self-checking, peer-checking and attention-to-detail are continually stressed in the classrooms and re-enforced during simulator and laboratory exercises and in OJT settings.

Licensed operator training on the Plant-specific simulator includes a wide range of normal, abnormal, transient and design accident scenarios, including radiation releases to the public. This scope of training ensures that the operating crews are well prepared to successfully handle any and all design accidents, as well as making prompt notifica-

tions to local authorities and State and Federal agencies should it become necessary for the safety and protection of the public and Plant personnel.

F.1.2 Management Involvement (White)

Senior- and line-management involvement in Training has improved. Senior management clearly understands the importance of training with respect to the performance of Plant personnel, and they effectively direct and provide adequate resources for training activities. Senior managers provide significant direction and resources to ensure training programs and personnel performance continue to improve. Examples include continuing Plant Certification courses for Engineering, Maintenance, and PSO personnel; extensive funding for core upgrade and computer platform projects for the simulator; and resource support for program improvements to the existing Manager/Supervisor Initial and Continuing training programs.

Line managers and supervisors are providing frequent and high quality, critical feedback in all training settings and are effectively ensuring that training content and quality meet expectations and remain focused on improving personnel and Plant performance.

Senior management oversight of classroom training and in-Plant OJT/OJE is an identified area for improvement. While senior managers do observe and provide critical feedback during simulator training sessions, they are not consistently providing documented feedback to improve the effectiveness of classroom and in-Plant training. While senior managers are not expected to spend enough time in these sessions to directly guide the content of training, it is important that they perform frequent enough observations to understand training needs and challenges. Documentation of their observations maximizes benefit to the entire training program.

The PGM and Operations management participate weekly in the "cold" (as found) simulator evaluations performed by the operating crews in training. The PGM observes crew and individual performance and provides written and verbal feedback to the crew and training personnel. The Operations Manager or his assistant formally evaluate overall crew and individual performance and is an integral part of the evaluation team.

The Engineering General Manager (EGM) attends and actively participates in Engineering Support Personnel (ESP) continuing training (pilot) sessions. This ensures that the planned training meets participants' requirements, expectations and philosophies before it is presented to the students in the ESP population. Feedback indicates that the content and overall quality of ESP continuing training has improved as a result.

The EGM has also ensured that qualification directories and guides have been completed for all engineering functional areas and that all incumbent engineering personnel have completed all required qualification training and are qualified to perform work.

These significant improvements are a direct result of the stewardship provided by the EGM and his direct reports.

F.2 Problem Identification and Problem Resolution

F.2.1 Problem Identification (Green)

Nuclear Training performs annual self assessments of each discipline's accredited training programs to verify they meet or exceed current industry standards. Biennial self assessments of each accredited training program are also conducted to ensure INPO accreditation objectives and criteria continue to be met. Approximately twelve months in advance of a scheduled accreditation renewal visit, Nuclear Training performs a pre-Self-Evaluation Report (SER) assessment to assist in the development of the formal SER due to INPO prior to the on-site Accreditation Team Visit. These self-assessment teams are comprised of line and training personnel and industry peers.

The Quality organization also performs an annual assessment of the entire Training organization. Non-accredited training programs undergo evaluations as part of this Quality assessment and other Plant assessments.

Training Advisory Groups (TAGs), consisting of a strong mix of line and training personnel, routinely meet to identify training needs, performance and equipment problems, etc., and any training required to correct identified problems. The PQD is used to manage personnel training and qualification status and can identify training needs. Instructors are observed and evaluated in all training settings to identify training and instructional needs. Monthly performance indicators are used to provide an early warning of such high emphasis areas as lost-time accident rate, recordable occupational injuries/illnesses, ALARA budget, simulator fidelity, simulator availability, facility effectiveness, human error rate, training quality, TAG effectiveness, qualification management, cost control, schedule effectiveness, PTL actions, accreditation renewal and regulatory performance.

When performance problems are identified, corrective actions are tracked using the PTL for disposition and completion.

F.2.2 Problem Resolution (White)

Most corrective actions that require training solutions are reviewed and approved by the TAGs. This process ensures line management and student involvement in the resolutions. PTL is used to track all corrective actions through to completion.

Nuclear Training has developed a performance indicator to track PTL corrective action closure. This indicator trends percent of "on-time" closure. The goal is that 100 percent of all PTL items due are closed on time. Nuclear Training is currently running about 95

percent. Improvement is needed here. The PTL backlog is continuing to decrease and is down from a nominal 230 items to 175. More focus is needed here to continue this trend.

F.3 Quality of Work (White)

The quality of Nuclear Training's work is ultimately determined by the performance of WNP-2 Plant personnel and, by some measure, the performance of the Plant. Last year saw a second consecutive breaker-to-breaker run, record generation and a relatively low human error rate. The Nuclear Training department had zero personnel errors last year.

Shift Manager ownership of crew performance, licensed operator "cold" evaluations, instructor reverse evaluations, innovative instructional techniques, good rapport between trainers and operators, innovative and creative uses of the simulator, "right on time" training on modifications/Plant startups/shutdowns, providing RO/SRO level of knowledge to equipment operators, improved Shift Technical Advisor (STA) involvement/evaluations, and end-of-week crew meetings are some examples of strengths noted in the Operator training section.

In the ESP Training section, continuing support of Plant Certification training for engineers, maintenance and planning/scheduling personnel; EGM involvement in the development of continuing training for ESP; completion rate of qualification guides and orientation training/qualification for all engineers; and effective TAG meetings are examples of strengths.

Continuing use of the process simulator for training and evaluation, small computer training, stack monitor training, quality verification and frisker training and qualification, undervessel mock-up and integrated advanced radiation worker training are examples of strengths in the Maintenance Training section.

Integration of innovative and creative training techniques into Industry Events training, improved efficiencies in "in-processing" training, development of General Employee Training as Computer-Based, advanced radiation worker training and frisker training and qualification, and integrated HP/Maintenance training on the process skid are examples of strengths in the HP/CHEM/GET Training section.

