ENCLOSURE 3

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

INSPECTION REPORT 50-220/85-98 (AMENDED REPORT)

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT, UNIT 1

ASSESSMENT PERIOD: JUNE 1, 1985 - OCTOBER 31, 1986

BOARD MEETING DATE: JANUARY 7, 1987

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I. INTRODUCTION

A. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations and data on a periodic basis and to evaluate licensee performance based upon this information. SALP is supplemental to normal regulatory processes used to ensure compliance to NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant construction and operation.

A NRC SALP Board, composed of the staff members listed below, met on January 7, 1987 to review the collection of performance observations and data to assess the licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section II of this report.

B. SALP Board

Board Chairman

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Members

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Lee H. Bettenhausen, Chief, Operations Branch, DRS (Part Time)
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Robert M. Gallo, Chief, Projects Branch 2, DRP
James H. Joyner, Chief, Nuclear Safety and Safeguards Branch, DRSS (Part Time)
James C. Linville, Chief, Project Section 2C, DRP
Thomas T. Martin, Director, Division of Radiation Safety and Safeguards

Attendees:

Clifford J. Anderson, Chief, Plant Systems Section, DRS
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William J. Lazarus, Chief, Emergency Preparedness Section, DRSS
Charles S. Marschall, Resident Inspector, NMP 1&2
Glenn W. Meyer, Project Engineer, Project Section 2C, DRP

Ronald L. Nimitz, Senior Radiation Specialist, DRSS
Mohamed M. Shanbaky, Chief, Facilities Radiation Protection Section, DRSS

C. Background

1. The facility operated at full power from June 1, 1985 until August 19, 1985 when an automatic trip occurred due to a ground in the main generator voltage control circuitry resulting from personnel error. The unit was returned to power, and a second reactor scram occurred on August 23, 1985, due to turbine trip on high reactor water level. The high reactor water level was caused by failure of a spring on a feedwater flow control valve.

The unit was restarted and operated at full power until November 1, 1985 when a scram occurred due to loss of instrument air. The plant remained shutdown for several days to accomplish maintenance on the Electromatic Relief Valves. During the startup on November 7, 1985, two automatic scrams occurred as a result of a sticking bypass valve.

The unit was returned to full power and began End Of Core coastdown in early December 1985. On December 11, 1985 a shutdown was conducted to repair a malfunctioning Reactor Building Closed Loop Cooling System temperature control valve.

On January 18, 1986 a shutdown was initiated when the licensee discovered that design calculations were not in compliance with the Final Safety Analysis Report for jet impingement loading on Emergency Condenser Piping containment penetrations. After performing an engineering review to justify continued operation, based on a detectable leak before break basis, the plant was returned to approximately 82 percent power.

Coastdown continued through February 1986 and the unit was shutdown on March 7, 1986 to begin a fourteen week refueling outage. Major work activities during the outage included replacement of some Emergency Condenser piping, complete Main Condenser retubing and replacement of three Containment Spray System heat exchangers.

On June 16, 1986, the post outage startup commenced. During the reactor startup, three of eight Intermediate Range Monitors (IRMs) failed and the reactor was returned to shutdown. On June 17, 1986, the reactor again had to be shutdown when the same three IRMs failed. On June 18, 1986, a reactor scram occurred on low reactor water level due to operator error. Also on June 18, 1986, a shutdown was initiated due to a violation of the Technical Specification requirement for Rod Worth Minimizer operability and an unisolable leak from an in-core water sample

line, part of the primary coolant pressure boundary outside containment. On June 19, 1986, a reactor scram occurred due to a spike on an IRM while troubleshooting. On June 20, 1986, a shutdown was conducted due to generator metering problems. On June 21, 1986, a shutdown was conducted due to a stuck feedwater check valve. In total, unit startup was aborted seven times due to automatic or forced shutdowns prior to reaching full power in late June 1986. Full power operation continued until a forced shutdown on July 7 to repair a Control Rod Drive pump with high vibration. Startup was commenced on July 14 and the plant was returned to full power on July 19, 1986, after resolving vortexing problems in the main circulating water pumps.

On August 1, 1986, the plant was shut down to repair a leaking Emergency Condenser condensate return valve. The plant was returned to power on August 5, 1986, and was operated at full power until August 22, 1986, when a shutdown was conducted after it was determined that unauthorized maintenance was performed on the Control Rod Drive scram valves.

The plant was restarted on August 25, 1986, and operated at full power through the end of the assessment period.

2. Inspection Activities

The NRC inspection effort during the assessment period totalled 3464 hours by the resident and region based inspectors. This represents 2445 hours on an annual basis. The distribution of inspection hours is shown in Table 2. Inspection activities and enforcement data are summarized in Tables 4 and 3, respectively.

During the period, NRC team inspections were conducted in the following areas:

a. Environmental Qualification Program Team Inspection
b. Outage Team Inspection
c. I&C Technician Allegation Followup Team Inspection
d. Generic Letter 83-28 Post Maintenance Testing Team Inspection

II. CRITERIA

Licensee performance is assessed in selected functional areas, depending on whether the facility is in a construction, preoperational, or operating phase. Functional areas normally represent areas significant to nuclear safety and the environment, and are normal programmatic areas. Special areas may be added to highlight significant observations.

The following evaluation criteria were used, where appropriate, to assess each functional area.

1. Management involvement and control in assuring quality
2. Approach to resolution of technical issues from a safety standpoint
3. Responsiveness to NRC initiatives
4. Enforcement history
5. Operational and Construction events (including response to, analysis of, and corrective actions for)
6. Staffing (including management)
7. Training effectiveness and qualification

Based upon the SALP Board assessment each functional area evaluated is classified into one of three performance categories. The definitions of these performance categories are:

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

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

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

The SALP Board has also assessed each functional area to compare the licensee's performance near the end of the assessment period to that during the entire period in order to determine the recent trend for functional areas as appropriate. The trend categories used by the SALP Board are as follows:

Improving: Licensee performance was determined to be improving near the close of the assessment period.

Declining: Licensee performance was determined to be declining near the close of the assessment period.

A trend is assigned only when, in opinion of the SALP board, the trend is significant enough to be considered indicative of a likely change in the performance category in the near future. For example, a classification of "Category 2, Improving" indicates the clear potential for "Category 1" performance in the next SALP period.

III. SUMMARY OF RESULTS

A. Overall Facility Evaluation

Overall, licensee performance during this assessment period declined from levels of the previous period. As discussed in detail in Section IV of this report, numerous weaknesses were identified during this assessment period which were reflected in several of the areas evaluated. These weaknesses became particularly evident during the 1986 refueling outage.

Repetitive equipment failures, maintenance deficiencies, unplanned personnel exposure and an increase in operational problems were observed during this period. In addition, difficulties were encountered during the 1986 refueling outage and upon subsequent unit startup.

Collectively, these problems are indicative of certain programmatic weaknesses in the NMPC management system that need to be addressed. In particular, problems identified by the licensee's staff are not always brought to the attention of management for resolution, problem review for root cause determination is in many instances weak, and operational quality assurance is not as effective as it should be in helping the line organization find and correct problems. As a result, some problems are not identified as requiring corrective action while identified corrective actions for some identified problems are either inappropriate or lack thoroughness and depth.

In contrast to the performance in other areas, performance in the security and safeguards and emergency preparedness areas during this assessment period demonstrated a continued commitment to excellence and self improvement.

In summary, the pressing demands for the completion of construction on Unit 2 appeared to have placed a strain on the licensee's management and resulted in reduced attention to Unit 1 in several functional areas. As a result, licensee management needs to reassess its priorities in order to correct these weaknesses and assure the continued safe operation of Unit 1.

B. Facility Performance

Functional Area	Category Last Period (05/1/84-05/31/85)	Category This Period (06/1/85-10/31/86)	Trend
A. Operations	1	2	
B. Radiological Controls	1	2	
C. Maintenance	2	3	
D. Surveillance	1	2	
E. Emergency Preparedness	1	1	
F. Security and Safeguards	1	1	
G. Refueling and Outage Management	N/A	2	
H. Licensing Activities	1	1	Declining
I. Training and Qualification Effectiveness	N/A	2	
J. Assurance of Quality	N/A	3	

IV. PERFORMANCE ANALYSIS

A. Plant Operations (474 hours, 13.7%)

1. Analysis:

During the previous assessment period, this area was rated Category 1. Strong improvement in this functional area was noted with few events involving operator error. Weaknesses were identified in the requalification program including an overly simplistic question bank, too much self-study and reading, and a lack of challenging presentation of the subject matter. A special inspection of licensed operator requalification and mechanical, electrical, and instrument and control technician training programs found that licensee training programs were adequate.

Based on the continuing review of the resident inspectors and an August 1986 team inspection, operations during this assessment period were considered to be generally good, although it has declined from the previous period and there are some aspects of operations that clearly need to be improved. The number of scrams caused by operator error was low which appeared to be the result of an active and responsive operations staff. Operations management was competent and thorough in overseeing overall facility operation and was actively involved in the resolution of operating problems.

Further, there was good interaction between supervisors and operators, and between operations and other plant groups. The operators had generally good awareness of plant status. The staffing in the operations area appeared adequate with good control over the use of overtime. Operators were generally knowledgeable about the plant and its equipment, which reflected well on licensed and nonlicensed operator training programs.

However, during this assessment period, three scrams and several ESF actuations resulted from operator error. During unit startup in June 1986, a scram resulted from operator failure to start a feedwater pump in a timely manner. High Pressure Coolant Injection (HPCI) initiations in December 1985 and March 1986 were attributed to operator inattentiveness to reactor water level. A HPCI initiation in November 1985, resulted from high turbine exhaust hood temperature during Electromatic Relief Valve (ERV) testing. The exhaust hood spray valve, normally in auto, was controlled in manual and not fully open. While shut down in August 1986, a turbine trip and reactor scram occurred while refilling a Reactor Recirculation Pump loop. Makeup, required to compensate for refilling an empty recirculation loop, was not secured in time to prevent water level from reaching the turbine trip setpoint. At the same time, a surveillance was in progress which allowed a reactor scram on a turbine trip signal to be in effect, despite the fact that the plant was

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shut down. Each of these events could have been prevented by increased operator attentiveness during routine evolutions and more careful supervisory review of the impact of multiple plant evolutions.

