U.S. NUCLEAR REGULATORY COMMISSION
REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

PENNSYLVANIA POWER AND LIGHT COMPANY

SUSQUEHANNA STEAM ELECTRIC STATION

FOR THE PERIOD

FEBRUARY 1, 1983 - JANUARY 31, 1984

MARCH 20, 1984

TIS/LP

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I. INTRODUCTION

1.1 Purpose and Overview

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

This SALP covers the period February 1, 1983, through January 31, 1984, with additional observations thru mid-March 1984. The prior assessment period was February 1, 1982, through January 31, 1983, with additional observations through March 1983.

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

1.2 SALP Review Board

R. W. Starostecki, Director, Division of Project and Resident Programs (DPRP)
S. Ebneter, Chief, Engineering Programs Branch, Divison of Engineering and Technical Programs (DETP)
E. G. Greenman, Chief, Projects Branch No. 1, DPRP
E. McCabe, Chief, Reactor Projects Section 1C, DPRP
R. Perch, Licensing Project Manager, Licensing Branch No. 2, NRR
R. Jacobs, Senior Resident Inspector, Susquehanna

Additional Attendees

R. Bellamy, Chief, Radiological Protection Branch, DETP
L. H. Bettenhausen, Chief, Test Programs Section, DETP
L. Plisco, Resident Inspector, Susquehanna
G. Kelly, Project Engineer, Reactor Projects Section 1C
A. Schwencer, Chief, Licensing Branch 2, NRR

1.3 Background

(1) Licensee Activities

Unit 1

Unit 1 completed its start-up program during this SALP period. Commercial operation was declared on June 8, 1983.

Significant outages were as follows:

Date	Reason
February 12 - 25, 1983	Scheduled maintenance outage. Major work included replacing recirculation pump discharge valve actuators, repairing a main generator hydrogen leak, and local leak rate testing.
April 4 - May 23, 1983	Scheduled maintenance outage upon completion of the Start-up Test program. Major outage work involved reactor vessel internals inspection, diesel generator overhauls and local leak rate tests.
June 24 - July 2, 1983	Unscheduled outage following failure of the T-10 start-up transformer. That transformer was replaced with a spare.
August 28 - September 2, 1983	Unscheduled outage following scram on MSIV closure. Steam line pressure switches were replaced.
December 3, 1983 - February 21, 1984	Scheduled major outage of 79 days to tie-in Unit 1 and 2 common systems including ESW, Diesel Generators, Standby Gas Treatment System and ECCS equipment logic modifications. Integrated electrical testing involving Unit 1 and 2 systems was conducted.

There were a total of 13 reactor scrams during the SALP period, nine unplanned and four planned. Of the unplanned scrams, four resulted from Main Steam Isolation Valve closure due to high steam line radiation while placing condensate demineralizers in service.

Overall, the availability (per licensee calculations) of Unit 1 for 1983 was 75.8%. This was well above the domestic commercial BWR average availability for CY1983 of approximately 60%.

Unit 2

At Unit 2, construction and most of the preoperational testing program were completed during this period. The licensee's projected fuel load date was slipped from early February to March 26, 1984, due to extension of the tie-in outage. Unit 2 initial criticality is forecast for May, 1984, with readiness for a full power license by June 1, 1984 and commercial operation by the end of December, 1984.

(2) Inspection Activities

One resident inspector was assigned through the SALP period. A second resident was assigned except for the periods from August 26 to October 2, 1983 and December 15, 1983 to January 22, 1984. Augmented region-based inspection was provided during those periods.

A total of 47 inspections (5809 hr.) were conducted. Of these, 31 (2033 hr.) applied to Unit 1, and 30 (3776 hr.) applied to Unit 2. There were 13 resident inspection reports issued (2002 hr.). Four major team inspections were conducted:

- Construction team inspection of Unit 2 (631 hr.)
- NDE Van independent measurements for Unit 2 (600 hr.)
- QA/Procedures team inspection of both units (262 hr.)
- Annual site Emergency Drill inspection (258 hr.)

The 32 other region-based specialist inspections totaled over 2000 inspection hours, with preoperational testing receiving the most emphasis. Table 4 lists individual inpsection details.

An enforcement conference was held on March 17, 1983 and a $60,000 civil penalty was assessed on April 22, 1983 for Standby Gas Treatment System inoperability. A management meeting was held on August 30, 1983 to discuss repetitive problems with missed surveillances. A management meeting was held on November 21, 1983 to discuss improper pressure/temperature inputs to pipe qualification analyses. An enforcement conference was held on December 13, 1983, to discuss inoperability of the offgas hydrogen analyzers and loss of offsite power independence in the supply to a 4.16 KV safeguards bus. An enforcement conference was held on March 20, 1984 to discuss inoperability of the high pressure coolant injection and reactor core isolation cooling systems during post-SALP period start-up on February 21, 1984. These events are discussed in Section 3.1 of this SALP.

A tabulation of enforcement data is provided in Table 3.

II. CRITERIA

The following evaluation criteria were applied to each area:

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

To evaluate licensee performance consistently, attributes of Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1. The categories are defined as follows.

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

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

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

III. UNIT 1 PERFORMANCE ANALYSIS

III.A. SUMMARY OF RESULTS

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
3.1. Plant Operations		X	
3.2. Radiological Controls		X	
3.3. Maintenance	X		
3.4. Surveillance		X	
3.5. Start-up Testing	X		
3.6. Fire Protection/Housekeeping	X		
3.7. Emergency Preparedness	X		
3.8. Security/Safeguards	X		
3.9. Licensing Activities	X		

OVERVIEW

During this time frame, Unit 1 successfully and safely completed initial start-up and initiated full power operation. Performance during this assessment is not amenable for direct comparison with prior SALP's due to the different categories and nature of activities. Notwithstanding, the management direction and control of activities has been good and is a prime factor for the high ratings in this SALP. Certain weaknesses identified in prior SALP's have been corrected. Problems relating to certain aspects of the operation of the facility have been identified. These problems have resulted in enforcement conferences and have exhibited themselves on a continuing basis beyond the assessment period. The more significant areas needing improvement are: prompt identification and correction of off-normal plant conditions, improved understanding of and adherence to unusual Technical Specification limits, and control of system lineups. Although these weaknesses may in part be attributed to a "learning" curve associated with recent operations, increased management attention is warranted to assuring station personnel properly deal with anomalies during routine operations.

3.1. PLANT OPERATIONS (28%)

This area was inspected by the residents and by four region-based inspections (including one team inspection).

Licensee management involvement in operating performance is evident. The licensee has developed and is expanding a set of Nuclear Department performance indicators which monitor the following areas: power generation, NRC enforcement, equipment operability, unplanned safety system actuations, failed surveillances, NPRDS failure reports, plant chemistry, radiation exposure, personnel contamination, radioactive effluents, maintenance, modification controls, engineering support activity, outage performance, and nonconformance reports. Plant management holds daily planning meetings for review, control, and coordination of activities affecting safety and compliance; on-shift operators are represented in those meetings.