Some areas needing improvement have been identified over the preceding year and are aggressively being pursued by Nuclear Training. Examples of these include the following:

- Operations - improvement is needed in the consistent use of OJT/OJE qualification guides, inclusion of work management and Tech Spec surveillance testing into Initial License Class training materials, participation and membership in

TAGs, identification of specific corrective actions for identified crew and individual weaknesses and completion of individual qualifications for simulator operators.

- ESP - revised qualification guides had not been assigned or completed by the current licensing engineers assigned to the ESP training program student population. This situation has since been corrected. Also, training and qualification of specialty contractors used throughout WNP-2 was not adequately defined in procedures.

- Maintenance - training needs to provide more specific, hands-on, practical task training to our maintenance personnel. Also, initial training and qualification of more maintenance craft supervisors is necessary. Maintenance instructors need to improve configuration management controls for training records and increase the use of advanced learning techniques in classroom sessions.

- HP/CHEM/GET - improvement is needed in the consistency and quality of OJT/OJE performed in the Plant. Line manager/supervisor observations and oversight of training also needs improvement.

The overall quality and effectiveness of TAG meetings needs improvement. Training, and the line managers have developed a specific charter for the TAGs and Training is tracking and trending a performance indicator for "TAG Effectiveness."

Senior managers in the VPNO organization need to improve their oversight of classroom and in-Plant OJT/OJE sessions. The VPNO has developed a PIP which is directed at changing behaviors related to observations of training in all training environments.

Nuclear Training personnel believe in the concept of "continuous improvement" and although there are improvements yet to be made, all Technical programs received accreditation renewal without concern in 1995 and the expectation is that Operations and ESP programs will be renewed without concern in January 1998.

Documented feedback from all WNP-2 training programs provides additional evidence that the Nuclear Training organization continues to provide high quality training, which positively effects performance in the Plant.

F.4 Programs and Procedures (White/Green)

Training procedures are in place to support and direct all department activities. Most of the current procedures, excluding the high level program procedures, will be replaced by section instructions as part of the ongoing Site-wide Procedures Upgrade Project. The current procedures in use reflect how training is presently being conducted.

The PQD Upgrade Project is nearly complete. Qualification directories containing the qualification structures for each discipline are completed and turnover of personnel qualification management status to the Plant and line organizations is on-going and scheduled to be completed in February 1998.

Training materials, including lesson plans, program descriptions and training schedules, are reviewed by line management representatives to ensure technical accuracy prior to implementation. Two-year training plans are in place for all accredited programs within Nuclear Training.

APPENDIX G, PLANT SUPPORT
CHEMISTRY

The Chemistry functional area is rated White.

The Chemistry Department is staffed with experienced and qualified personnel. Participation in the formal problem identification process by Chemistry Technicians continues to be a weakness. Management expectations need to be reinforced to engage the workers.

Overall dose reduction in Chemistry is greatly improved, although efforts to deal with the source term in the lab rear sample panel area are not complete.

The Environmental laboratory has taken an active role in the chemical treatment of Plant systems, including the Spray Ponds, Turbine Service Water and Circulating Water (CW). Eddy Current testing of the Condenser during refuel outages is proactive. Changing Chemistry procedures to "instructions" should be carefully scrutinized to preclude regulatory issues. Station support for the Generic Letter 89-13 program appears adequate, but must be sustained.

G.1 Safety Focus and Management Involvement

G.1.1 Safety Focus (White)

Overall safety focus is considered improved, although some discrepancies were noted in the laboratory. Inconsistency in following the policy of wearing safety glasses in the laboratory analytical area was observed. In addition, other hazards were noted during the evaluation, including obstructions impairing access to eye washes and emergency showers.

During inspections of the Auxiliary Boiler Room, Spray Pond Peroxide Tanks, CW Chemical Storage Area and the CW Pumphouse, it was noted that Materials Safety Data Sheets (MSDS) were not posted to warn personnel of the chemical hazards.

Dose reduction efforts in the Chemistry Department have lowered monthly exposures for Chemistry Technicians from 200-250 mrem down to 100 mrem within two years. Individuals questioned about the exposure goals were cognizant of their own personal goals and those of the Department. Personal accountability in this area is evident. While this improvement is noteworthy, WNP-2 personnel should understand that past radiation exposures were unacceptable and continued improvement is possible.

G.1.2 Management Involvement (White/Red)

Two individuals supervise laboratory activities on a two-week rotating basis—one supervisor has primary responsibility for laboratory activities, while the other addresses PER resolution, participates in training, etc. In discussions with Chemistry Technicians, it was noted that the supervisors are required to attend several meetings during the course of the work day. The technicians voiced concerns that they need the supervisor present, especially in the earlier part of the day, to field Plant support requests, rearrange priorities and answer questions.

Performance of Training OJT/OJE has improved since the last *Assessment*. Two separate evaluations of Auxiliary Boiler sampling were reviewed and found to be acceptable. Both individuals were found to be exempt from OJT requirements based on previously completed valve manipulation and Auxiliary Boiler training. Training Chemistry Technicians in Plant valve manipulation is considered positive.

Annual goals for Training observations can be met, but most have been performed later in the year.

Chemistry Technician involvement in Training is considered positive. One technician is a member of the Chemistry Department TAG. This group meets approximately once every six weeks to discuss upcoming training needs and scheduled classes.

The Environmental Laboratory has taken an active role in the chemical treatment of Plant systems. This is a positive step in gaining better control of microbiological growth, fouling, scaling and corrosion. The following are examples of initiatives being worked on at the Environmental Laboratory:

- Peroxide treatment of Spray Ponds
- Silicate Corrosion Inhibitor in Spray Ponds
- Splitting CW Chemicals
- Developing a Marketing Plan for the Environmental Lab
- WNP Member on EPRI

G.2 Problem Identification and Resolution

G.2.1 Problem Identification (White)

Laboratory fume hood walls were covered with excessive corrosion products. This is a good example where a Work Request or PER could have been initiated to investigate the use of a more chemically resistant material. Of 24 PERs initiated by the Chemistry Department in 1997, none had been initiated by Chemistry Technicians.