A Technical Specification violation occurred during a startup after the 1986 refueling outage when control rods were withdrawn without an operable Rod Worth Minimizer (RWM). An initial failure of the Rod Worth Minimizer, caused by faulty process computer software, although difficult to detect, was discovered by an alert reactor analyst. Computer technicians restarted the Rod Worth Minimizer program, but the RWM remained inoperable and this was not immediately recognized by control room personnel. The operator at the controls withdrew three more rods before it was recognized that the Rod Worth Minimizer was still inoperable.

A contributing factor to this Technical Specification violation was the role of the reactor analyst during reactor startup. In this instance, the reactor analyst took charge of the initial problem with the Rod Worth Minimizer, called the computer technician to restart the process computer program, and manipulated the Rod Worth Minimizer controls as the operator looked on. Until identified by the resident inspector, the licensee was not aware of the apparent role reversal between the reactor analyst and the licensed operator. The licensee has examined the responsibilities of control room personnel during startup and re-emphasized the proper relationships of those personnel. This event appears to be the result of informality of operation in the control room. Subsequent review by the NRC indicates a lack of self-analysis and critique in the recognition of event significance and cause.

Early in the period the operations staff displayed a generally casual attitude and appearance in the Unit 1 control room. Control room access was reasonably controlled and has generally improved this assessment period. In response to inspection findings early in the assessment period, the licensee has improved personnel access to the control room and this has resulted in a noticeably lower number of personnel in the control room. In addition, the control room was observed to be clean and uncluttered, and the noise level was typically low and not distracting to personnel working in the control room.

Housekeeping practices onsite were varied during the assessment period. Although the Station Superintendent and other licensee management personnel inspect all station areas weekly, station cleanliness was excellent in some areas and, at the same time, was poor in others. This results from poor work habits, as evidenced by the failure of workers to clean a job site at the conclusion of each shift and when work is completed. Tours by station management usually result in immediate corrective action, but a program for consistent accountability for housekeeping at the worker level is needed.

Licensee fire department response to spurious fire alarms and actual fires was good. The site fire department consists of dedicated personnel, independent of the operations staff. A fire brigade is manned twenty-four hours a day.

Staffing in the operations department appears to be adequate, with ample licensed operators on each shift and available for relief.

In summary, operations performance during this assessment period has declined from the previous period. Operator complacency and informality contributed to those problems encountered during this assessment period and this warrants additional station management attention.

2. Conclusion:

Rating: Category 2

3. Board Recommendations:

Licensee: None

NRC: None

B. Radiological Controls (406 hours, 11.7%)

1. Analysis:

This area was rated Category 1 in the last assessment period. Weaknesses identified were associated with a problem relative to radwaste shipping regulations, a lack of comprehensive criteria for performing ALARA monitoring of ongoing work and a lack of a well defined radiation protection personnel retraining program. The radwaste shipping problem was corrected in a timely and effective manner. Although corrective actions were taken for the ALARA and retraining problems, the actions were, as discussed in the assessment, ineffective. The licensee did not have an outage last assessment period. Consequently, no significant radiological work occurred.

This functional area will be discussed in terms of radiation protection, radioactive waste transportation, and effluent monitoring and control. There were nine inspections conducted by region-based inspectors in this area including five in radiation protection, two in radioactive waste transportation, and two in effluent monitoring and control. Resident inspectors performed routine reviews of the program area throughout the assessment period.

RADIATION PROTECTION

An adequately staffed radiation protection organization existed to perform the routine functions during operating periods. However, the increased demands on radiation protection personnel to cover the day-to-day activities during the outage, in conjunction with the need to review overlapping radiological incidents, resulted in a decline in performance in the areas of oversight of ongoing radiological work, radiation protection personnel interface and communication with work forces, radiation protection personnel and worker adherence to procedures, and comprehensive, timely corrective action for NRC and self-identified deficiencies.

Since no outage occurred during the last assessment period, the decline was based on a comparison with licensee performance during previous major outages (e.g., recirculation piping replacement). Three instances which evidenced this decline occurred early in the outage. The first involved unplanned exposure of an individual to excessive concentrations of airborne radioactivity (@400 X mpc) during grinding. Neither proper engineering controls nor respirators were used, as required per procedure. In the second instance the ALARA group provided training in the use of glove bags to the designated work crew for a valve replacement. However, due to inadequate communication with work groups, a different crew with little

training on glove bags performed the installation. The bag leaked during use exposing workers to very high levels of airborne radioactivity (@800 X mpc). Weaknesses in intra and interdepartmental communications and oversight of contractors were also causal factors. The third instance involved an I&C technician working under the reactor vessel. The technician had an off-scale pocket dosimeter and made subsequent entries under the vessel without adequate review and follow-up on the circumstances surrounding the off-scale dosimeter. Inadequate oversight by radiation protection personnel of work in high radiation areas, worker and radiation protection personnel failure to implement procedures, and weaknesses in procedures were causal factors of this third incident. Further, the fact that no evaluation was performed on the technician's dose demonstrated ineffective oversight of dosimetry.

The licensee evaluation and corrective action for the first two instances lacked thoroughness and depth. Also, Occurrence Reports, which provide for elevation of identified problems to appropriate levels of management, were not issued, as required by plant administrative procedures. The failure to notify appropriate levels of station management through issuance of Occurrence Reports is considered a significant breakdown in the licensee's corrective action process. NRC review of the third instance, is not yet complete.

The General Employee Training Program was adequate, and training records were complete and well maintained. Training facilities provided were of high quality indicating a management commitment to training. The training program was recently certified by INPO.

A generally well defined initial training and qualification program for radiation protection personnel existed. During the previous assessment period, the scope of the retraining program was not well defined, but the licensee took action this period to determine the training scope. Although it was not implemented in a timely manner, due to a lack of instructors, the licensee has expedited the training. The radiation protection personnel training program was recently accredited by INPO.

Total average personnel exposures for the six year period, 1980 through 1986, is lower than the national average for BWRs (910 person-rem per year versus 981 person-rem per year). Although exposures were lower than average, weaknesses were evident in the station ALARA Program. In the area of pre-planning and goal setting, inadequacies in the completeness of outage work scope description resulted in the need to increase the station ALARA person-rem projection for 1986 from 967 person-rem to 1486 person-rem. The lack of a complete work scope description indicates inadequate outage planning. Also, without this complete description, the ALARA group was not able to include this exposure in initial cost benefit analyses until the outage had started. Consequently some highly effective dose reduction techniques were not used (e.g. primary system decontamination prior to significant drywell work). The work scope descriptions were not provided to the site ALARA group by the corporate engineering group. In the area of ALARA monitoring of on-going work activities, the licensee established comprehensive monitoring criteria for use in identifying work activities with the potential to exceed established ALARA goals. However, the criteria could not be used because of computer software problems resulting in the need to perform less than optimum reviews using hand calculations, indicating ineffective corrective action of NRC identified concerns. In the area of post-job reviews by the ALARA Group, NRC review found that the reviews were not being performed in a timely manner and in some cases documentation was lost or misplaced. These post-job reviews serve as a measure of the effectiveness of the ALARA pre-planning and provide a data base for future similar work.

Reviews of radiation protection facilities and equipment were performed. An adequate complement of radiation protection equipment to support the program was present.

RADIOACTIVE WASTE TRANSPORTATION

In the area of radioactive waste transportation, the one violation for failure to identify Iron-55 in radioactive waste shipments appeared to be an isolated example of a lack of attention to detail rather than a programmatic breakdown. The corrective action for this violation was appropriate and thorough. In addition, the licensee's response to a Severity Level III violation, civil penalty, and transportation permit suspension issued by the State of South Carolina during the previous SALP assessment period was reviewed. Corrective actions were appropriate and timely. A subsequent review found the procedures for controlling radioactive waste shipments to be well defined. The training and qualification program for radioactive waste

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shipping was well defined and properly implemented. Minor deficiencies were identified in the retraining program for radioactive waste shipping personnel, and the licensee took timely action to address these deficiencies.

EFFLUENT MONITORING AND CONTROL

The licensee implemented the Radiological Effluent Technical Specifications (RETS) during this assessment period. Licensee management initiated an audit to monitor implementation of the RETS and identify any potential problems. The licensee then initiated corrective actions for any identified problems. Overall, RETS implementation was adequate and thorough.

One environmental monitoring program inspection was conducted, and no violations were identified. The licensee's environmental monitoring program was effectively implemented with respect to effluent radiation monitor surveillance testing, Technical Specification requirements for sampling frequencies, types of measurements, analytical sensitivity, and reporting schedules.

SUMMARY

Licensee performance in the areas of radioactive waste shipping, and effluent monitoring and control was adequate. However, findings in the area of radiation protection for outage work activities indicates significant management weaknesses in oversight and control of on-going work. Also, the failure of radiation protection management to implement timely and effective corrective action for identified problems demonstrates inadequate root cause analysis of problems. Recurrent instances of failure to implement the station corrective action process indicates a failure of station management to properly monitor the performance of the radiation protection organization and initiate improvements where required.

2. Conclusion:

Rating: Category 2

3. Board Recommendations:

Licensee: Review the overall radiation protection program to evaluate the adequacy of oversight of work activities in high radiation areas, especially and during periods of high stress.

NRC: Review licensee radiological controls program via a team inspection at the beginning of the next outage.

C. Maintenance (1003 hours, 29.0%)

1. Analysis:

Preventive and corrective maintenance is performed by electrical and mechanical personnel in the Maintenance department, and Instrument and Control (I&C) and computer technicians in the Technical Support department.

During the previous assessment period, this area was rated Category 2. Weaknesses were identified in the areas of procurement and preventive maintenance of mechanical components. Implementation of the Material Management System and management attention has resulted in improvement in the area of procurement. Preventive maintenance is discussed below.

During this assessment period, several instances of failure to identify repetitive equipment problems and an inability to identify the root cause of equipment failures occurred. The following are examples:

- Multiple repairs were made to Local Power Range Monitor (LPRM) coaxial cable connectors due to a defective design. This design deficiency had been identified for several years by technicians and supervisors, but had not been addressed by station management.

- Seventeen (17) automatic initiations of Control Room Emergency Ventilation have occurred, thirteen of which were attributed to spiking of the Control Room Radiation Monitors.

- A startup was terminated when three Intermediate Range Monitors (IRM) failed. After repairs to the IRMs were made, another startup was terminated when the same three IRMs failed again.