Unit 1 operation has been characterized by better than average plant availability (75.8% in 1983) except for shutdowns caused by main steam line radiation spikes while valving-in condensate demineralizers. Early resin replacement, more frequent resin regeneration, better procedures for placing demineralizers on-line, and reducing power when the demineralizers are put on-line alleviated the problem. The licensee concluded that oil leakage past the reactor feed pump seals was a primary cause of this problem, and the seals were reworked to minimize that leakage. Also, the licensee plans to provide ultrasonic resin cleanup as a further preventive measure. This is an example of the thorough approach to corrective action exhibited by this licensee.

There are 26 reactor operators and 28 senior reactor operators licensed on both units. Licensee shift staffing calls for ensuring that each shift has experienced licensed operators. The operations staff is responsive to NRC comments and questions. Plant personnel have demonstrated a commendable attitude and exhibit a willingness to improve operations. There has been some discontinuity in operations management - four different individuals have performed as Supervisor of Operations during the past year. With the recent issue of a dual unit license to the current operations supervisor, better stability is expected. The promotion of two control room operators to Assistant Unit Supervisor, of Nuclear Plant Operators to Control Room Operator, and of Auxiliary Plant Operators to Nuclear Plant Operator temporarily reduced the experience level at certain watch stations. The Shift Technical Advisors are also all newly-qualified (previous STA's are undergoing SRO license training). Nonetheless, NRC inspectors have observed that, during plant transients (e.g., scrams, integrated electrical tests), the operators controlled the plant safely and properly.

The Nuclear Training Group is a licensee strength. Forty-one of 44 operators examined in November and December of 1983 for an NRC license passed. All 23 new license candidates examined in December 1983 passed, with no training weaknesses noted. The plant simulator was effectively used to validate Technical Specifications. Susquehanna training is judged to be one of the best in Region I, as based upon: operator license examination performance; management commitment to training; use of the plant-specific simulator; and, the high quality performance of the personnel undergoing NRC license examinations. However, region-based inspection did note that the licensee could improve his process for evaluating training effectiveness.

In evaluating and discussing operational conditions and events, the licensee has demonstrated safety conservatism, openness and candor. This has been consistently evident in daily inspection experience, in regional management visits to the site, and in management meetings between the licensee and NRC.

There have been operating problems. These included: (1) a post-SALP period inoperability of HPCI and of RCIC for about two hours; (2) a brief (45 minutes) reactor coolant temperature increase of up to ten degrees above the refueling condition limit of 140°F; (3) a seven-hour loss of off-site power independence for one of the four diesel-backed safeguard busses; (4) Standby Gas Treatment System inoperability for about 24 hours; (5) inoperability of Offgas System hydrogen analyzers for 51 hours; and (6) several minor spills of radioactive fluid. The associated NRC concerns include operator understanding of Technical Specification requirements, configuration (lineup) control, and operator response to alarms. Licensee corrective actions have been extensive, as evidenced by their presentations at enforcement conferences and NRC follow-up inspection. NRC review of these matters is continuing. Responses to alarms have improved. And, the overall safety systems' ability to protect the core has been maintained when needed. These problems could be categorized as normal "growing pains" for this early portion of plant life, and the licensee has effectively learned from their mistakes. Region-based inspection did note that better procedure understanding could improve plant operations. More-thorough shift personnel anticipation, detection, and follow-up of unexpected or off-normal plant conditions could reduce the frequency of Technical Specification violations. However, the licensee's compliance with regulatory requirements and commitments is acceptable and improving.

Most LER's (licensee event reports) provided adequate descriptions. But some LER's have not included all corrective actions taken by the licensee, necessitating unnecessary additional review to evaluate their adequacy. This concern was previously discussed with the licensee, and some improvement followed, but the problem was not corrected. The concern is with report adequacy and not the adequacy of corrective action.

An operational problem was experienced with the ultimate heat sink during freezing weather, with both units shut down. Insufficient heat was available to prevent freezing in the spray pond nozzles, and they became plugged because of leakage past a supply network isolation valve. The licensee determined that pond sprays are not needed with both units shut down and pond temperature below 42°F. The plant did not exceed this condition with the spray nozzles frozen. Measures to prevent freeze-up are being considered by the licensee, with NRC follow-up being provided by the resident inspectors. This incident contributed to the extension of the tie-in outage, but was representative of the licensee's thorough and conservative approach to resolving important safety issues.

CONCLUSION

Category 2

Board Recommendation

Augment the regular two-resident inspector coverage of initial dual-unit operation with region-based and, if appropriate, with supplemental resident inspector coverage.

3.2. RADIOLOGICAL CONTROLS (15%)

There were seven region-based inspections. Resident inspection also routinely checked radiological controls.

The Radiological Controls Program at Susquehanna is common to both units and is uniformly implemented. Licensee performance and review of the work and controls needed to prepare for dual unit operation were found to be timely and technically sound, in that staffing was adequate, complete procedures were in place, and equipment was in place and calibrated. This program expansion did not detract from Unit 1 radiological controls and was in place prior to March 23, 1984, the Unit 2 license issue date. There were no significant personnel exposures to radiation. High radiation areas were properly controlled, as were locked high radiation area keys. Contaminated area control and reduction is effective, and the status of such areas is monitored daily.

NRC radiation protection specialists reviewed the licensee's ALARA program and preparations for dual unit operations. There was abundant evidence of careful prior planning by the licensee in these areas. One example was the significant licensee management attention consistently applied to pre-job planning ALARA review and to ongoing job ALARA review applied to the repair of a crack in the reactor vessel steam dryer. Licensee management involvement in radiation protection was particularly evident in the Assistant Plant Superintendent's close oversight of the planning for this steam dryer repair. Another example, although after the SALP period, was the replacement of the stem of a recirculation pump discharge valve. This work was also carefully planned and performed from a health physics viewpoint, both in regard to minimizing personnel exposure and protection against radioactive liquid spillage. Effective mockup training was utilized on Unit 2. Stringent ALARA man-rem controls were established and achieved.

Preoperational testing of the radwaste system was performed in an effective and timely manner. Detailed procedures were prepared in accordance with ANSI and ASME standards. Specific acceptance criteria were prescribed. Testing was performed in accordance with the procedures. NRC review identified no significant problems.

The licensee is implementing 10 CFR Part 61 requirements effectively. The licensee's understanding of land disposal requirements, nuclide identification, nuclide activity, and waste classification was verified by NRC inspectors. This demonstrated timely and technically sound implementation of the new radwaste disposal regulatory requirements.

Some violations of NRC requirements were found. These included isolated failures to adhere to RWP's, failure to train contractor personnel in radwaste handling, and failures to perform surveillances

(reference SALP Section 3.4). A violation for health physics technician failure to review new procedures and procedure changes was not fully implemented. The corrective action was limited to subsequently issued procedures and changes and omitted previously issued ones. This problem was corrected. Based on the high level of licensee activity and the minor radiological significance of the items, the licensee's compliance and corrective action were satisfactory.

The health physics organizational structure includes a Radiological Operations Supervisor (ROS) position reporting to the Health Physics Supervisor (HPS). The ROS position has been vacant for about 2 years, and the HPS must therefore directly supervise day-to-day activities that a ROS should be supervising. Otherwise, health physics staffing is adequate and health physics coverage is being maintained without the need for significant overtime.

Overall, training of health physicists is good. The licensee took the initiative to cross-train health physics specialists by assignment to other program areas. There were some delays in the training and indoctrination of personnel assigned new responsibilities. Other minor training problems also occurred due to the lack of a training program for the dosimetry and radwaste clerks. These matters were quickly corrected.