Technicians do not participate in the formal Problem Identification process. There is a continued lack of buy-in from this group. The use of Gold Cards is a very sensitive subject that requires increased attention. Initiating Gold Cards is a Management expectation and some are generated because they are required, not because the people truly believe they are the right thing to do.

G.2.2 Problem Resolution (White)

PERs that have been submitted by Chemistry personnel are of good quality and they identified legitimate issues. Many positive statements were made concerning the FIN Team. They are able to help the Chemistry Department when materiel condition issues are brought to their attention for disposition.

G.3 Quality of Work (White/Green)

Chemistry Technicians exhibited good contamination control techniques at the Feedwater/Condensate sample panel. This is noteworthy in that these samples are typically low in activity compared to other radioactive process samples. The sample panel was properly posted for the radiological conditions and Chemistry equipment that crossed the Contaminated Area boundary was secured to preclude the spread of contamination. During insoluble metal filter collection, care was taken not to damage the sample media. The samples were placed in petri dishes and were labeled with the sample point, date and time. The local sample log was filled out with the appropriate information including totalizer values and sample volumes.

G.4 Programs and Procedures (White)

All employees exiting the Radiologically Controlled Area are allowed to use a Small Article Monitor to survey their personal items, such as paperwork, notebooks, etc. This practice facilitates productivity, while still meeting the release requirements for material leaving the area.

Conductivity meters in the laboratory were currently calibrated and labeled with a calibration due date. Lab balances were also observed to be currently calibrated and labeled accordingly.

Sample volumes/purge times are posted on laboratory sample panels as Information Aid 94-005. Guidance for this comes from Procedure 12.2.2 and is considered acceptable.

All reagents and standards in the laboratory were labeled with the contents and an expiration date. None were observed to have exceeded the expiration date.

A large radioactive waste container was noted in the rear lab area that was approximately 1/2 full of gloves, towels, etc. Segregation of clean trash from contaminated trash could save the site money in the future.

The site is in the process of improving and upgrading many Chemistry-related programs including the following:

- On-line Plugging of Condenser Tube Leaks
- Auxiliary Boiler Chemical Treatment/Lay-up
- Condensate Filter Demineralizer Modification
- Spray Pond Sand Filter Temporary Modification
- Twenty percent Condenser Eddy Current Testing during Refuel Outages
- Use of Procedures during Chemical Additions (Spray Ponds)
- Use of Chemistry Instructions
- NRC Generic Letter 89-13 Program (Service Water System Problems Affecting Safety-Related Equipment)
- System inspections of the Spray Pond submerged structures and inspections/replacement of the magnesium anodes

APPENDIX H, PLANT SUPPORT
LICENSING/REGULATORY AFFAIRS

The Licensing/Regulatory Affairs functional area is rated White.

During the 1996 *Assessment*, the Licensing/Regulatory Affairs area was considered as above average (i.e., rated as a "White/Green"). It is not accurate, however, to conclude that the area's performance has declined. In 1996 the area was simply overrated and, in fact, would have been better characterized by an average rating (i.e., "White"). While this situation provides an explanation for the *apparent* decline, the negative side of the explanation is that there has been little or no improvement since the 1996 *Assessment*.

Specifically, performance in the areas of regulatory compliance sensitivity, management involvement in the regulatory interface, problem resolution and quality of work (submittals) remain mostly unchanged, although improvement in these areas is clearly needed. Initiatives undertaken late in this assessment period are not reflected in the functional area rating, as the results of these efforts could not be assessed prior to the end of the assessment period.

H.1 Safety Focus and Management Involvement

H.1.1 Safety Focus (White)

For Licensing/Regulatory Affairs, the concept of safety focus is made up of two distinct parts—nuclear (and/or environmental) safety and sensitivity to regulatory compliance. Concerning nuclear safety, there is substantial evidence that personnel understand key regulatory requirements (e.g., 10CFR50.59 and interpretation of Technical Specifications) and appropriately apply them to their work (e.g., the POC sub-committee of CNSRB has consistently found 10CFR50.59 evaluations to be acceptable). In addition, interviews with Plant personnel generally indicate that Licensing/Regulatory Affairs personnel display a questioning attitude when interacting with other departments (good examples include ITS and the ongoing FSAR Upgrade Project). In addition, during the review period, Licensing/Regulatory Affairs personnel have demonstrated their focus on nuclear safety through initiation of PERs and use of the Gold Card system.

In the area of environmental safety, WNP-2 operates under a Site Certification Agreement (Agreement) which exists between the State of Washington and the Supply System. The Agreement covers matters which include, among others, water discharge, air discharge and emergency preparedness. Pursuant to the Agreement, an Environmental Monitoring Program governing the site is under the oversight of the State's Energy Facility Site Evaluation Council. The bulk of day-to-day implementation and monitoring of activities under this agreement is the responsibility of the State Department of Ecology (Ecology).

The reports for four Compliance Assessments conducted by Ecology from December 1996 through September 1997 were reviewed. In each case, no violations of regulatory requirements were identified. Each report did contain a number of "action" items. It appears that WNP-2 has been systematically and routinely addressing these items in an appropriate manner with the State.

While the Licensing/Regulatory Affairs organization has shown greater than average attention to nuclear and environmental safety, there is evidence of less than average sensitivity to regulatory compliance issues as they relate to the NRC (this is discussed in more detail below in Section H.3, "Quality of Work"). Specifically, NRC correspondence and verbal feedback from the regulator indicates a lack of sensitivity to the regulator's needs and priorities (e.g., there have been a number of less-than-thorough submittals and untimely responses). Management has recognized these shortcomings and is taking aggressive steps to turn things around; however, these efforts (e.g., a regulatory interface meeting with the NRC) were initiated late in the review period and their effectiveness will have to be determined at a future date.

When the two components of safety focus are weighed together, WNP-2's performance appears average.