- In April 1986, a Reactor Building Emergency Ventilation system automatic initiation occurred when backfeed through the main transformer, from the plant 345kv switchyard, was lost. The loss of backfeed was determined to have been caused by outage maintenance on protective relays. Loss of backfeed had been caused four days earlier by personnel performing the same maintenance, and had been attributed to coincidence.

- Several instances of MG set undervoltage protection device failures occurred during this assessment period causing process computer problems, Reactor Building Emergency Ventilation actuations and half scrams.

The first three instances, listed above, are evidence of the lack of an effective management system to trend corrective maintenance and identify repetitive failures. All five instances are indicative of an inability to sufficiently analyze and determine adequate corrective action in a timely manner.

Instances of the licensee's failure to assess the applicability of equipment failures to components in other plant systems occurred during the assessment period. The licensee failed to thoroughly investigate electromatic relief valve wear related failures and to evaluate the consequences of scram isolation valve diaphragm aging, until prompted by the NRC.

Several instances of personnel error resulted in reactor scrams and forced outages. These events were attributed to inadequate control of maintenance and post-maintenance testing. Post-maintenance testing was not performed on the rod worth minimizer after it failed during startup from the 1986 outage. LPRM connectors were installed without proper authorization, documentation or Quality Control measures, however, they were installed with the knowledge of supervision. Packing adjustments were made on an undetermined number of CRD scram inlet and outlet valves without proper controls and the required post-maintenance testing being accomplished. Direct oversight by station management and first-line supervision of work activities in the field and better understanding of the work scope and interface with operations appears necessary based on the NRC review of the CRD scram valve maintenance. In addition, a need for closer station management scrutiny of safety related activities appears warranted.

The events described above are to varying degrees attributed to weaknesses in adherence to procedures, material control, Quality Control, a tendency for problems to be handled at too low a level and first line supervision control of activities. As a result of the licensee's investigation into the allegations, a series of presentations on adherence to procedures was conducted by senior licensee management. However, the maintenance related weaknesses cited above are indicative of broader problems as discussed above.

Although procedures were found to be generally well structured and explicit, breakdowns were observed in detailed implementation. One example was the program for control of measurement and test equipment. The program was generally acceptable for I&C department implementation, but it was inadequate for meter and test equipment group use and calibration records maintenance. Another example was the failure of the field traveler for the hydrogen injection/sample line modification to properly sequence a hydrostatic pressure test upon completion of a weld to a reactor vessel pressure boundary. The necessary hydrostatic test was properly sequenced in the design specifications, but was not transcribed properly to the field traveler.

A review of selected Salem ATWS modifications, indicated apparent breakdowns in the licensee's modification design controls program. As-built drawings were not revised after the completion of an ATWS modification. A subsequent modification to the ATWS panel, using out of date drawings, resulted in wiring discrepancies which disabled ATWS-recirculation pump trip circuit annunciators. A different problem was identified with the remote shutdown panel modifications. Inadequate work documents resulted in electrical separation violations and incomplete reassembly of panel components. A plant modification package for reactor protection (and other) motor generator set voltage regulating circuits, forwarded to the plant for execution, included very general instructions for installation and testing which, if not amplified, provided excessive latitude for field implementation. These breakdowns indicate a lack of inter-departmental coordination, which has the potential for impacting safety. Implementation of a vendor technical information control program was behind schedule and too narrow in scope.

Several problems were identified with the EQ program and its implementation. The licensee was effective in correcting the programmatic deficiencies (EQ program procedures not in place, inadequate performance requirement specifications, file auditability) and specific file deficiencies. Subsequent management involvement was evident in the prompt acquisition of the necessary contractor support to correct the deficiencies. Following the NRC inspection, the licensee, on its own initiative, conducted a review of all the EQ files and conducted a second walkdown of all items on the EQ master list.

The licensee's EQ organization is currently structured substantially around one highly qualified Niagara Mohawk individual who uses the assistance of consultants. The licensee is in a state of transition from this organization, which only addresses Unit 1 EQ, to an organization that will also include the Unit 2 EQ. This program revision represents a large increase in the number

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Although procedures were found to be generally well structured and explicit, breakdowns were observed in detailed implementation. One example was the program for control of measurement and test equipment. The program was generally acceptable for I&C department implementation, but it was inadequate for meter and test equipment group use and calibration records maintenance. Another example was the failure of the field traveler for the hydrogen injection/sample line modification to properly sequence a hydrostatic pressure test upon completion of a weld to a reactor vessel pressure boundary. The necessary hydrostatic test was properly sequenced in the design specifications, but was not transcribed properly to the field traveler.

A review of selected Salem ATWS modifications, indicated apparent breakdowns in the licensee's modification design controls program. As-built drawings were not revised after the completion of an ATWS modification. A subsequent modification to the ATWS panel, using out of date drawings, resulted in wiring discrepancies which disabled ATWS recirculation pump trip circuit annunciators. A different problem was identified with the remote shutdown panel modifications. Inadequate work documents resulted in electrical separation violations and incomplete reassembly of panel components. A plant modification package for reactor protection (and other) motor generator set voltage regulating circuits, forwarded to the plant for execution, included very general instructions for installation and testing which, if not amplified, provided excessive latitude for field implementation. These breakdowns indicate a lack of inter-departmental coordination, which has the potential for impacting safety. Implementation of a vendor technical information control program was behind schedule.

Several problems were identified with the EQ program and its implementation. The licensee was effective in correcting the programmatic deficiencies (EQ program procedures not in place, inadequate performance requirement specifications, file auditability) and specific file deficiencies. Subsequent management involvement was evident in the prompt acquisition of the necessary contractor support to correct the deficiencies. Following the NRC inspection, the licensee, on its own initiative, conducted a review of all the EQ files and conducted a second walkdown of all items on the EQ master list.

The licensee's EQ organization is currently structured substantially around one highly qualified Niagara Mohawk individual who uses the assistance of consultants. The licensee is in a state of transition from this organization, which only addresses Unit 1 EQ, to an organization that will also include the Unit 2 EQ. This program revision represents a large increase in the number

of EQ items to be controlled by the licensee. In addition, the licensee planned to phase out much of their dependence on consultants by the end of 1986.

In summary, numerous maintenance activities were not adequately planned, executed or reviewed during this assessment period. The licensee's reliance on experience and lack of significant difficulties in the recent past are viewed by the licensee as proof of effective management. The result has been a superficial approach to problem solving. The inability to effectively identify and resolve problem areas is evident in virtually all of the examples cited in this section. The apparent causes for these maintenance problems were insufficient first-line supervision and management oversight, and inadequate quality control. Licensee technicians, mechanics and electricians appear to have the necessary skills of the trade to properly perform their specific maintenance activities, but too often lack the proper guidance and training to conduct those activities in accordance with the operational, and administrative programs and, occasionally, regulatory requirements.

2. Conclusion:

Rating: Category 3

3. Board Recommendations:

Licensee: Refer to Assurance of Quality Section.

NRC: Perform team inspection at the beginning of next outage.

D. Surveillance (894 hours, 25.8%)

1. Analysis:

During the previous assessment period this area was rated Category 1. No indications of programmatic weaknesses were evident. A personnel error during surveillance testing caused one trip from 100 percent power, and two incidents of missed surveillances were identified. These were considered to be isolated events.

During this assessment period, three reactor scrams resulted from surveillance related activities.

- A reactor scram occurred from full power during a surveillance inspection when an electrician moved a brush connecting wire in the main generator excitation system, causing a ground.

- During the refueling outage, a reactor scram and reactor building emergency ventilation system automatic initiation occurred when technicians valving in a pressure instrument caused a pressure spike, unblocked the scram on MSIV closure and low condenser vacuum.

- When the plant was in cold shutdown, a reactor scram occurred during a HPCI surveillance when water level was lowered to the low level scram setpoint. Corrective action included changing the surveillance procedure so that the scram setpoint would not be approached.

The scrams described above indicate a weakness in the licensee's ability to ascertain the impact of surveillance activities on operations.

Also during this assessment period, the licensee identified and reported several missed surveillances. These are indicated below:

- A review of the implementation of a new Technical Specification change by the nuclear compliance and verification department revealed that instrument channel checks had not been performed on three of four emergency condenser system noble gas activity monitors within the required time limit.

- The licensee determined that the surveillance requirement to manually start the diesel fire pump could not be accomplished because a modification was necessary to bypass the fuel supply solenoids. Although the licensee informed NRR

of the inability to satisfy the diesel fire pump surveillance test requirement, a written report was not submitted for a period of seventeen months.

- Monthly surveillance tests, involving both fire protection and radiation monitoring equipment, were not performed in the required intervals.

The missed surveillances discussed above were discovered by the licensee during the development and implementation of a new computer-based surveillance planning system. This system has not only uncovered missed surveillances, which might otherwise have gone undetected, but it is expected to be instrumental in simplifying the entire process of scheduling and verifying completion of surveillances. This program demonstrates a good management initiative.

During local leak rate testing of feedwater check valves, the licensee initially pressurized the feedwater penetrations to 100 psig, although the procedure called for pressurizing to 35 psig. The licensee reasoned that during a design basis accident (DBA), greater than 100 psig reactor pressure would be available to backseat the check valve. This practice was unacceptable. Based upon a feedwater line break loss of coolant accident (LOCA) inside containment, the maximum pressure to back seat the feedwater check valves would be containment design pressure of 35 psig. It was also determined that personnel were not adhering to the feedwater check valve leak rate test procedure.

Leak rate testing of the stack gas monitoring system was performed with known procedural deficiencies. Although the licensee's commitment to perform leak rate testing on this system was not clearly defined, the personnel responsible for the test assumed that the testing was required. The instrumentation and control supervisor, responsible for the leak rate testing, did not make the necessary modifications and properly resolve this leak rate testing issue. A revised procedure for leak rate testing did exist, but was not used because the required modifications to the stack gas monitoring system could not be completed prior to the end of the outage.

In general, the licensee's surveillance administrative controls and implementing procedures were adequate. Some administration control weaknesses were observed in the detailed implementation of operations surveillance procedures. These weaknesses included performance of surveillance tests without use of a procedure, signoff of a procedure with data not meeting acceptance criteria, and failure to document system return to normal status. These weaknesses appeared to result from failure to

consistently refer to the surveillance procedure requirements and lack of attention to detail, rather than programmatic deficiencies with surveillance testing.