One problem was identified in the external dosimetry area, where NRC inspectors found that containment entry (with the reactor critical) was accomplished without sufficient post-entry evaluation of neutron exposures and without updating of the associated exposure records. There were also instances of lack of updating of exposure records following dose evaluations. The licensee promptly performed the needed evaluations and record updating. The licensee also began computerizing health physics records to improve exposure records management. This action is not yet complete. Although the records problems did not result in or contribute to unplanned exposures, continued management attention is needed to assure that health physics records are current.

In the chemistry area, minor problems found in 1982 related to the incorporation of acceptance criteria, actions, proper equations, and references into analytic procedures. As of December 1983, corrective action had not yet been completed on some analytic procedures. Regulatory requirements have been met in this regard. But, for analyses not specifically required to be done, weaknesses were found in the procedures. A recent example was the atomic absorption spectrophotometer used to measure the metal content of feedwater being calibrated at only one point instead of throughout the range of interest. And, the chloride concentration calculation did not incorporate a needed dilution correction. Also, a chemistry surveillance was missed late in the SALP period, showing that such surveillance problems, though greatly reduced in frequency, still occur.

There was spillage of radioactive liquid (via Unit 2) to a sump in the restricted area. The liquid originated from Unit 1 and entered Unit 2 via cross-contamination of systems. Licensee action precluded off-site release. Notwithstanding, NRC review found that the licensee had not implemented a sampling and analysis program for noncontaminated Unit 2 systems which interface with contaminated Unit 1 systems. Such a sampling program was identified by IE Bulletin 80-10 as being needed, and had been implemented within Unit 1. In this case, the problem came to light because a worker asked HP to check a water drip from a Unit 2 pipe he had been authorized to do work on. This worker's cautiousness was a prime factor in finding and correcting this problem. The licensee's corrective action was prompt and included extending IEB 80-10 coverage to Unit 2.

No off-site releases occurred during the SALP period, and the effluent monitoring program is considered adequate.

Conclusion

Category 2

Board Recommendation

Provide normal inspection coverage, with emphasis on chemistry.

3.3 MAINTENANCE (9%)

Maintenance was reviewed by one region-based inspector as part of the team inspection covering changes instituted by the licensee since April 1982. Resident inspection also addressed this area.

The electrical and mechanical maintenance groups are well organized and function under well-stated and understood policies. There is consistent evidence of planning and assignment of work based on priorities. The administrative and implementation procedures are thorough, detailed, and properly reviewed and approved. Maintenance records are complete and available.

The positions in the maintenance group are well defined in terms of authorities and responsibilities and are filled with trained, capable personnel. Training and qualification programs contribute to the skill and capability of the workers. However, not all individuals have received the licensee-required electrical maintenance training.

An electrical maintenance problem involved dirty motor control centers (MCC's); a condition which was not corrected when re-inspection occurred. However, post-SALP period inspection found acceptable MCC cleanliness. This problem did not adversely affect nuclear safety.

Region-based inspection identified a violation for failing to provide specified training to three maintenance/support personnel. The resident inspector identified another violation for not completing a design change which modified the covers on the drywell-to-suppression pool downcomers to assure full downcomer flow capacity. Both violations are considered to be exceptions to normal practice.

During the SALP period, the licensee's quality consideration list (Q-list) was found to need upgrading. Also, use of the S-list (important-to-safety equipment), as an engineering tool for preventing impact on safety systems, was not understood by some maintenance personnel. Resident inspector review of this area identified no problems with equipment being treated inconsistent with its importance to safety. Acceptable upgrade of the Q-list and redefinition of S-list applicability were accomplished after this SALP period.

Conclusion

Category 1

Board Recommendation

None

3.4 SURVEILLANCE (8%)

Surveillance was observed during resident inspection, one region-based inspection, and a team inspection to review the changes instituted by the licensee since April 1982.

A management meeting was held on August 30, 1983 to address repetitive missed surveillances. A review of LER trends by the licensee attributed this surveillance problem to: (a) inadequate procedures in 3 cases; (b) missed surveillances in 4 cases; (c) lack of procedures in 5 cases; and, (d) inoperable equipment in 8 cases. A licensee task force was assigned to address this area; corrective actions included: (1) a review of requirements and issue of additional surveillances; (2) verification that surveillances fulfilled Technical Specification (TS) requirements; (3) improved surveillance definition and philosophy development; (4) development of bases documents for each surveillance procedure; and finally, (5) cross references between TS and surveillance procedures. Missed surveillances have dropped substantially as a result of the licensee's corrective actions. The licensee's corrective action program is scheduled to be completed in May 1984.

Licensee response to previous unresolved items, and to a violation in the interpretation of a radiograph, were found to be acceptable.

The instrumentation and controls group is well-organized and functions under well-stated and understood policies. There is consistent evidence of work planning and work assignments based on priorities. The administrative and implementation procedures are thorough, detailed and properly approved. Records of completed calibrations and surveillances are complete and available.

Positions in the I&C group are well-defined as to authority and responsibility, and are filled with trained, capable personnel. Technician certifications are detailed and documented and contribute positively to technician skill level and proper work performance.

The in-house test equipment calibration lab is well-staffed with personnel and stocked with high quality calibration standards. The commitment to provide accurate test equipment is an aid in the performance of calibration and surveillance.

Conclusion

Category 2

Board Recommendation

None

3.5 START-UP TESTING (14%)

Following issuance of an Operating License on July 17, 1982, the Startup Program was completed within eleven months and commercial operation declared on June 8, 1983. Start-up testing was observed during resident inspection and three region-based inspections. All shifts and all major test evolutions were covered during these inspections. No violations were identified.

Start-up tests were conducted acceptably and in accordance with procedures. Numerous Test Exception Reports (TER's) were prepared, with most resolutions timely. TER resolution could be improved in that Offgas and ESW system TER's did not receive timely resolution; however, the more-significant TER's were aggressively pursued.

Several factors led to the successful completion of the Unit 1 Start-up Test Program. Administrative controls were consistent with the licensee's commitments and NRC regulations, and were effective. Problem resolution was generally timely, thorough, and technically sound. The use of the Technical Review Committee on a regular basis to resolve outstanding issues was effective. Staffing and training were adequate, although additional training in test requirements, safety evaluation reports, and plant modifications would have helped in areas like TER resolution.

During conduct of start-up testing, there were 13 unplanned scrams; not an unusually high number when compared to an average of 22 unplanned trips during start-up programs at other plants. The test program was implemented as set forth in Chapter 14 of the FSAR. All modifications were made in accordance with regulatory requirements and the commitments prescribed in the administrative procedures.

In general, unresolved items, modifications, maintenance items and re-testing were completed prior to commercial operation. An exception involved the recirculation pump coastdown test, which did not meet acceptance criteria. The operational MCPR limit was reduced (and incorporated into the process computer) until this item is resolved.

Conclusion

Category 1

Board Recommendation

None

3.6 FIRE PROTECTION/HOUSEKEEPING (3%)

This area received routine resident inspector coverage and routine region-based coverage during tours and walk-throughs of the facility. No fire protection problems were identified.