H.1.2 Management Involvement (White)

The resolution of issues under the purview of Licensing/Regulatory Affairs are closely monitored by management. In most cases, resolution strategies are developed with input from other departments. A signature approval protocol is established for outgoing correspondence to state and federal agencies and is routinely used to assure management awareness of resolution strategies.

Licensing/Regulatory Affairs managers routinely attend key Plant meetings (e.g., daily PER, Plant Operations Committee and CNSRB NRC sub-committee meetings). They also provide direct input to the Project Review Committee to assure that issues of regulatory sensitivity receive proper consideration. Licensing/Regulatory Affairs management actively participates in NRC Inspection entrance and exits briefings. In addition, Licensing/Regulatory Affairs management recently initiated pre-exit issues (NRC) meetings with Plant management to assure that pending regulatory issues are being addressed in a timely and accurate manner.

A major effort currently being spearheaded by Licensing/Regulatory Affairs is the FSAR Upgrade Project. Substantial senior management involvement (e.g., direct decision making on allocation of level-of-effort resources and review of current regulatory issues) has been applied. Personnel staffing the FSAR Upgrade Project regularly meet with the VPNO, VPOS, EGM, and PGM to discuss the status and strategy for maintaining the project implementation schedule.

While there has been substantial management involvement in some areas, other areas have received limited attention. One of these areas is the assignment of an INPO representative. This position has been vacant for approximately seven months, indicating a lack of management commitment to gaining experience by having a staff member visit other plants. Another area concerns accessibility of Licensing/Regulatory Affairs management by staff. Due to extensive demand for the managers' time (often because of "mandatory attendance" meetings), it is challenging for management to work closely with staff on things like personal performance improvement plans and other day-to-day mentoring activities.

Finally, several performance improvement initiatives were recommended in the 1996 *Assessment* report; however, in most cases, these recommendations were only partially implemented. For example, the 1996 *Assessment* report recommended that, "Licensing/Regulatory Affairs should commence tracking NRC Observation items in its NRC open item tracking system to assure those items are not overlooked and are closed by the NRC staff." Licensing/Regulatory Affairs initiated a means to collect this data (which is still being collected), but management did not support using the data in any formal sense (e.g., tracking and/or dispositioning the data through PTL).

H.2 Problem Identification and Resolution

H.2.1 Problem Identification (White)

The Licensing/Regulatory Affairs staff initiated 18 PERs between October 1996 and October 1997. This is consistent with the previous 12-month period when 15 PERs were generated by the staff. Gold Card initiation, on a per capita basis, is average when compared to other departments. Gold Cards have been for both "Proper Use" and "Misuse" occurrences.

NRC open item commitments are tracked in a database to assure that closure documentation is assembled, packaged and sent to the NRC resident inspector for review. This simplifies the inspector's review of open items and allows him to close items more expeditiously. In addition, Licensing/Regulatory Affairs routinely uses the Plant-wide system (i.e., PTL) for tracking corrective actions associated with PERs. INPO issues and their corrective actions are tracked in a summary document called "INPO PLANT EVALUATION ISSUES." This document tracks findings made since INPO's 1989 evaluation.

Although Licensing/Regulatory Affairs tracks some matters typically monitored by other Plants, the department does not have an adequate set of *performance indicators* for its key activities. Recent data shows that approximately 50 percent (i.e., 20 of 41) PER Root Causes for LERs or Notice of Violation (NOV) responses were not completed in time to support the 30-day submittal deadline contained in PPM 1.3.12a. Tracking and managing this area of interest, along with others, is needed to improve staff

performance. Licensing/Regulatory Affairs does trend performance on Open Item closure package preparation. However, the backlog of closure packages to be prepared has grown by approximately 60 percent (i.e., 40 to 67) in the last eight months. It does not appear that trending this data has resulted in a desired reduction of the backlog. Greater management attention is needed in the area of *performance indicators.*

WNP-2 conducted a Regulatory Interface Workshop on July 31, 1997 to better understand interface problems with. the NRC. Licensing/Regulatory Affairs is developing a comprehensive performance improvement plan to address the workshop action items. The intent is to educate Plant staff on the existence of an interface problem and to determine how the interface can be improved. This plan will involve all Plant staff who interact with the NRC at the Resident, Regional and Headquarters level.

H.2.2 Problem Resolution (White/Red)

Progress toward better problem resolution is somewhat mixed. Items tracked in PTL are typically completed in a timely and effective manner. One item, involving the Utility Identified Weakness (UIW) in the Accredited Training Program, is a concern. Specifically, in February 1997, the ESP Training Program evaluation identified that Licensing engineers were not formally qualified to the standards set forth by INPO in ACAD (National Academy for Nuclear Training) 91-017, Rev. 1 (for certification to position specific qualification guides). This matter was not corrected until late in the third quarter of 1997; only after this UIW was again identified by Training to the VPOS as a vulnerability in the WNP-2 training program reaccreditation process.

Initiatives identified in the 1996 *Assessment* report targeted to improve performance in tracking strengths and weaknesses have seen no progress over the last year. Licensing/Regulatory Affairs management needs to reassess the need for these activities and, if determined to have some value, implement them in a rigorous manner.

In terms of adverse trends, only one example can be cited. PER 297-0737 documented that staff performance related to interpretations and implementation of Technical Specifications was non-conservative. Prompt corrective actions were taken through staff counseling and the matter is being followed-up with formal Regulatory Affairs Instructions (RAI-10) "Code of Conduct" expectations.

H.3 Quality of Work (White/Red)

Overall, the quality of work in the Licensing/Regulatory Affairs area was less than average during the period of review. LERs generally met the reporting requirements of 10CFR50.73, but lacked depth in the root cause analysis area (see Inspection Report 96-202). On the other hand, there were some high quality submittals to the NRC (e.g., the 50.54(f) response and a proactive letter concerning a Department of Labor

complaint). Unfortunately, the correspondence to the NRC too often could be characterized as less than timely and/or incomplete. A review of internal monitoring data suggests that the timeliness issue may be related to the fact that PERs supporting LERs and Notices of Violations are not routinely completed within the time limit specified in PPM 1.3.12A.