A review of the licensee's in-service testing (IST) program implementation indicated that the program was detailed and implemented effectively. Surveillance tests required by the IST program are conducted by technically qualified personnel knowledgeable in testing requirements. The licensee's staffing level appeared to be adequate to meet the surveillance testing program needs.

However, it was noted that the licensee does not test the Technical Specification required reactor coolant system isolation valves in the shutdown cooling system and the emergency cooling system. The shutdown cooling system valves were administratively removed from the IST program on May 31, 1985 using a field change notice authorized by licensee management. The stated basis for deletion was that the shutdown cooling system is an extension of primary containment. This basis is not consistent with the facility Technical Specification which identifies the shutdown cooling system isolation valves as reactor coolant system isolation valves. Additionally, one of the above valves (38-12) is designed for reverse flow under certain conditions, and this valve is not tested for reverse flow under the IST program.

Management attention is warranted in resolving the above inconsistencies and establishing positive measures for assuring leak tightness of the reactor coolant system isolation valves identified in the Technical Specifications. The regulatory implications of the above concerns are to be discussed in a future enforcement conference.

In summary, the surveillance program was judged to be adequate. The development of a computer based program for surveillance scheduling was commendable. The increase in personnel errors observed during this assessment period indicates a complacent attitude toward routine surveillance activities and insufficient review and coordination of some surveillances conducted during unusual plant configurations or evolutions. The procedural compliance problems identified, although few, indicate that deficiencies encountered in the field were not being communicated to appropriate levels of management for proper resolution.

2. Conclusion:

   Rating: Category 2

3. Board Recommendations:

   Licensee: Refer to Assurance of Quality Section

   NRC: None

E. Emergency Preparedness (246 hours, 7.1%)

1. Analysis:

During the previous assessment period, licensee performance in this area was rated Category 1. This assessment was based upon observed performance of the two annual exercises. A high degree of management involvement in emergency preparedness was evidenced by the improvements to the facilities and training. Responsiveness to NRC initiatives was good.

During this assessment period, one full-scale and one partial exercise were observed. Routine safety inspections and an Emergency Preparedness Implementation Appraisal (Unit 2) were conducted. The licensee has a common Emergency Response Plan for the site. This plan was reviewed and found to be acceptable for licensing of Unit 2.

The licensee has consistently demonstrated its ability to effectively implement the emergency preparedness program. During the most recent exercise, conducted at Unit 2 on October 29, 1986, the licensee again demonstrated an aggressive attitude towards maintaining a high level of emergency preparedness. Few NRC identified deficiencies were observed at the October 1986 exercise. However, in contrast to its normally aggressive approach, it was noted that the licensee's own post exercise critique was more complimentary than self-critical and diagnostic.

Licensee management has been responsive to correcting weaknesses identified during NRC inspections. This was particularly evident by action taken to promptly resolve and correct deficiencies identified during this assessment period.

The licensee has taken the initiative to conduct a lake and breeze study to help quantify the local effect on plume dispersion. Information obtained from this study should improve protective action recommendation decision making capabilities.

The licensee has developed and maintains a good rapport with the local government (Oswego County) and the State (New York) relative to emergency preparedness issues. They meet on a regular basis (quarterly) to plan and discuss issues related to emergency response. Additionally, the licensee is installing a siren verification system to enhance the Alert and Notification System. This demonstrates licensee initiative and willingness to assist the local government.

In summary, the licensee continues to maintain and efficiently execute a comprehensive emergency preparedness program. This area has consistently been a licensee strength.

2. Conclusion:

Rating: Category 1

3. Board Recommendations:

Licensee: None

NRC: None

F. Security and Safeguards (132 hours, 3.8%)

1. Analysis:

During the previous assessment period, this area was rated Category 1. No significant weaknesses were noted and security management was recognized for assuring a high quality security program.

During this assessment period, there were three unannounced physical security inspections, two routine and one special, and one unannounced inspection of nuclear material control and accounting activities. Routine resident inspections were performed throughout the assessment period. No violations were identified.

During the assessment period, the licensee was heavily involved in completing the Nine Mile Point Unit 2 security program and combining it with the existing program at Unit 1. The protected areas for the two units were combined into a single protected area, and both the CAS and the SAS operations were integrated. The transition was made smoothly as a result of careful planning, effective coordination, and active management involvement and control. Additionally, during this assessment period, security program enhancements were made to the site protected area barrier, and the procurement of equipment began for the new Security Operations Center to be used during security contingencies and emergency operations. This center is a licensee initiative and is indicative of the licensee's interest in maintaining an effective security program.

The access control points (including badging area), CAS, SAS, office areas, locker rooms, and training areas were well designed, including efficient use and human factors considerations, and were kept clear and free of obstructions.

The security systems had a high degree of reliability, stemming from excellent design, procurement control, and preventive maintenance programs. The licensee established a dedicated security testing and maintenance section that was well staffed and responded promptly to security equipment problems. This was further evidence of the licensee's commitment to a high quality and effective program.

The supervisory staff was permitted a high degree of discretion in implementing the program based on management's confidence in its ability to carry out its responsibilities and duties. The basis for this confidence was well demonstrated during the efficient transition that occurred when combining the construction site and the operating unit into a single protected area

with a single alarm station. NRC security objectives were understood, met, and maintained not only during that difficult period, but also throughout the assessment period.

The security force training and qualification program was well developed and well staffed. The licensee has recently initiated a five shift rotation for the security force. This places one shift in training at all times and reduces the impact of training obligations on any given shift. Facilities for physical fitness, security training, and firearms qualification were available on site or on adjacent owner controlled property. Contingency plan drills were conducted at least once a month, were effective as training tools, and received a critique that was fed back into the formal training program. The effectiveness of the training program was apparent by the lack of adverse performance related incidents during the assessment period.

Security management has been actively involved in the Region I Nuclear Security Organization, as well as other organizations involved in nuclear power plant security. Additionally, key members of law enforcement agencies are invited to the site annually for orientation and general interface. This is further evidence of the licensee's interest in providing effective nuclear plant security and in staying current with innovations and developments.

The licensee submitted one security event report pursuant to 10 CFR 73.71(c) during the assessment period. The event involved a moderate loss of physical security effectiveness at the protected area barrier. Immediate and effective corrective measures were implemented, and the event was well documented and reported in accordance with NRC requirements.

The licensee submitted four revisions to the Unit 1 Security Plan and one revision to the Safeguards Contingency Plan. The revisions were of high quality and were acceptable. Noteworthy in the safeguards licensing function was the efficient, effective manner in which the licensee integrated the Security and Safeguard Contingency Plans for the two units into a single plan. This further demonstrated positive management involvement, advance planning, and the application of adequate capital and personnel resources.

In summary, the licensee's security program continues to be well structured and implemented. A high degree of supervisory and management involvement was evident. Security and Safeguards continues to be noteworthy strength.

2. Conclusion:

   Rating: Category 1

3. Board Recommendations:

   Licensee: None

   NRC: None

G. Refueling and Outage Management (309 Hours, 8.9%)

1. Analysis:

During the previous assessment period, there was no refueling outage and no basis for evaluation of this area.

During this assessment period, the licensee conducted a fourteen week refueling outage. Licensee activities related to outage modification control were determined to be generally good. Particularly notable were the licensee initiatives implemented during this outage including: the use of a new corporate engineering procedure; a significant increase in the size of the site technical support group; formation of a site construction services group; and an effective site planning group. These activities generally provided a good licensee program for control of modification activities. As a result, the outage modification activities were conducted by knowledgeable and experienced professional and manual personnel; the activities were well planned, scheduled, and implemented using detailed procedures; and the plant management were observed conducting weekly tours to identify and correct outage problems promptly. Except for frequent refueling bridge breakdowns due to proximity switch problems, refueling activities proceeded smoothly and without incident.

The licensee's program for post modification training both at the site and corporate offices appeared appropriate. Post modification testing was usually conducted in a controlled manner.

In spite of these new initiatives to control modification activities with heavy emphasis on outage modification activities, several problems surfaced during the outage related to maintenance, surveillance and radiological control activities. These problems indicate a general weakness in the licensee's ability to manage outage activities.

One area involves the control of work done by contractors. A number of minor deficiencies were identified in the emergency condenser (EC) piping supports fabricated by a contractor (C. N. Flagg). The contractor Quality Assurance (QA) organization failed to identify many of these deficiencies. A forced shutdown was caused, in part, by a leaking hydrogen injection/ in-core reactor water sample line. Failure to control this contractor activity resulted in welding on the reactor coolant pressure boundary with no subsequent hydrostatic testing. These examples are indication of a lack of management oversight of contractor activities and a lack of QA involvement.

A second area of weakness involves inadequate radiological control practices during the outage. As previously discussed in the Radiological Controls Section, these problems reflect weaknesses in communications, procedures, implementation of procedures, thoroughness and depth in corrective action, radiation protection staffing to meet outage demands, and oversight of contractors.

Several minor deficiencies were also noted with the new modification procedures and design review process. Design verification procedure inadequacies and corporate/site interface problems contributed to the automatic depressurization system and EC modification violations. A seismic analysis methodology coupled with acceptance criteria for structures and components, which differ significantly from the FSAR, was used by the design organization in the EC modification. The licensee's safety evaluation did not address this departure from the FSAR or ensure that it did not result in a reduction in safety margins. Another weakness involved the process of system restoration after modification. Revised drawings were not available in the control room promptly after completion of a modification.

In summary, although construction and technical engineering support was enhanced and contributed to the successful completion of several modifications during the outage, routine surveillance, maintenance and radiological controls outage activities appeared to have received reduced management attention, and at times were adversely affected.

2. Conclusion:

Rating: Category 2

3. Board Recommendations:

Licensee: Increase management oversight of outage related activities. Improve monitoring and control of contractor activities.

NRC: Perform team inspection before the next outage.

H. Licensing Activities

1. Analysis:

During the previous SALP assessment period, the licensee's performance was rated as Category 1. During this period, there have been a significant number of licensing activities. These are partially listed in Section V.D, below. This list does not include safety evaluations which do not involve a Technical Specification amendment.

During this assessment period the licensee continued to demonstrate a very active role in licensing activities. There has been an above average number of licensing actions processed requiring little or no additional information or meetings. This resulted in 50 licensing actions being completed in this rating period. This consisted of 37 plant-specific actions, 9 multi-plant actions and 4 TMI (NUREG-0737) actions.