A high level of Susquehanna-1 cleanliness has been maintained. This is considered to have contributed to minimizing fire hazards and to employee morale and pride.

The last NRC inspection which specifically addressed programmatic fire protection inspection areas was conducted in January 1983, just prior to this current SALP period. During the previous SALP period, performance was evaluated as Category 1.

The previous SALP indicated a concern for direct involvement of the fire protection engineer in the training process. The fire protection engineer now attends fire brigade training at least quarterly, and reviews training matrices to ensure that fire brigade members have received required training.

New safe shutdown requirements will be assessed in the future.

Conclusion

Category 1

Board Recommendation

None

3.7 EMERGENCY PREPAREDNESS (15%)

The resident inspectors monitored licensee actions periodically. Two region-based inspections were conducted.

On March 22-24, 1983, the licensee performed their annual full-scale exercise; an NRC team observed that exercise. It was determined that, within the scope and limitations of the scenario, the licensee demonstrated the ability to implement the Emergency Plan and implementing procedures in a manner that would adequately protect public health and safety. Numerous areas were identified where the licensee's activities were thoroughly planned and efficiently implemented. Areas identified for improvement included communications and radiological controls. The licensee commenced corrective actions on those items.

An emergency preparedness inspection on June 13-17, 1983, evaluated corrective actions on the 33 improvement items identified during the Emergency Preparedness Appraisal (EPIA) conducted on April 12-22, 1982. The inspection verified that timely corrective actions had been completed on all 33 improvement items.

The Technical Support Center (TSC) and Emergency Operating Facility (EOF) were kept in a good state of readiness. A permanent staff is assigned to the EOF, which is a separate building dedicated to the EOF function. Analysis equipment in the TSC was observed to be used regularly. During the annual exercise, all TSC equipment operated properly.

The licensee has been responsive to NRC initiatives. Acceptable resolutions were proposed and implemented. There were no reportable events involving emergency preparedness during the SALP period. Problems experienced have been few, and were corrected rapidly.

Inspection findings and evaluations indicated improved performance by the licensee in this area.

Conclusion

Category 1

Board Recommendation

None

3.8 SECURITY AND SAFEGUARDS (9%)

Analysis

During the SALP period, there were three physical security inspections and regular coverage by the resident inspectors. No programmatic problems were identified. Prompt and effective corrective action was taken on two minor violations for access list updating and security event logging. A violation for an unauthorized temporary power supply to a portion of the security lighting was also promptly corrected. No substantive degradation of security was involved in these violations.

There have been delays with authorizing NRC inspectors unescorted access to the site and security door latch problems have been a nuisance on site. The licensee has responded aggressively and productively to a recent NRC initiative on improving NRC inspector access. Resident inspectors have found that door latching problems are promptly responded to by the security force; access has not been significantly impeded, and the door problems have been promptly corrected. Also, after the SALP period, the licensee demonstrated the ability to man the alternate shutdown station within five minutes without breaching normal security provisions.

Interviews and observations consistently indicated a management commitment to maintain the security organization at the current high level of performance. The plant security management staff is well qualified. Surrounding Unit 2 and Unit 1 with a common protected area greatly enhanced the overall security posture of the plant site, and alleviated personnel screening and access control problems.

Security Program audits were complete and timely. Management responded to audit findings with satisfactory corrective action. NRC inspections revealed records management to be very effective and records to be readily accessible. Excellent cooperation and frankness were displayed by the licensee's staff during interviews, and aided in the resolution of inspection-related questions.

All security organization personnel were found to be performing their duties and responsibilities in an excellent manner. The Security Training Program is well-staffed and efficiently implemented.

Conclusion

Category 1

Board Recommendation

None

3.9 LICENSING ACTIVITIES

Supplement 5 to the NRC's Safety Evaluation Report was issued in support of several license conditions. The NRC staff also issued 14 license amendments. These included administrative changes, updating of license conditions, and changes to Technical Specifications to reflect equipment modifications and operating experience. One amendment was processed under emergency circumstances and another was processed under exigent conditions; in each case, the staff concluded that the circumstances involved could not be reasonably avoided.

The licensee continues to demonstrate a consistently high degree of management control and involvement in achieving resolution of licensing issues. Corporate management is readily available. Their positive attitude assisted in an expedited review of changes involving emergency service water pump sequence timer settings and primary containment valve isolation signals.

The licensee approaches issues thoroughly and from a technically sound safety viewpoint. After a normal initial learning period, the licensee provided adequate discussion of "no significant hazards considerations" with nearly all proposed license amendments. The licensee also demonstrated a clear understanding of most issues involved in Technical Specification changes. In some cases, though submittals were acceptable, some information (e.g., system/test analysis) was lacking for the staff to draw that conclusion initially.

The licensee provided timely responses to NRC initiatives, with acceptable resolutions proposed in responses to several generic letters. Some license amendments proposed by the licensee either required additional information or have been held in abeyance at licensee request. No safety problems have resulted from this, but final disposition of these issues should be pursued by the licensee.

PP&L personnel involved in licensing activities are knowledgeable and professional. Appropriate personnel attend meetings with the NRC staff.

There has been a long-term licensee effort to assure an accurate FSAR and license application. However, the NRC issued a violation (licensee identified) for failing to have updated the Operating License application to reflect changes in the containment isolation logic.

Conclusion

Category 1

Board Recommendation

None

IV. UNIT 2 PERFORMANCE ANALYSIS

IV.A. SUMMARY OF RESULTS

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

FUNCTIONAL AREAS	CATEGORY 1	CATEGORY 2	CATEGORY 3
4.1. Containment	X		
4.2. Piping Systems and Supports	X		
4.3. Safety-Related and Support Systems	X		
4.4. Electrical Power Supply and Distribution	X		
4.5. Instrumentation and Control	X		
4.6. Preoperational Testing/Start-up Program	X		
4.7. Licensing Activities	X		

OVERVIEW

In general, the same staff that was involved in the preoperational testing and start-up of Unit 1 was involved in the same activity for Unit 2. Unit 2 benefited substantially from the experience gained on Unit 1. Construction quality of structures and equipment is high. Management control of construction was excellent. Licensee competence, emphasis on safety, and careful planning have been evident. The number of NRC open items to be completed before fuel load was relatively low. Construction deficiencies were minor and aggressively corrected by the licensee.

4.1 CONTAINMENT (4%)

Inspection of this area primarily involved NRC region-based inspection of the containment structural integrity test (SIT) and the containment integrated leak rate test (ILRT).

The SIT met all acceptance criteria. The ILRT showed containment leakage to be well within the acceptance criteria, and was continued for a full 24-hour period. No discrepancies in the SIT or ILRT tests or results were identified.

No violations were identified in this area. Both the SIT and ILRT were evaluated as being efficiently managed by the test director and PP&L management, and conducted by an adequately sized and well-qualified professional staff.

Conclusion

Category 1

Board Recommendation

None

4.2 PIPING SYSTEMS AND SUPPORTS (21%)

The assessment is based on resident inspection and four region-based inspections. These included one team inspection of 1) as-built configuration of portions of three safety systems, 2) pre-service inspection program and data, 3) independent ultrasonic examination of nine selected welds and other independent examinations, and 4) review of welder qualifications, weld histories, and material certifications.