In addition to correspondence, the disposition of several technical matters (e.g., response time testing and the early criticality events) showed a lack of full appreciation for NRC's approach to regulatory compliance. These conclusions are supported in CNSRB meeting minutes.

The quality of work in the area of tracking and disposition of INPO identified items appears to be good. Action items are thoroughly tracked, including frequent interaction with Plant staff to assure prompt action on INPO concerns. The INPO Plant Evaluation Issues document represents a comprehensive summary of INPO performance issue trends at WNP-2 over the last eight years and integrates information on recurrence identified by internal self assessments, NRC SALP and previous INPO evaluations.

The implementation of ITS without incident is a strength. The use of the self-assessment process to conduct a Readiness Assessment prior to implementation is also a strength.

H.4 Programs and Procedures (White)

The Supply System has initiated several proactive efforts during the period under review. First, PPM 1.3.43, Licensing Bases Impact Determinations (LBID), was revised to enhance the identification of licensing bases (other than Technical Specifications and FSAR) which could be affected by Plant activities. These changes were fully communicated to Plant staff and have been included in follow-up LBID refresher and ESP periodic training. Second, in response to regulatory interface problems previously mentioned, WNP-2 initiated a Regulatory Interface Workshop. This effort included senior management, certain other managers and several members of CNSRB. The workshop resulted in a number of action items, including the development of a half-day workshop curriculum for managers, supervisors and leads on improving interfacing skills with the NRC.

Licensing/Regulatory Affairs controls all changes to the FSAR. This is effectively controlled by PPM 1.4.5, which details the step-by-step process for making a change to the FSAR. This procedure appears to be adequate for assuring that changes are appropriately reviewed, and that periodic updates (annual) sent to the NRC accurately reflect changes which occurred within the applicable reporting period.

Regulatory Affairs Instructions are in place which outline responsibilities, protocols and actions required for processing of work. They appear to be adequately comprehensive and are referred to by the staff on a routine basis.

Licensing/Regulatory Affairs personnel are actively involved with industry groups to assure that WNP-2 programs are consistent with other licensees. This includes active participation with National Energy Institute, Boiling Water Reactors Owners Group and the Region IV Utilities Group (RUG IV).

APPENDIX I, PLANT SUPPORT
WORK MANAGEMENT

The Work Management functional area is rated White/Red.

The work management process is most closely identified with the PSO organization. However, from the time a work request is generated until the time it reaches the field, many additional organizations have major input to the way work flows through the process. For this reason, Operations, Maintenance, Engineering, Health Physics, Quality Control and others share the responsibility for issues that prevent this process from performing to its optimum capability.

While the site continues to be successful in performing large projects and significant emergent issues, completion of routine day-to-day activities continues to require intense effort due to an unnecessarily complex and unnecessarily redundant work process.

The FIN and WIN teams are being used as a prototype for multi-discipline team application. The FIN Team completed 28 percent of all work requests in September and the WIN Team was established to address the growing backlog. While these teams are successful, their success is based on performing outside the "normal" work-management process. There is clearly a need to recognize that the existing process does not operate in a fashion adequate to meet station needs. A long-term solution to this issue is required.

Some improvements in the work control process have been made based on a thorough and comprehensive assessment by the PSO organization. Many of the identified initiatives, however, require commitment of human resources and process improvements from other organizations. As a result, some of the major issues identified by PSO have not been resolved due to the lack of site priority and dedication of available resources.

Organizational realignment has been accomplished within PSO. The addition of an Outage Management function will add significant focus to outage preparation and implementation; however, one of the critical positions in this organization—Major Maintenance and Divisional Outages—has not been filled. The failure to have an individual in this position is expected to have an adverse effect on outage preparation and implementation.

The addition of the Passport/Baseline computer system placed an additional burden on the work control process.

The Plant has run well, safety systems availability is high and material condition is good. However, this is a result of significant effort on the part of many people, rather than the design of the work control process.

I.1 Safety Focus and Management Involvement

I.1.1 Safety Focus (White)

Safety focus in work control is average. The work prioritization system and the 12-week rolling schedule appropriately focus attention on safety system performance.

The group as a whole has had no significant PERs or recordable injuries during this reporting period; however, there are examples of work being performed without adequate clearance order boundaries (PER 296-0831) and temporary changes to procedures that changed the intent of the procedure (PER 296-0881).

A major part of the planning process includes minimizing radiation exposure to personnel performing tasks in the field. During the reporting period, radiation exposure during non-outage periods has been reduced by 67 percent. In addition, on-line work is being performed in accordance with the station's PSA.

When faced with significant emergent issues, the organization has mobilized to provide quality work packages in a timely manner. PSO's ability to allow the performance of major maintenance while the Plant remained on line was instrumental to the station's second consecutive breaker-to-breaker run. The station's last performance period established the longest on-line run in the Plant's history.

However, PSO does not have the ability to provide high quality work packages (including clearance order preparation and implementation) to the Plant on a routine basis. Degraded or out-of-service equipment or components are, therefore, out of service longer than necessary. For example, during the recent standby gas outage, the test period was extended from 20 to 40 hours due to clearance order execution ineffectiveness. During 1997, this also led to a sustained average backlog of approximately 250 work orders greater than 90 days old and approximately 175 work orders greater than 180 days old.

I.1.2 Management Involvement (White/Red)

The Plant has taken on a more aggressive posture toward self assessments. However, PSO has performed only one formal self assessment this year. Based on the significant effect of work coordination barriers on Plant activities, additional self-assessment visibility is warranted.

There were informal self assessments that resulted in many action items being placed on PTL; however, the basis to support the conclusions is not maintained. Examples of informal assessments are the Roles and Responsibility assessment, the Process Improvement Plan, The Package Quality Assessment and the Process Streamlining assessment. All of these assessments contain valuable information for continued im-

provement in the work management process. None of these assessments are, however, documented on a formal self assessment, well advertised or easily retrievable.