The significant licensing activities in this rating period were the safety parameter display system (SPDS), detailed control room design review (DCRDR), four Salem ATWS issues, hydrogen water chemistry test, BWR scram system concerns, evaluation of core spray performance, masonry wall design, exemptions to Appendix J of 10 CFR Part 50, relief requests for inservice testing and inspections, and operation with one emergency cooling system out of service. The Spring 1986 refueling outage was also included in this period. The major licensing related work completed during this outage was the replacement of some emergency condenser piping susceptible to intergranular stress corrosion cracking (IGSCC), retubing of the main condenser, replacement of the containment spray heat exchangers, and the installation of a sample test line for hydrogen water chemistry. All modifications related to TMI action items were completed except for miscellaneous fixes to the SPDS and DCRDR which will be completed during the 1988 refueling outage. Licensee management took an aggressive part in assuring the satisfactory completion of the above. Licensee management maintained effective communication with the NRC staff to facilitate the processing of amendments needed to support major plant modification.

Strong management involvement was evident, particularly when the issues had the potential for substantial safety impact or extended shutdowns. Licensee management worked closely with NRC management and staff to promote a good working relationship. In addition, management frequently participated in meetings at NRC Headquarters on short notice and actively participated in two counterpart meetings in Bethesda.

The licensee's management and its staff have demonstrated a strong understanding of the technical issues involved in licensing actions. The majority of licensing submittals were clear and of high quality. In particular, the quality of amendment requests, especially the "no significant hazards consideration," continued to be first rate. The licensee demonstrated a strong understanding of the technical issues and adequate technical expertise in the applicable areas. The licensee exhibited conservatism in significant safety matters, such as early replacement of piping susceptible to IGSCC and completion of environmental qualification of all electrical equipment important to safety. On those occasions when the licensee deviated from NRC staff guidance, good technical justification was provided.

The licensee has been responsive to NRC initiatives. During most of the rating period, reasonable efforts were made to meet or exceed commitments. Responsiveness by the licensee facilitated timely completion of staff review of a large number of licensing actions and thus substantially reduced the licensing backlog. In addition, the licensee has responded promptly and accurately to numerous surveys conducted during the reporting period.

The licensee has made reasonable efforts to meet NRC commitments and make timely submittals. However, some decline was noted in this rating period compared to the last assessment period. For two issues, (1) reduction in the closure time of the containment vent and purge valves and (2) control of leaking control rod drive (CRD) penetrations, the licensee was not effective in meeting NRC requirements. For the vent and purge valves, the licensee made a commitment to modify the valves to meet the approved closure time, but later submitted a technical justification which deviated from this commitment. This indicated a lack of complete technical evaluation prior to making the commitment. For the CRD penetrations, the licensee did not submit timely responses to support NRC staff evaluations and exacerbated this by delays and complications in meeting with senior NRR management. This led to unnecessary and extended shutdowns to repair leaking CRD penetrations.

During this period, the licensee's performance was found to be good to excellent overall based on good management involvement in licensing issues, quality licensing submittals, and satisfactory resolution of safety issues from a technical standpoint. However, improvement is needed in meeting commitments to NRC. Management attention and involvement was responsive and disciplined. This was evident in the operation of the facility. Staffing levels were considered adequate. Communication levels

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between the operating staff and proper management were established and generally effective. The licensee has been effective in dealing with significant problems and NRC initiatives. The licensee's efforts in the functional area of Licensing Activities have continued to be of high quality. This is reflected in the quality of work, attention to NRR concerns and involvement of senior management. However, there were some cases when submittals were incomplete, inconsistent, incorrect or delayed, which is indicative of a declining trend in performance. The licensee was an active participant in the counterpart meetings in Bethesda, Maryland.

2. Conclusion:

   Rating: Category 1

   Trend: Declining

3. Board Recommendations:

   Licensee: None

   NRC: None

I. Training and Qualification Effectiveness

1. Analysis:

During this assessment period, Training and Qualification Effectiveness is being considered as a separate functional area for the first time. Training and qualification effectiveness continues to be an evaluation criterion for each functional area. The various aspects of this functional area have been considered and discussed as an integral part of other functional areas, and the respective inspection hours have been included in each one. Consequently, this discussion is a synopsis of the assessments related to training conducted in the other functional areas. Training effectiveness has been measured primarily by the observed performance of licensee personnel. The discussion below addresses three principal areas: licensed operator training; non-licensed staff training; and the status of INPO training accreditation.

The licensee demonstrates a strong commitment to licensed operator training. A recent NRC examination of reactor operator (RO), senior reactor operator (SRO) and instructor certification candidates resulted in a 100 percent pass rate. The site specific simulator contributes significantly to the quality of operator training and has been used effectively to incorporate recent events into the operator requalification program.

A contributing factor to the Technical Specification violation involving the Rod Worth Minimizer, discussed in the operations area, was the lack of in-depth understanding of the Rod Worth Minimizer on the part of the operators. This caused operators to be dependent on the reactor analyst for Rod Worth Minimizer operation. To remedy this problem, the licensee has incorporated more detailed training on the Rod Worth Minimizer into operator requalification training.

Six station training programs have been accredited by INPO in 1986, these are: chemistry, health physics, non-licensed operator, reactor operator, senior reactor operator, and shift technical advisor. Four remaining programs were scheduled for INPO board review in November, 1986, these are: electrical maintenance, mechanical maintenance, instrumentation and controls, and technical staff and manager training.

In view of the numerous personnel related problems identified during this assessment period and noted in the earlier sections of this report, it appears that although station personnel are generally technically knowledgeable, they often lack sufficient guidance to perform their job within the administrative and operational constraints imposed.

The Emergency Operating Procedures (EOP) were implemented in June, 1986, after licensed operators received classroom training and practical application on the station simulator. Since then, the operator requalification program has included extensive simulator training with emphasis on the new symptom-based EOPs. No problems have been observed in the implementation of the new EOPs.

In summary, the licensed and non-licensed training programs are generally effective in providing station personnel with the necessary skills and knowledge to properly perform their assigned work. The numerous personnel related problems identified this assessment period indicate a weakness in the station administrative controls training, particularly of the non-licensed station employees.

2. Conclusion:

Rating: Category 2

3. Board Recommendations:

Licensee: Assess relationship of personnel errors to administrative controls training.

NRC: None

J. Assurance of Quality

1. Analysis:

During this assessment period Assurance of Quality is being considered as a separate functional area. Management involvement and control in assuring quality continues to be one evaluation criterion for each functional area. The various aspects of programs to assure quality have been considered and discussed as an integral part of some functional areas and the respective inspection hours are included in those areas. Consequently, this section is a synopsis of the assessments relating to management involvement and control in assuring the quality of work conducted in all areas. This section provides a brief outline of past NRC concerns in this area and licensee actions to resolve these concerns. Additionally, the effectiveness of working staff, first line supervisors, management, QA/QC and the independent review organizations (SORC and SRAB) in assuring quality is assessed.

As a result of the allegations received by the NRC in July 1986 and the problems encountered by the licensee during the 1986 outage and subsequent startup, several licensee weaknesses surfaced during this assessment period. A special team inspection was conducted in August 1986 to independently review and assess the licensee's investigation of the allegations and potential concerns.

The licensee's assessment concluded that the allegations, in most cases, were substantiated. The licensee identified four programmatic areas of concern. The areas of concern were documented by the licensee in a letter to the NRC dated August 15, 1986, as: root cause evaluation; procedures; material controls; and management effectiveness.

Root cause evaluation has been discussed in earlier sections and is considered an area of weakness. At the end of this assessment period, a Root Cause committee had been formed, and a procedure governing the performance of root cause analysis was pending. It is worthy of note that the root cause analysis guidance provided by the committee assumes component failure. Consequently the licensee had a tendency to not recognize and evaluate human elements when problems were encountered. Another example of this tendency can be found in the Licensee Event Reports (LERs) issued by the licensee during this reporting period. Of forty-three LERs issued by the licensee during this assessment period, two were attributed to personnel error, five to hardware related failures, twelve to "other" and 24 had no cause code specified.

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A review of the programmatic implications, listed for each of the specific allegations addressed in the attachment to the licensee's August 15, 1986 letter, reveals that procedural inadequacy is given as one cause for ten of the fourteen allegations. In some of these ten instances, inadequate root cause analysis , material control, or Quality Control was also listed as a cause. In the other cases, no programmatic implications were listed.

The licensee appears to rely on procedures a great deal to insure programmatic adequacy and compliance with regulations. This is occasionally ineffective because procedures do not assign responsibility to a single person, and therefore procedural implementation is not consistent. An example is Administrative Procedure 5.0, Control of Maintenance. No single person is clearly responsible for determining whether post-maintenance testing is required and, if so, what tests are required.

In addition, no clear policy exists for decision-making on the part of mechanics and technicians, yet they are required to make decisions. An example is the generic procedure for pump maintenance. The procedure is written to include complete pump disassembly, inspection, part replacement, reassembly, and any maintenance which would ordinarily be expected to be performed on a pump. In the event that an oil change is required, the mechanic is required to use the generic pump maintenance procedure and decide which steps of the procedure must be initialed as complete and which to mark "not applicable". There is no procedural provision to mark any step "not applicable". In light of an August 1986 directive to all station personnel from the Senior Vice President-Nuclear to follow procedures verbatim or stop work and have the procedure changed, much consternation and confusion existed on the mechanic/technician level at the end of the assessment period. The licensee has committed to review and revise procedures to make them more "user friendly".

As identified in discussions regarding LPRM connectors in previous sections, material control has been identified as a problem area during this assessment period, and the licensee has committed to perform a problem analysis. A plan to address issues identified by the analysis will then follow.

During NRC review of the licensee's investigation of the allegations, first line supervisors' effectiveness was an area identified for consideration. The licensee has initiated a program to evaluate supervisor effectiveness of Nuclear Division and Quality Assurance. The program will initially consist of an organizational review based upon the results of the survey conducted during the licensee's investigations into the allegations.