The overall quality of welds inspected is good, as was the welder training and qualification program. Weld records, site welder qualification records and weld procedure qualification records were available to support overall weld quality.

Unit 1 experienced pipe hanger problems in the past. However, Unit 2 hangers closely conformed to construction drawings and as-built documentation. This improvement is attributed to management involvement in improving QA/QC in this area.

Piping installation is in accordance with specifications. However, there were instances where configuration control was deficient: NRC inspection identified loose or twisted pipe clamps, missing valve handwheels, and broken instrument covers or sight glasses not identified by the licensee. The licensee identified a deficiency with pipe design specification (M199) pressure and temperature input for stress qualification. Corrective actions included reanalysis, additional hydrostatic testing, RHR seal water cooler replacement, and changes in relief valve setpoints. The licensee's scoping of this problem and achievement of a satisfactory resolution were timely. The licensee also resolved a CRD insert/withdraw line clamp deficiency promptly.

The licensee maintains complete baseline preservice inspection records to support in-service inspection (ISI). However, licensee management involvement is needed in verification of ISI examination results, data review, and recognizing potential problems to assure that contractor-developed preservice inspection data are effectively carried over into the licensee's organization.

The resident inspector identified violations for improper QC acceptance of a pipe support dimension, for making a hanger weld root pass with an unauthorized process, and for an I-beam weld fitup that exceeded the specified maximum root opening. Region-based inspection identified violations for weld ultrasonic inspection being precluded by inadequate edge contour preparation, for discrepancies in small bore pipe installation, and for inaccurate nameplate data for temperature elements. None of these conditions involved actual equipment unsuitability for use.

One problem involved a large-bore pipe support, installed directly in front of the primary containment access for the control rod drives (CRD's), which may present a cause for unnecessary radiation exposures. The licensee's review of this situation is still underway.

Conclusion

Category 1

Board Recommendation

None

4.3 SAFETY-RELATED AND SUPPORT SYSTEMS (20%)

The assessment is based on resident inspection and two region-based inspections, including a team inspection to verify the "as-built" configuration of several safety related systems.

Correction of a deficiency on an Anchor-Darling globe valve in the Residual Heat Removal (RHR) system was not completed promptly and records of rework performed were not readily available. This was a minor problem, and records were otherwise complete and available.

NRC review of the licensee's construction deficiency reports indicates accurate reporting and aggressive resolution. Overall, construction deficiencies have involved relatively minor hardware problems. The resolutions have been technically sound and conservative.

NRC as-built inspection was performed of the Standby Liquid Control (SLC) system, and parts of the Control Rod Drive (CRD) and RHR systems. The NRC audits included instrument and controls installation, electrical instrumentation installation, wiring, comparison with schematics and FSAR descriptions, valves, pumps, and the RHR Loop 'B' heat exchanger. Some pipe support and hanger discrepancies were found and are discussed in Section 4.2 of this SALP. Otherwise, the installation was found to be in conformance with applicable drawings, documentation, codes and standards.

Overall, licensee performance in this area was characterized by careful and capable planning, and by good control of activities.

Conclusion

Category 1

Board Recommendation

None

4.4 ELECTRICAL POWER SUPPLY AND DISTRIBUTION (15%)

This assessment is based on one region-based inspection, as well as team inspection findings and resident inspector coverage.

The WA (work authorization) and NCR (nonconformance report) systems are functioning in the electrical area. The licensee's quality organization verified the results of the WA work, and documented such verification in their reporting system.

During the Unit 1-Unit 2 intertie outage and subsequent electrical testing, resident and region-based inspection identified no equipment problems. Further, other inspection of the as-built configuration of selected cabling and wiring showed conformance to as-built drawings, FSAR descriptions, and relevant codes, standards, and specifications.

Electrical cabling voltage drop has been a concern for two-unit operation. During the Unit 1-Unit 2 intertie outage, two additional engineered safeguards bus supply transformers were placed in service to correct this problem. Because there are also a considerable number of installed cables which are approaching their maximum design load, the licensee has instituted a special program to prevent any additional loading on these cables throughout plant life.

This functional area has been characterized by knowledgeable and competent licensee planning and implementation. The tie-in outage for Units 1 and 2 took considerably longer than expected, but there was a clear licensee emphasis upon safety aspects being more important than schedule considerations. And, a considerable amount of NRC licensing review and field inspection identified no safety inadequacies.

Conclusion

Category 1

Board Recommendation

None

4.5 INSTRUMENTATION AND CONTROL (8%)

Analysis of this area is based on resident inspection and four region-based inspections, including one team inspection of as-built configuration of portions of three safety-related systems. Quality assurance plans, instructions, and procedures for instrument components and associated wires/cables were found to conform to the QA Program described in FSAR Chapter 17.

Work performance, partially completed work, and completed work in the installation and routing of instrument lines from safety-related racks was generally in accordance with specifications in the areas of receipt inspection, material qualification, quality control, installation, and protection from damage. There were isolated (minor) cases of failure to correctly translate design information into construction (e.g., instrument pipe flex-legs too short), and minor problems with configuration control (e.g., difficulty in tracing component status) during Integrated Startup Group testing of equipment.

Safety Parameter Display System (SPDS) installation has been delayed, but the planned installation date is acceptable to the NRC.

Conclusion

Category 1

Board Recommendation

None

4.6 PREOPERATIONAL TESTING/START-UP PROGRAM (31%)

The preoperational testing program was observed during resident inspection and 10 region-based inspections. Preoperational testing and NRC inspection thereof are over 95% complete.

The licensee has a sound preoperational test program, well implemented, adequately staffed, and achieving its objectives. Overall performance and control of the Unit 2 preoperational test program has been excellent with only minor problems. Management's direct involvement in control and direction of activities of Unit 1, Unit 2, and the Unit 1-Unit 2 intertie outage has helped to achieve this result. Section 3.1 describes Standby Gas Treatment System malfunctions (because of their relevance to operational events) which occurred during conduct of Unit 2 Cold Functional Test P200.1B.

Activities were well controlled, with consistent evidence of planning and assignment of priorities. Committees are fully staffed and functioning adequately. The QA/QC departments have been well aware of their preoperational testing responsibilities. The QC organization is responsible for all hold and witness points and has been providing periodic surveillances. Management has been maintaining close track of all nonconformance reports (NCR's). Periodic sampling of review of QC inspection reports and QA audits, and interviews with QA/QC managers and inspectors, indicates that the licensee is doing a very good job of meeting responsibilities. Records are complete, well maintained, and available. Reviews are timely and technically sound.

The licensee's responses are almost always technically sound and thorough in regard to issues and NRC initiatives, with acceptable resolutions proposed in almost all cases. The test review board (TRB) has a clear understanding of the issues and exhibits conservatism where safety significance exists. Deadlines are usually met. Resolution of issues is usually timely.

Events are properly identified and analyzed, promptly reported, and corrective action is effective. Staffing is adequate with no vacancies, and positions are identified with authorities and responsibilities well defined. The training and qualification program for integrated start-up group (ISG) staff and engineers is well defined and implemented.