Senior management has established a performance indicator for schedule effectiveness. Measuring performance to schedule is essential; however, it can be a detriment to performing quality work if inappropriately applied. One example is an individual who wrote a work order to close out work, rather than pursuing the problem and fixing it because two other jobs were waiting and schedule effectiveness would have been negatively affected. This resulted in leaving equipment in a degraded or inoperable mode longer than necessary and unnecessary rescheduling of the same work through the entire process. The site's willingness to sacrifice the schedule appears routine based on the large number of unscheduled tasks and overall poor schedule effectiveness. This indicates a lack of management support for schedule discipline.

Lack of efficient loading of the shops also contributes to the backlog. For example, during the week of October 6-12, the Electrical, Instrument and Mechanical Shops were loaded to 73, 52 and 60 percent respectively. Recent changes to the scheduling process are designed to load the shops to 100 percent.

Appropriate resources have not been provided to the PSO organization. The establishment of the Outage Team is commendable. However, internal disagreements delayed filling the Outage Manager position. Currently, one of the positions that is responsible for a significant portion of the integrated outage responsibility—Major Maintenance and Division Outages—remains open, with the refueling outage only five months away.

The planning process has been identified as a barrier to performing work. Some of the planning resources have been removed from normal activities and assigned to the FIN and WIN teams. With the current staffing and output of the planning group, and the level of work needing completion to meet outage milestones, the planners will have little time over the next six weeks to address routine work activities.

The output of the planning group is below industry standards (3-5 packages per day). Several distractions affect its ability to produce routine work, including the high number of PMs, the slow speed of the baseline computer system and the practice of developing custom work packages based on the individual needs of personnel performing the work.

A second bottleneck in the work management process is the Clearance Order Review Committee (CORC). Even though this is recognized, management has not provided the resources to reduce the workload of the group. Recent changes should address some of the problem. For example, individuals outside the Operations group have been identified as candidates to perform the CORC function. This will spread the existing workload among a larger group of individuals. Further, some work packages desig-

nated "clearance order not required," which previously went through the CORC process, will now bypass CORC.

None of the PSO managers have a clearly identified successor, and few of the positions within the organization have successors or cross-trained individuals for emergencies. It is appropriate to recognize the site commitment to future leadership needs by placing 24 people into SRO training, 3 of which were work-week leaders; however, the output of this investment is 18 months away. Consideration might be given to sending people who will not use or retain a license to a six-month certification class.

Baseline has had a negative effect on the work process. System response time has affected worker productivity between 10 and 30 percent. Coordination of activities to improve the process and communication of these actions has not been provided to the users. If the system slowdown is a result of user fault, management intervention is required.

The PSO organization has undergone some restructuring this year. Somewhat fragmented by the establishment of the WIN Team, it has also been slowed by the implementation of Baseline. That the WNP-2 work control process has had five managers in the last seven years also contributes to the ineffectiveness of the work control process. This is also a change management issue that reflects lack of analysis, planning and implementation of an organization and its processes and the subsequent management discipline to ensure success.

Observation criteria is defined in PSOI 1.4 and Individual Roles And Responsibilities are defined in PSOI 2.1; however, the standards and expectations for daily schedule achievement are not met or reinforced by personnel as defined in PSOI 2.1. Personnel have expressed frustration because they can work for 12 weeks to establish a schedule and have it suborned at the last minute. Many emergent issues are inevitable; however, the criticality of some of the emergent issues that disrupt the schedule is questioned.

Personal accountability is not established or enforced. The assessment team saw many examples of management and/or decision making by committee (e.g., first three steps of the work control process are reviewed by SROs). This does not include the additional three SRO reviews that occur during the process and other reviews, such as planning leads and CORC. This results in a complex process that assumes little risk. The structure of the process has been designed for the most complex job, with little flexibility to accommodate simple tasks which comprise the majority of the work.

Expectations are in place that require work packages to be at status 30 (ready for walkdown) by the Friday before X-3. This expectation is not consistently met, resulting in a workaround that prevents a true evaluation of work management process effectiveness.

I.2 Problem Identification and Problem Resolution

I.2.1 Problem Identification (White/Green)

This area is rated above average. While the formal process of performing self assessments has not been done well, informal self assessments have been performed and corrective actions are in place with due dates, PTL numbers and responsible individuals. Given the fact that Work Control has been identified as a major issue for some time, formalizing the self-assessment process would provide a record of the assessment, the basis for the assessment, all participants and references for future use.

Corrective actions generated through the informal self assessments are well thought out. The following are examples of these assessments:

- PSO Organizational Structure - Creation of the Outage organization, combining of the Planning/Procedure functions and removing outage responsibility from the line function responsible for daily work activities.

- Work Control Process Improvement Action Plan - Methodology for completing impact statements on approximately 3400 PMs, Streamlining the C/O process, modeling major outage tasks, cross-referencing work orders with model clearance orders and scheduling discipline are examples of process improvement actions.

- Work Process Self Assessment (issued 10/15/97)(Formal) - This assessment identified many of the implementation issues associated with work packages, including insufficient walkdowns, preparing standardized work packages for tasks that appropriately rely on the "skill of the craft" and inconsistent pre-job briefs. Action items have been assigned to address these issues, but it is too soon to tell the effect this assessment will have on the process.

I.2.2 Problem Resolution (Red)

This area requires immediate management attention. Personnel interviews demonstrated an inability to clearly identify the process and its bottlenecks. With the implementation of Passport/Baseline, many of the previous data collection points were eliminated. Data sorting in the new Passport/Baseline relies on a much more complicated data search routine, requiring "expert level" knowledge for effective data retrieval.

While work management is most closely identified with the PSO organization, it interfaces with several other organizations, including Maintenance, Operations, Health Physics, Engineering and Quality Control. In order to streamline the process, all of these organizations must reach consensus and provide commitment for achievement of that streamlining. To date, any consensus appears to be the result of significant effort

by the PSO organization. When the streamlining process comes to a halt (log jam fails to break), senior management must get involved. That involvement is not evident.