During this assessment period, the Quality Assurance (QA) Department displayed areas of programmatic weaknesses. In particular, Quality Control (QC) personnel spent a large percentage of time reviewing audits of documentation. NRC review determined that QC personnel were not present to observe local power range monitor (LPRM) connector maintenance or feedwater check valve local leak rate testing (LLRT). At the conclusion of the licensee's investigation and the NRC team inspection, the licensee issued a memorandum emphasizing the need to perform in-process inspection of safety related maintenance and establish hold points. In addition, the Senior Vice President-Nuclear emphasized the priority of quality over schedules and the involvement of Quality Assurance personnel in field activities. Long term, the licensee plans to more specifically define the roles and responsibilities of Quality Assurance personnel to insure QA/QC involvement in field activities. The overall effectiveness of the QA organization at Unit 1 is not evident. Plant management does not appear to actively use QA and QC as a viable feedback mechanism to monitor station performance.

An apparent weakness throughout the licensee's organization at the site is their apparent lack of self-critical analysis, as manifested in the areas of root cause analysis (pointed out by the NRC) and overdependence on procedural control to correct identified deficiencies. This weakness is also reflected in the LERs. In addition, this lack of self-critical analysis is evident in the manner in which some plant management personnel deal with the NRC. At times, when these personnel were approached by NRC inspectors with concerns, a denial of the existence of a problem was made before the concern was understood or researched. At other times, NRC personnel were told that their understanding of Technical Specifications would have to be verified before action could be taken. On other occasions, the licensee's approach to defining a problem was to ascertain the NRC perception of the problem and adopt it as their own. In addition, plant management's attitude does not appear to foster the identification of problems or the elevation of these problems to the correct level for appropriate root cause determination and corrective action. This is evidenced by the lack of awareness of plant management personnel that procedures were not being followed, that radiological controls incidents occurred but were not properly documented, that unqualified materials were being used in safety applications, that Quality Control personnel were conducting a preponderance of post-work documentation reviews vice in-process surveillance, and that supervisory personnel were unable to meet their responsibilities due to excessive workload during the 1986 outage. Plant management does not appear to actively seek out problems from first line supervision and workers.

2. Conclusion:

Rating: Category 3

3. Board Recommendations:

Licensee: (1) Develop a self critical approach to conducting activities affecting quality; (2) Intensify field monitoring of both licensee and contractor activities; and (3) Improve root cause analysis and corrective action programs.

NRC: Perform team inspection at beginning of next outage.

V. SUPPORTING DATA AND SUMMARIES

A. Investigations and Allegation Review

There were no Office of Investigations reviews conducted of Unit 1 during this assessment period. Seven allegations concerning Unit 1 were received and reviewed by Region I staff this assessment period. One of the seven allegations involved contractor supervisors jeopardizing the safety of workers. This allegation was substantiated and enforcement action was taken. One other allegation involving external contamination was substantiated but no enforcement action was appropriate and three allegations were not substantiated. The two allegations of an Instrument and Control Technician regarding outage activities are open pending final review and enforcement action where appropriate.

B. Escalated Enforcement Action

During this assessment period, an Enforcement Conference was held on February 5, 1986, to discuss multiple deficiencies in the licensee's Unit 1 Equipment Qualification Program. These deficiencies were identified during a NRC team inspection conducted between August 19 and August 23, 1985. This Enforcement Conference resulted in the issuance of a Severity Level III violation of 10 CFR 50.49(f) and (k).

Enforcement action is pending issuance of Inspection Report 50-220/86-17 regarding allegations made by an Instrument and Control Technician. The finding of that inspection and the apparent violations identified in Inspection Reports 50-220/86-14 and 50-220/86-13 will also be discussed at an Enforcement Conference.

C. Management Conferences

On February 11, 1986, the licensee met with NRC Region I management in King of Prussia, Pennsylvania to discuss the upcoming 1986 Refueling Outage. The purpose of the meeting was to improve direct communications with the licensee and to promote a better understanding of the licensee's outage planning and control process.

Management Conferences were also held with licensee management in King of Prussia, Pennsylvania on August 18, 1986 and September 4, 1986. The purpose of these meetings was to discuss the allegations presented to the NRC by a licensee Instrumentation and Controls technician. Actions taken by the licensee to properly resolve the numerous technical and programmatic concerns raised by these allegations were discussed.

D. Licensing Activities

1. NRR/Licensee Meetings (at NRC)

Discussion of Repair Program for Leaking CRD Penetrations	11/18/85
Discussion of Potential Design Deficiencies in Process Piping Penetrations	01/23/86
Counterparts Meeting	01/30/86
Prioritization of Licensing Issues	03/03-07/86
Discussion of Long-term Resolution to Leaking CRD Penetrations	09/23/86
Counterparts Meeting	10/16-17/86

2. NRR Site Visits

Plant Orientation	02/24-25/86
PM Site Visit and Licensing Action Prioritization	04/14-18/86
PM Site Visit	07/21-25/86

3. Commission Meetings

Equipment Qualification	11/18/85

4. Schedular Extensions Granted

Equipment Qualification	11/18/85

5. Reliefs Granted

None

6. Exemptions Granted

None

7. License Amendments Issued

AMENDMENT	TITLE	DATE
73	Control Room Air Treatment System	06/11/85
74	Delete List of Snubbers, Add LCO's and Surveillance Requirements for Snubbers	09/23/85
75	Permit Operation During Remainder of Cycle 8 with one Emergency Cooling System Inoperable	11/08/85
76	Suppression Pool Temperature/ Pressure	01/07/86
77	Management Organization	01/16/86
78	Hot Process Pipe Penetration Design Inconsistencies	01/28/86
79	Yarway Water Level Transmitter Out of Service	03/07/86
80	Addition of "Hot Shutdown" to Section 6.2.2	03/28/86
81	Addition of MAPLHGR Limits	04/30/86
82	Emergency Cooling System Operability	05/12/86
83	Clarification of Conditions Necessary for Instrument Penetration Maintenance Work	05/22/86
84	Reporting Requirements Concerning Reactivity Anomalies	06/03/86
85	Limits for Minimum Reactor Vessel Temperature for Pressurization	06/10/86
86	ADS Function and Overpressurization Function of Relief Valves	06/12/86
87	Hydrogen Water Chemistry Test	07/10/86
88	Radioactive Liquid Effluent Monitoring Instrumentation	10/06/86

SALP TABLE 1

LISTING OF LERs BY FUNCTIONAL AREA

AREA	CAUSE CODES A	B	C	D	E	X	TOTAL
OPERATIONS	12	2			1		15
RAD PROTECTION	1		1		1		3
MAINTENANCE	4	4			5		13
SURVEILLANCE	4	3		1	1		9
EMERGENCY PREP.		1					1
SEC/SAFEGUARDS							
OUTAGES		2					2
TRAINING EFFECTIVENESS							
LICENSING							
ASSURANCE OF QUALITY							
TOTALS:	21	12	1	1	8	0	43

CAUSE CODES:

A - PERSONNEL ERROR
B - DESIGN, MANUFACTURING, CONSTRUCTION OR INSTALLATION ERROR
C - EXTERNAL CAUSE
D - DEFECTIVE PROCEDURES
E - COMPONENT FAILURE
X - OTHER

SALP TABLE 2

INSPECTION HOUR SUMMARY

AREA	HOURS	% OF TIME
OPERATIONS	474	13.7
RAD PROTECTION	406	11.7
MAINTENANCE	1003	29.0
SURVEILLANCE	894	25.8
EMERGENCY PREP.	246	7.1
SEC/SAFEGUARDS	132	3.8
OUTAGES	309	8.9
LICENSING	*	
TRAINING EFFECTIVENESS	**	
ASSURANCE OF QUALITY	**	
TOTALS:	3464	100.0

* Hours expended in facility licensing activities and operator licensing activities not included with direct inspection effort statistics.

** Hours expended in the areas of training and assurance of quality are included in other functional areas, therefore, no direct inspection hours are given for these areas.

SALP TABLE 3

ENFORCEMENT SUMMARY

AREA	SEVERITY LEVEL 1	2	3	4	5	DEV	TOTAL
OPERATIONS				2			2
RAD PROTECTION				4			4
MAINTENANCE			1	1	1		3
SURVEILLANCE							
EMERGENCY PREP.							
SEC/SAFEGUARDS							
OUTAGES				2			2
TRAINING EFFECTIVENESS							
LICENSING							
ASSURANCE OF QUALITY					2		2
TOTALS:	0	0	1	9	3	0	13

TABLE 3 (Cont)

ENFORCEMENT SUMMARY

INSPECTION REPORT	REQUIREMENT	VIOL. LEVEL	FUNCTIONAL AREA	VIOLATION
220/85-09 05/01/85-	T.S. 6.8.1	4	OPERATIONS	LICENSEE TO ESTABLISH CONTROLS FOR MECHANICAL JUMPERS. 06/30/85
220/85-12 07/01/86- 09/06/86	T.S. 6.8.1	5	MAINTENANCE	CORE SPRAY TOPPING PUMP 112 DISCHARGE BLOCKING VALVE WAS NOT LOCKED OPEN AS REQUIRED PER
220/85-13 08/19/85- 08/23/86	10 CFR 50.49(F)(K)	3	MAINTENANCE	ONE SEVERITY LEVEL III VIOLATION ISSUED FOR MULTIPLE VIOLATIONS OF NRC EQ REQUIREMENTS.
220/86-03 02/24/86- 03/31/86	T. S. 6.12.1	4	RADIOLOGICAL CONTROLS	HIGH RADIATION AREA NOT BARRICADED OR POSTED
220/86-07 06/02/86- 06/13/86	10 CFR 50 APPENDIX B	4	OUTAGES	DESIGN CONTROL MEASURES NOT IMPLEMENTED FOR MODIFICATION
220/86-07 06/02/86-	T. S. 6.8.1	4	OUTAGES	DESIGN REQUIREMENT NOT IMPLEMENTED PER PROCEDURES 06/13/86
220/86-07 06/02/86- 06/13/86	10 CFR 50 APPENDIX B	5	ASSURANCE OF QUALITY	DOCUMENT CONTROL FOR DESIGN CHANGES NOT PROPERLY MAINTAINED OR REVIEWED
220/86-07 06/02/86- 06/13/86	10 CFR 50 APPENDIX B	5	ASSURANCE OF QAULITY	QC HOLDPOINTS NOT ESTABLISHED AND IN-PROCESS INSPECTION INSPECTION NOT PERFORMED FOR MODIFICATION
220/86-08 05/19/86- 05/23/86	10CFR 19.12	4	RADIOLOGICAL CONTROLS	LIMITED UNPLANNED INTAKE OF AIRBORNE RADIOACTIVE MATERIAL
220/86-08 5/19/86- 5/23/86	10CFR20.103	4	RADIOLOGICAL CONTROLS	INAPPROPRIATE USE OF RESPIRATORS