Start-up testing procedures were being prepared and issued during this assessment period. Drafts of all start-up procedures have been provided to the NRC for review. The start-up program for Unit 2 is based heavily on the experience gained from Unit 1. Procedures provided to the NRC are good and require little revision. The management responsibility for procedures rests with the Plant Superintendent, with review by the PORC and TRC. The licensee provides timely resolution of NRC concerns on the procedures. A training program has

been started for the on-shift test engineers and plant operating staff for the Unit 2 start-up test program.

Within PP&L, the operating experience base for Unit 2 operation includes 10 years of BWR hot operating experience as SRO. There are 26 RO's and 28 SRP's with licenses on both Unit 1 and Unit 2, and the licensee is assigning licensed operators with previous hot operating experience to Unit 2 on each operating shift.

During most of this SALP period, Unit 2 cleanliness was adequate but significantly below the expected level. No impact on safety equipment was identified, and a major improvement was made in January 1984.

Conclusion

Category 1

Board Recommendation

Provide normal start-up inspection coverage.

4.7 LICENSING ACTIVITIES

During this SALP period, the applicant and the NRC staff were involved in resolving open items related to the issuance of an operating license for Unit 2. Supplement 5 to the Safety Evaluation Report was issued to address open items.

Pennsylvania Power & Light Company has demonstrated a high degree of management control and involvement in achieving resolution of licensing activity issues. Management within PP&L was readily accessible and facilitated timely and thorough reviews. Management involvement was particularly evident in the areas of design review, emergency service water system modifications, emergency core cooling system actuation instrumentation, the initial test program, and "station blackout" testing.

The approaches of the applicant to resolution of technical issues from a safety standpoint are technically sound and thorough in almost all cases. This was particularly evident with the installation of two additional engineered safety features transformers to the on site power system to support two unit operations. Changes of this nature show evidence of thorough planning and coordination. PP&L also demonstrated an exceptionally clear understanding and sound technical approach towards resolving "station blackout" test requirements.

In response to NRC initiatives, the applicant has generally provided timely responses with acceptable resolutions initially proposed. PP&L has generally been aware of and sensitive to the needs of the staff to perform its review function with adequate lead time. Some delays were experienced in receipt of submittals to resolve Unit 2 licensing issues. However, the applicant has been very responsive in meeting with the staff on short notice to resolve critical path issues.

Personnel involved in the licensing activities of Unit 2 are essentially the same personnel involved with Unit 1, and are knowledgeable and professional. Appropriate personnel are made available in meetings with the NRC staff.

As a result of NRC concerns about Technical Specification compatibility with as-built conditions, a team evaluation of this concern was done after the SALP period. Good conformance between the facility and the Technical Specifications was found.

Conclusion

Category 1

Board Recommendation

None

V. SUPPORTING DATA AND SUMMARIES

5.1 Licensee Event Reports (LER's)

Tabular Listing

Type of Events:

A.	Personnel Error	30
B.	Design/Man./Constr./Install.	21
C.	External Cause	0
D.	Defective Procedure	13
E.	Component Failure	63
X.	Other	37
	Total	164

Six chains were identified:

(a) LER's 83-43 and 83-67 describe failures of the Reactor Mode Switch (two different switches) due to failure of contacts to make up when the Mode Switch position is changed. The licensee will replace the Mode Switch with one which passes testing at Franklin Research Center and, in the interim, implemented administrative controls to verify switch position every time the Mode Switch position is changed.

(b) LER's 83-51, 83-96, 83-103 and 83-120 describe occurrences of RCIC turbine overspeeding after system automatic initiation. The licensee determined the problem to be due to governor valve response, in that the governor valve did not close in time to prevent overspeed during the start sequence. Corrective action included governor valve linkage adjustment, changeout of control oil and installation of replacement control oil filters. The licensee plans to install a bypass line around the RCIC steam supply valves. Last overspeed occurrence was in August 1983.

(c) LER's 83-08, 83-20, 83-40, 83-110, 83-135 and 83-158 describe many occurrences of the control structure ventilation system chlorine detector wick not dripping electrolyte solution as required, due to the wick becoming clogged. Licensee is trying to obtain new O-rings for the electrolyte reservoir to aid in regulating drip flow.

(d) LER's 83-02, 83-39, 83-45 and 83-93 describe instances of missed surveillances. During the August 30, 1983 management meeting to

discuss this subject, the licensee committed to conduct a comprehensive program to review the complete surveillance testing program to verify, among other things, that all Technical Specification required surveillances were being performed in accordance with surveillance procedures and that the scope of the surveillance procedures meets the Technical Specification requirement. Missed surveillances subsequently dropped substantially.

(e) LER's 83-04, 83-31, 83-131, 83-134 and 83-165 describe occurrences of diesel generator (DG) tripping during conduct of the monthly surveillance test. Two occurrences were due to improper setting of the voltage regulator resulting in the DG tripping on overexcitation, one trip was due to overexcitation thought to be caused by a voltage perturbation; one trip was due to a failed subcomponent in the speed sensing circuit, one trip was caused by water and corrosion products in the instrument air lines. None of these trips was classified as "valid" per Reg. Guide 1.108 since they were the result of alarm conditions which would normally be bypassed by an emergency start. Corrective actions were taken following each trip, but since they were nonvalid trips, the surveillance interval was not changed.

(f) LER's 83-24, 83-37, 83-58 and 83-166 describe occurrences of reactor vessel level switch setpoints found out of tolerance during surveillance testing. These are Barton Model 288A level instruments. The primary cause of the out of tolerance readings was setpoint drift. The licensee is revising the setpoints to more conservative values, determined during a study of instrument drift, to minimize the number of instruments found out of tolerance.

5.2 Construction Deficiency Reports (CDR's)

The 23 CDR's submitted during the SALP period are listed in Table 2. No common factors or major safety significance were found.

5.3 Investigation Activities

The NRC Office of Investigation investigated allegations of improper drawing and calculation processing. The report has not been released. Preliminary indications are that there was no impact on safety.

5.4 Escalated Enforcement Actions

A $60,000 civil penalty was imposed on April 22, 1983, for Standby Gas Treatment System inoperability on February 28 - March 1, 1983. Improper operator response to alarms and plant indications were involved.

5.5 Management Conferences

a. March 17, 1983 - Enforcement conference on SGTS inoperability at NRC Region I.

b. May 17, 1983 - Management meeting on site to discuss the 2/1/82 - 1/31/83 SALP.

c. August 30, 1983 - Management meeting on site to discuss missed surveillances.

d. November 21, 1983 - Management meeting at NRC Region I to discuss low pressure/temperature values used in pipe qualification analyses.

e. December 13, 1983 - Enforcement conference at NRC Region I on offgas hydrogen monitor inoperability (November 3-5, 1983) and loss of off site power independence for one diesel bus (October 19, 1983).

f. January 20, 1984 - Management meeting on site to discuss readiness for two-unit operation.

g. March 20, 1984 - Enforcement conference at NRC Region I on HPCI/RCIC inoperability during Unit 1 post-outage start-up on February 21, 1984 (after the SALP period).