The team was provided with estimates of between 10 and 30 percent reduction in efficiency due to the implementation of Baseline. The primary problem is the speed at which the system operates. The team saw several examples of the use of this tool and the time it took to perform routine functions (e.g., changing screens within a work package.) In addition, the loss of features has resulted in many informal workarounds, which result in different people having different data and using different sources to make the same decisions.

Ineffective loading and frequent perturbations of the schedule result in an underutilization of personnel. The team found examples of swing-shift electricians having 60 percent or fewer man-hours scheduled. During the week of October 13-19, the Electrical, Instrument and Mechanical shops were loaded at 62, 60 and 87 percent respectively. This assessment did not ascertain the root cause for the problem. Crew specialization and optimization of the work distribution (levelizing the 12-week rolling schedule) are contributors. The team also found that very simple activities are required to go through the entire scheduling process.

Impact reviews and the CORC process are major bottlenecks in the work management process. Some of these issues are being addressed (e.g., Clearance Order Not Required packages bypass CORC and non-operations personnel are being trained to perform CORC functions). Also, a multi-disciplined team is being put together to address the PM model population. This group will ensure that available portions of the Model population which meet an established criteria will auto generate at "ready to work" status. This will eliminate the necessity for these tasks to be "handled" by CORC, Work Control, etc., on a recurring basis. This target population is approximately 5500 work order tasks. The initial focus will be on approximately 1100 outage-related PMs, followed by the most frequently done routine PMs. Expediting the resolution of this problem will provide additional resources to improve the quality of the work orders being created. (This process improvement has the potential for reducing the activity through Planning and CORC from approximately 165 to 20-30 work packages per week, representing a significant breakthrough which should allow the station to focus on operationally significant issues.)

I.3 Quality of Work (White/Red)

This area has been rated below average.

The process panel for providing feedback has been removed from Passport as a result of the Baseline modification. Personnel were hesitant to use the panel before, due to lack of confidence that resolution would occur, choosing to rely instead on correcting the work instruction themselves. Additional communication (either face-to-face, PSO to

Shop Supervisors, and Shop Supervisors to the workers) is warranted to continue improvement in the feedback process.

Items continue to appear on the schedule at X-3 at other than status 30. This is an unacceptable workaround that is tolerated to maximize work during the work week and leads to schedule inefficiency and worker inefficiency and frustration.

The Shops have concerns about the quality of work packages. Reflected in this is the issue of "custom packages." Currently, individuals need to "feel comfortable" with the package, and it's easier for them to change the package than to send it back through the system. Package quality and crew competency standardization will eliminate the time and effort spent on customizing packages.

I.4 Programs and Procedures (White/Red)

This area has been rated below average.

During the past year, the Plant has placed great emphasis on the performance of self assessments. During this time, an area that is considered the biggest obstacle to performing work has completed only one formal self assessment. As described under Problem Identification, however, several excellent informal self assessments have been conducted. Using the formal process documents the intent and assessment purpose, lists participants, and details the actions for future reference. This is essential for continuous growth.

Performance indicators of work orders in the process and schedule effectiveness are not well understood or easily retrieved. The Baseline computer system has added to this complexity on a short-term basis.

A consistent level of detail is needed on work orders. This task is complicated by the fact that craft available to perform the task are not always available to the shop at X-3. The schedule should be adjusted to allow identification of the craft early in the process. This would allow early craft input to the package development process. This has been identified in PSO and Maintenance self assessments, but implementation of corrective actions has not been timely.

Additional communication is needed regarding the changeover to Passport/Baseline. There are examples of processing speed problems, some of which may be lack of understanding of the computer's capabilities, resulting in misuse (e.g., querying the wrong field for data, resulting in millions of activities that slows the system for everyone). Based on the number of concerns expressed and the slowdowns observed, this should be addressed as a change management issue when major process changes are implemented.

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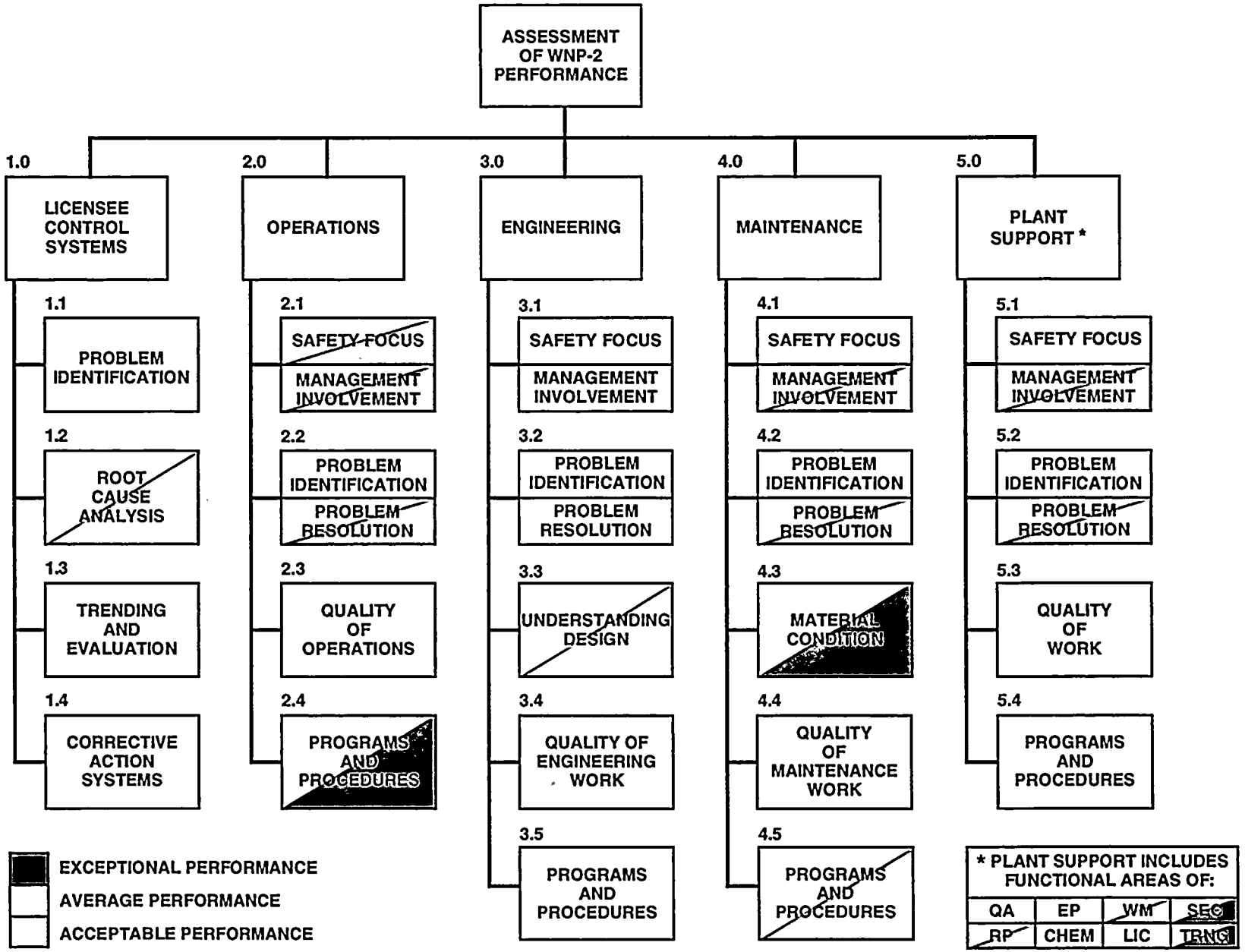
PERFORMANCE SELF ASSESSMENT
FUNCTIONAL AREA RATING CHART