TABLE 3 (Cont)

ENFORCEMENT SUMMARY

INSPECTION REPORT	REQUIREMENT	VIOL. LEVEL	FUNCTIONAL AREA	VIOLATION
220/86-09 05/19/86-	T.S. 3.1.1.B.(3)	4	OPERATIONS	VIOLATION OF ROD WORTH MINIMIZER REQUIREMENTS
220/86-10 06/16/86- 06/20/86	T. S. 6.8.1	4	MAINTENANCE	SAMPLE LINE PLACED IN OPERATION PRIOR TO PERFORMANCE OF REQUIRED HYDROSTATIC TESTING
220/86-15 07/28/86- 8/01/86	10CFR 10.31(B)	4	RADIOLOGICAL CONTROLS	FAILURE TO IDENTIFY IRON 55 ON THE SHIPPING MANIFEST

TABLE 4

INSPECTION REPORT ACTIVITIES

REPORT/DATES	INSPECTOR	HOURS	AREAS INSPECTED
220/85-09 05/01/85 06/30/85	RESIDENT	66	ROUTINE SAFETY INSPECTION BY RESIDENT INSPECTOR.
220/85-10 5/28/85 5/30/85	SPECIALIST	28	ROUTINE INSPECTION OF NONRADIOLOGICAL CHEMISTRY PROGRAM.
220/85-11 06/24/85 06/28/85	SPECIALIST	16	ROUTINE INSPECTION OF RADIOACTIVE WASTE MANAGEMENT.
220/85-12 07/01/85 09/06/85	RESIDENT TEAM	121	ROUTINE SAFETY INSPECTION BY RESIDENT INSPECTORS.
220/85-13 08/19/85 08/23/85	SPECIALIST	269	TEAM INSPECTION OF INTERIM PROGRAM FOR EQUIPMENT QUALIFICATION
220/85-14 09/10/85 09/12/85	SPECIALIST	20	OPERATOR LICENSING WRITTEN EXAMINATIONS
220/85-15 09/06/85	SPECIALIST	26	ROUTINE SAFEGUARDS INSPECTION 09/03/85
220/85-16 09/09/85 10/26/85	RESIDENT	104	ROUTINE SAFETY INSPECTION OF OPERATING PERIOD
220/85-17 10/01/85 10/07/85	RESIDENT	25	SPECIAL INSPECTION OF 10CFR21 DETERMINATION PROCESS
220/85-18 10/18/85	SPECIALIST	3	RADIOLOGICAL CONTROLS INSPECTION 10/14/85
220/85-19 11/12/85 11/14/85	SPECIALIST TEAM	155	ANNUAL EMERGENCY PREPAREDNESS EXERCISE
220/85-20 11/1/85 TEAM	RESIDENT	79	SPECIAL TRAINING PROGRAM INSPECTION 10/28/85
220/85-21 10/16/85 10/17/86	SPECIALIST	11	SPECIAL SECURITY INSPECTION OF OBJECT PASSED THROUGH PA FENCE

TABLE 4

INSPECTION REPORT ACTIVITIES

REPORT/DATES	INSPECTOR	HOURS	AREAS INSPECTED
220/85-23 11/25/85 11/27/85	SPECIALIST	12	ROUTINE INSPECTION OF NUCLEAR MATERIAL CONTROL
220/85-24 11/01/85 12/31/85	RESIDENT	122	ROUTINE SAFETY INSPECTION OF OPERATING PERIOD
220/85-25 12/16/85 12/20/85	SPECIALIST	13	ROUTINE RADIOLOGICAL CONTROLS INSPECTION
220/86-01 01/01/86 02/23/86	RESIDENT	140	ROUTINE SAFETY INSPECTION DURING OPERATING PERIOD
220/86-02 02/11/86		0	OUTAGE PLANNING MANAGEMENT MEETING 02/11/86
220/86-03 02/24/86 03/31/86	RESIDENT	136	ROUTINE SAFETY INSPECTION DURING OPERATION AND OUTAGE
220/86-04 03/24/86 03/28/86	SPECIALIST	33	ROUTINE RADIOLOGICAL CONTROLS INSPECTION
220/86-05 04/18/86	SPECIALIST	185	CLOSEOUT OF EQ INSPECTION ITEMS 04/14/86
220/86-06 04/01/86 05/18/86	RESIDENT	134	ROUTINE SAFETY INSPECTION DURING OUTAGE
220/86-07 06/13/86	SPECIALIST TEAM	391	OUTAGE MODIFICATION INSPECTION 06/02/86
220/86-08 5/19/86 5/23/86	SPECIALIST	33	ROUTINE RADIOLOGICAL CONTROLS INSPECTION
220/86-09 5/19/85 7/06/86	RESIDENT	105	ROUTINE SAFETY INSPECTION DURING OPERATION AND OUTAGE
220/86-10	SPECIALIST	32	ROUTINE SAFETY INSPECTION 6/16/86 6/20/86
220/86-11 06/20/86	SPECIALIST	26	ROUTINE SAFEGUARDS INSPECTION 06/17/86
220/86-12 7/07/86 8/31/86	RESIDENT	113	ROUTINE SAFETY INSPECTION DURING OPERATION AND OUTAGE

TABLE 4

INSPECTION REPORT ACTIVITIES

REPORT/DATES	INSPECTOR	HOURS	AREAS INSPECTED
220/86-13 TEAM	SPECIALIST	597	SPECIAL SAFETY INSPECTION 09/10/86 09/12/86
220/86-14 7/21/86 7/25/86	SPECIALIST	18	ROUTINE RADIOLOGICAL SAFETY INSPECTION
220/86-15 7/28/86 8/01/86	SPECIALIST	39	ROUTINE UNANNOUNCED SAFETY INSPECTION
220/86-16 08/04/86 08/07/86	SPECIALIST	26	ROUTINE RADIOLOGICAL CONTROLS INSPECTION
220/86-17 08/25/86 08/29/86	SPECIALIST/ RESIDENT TEAM	250	SPECIAL ALLEGATION FOLLOWUP
220/86-18 09/01/86 09/30/86	RESIDENT	83	ROUTINE SAFETY INSPECTION DURING OPERATION
220/86-19 09/29/86 10/02/86	SPECIALIST	18	ROUTINE EMERGENCY PREPAREDNESS INSPECTION
220/86-20 10/09/86	SPECIALIST	13	ROUTINE NONRADIOLOGICAL CHEMISTRY 10/07/86
220/86-22 10/27/86 10/29/86	SPECIALIST TEAM	73	ROUTINE EMERGENCY PREPAREDNESS EXERCISE OBSERVATION

TABLE 5

LER SYNOPSIS

LER NUMBER	EVENT DATE	CAUSE CODE	DESCRIPTION
85-08	6/10/85	A	FAILURE TO REVIEW JUMPER/BLOCK LOG WITHIN 14 DAYS
85-09	5/22/85	A	FAILURE TO MEET TECH. SPECS. SURVEILLANCE INTERVALS. ACC. MON. CHANNEL CHECK
85-10	8/15/85	B	INITIATION OF REACTOR BUILDING EMERGENCY VENTILATION SYSTEM
85-11	6/10/85	B	RADIOLOGICAL HABITABILITY OF TECHNICAL SUPPORT CENTER
85-12	9/16/85	E	AUTOMATIC INITIATION OF REACTOR CLEANUP SYSTEM
85-13	6/21/85	B	AUTOMATIC ACTUATION OF CONTROL ROOM EMERGENCY VENTILATION SYSTEM
85-14	8/19/85	A	REACTOR SCRAM WHILE PERFORMING SURVEILLANCE TEST
85-15	9/11/85	B	DISCOVERY OF CABLE SEPARATION DISCREPANCIES
85-16	9/27/85	A	FAILURE TO ESTABLISH REQUIRED FIRE WATCH
85-17	8/23/85	A	REACTOR SCRAM DUE TO REACTOR LOW WATER LEVEL
85-18	10/10/85	B	DELAY TO PERFORM SURVEILLANCE TEST REQUIREMENTS FOR FIRE PUMP
85-19	10/15/85	B	POTENTIAL CONDITION OF NOT MEETING TECH SPEC CLOSURE TIME FOR EMERGENCY CONDENSER DC MOTOR OPERATED VALVES
85-20	10/30/85	B	AUTOMATIC ACTUATION OF REACTOR BUILDING EMERGENCY VENTILATION SYSTEM
85-21	11/01/85	A	REACTOR SCRAM ON LOSS OF INSTRUMENT AIR

TABLE 5 (Cont)

LER SYNOPSIS

LER NUMBER	EVENT DATE	CAUSE CODE	DESCRIPTION
85-22	11/07/85	E	REACTOR SCRAMS DUE TO STICKING BYPASS VALVES
85-23	11/08/85	A	ACTUATION OF HIGH PRESSURE COOLANT INJECTION MODE OF FEEDWATER FLOW
85-24	12/12/85	A	HPCI INITIATION DUE TO HIGH REACTOR WATER LEVEL
85-25	12/15/85	E	REACTOR POWER REDUCTION DUE TO FAILURE OF PLANT PROCESS COMPUTER
86-01	1/18/86	B	DESIGN CALCULATIONS WERE NOT FOUND IN COMPLIANCE WITH FSAR
86-02	2/01/86	E	INOPERABLE STACK GAS SAMPLING PUMP
86-03	3/08/86	E	HPCI INITIATION DUE TO TURBINE TRIP
86-04	3/08/86	A	HPCI INITIATION DUE TO TURBINE TRIP
86-05	4/02/86	E	FULL SCRAM DUE TO LOSS OF POWER TO ONE CHANNEL OF RPS
86-06	4/09/86	C	PARTIAL LOSS OF LIQUID EFFLUENT RELEASE MONITORING CAPABILITY
86-07	4/15/86	B	INACCURATE FUEL ZONE LEVEL INDICATION
86-08	4/22/86	B	REACTOR BUILDING EMERGENCY VENTILATION INITIATION
86-10	05/05/86	E	ACTUATION OF RX BUILDING EMERGENCY VENTILATION DUE TO BLOWN FUSE
86-11	5/08/86	A	CONTAMINATED INJURY TO CONTRACTOR PERSONNEL
86-12	5/17/86	A	FAILURE TO MEET TELEPHONE NOTIFICATION REQUIREMENTS
86-13	5/18/86	E	REACTOR BUILDING EMERGENCY VENTILATION INITIATION