TABLE 1

TABULAR LISTING OF LER's BY FUNCTIONAL AREA

SUSQUEHANNA STEAM ELECTRIC STATION - UNIT 1
(2/1/83 - 1/31/84)

Area	Cause Code						
	A	B	C	D	E	X	Total
1. Plant Operations	11	5	0	5	6	6	33
2. Radiological Controls	0	0	0	0	0	0	0
3. Maintenance	5	0	0	3	1	1	10
4. Surveillance	13	3	0	5	18	10	49
5. Start-up Testing	1	0	0	0	2	2	5
6. Fire Protection	0	0	0	0	6	0	6
7. Emergency Preparedness	0	0	0	0	0	0	0
8. Security and Safeguards	0	0	0	0	0	1	1
9. Licensing Activities	0	0	0	0	0	3	3
10. Other*	0	13	0	0	30	14	57
Totals	30	21	0	13	63	37	164

Cause Codes
- A. Personnel Error
- B. Design/Manufacturing/Construction/Installation
- C. External Cause
- D. Defective Procedures
- E. Component Failure
- X. Other

*LER's which do not fit the other categories are listed in this area.

Table 2

CONSTRUCTION DEFICIENCY REPORTS

(2/1/83 - 1/31/84)

SUSQUEHANNA UNIT 2

CDR No.	Description
83-00-01	Defective G.E. HMA auxiliary relays (replaced).
83-00-02	Reactor mode switch can cause unnecessary protective actions during mode change (replaced).
83-00-03	Off site dose calcs need revision to incorporate feedwater isolation valve leakage (a pre-criticality item still open for documentation completion only).
83-00-04	Grinnell snubber bracket alignment did not allow enough movement (corrected).
83-00-05	Cavitation of jet pumps during IHSI (determined to be not reportable by the licensee).
83-00-06	Snubber installation torquing deficiencies (corrected).
83-00-07	Potential scram discharge volume vent and drain line water hammer on scram reset (a pre-criticality item; no hardware change envisioned).
83-00-08	Auxiliary relay mounting in a SPDS cabinet was not seismic (corrected).
83-00-09	#14 AWG stranded wire in inadequate screw clamp lugs (corrected).
83-00-10	Debris found in control rod guide tubes (corrected).
83-00-11	Hydrogen recombiner power cable can fray due to missing grommet at cabinet entry (corrected).
83-00-12	Non-Q vacuum breakers in spray pond makeup lines (compensated for by pond inventory increase).
83-00-13	GE 7700 series 250 VDC control center stab clips were not making contact (corrected by revising installation and maintenance procedures).

83-00-14	Separation between enclosed electrical conduits in multiple division pull boxes and junction boxes doesn't meet SAR commitment (a pre-criticality item).
83-00-15	Nitrogen makeup system susceptible to single failure (design change to be installed; can also isolate the non-safety grade supply).
83-00-16	ESW pipe corrosion allowance inadequate for 40 years but adequate for eight (to be replaced by then).
83-00-17	Pressure/temperature design input to pipe stress analysis too low (a pre-criticality item).
83-00-18	Pacific Scientific snubber capstan spring brittleness (to be replaced during first refueling outage and reported to be suitable for service until then).
83-00-19	SGTS logic deficiency (corrected, TS change pending).
83-00-20	CRD insert/withdraw line supports allow pipe movement (pre-fuel load item).
83-00-21	Faulty certification of compliance (withdrawn - material found suitable).
84-00-01	SPDS (Safety Parameter Display Station) isolation devices did not adequately isolate SPDS from safety systems (being removed).
84-00-02	Comsip, Inc. hydrogen-oxygen analyzer catalyst bed inadequate for post-accident service (replaced with bed suitable for the service).
84-00-03	Cracks on angle fittings on electrical raceways and HVAC supports (resolution planned before criticality).

TABLE 3

VIOLATIONS (2/1/83 - 1/31/84)

SUSQUEHANNA STEAM ELECTRIC STATION

A. Number and Severity Level of Violations*	Unit 1	Unit 2	Total
Severity Level I	0	0	0
Severity Level II	0	0	0
Severity Level III	1	0	1
Severity Level IV	13	3	16
Severity Level V	8	5	13
Total	22	8	30

*Violations applicable to both units were assigned to one unit. Also, unissued violations are excluded from the above tabulation.

Table 3 (continued)

B. Violations vs. Functional Areas

FUNCTIONAL AREAS	Severity Levels I	II	III	IV	V	
3.1. Plant Operations			1	8	1	*
3.2. Radiological Controls				3	2	
3.3. Maintenance					2	
3.4. Surveillance				1	1	
3.5. Start-up Testing						
3.6. Fire Protection/Housekeeping						
3.7. Emergency Preparedness						
3.8. Security and Safeguards				1	2	
3.9. Licensing Activities				1		
4.1. Containment						
4.2. Piping Systems and Supports				3	2	
4.3. Safety-Related and Support Systems					1	
4.4. Electrical Power Supply/Distribution						
4.5. Instrumentation & Control Systems						
4.6. Preop Testing/Start-up Program					2	
4.7. Licensing Activities						
4.8. Readiness For Operation						
Totals			1	17	13	*

*Violations not yet issued are not included.

TABLE 3 (continued)

Enforcement Data

Unit 1/Unit 2 Inspection	Unit Applicability	Violation	Requirement	Severity	Area
83-03/83-01	1	SGTS inoperability	TS 3.6.5.3	III	3.1
83-04/--	1	Failure to record reportable safeguards events separately	10 CFR 73.71	V	3.8
83-11/83-04	2	PGCC cabinet leads lifted without documentation or formal authorization	10 CFR 50, App. B, V	V	4.6
83-12/83-06	1	Reactor building inner and outer doors open simultaneously	TS 6.8.1	IV	3.1
	1	Drywell to Suppression Pool downcomer cover change not done	10 CFR 50, App. B, V	V	3.3
	2	QC accepted improper dimension on pipe support using unapproved criterion.	10 CFR 50, App. B, VI	IV	4.2
	2	Hanger weld root passes made using unauthorized process (Gas/Tungsten Arc Weld).	10 CFR 50, App. B, IX	V	4.2
	2	I-beam weld fitup exceeded maximum root opening.	10 CFR 50, App. B, X	IV	4.2
83-14/--	1	Bypassing of reactor vessel high water level trip of main turbine.	TS 3.3.9	IV	3.1
83-16/--	1	Not removing persons no longer employed from access list.	Op. License Amend. 51	V	3.8
83-17/--	1	Iodine samples not taken in reactor building for 2 weeks.	TS 6.11	V	3.2
83-18/--	1	Entry into RWP area without sign-in or protective clothing; incomplete sign-off of HP procedure review folder.	TS 6.11	IV	3.2
	1	Failure to post 10 CFR 19, 10 CFR 20, and NRC Form 3.	10 CFR 19.11	V	3.2
83-19/83-11	1	Current drawing not distributed to control room	10 CFR 50, App. B, VI	V	3.1
83-20/--	1	Containment atmosphere monitor inoperability.	TS 6.8.1	IV	3.4

TABLE 3 (continued)

Enforcement Data

Unit 1/Unit 2 Inspection	Unit Applicability	Violation	Requirement	Severity	Area
83-21/83-14	1	Diesel start not logged	10 CFR 50, App. B, VI	V	3.4
	1	ESW/RHR work was unevaluated and made both systems inoperable for less than one hour.	TS 6.8.1.2	IV	3.1
-- /83-19	2	Weld ultrasonic inspection precluded by inadequate edge contour preparation.	10 CFR 50, App. B, IX	IV	4.2
	2	Small bore pipe installation differs from engineering analysis.	10 CFR 50, App. B, III	V	4.2
	2	Cleanup leak detection system temperature unit nameplates identified dual element units as single element units.	10 CFR 50 App. B, V	V	4.3
83-23/83-21	1	Not updating license application to reflect changes in containment isolation logic.	10 CFR 50.55(d)	IV	3.9
	1	Not verifying drywell head seal valve closure.	TS 4.6.1.1.b	IV	3.1
	1	Temporary power to three security light poles.	Physical Security Plan	IV	3.8
83-24/ --	1	Main condenser offgas treatment system inoperability	TS 3.3.7.11	*	3.1
	1	Failure to maintain two independent off-site power sources to a 4KV bus	TS 3.8.1.1.a	*	3.1
83-25/83-24	1	Reactor coolant temperature exceeded 140°F in Mode 5	TS 1.27	IV	3.1

*Unissued violation still under NRC review.