SEE INTRODUCTION FOR DETAILED COLOR DESCRIPTION

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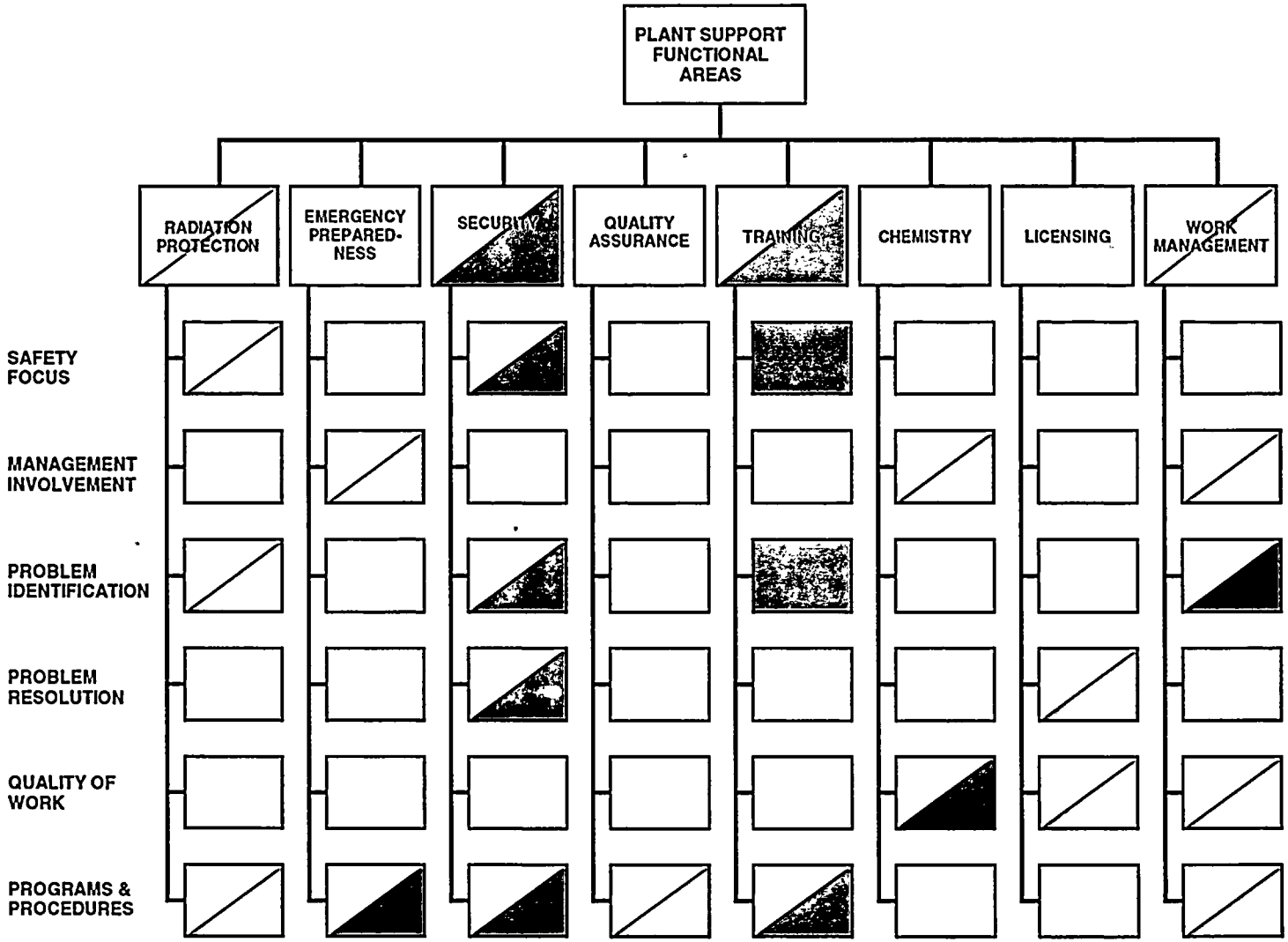
Feb 1998

Appendix J

WNP-2 1997
PERFORMANCE SELF ASSESSMENT
FUNCTIONAL AREA RATING CHART



EXCEPTIONAL PERFORMANCE

AVERAGE PERFORMANCE

ACCEPTABLE PERFORMANCE

SEE INTRODUCTION FOR DETAILED COLOR DESCRIPTION

Appendix K

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