TABLE 5 (Cont)

LER SYNOPSIS

LER NUMBER	EVENT DATE	CAUSE CODE	DESCRIPTION
86-14	6/03/86	A	REACTOR SCRAM WHILE PERFORMING SURVEILLANCE TEST.
86-15	5/30/86	A	REACTOR SCRAM AND REACTOR BUILDING EMERGENCY VENTILATION INITIATION.
86-16	5/23/86	B	POTENTIALLY INOPERABLE FEEDWATER PUMP HIGH LEVEL TRIP SYSTEM.
86-17	6/15/86	D	REACTOR SCRAM RESULTING FROM SURVEILLANCE TESTING.
86-18	6/18/86	A	REACTOR SCRAM DUE TO OPERATOR ERROR.
86-19	6/18/86	A	LOSS OF RWM DURING START-UP WITH LESS THAN 12 ROD WITHDRAWN AND LESS THAN 20% POWER.
86-20	6/18/86	B	LEAK FROM IN-CORE WATER SAMPLE LINE.
86-21	6/18/86	A	REACTOR SCRAM AND HPCI INITIATION DUE TO IRM SPIKE.
86-22	8/01/86	A	FIRE WATCH PATROL SURVEILLANCE REQUIREMENT EXCEEDED.
86-23	8/01/86	A	FAILURE TO PERFORM TESTING WITHIN REQUIRED INTERVAL.
86-24	8/03/86	A	TURBINE TRIP AND SUBSEQUENT SCRAM.
86-25	8/06/86	A	CONTINUOUS FIRE WATCH NOT ESTABLISHED WITHIN 1 HOUR WHILE FIRE DOOR D-52 WAS INOPERABLE.
86-26	8/22/86	A	REACTOR SHUTDOWN REQUIRED BY TECHNICAL SPECIFICATIONS.

TABLE 6

REACTOR TRIPS AND UNPLANNED SHUTDOWNS

DATE	POWER LEVEL	DESCRIPTION	CAUSE*	FUNCTIONAL AREA
8/19/85	90%	REACTOR SCRAM DUE TO GENERATOR SURVEILLANCE ACTIVITIES	PERSONNEL ERROR-BROKEN EXCITER LEAD TOUCHED TO GROUND	SURVEILLANCE:
8/23/85	95%	REACTOR SCRAM DUE TO LOW REACTOR WATER LEVEL	EQUIPMENT FAILURE-RANDOM: BROKEN FEEDBACK SPRING ON FEEDWATER REGULATING VALVE	N/A
11/1/85	100%	TURBINE TRIP/REACTOR SCRAM DUE TO HIGH REACTOR WATER LEVEL	PERSONNEL ERROR-LOSS OF INSTRUMENT AIR DUE TO FAILURE TO DRAIN AIR DRIER	MAINTENANCE:
11/7/85	2%	REACTOR SCRAM DUE TO LOW REACTOR WATER LEVEL	EQUIPMENT FAILURE--RANDOM: LEVEL SHRINK CAUSED BY STICKY TURBINE BYPASS VALVE	N/A
11/7/85	2%	REACTOR SCRAM DUE TO LOW REACTOR WATER LEVEL	EQUIPMENT FAILURE-LEVEL SHRINK CAUSED BY FAILURE TO CORRECT STICKY BYPASS VALVE	MAINTENANCE:
12/12/85	100%	SHUTDOWN TO CORRECT OSCILLATIONS IN DRYWELL PRESSURE AND HUMIDITY	EQUIPMENT FAILURE-RANDOM: REACTOR BUILDING CLOSED LOOP COOLING TEMPERATURE CONTROL VALVE FAILURE	N/A
12/15/85	85%	SHUTDOWN REQUIRED BY TECHNICAL SPECIFICATION	EQUIPMENT FAILURE-RANDOM: LOSS OF PROCESS COMPUTER	N/A
01/18/86	82%	FORCED SHUTDOWN TO COMPLY WITH T.S.	DESIGN DEFICIENCY: ENGINEERING DETERMINED A JET IMPINGEMENT SUPPORT WAS NOT PROPERLY DESIGNED	N/A

TABLE 6 (Contined)

REACTOR TRIPS AND UNPLANNED SHUTDOWNS

DATE	POWER LEVEL	DESCRIPTION	CAUSE*	FUNCTIONAL AREA
04/02/86	0%	NON-COINCIDENT SCRAM WHILE SHUTDOWN	EQUIPMENT FAILURE- DUE TO LOSS OF RPS MG SET 162 BECAUSE OF A REPETITIVE FAILURE OF THE UNDERVOLTAGE PROTECTIVE DEVICE	MAINTENANCE:
06/03/86	0%	SCRAM WHILE SHUTDOWN DUE TO MSIV CLOSURE	PERSONNEL ERROR- TECHNICIAN IMPROPERLY VALVED IN INSTRUMENT AIR	SURVEILLANCE:
06/15/86	0%	SCRAM WHILE SHUTDOWN DUE TO RX VESSEL LOW LEVEL	PERSONNEL ERROR- TURBINE TRIP NOT BYPASSED WHILE PERFORMING HPCI TEST	SURVEILLANCE
06/16/86	1%	FORCED SHUTDOWN TO COMPLY WITH T.S.	EQUIPMENT FAILURE- RANDOM: 3 OF 8 IRMS FAILED TO RESPOND DURING REACTOR S/U	N/A
06/17/86	1%	FORCED SHUTDOWN TO COMPLY WITH T.S.	EQUIPMENT FAILURE- SAME 3 IRMS FAILED TO RESPOND AFTER CORRECTIVE MAINTENANCE	MAINTENANCE
06/18/86	1%	SCRAM DUE TO RX VESSEL LEVEL LOW	PERSONNEL ERROR- OPERATOR FAILED TO START A FEED PUMP TO MAINTAIN VESSEL LEVEL	OPERATIONS
06/18/86	1%	FORCED SHUTDOWN TO COMPLY WITH T.S.	PERSONNEL ERROR- OPERATOR FAILED TO VERIFY ROD WORTH MINIMIZER OPERABLE BEFORE MOVING CONTROL RODS	OPERATIONS

* Cause as determined by the SALP Board, may not agree with LER analysis.

TABLE 6 (Contined)

REACTOR TRIPS AND UNPLANNED SHUTDOWNS

DATE	POWER LEVEL	DESCRIPTION	CAUSE*	FUNCTIONAL AREA
06/19/86	1%	SCRAM DUE TO IRMS SPIKING UPSCALE	PERSONNEL ERROR-WHILE REPLACING FUSES DURING TROUBLESHOOTING, IRMS SPIKED UPSCALE	MAINTENANCE
06/21/86	25%	FORCED SHUTDOWN	EQUIPMENT FAILURE-RANDOM: FEEDWATER REGULATING VALVE FAILED TO RESPOND	N/A
08/01/86	100%	FORCED SHUTDOWN	EQUIPMENT FAILURE FOLLOWING REPAIR-MAINTENANCE: LEAKING EMERGENCY CONDENSER CONDENSATE RETURN VALVE	N/A
08/04/86	0%	SCRAM WHILE SHUTDOWN DUE TO HIGH RX WATER LEVEL	PERSONNEL ERROR-OPERATOR ERROR IN MAINTAINING RX VESSEL LEVEL WHILE REFILLING RECIRC LOOP	OPERATIONS:
08/22/86	100%	FORCED SHUTDOWN TO COMPLY WITH T.S.	PERSONNEL ERROR-MAINTENANCE ON SEVERAL CRD SCRAM ISOLATION VALVES NOT CONTROLLED	MAINTENANCE:

TABLE 7

SALP HISTORY TABULATION

Report	ASSMT. PERIOD	OPS	RADCON	MAINT	SURV	EP	FP	SEC	OUTG	QP	LIC	TRG
05/81	2/1/80-1/31/81	2	3	2	2	3	2	2	2	2	N	N
9/82	5/1/81-4/30/82	2	3	2	2	2	2	1	1	N	1	N
8/83	5/1/82-4/30/83	2	2	2	N	N	1	1	1	N	1	N
9/84	5/1/83-4/30/84	3	2	2	2	1	1	1	1	N	1	N
8/85	5/1/84-5/31/85	1	1	2	1	1	1	1	N	N	1	N

ENCLOSURE 5

SALP BOARD REPORT ERRATA SHEET

PAGE	LINE	NOW READS	SHOULD READ
8	14-16	The number of scrams caused by operator error was low which appeared to be the result of an active and responsive operations staff.	sentence deleted
	Basis:	Sentence deleted to avoid unintended contradiction with last paragraph, page 8.	
13	2-4	. . . is lower than the national average for BWRs (910 person-rem per year versus 981 person-rem per year). Although exposures were lower than average, . . .	. . . is 910 person-rem per year.
	Basis:	Wording deleted to avoid unintended comparisons with other plants.	
17	30	behind schedule and too narrow in scope.	behind schedule
	Basis:	Wording deleted as the schedule was the major issue, and not the scope.	
31	37-38	This led to unnecessary and extended shutdowns to repair leaking CRD penetrations.	sentence deleted
	Basis:	Sentence deleted because of the lack of relationship to rest of paragraph.	
35	33-38	Another example of this tendency can be found in the Licensee Event Reports (LERs) issued by the licensee during this reporting period. Of forty-three LERs issued by the licensee during this assessment period, two were attributed to personnel error, five to hardware related failures, twelve to "other" and 24 had no cause code specified.	sentence deleted
	Basis:	Sentences deleted as the licensee is not required to fill in the cause code blocks unless case of equipment failure.	

For the following changes, the original page is not included as the changes are seen as being minor and editorial in nature.

PAGE	LINE	NOW READS	SHOULD READ
2	7	1986	1985
	Basis:	Typing error of date corrected.	
2	30	all Emergency Condenser piping outside containment	some Emergency Condenser piping
	Basis:	Wording corrected to indicate that not all piping was replaced.	
30	23	of all Emergency Condenser	of some Emergency Condenser
	Basis:	Wording corrected to indicate that not all piping was replaced.	