TABLE 3 (continued)

Enforcement Data

Unit 1/Unit 2 Inspection	Unit Applicability	Violation	Requirement	Severity	Area
83-27/83-26	1	Liquid radwaste monitor calibration procedure not implemented	TS 6.8.1	IV	3.2
83-30/83-25	1 & 2	Assistant electrical maintenance foreman, Level II I&C technician, power production engineer did not receive required training.	10 CFR 50, App. B, II	V	3.3
	1 & 2	Temporary setpoint changes not controlled.	10 CFR 50, App. B, II	IV	3.1
	1 & 2	QA audits did not verify compliance with all QA program aspects and did not determine program effectiveness.	10 CFR 50, App. B, XVIII	IV	3.1
83-31/83-31	1 & 2	Two nonconformances not dispositioned within 90 days.	10 CFR 50 App. B, XV	IV	3.1
83-29/83-32	2	Repetitive, uncorrected SGTS fan trips during cold functional testing.	10 CFR 50, App. B, XVI	V	4.6
84-01/ --	1	Contractors not trained in radwaste handling procedures		IV	3.2

TABLE 4

INSPECTION HOURS SUMMARY (2/1/83 - 1/31/84)

A. SUSQUEHANNA STEAM ELECTRIC STATION - UNIT 1

		Hours	% OF TIME
3.1.	Plant Operations	560	28
3.2.	Radiological Controls	309	15
3.3.	Maintenance/Construction Activities	176	9
3.4.	Surveillance	172	8
3.5.	Start-up	276	14
3.5.	Fire Protection/Housekeeping	66	3
3.6.	Emergency Preparedness	296	15
3.7.	Security and Safeguards	178	9
3.8.	Licensing Activities	Not Applicable	
	Total	2033 hours	

B. SUSQUEHANNA STEAM ELECTRIC STATION - UNIT 2

		Hours	% OF TIME
4.1.	Containment	143	4
4.2.	Piping Systems and Supports	810	21
4.3.	Safety-Related and Support Systems	757	20
4.4.	Electrical Power Supply/Distribution	584	15
4.5.	Instrumentation & Control Systems	302	8
4.6.	Preoperational Testing	1180	31
4.7.	Licensing Activities	Not Applicable	
	Total	3776 hours	

C. Table of Inspection Hours

Insp. Nos.	U-1 Hr.	U-2 Hr.	Sum	Inspection Type
83-03/83-01	159	79	238	Resident
83-04/ --	34	--	34	Security
83-05/ --	112	--	112	Start-up
83-06/83-03	88	50	138	Resident/Preop.
83-07/ --	258	--	258	Emerg. Drill
83-08/ --	97	--	97	Start-up
83-09/ --	14	--	14	Enf. Conf.
83-10/ --	12	--	12	NDE Open Items
83-11/83-04	99	56	155	Resident
-- /83-05	--	33	33	Electrical/Inst.
83-12/83-06	116	98	214	Resident
83-13/ --	38	--	38	Emerg. Preps.
83-14/ --	18	--	18	Resident (Special)
83-15/83-07	62	79	141	Resident
-- /83-08	--	27	27	Primary Hydro
83-16/ --	71	--	71	Security
-- /83-09	--	30	30	Instrumentation
-- /83-10	--	30	30	Preop
83-17/ --	94	--	94	Health Physics
83-18/ --	60	--	60	Health Physics
83-19/83-11	61	138	199	Resident
-- /83-13	--	23	23	Preop
83-20/ --	10	--	10	Resident (Special)
83-20 MM	6	--	6	Management Meeting
83-21/83-14	91	65	156	Resident
-- /83-15	--	39	39	Elec/Inst.
-- /83-16	--	62	62	Preop
-- /83-17	--	600	600	NDE Van
-- /83-18	--	99	99	Preop
-- /83-19	--	631	631	Const. Team
83-22/83-20	34	34	68	Security
83-23/83-21	124	155	279	Resident
-- /83-22	--	143	143	SIT/CILRT
83-24/ --	40	--	40	Resident (Special)
83-24 C	18	--	18	Enforcement Conference
-- /83-23	--	58	58	Preop
83-25/83-24	73	116	189	Resident
83-26/83-27	5	5	10	Mgmt. Mtg: Piping
83-27/83-26	14	14	28	Radwaste
83-30/83-25	12	250	262	QA Team/Procedures
-- /83-28	--	195	195	Preop/Intertie/Start-up
-- /83-29	--	31	31	CDR/IEB
83-28/83-30	30	48	78	HP/Radwaste
83-31/83-31	18	46	64	Procedures
83-29/83-32	107	118	225	Resident
-- /84-01	--	305	305	Preop/Intertie/Start-up
84-01/ --	56	--	56	XPORT
84-02/84-02	6	26	32	HP/Radwaste
-- /84-03	--	70	70	Preop QA
84-03/84-04	5	8	13	Pipe Design
84-06/84-05	15	15	30	Elec/Inst.
TOTALS	2033	3776	5809	

TABLE 5

INSPECTION ACTIVITIES

SUSQUEHANNA STEAM ELECTRIC STATION
(2/1/83 - 1/31/84)

Unit 1/Unit 2 Report Nos.	Inspection	Area(s) Inspected
83-03/83-01	Resident	Preop and Start-up Testing, LER's, T.S. compliance, open items, plant status (including SGTS inoperability).
83-04/ --	Specialist	Security: plan and procedures, organization, records and reports, testing and maintenance, locks, keys, and maintenance, open items.
83-05/ --	Specialist	Start-up testing, test exceptions, power escalation and transient tests.
-- /83-05	--	Not applicable (preceded this SALP period).
83-06/83-03	Resident	Preop tests, start-up tests, LER's, pipe hangers/supports, welding, spent fuel racks, open items, plant status.
83-07/ --	Team	Emergency planning, annual emergency drill.
83-08/ --	Specialist	Start-up, power escalation, transient, and warranty tests.
83-09/ --	RI Mgmt.	Enforcement Conference on SGTS inoperability.
83-10/ --	Specialist	Open NDE items.
83-11/83-04	Resident	Preops, operations, maintenance, LER's, open items, plant status.
-- /83-05	Specialist	Electrical and instrument installation.
83-12/83-06	Resident	Preops, operations, maintenance, surveillance, engineered safeguards, radiography, LER's, equipment status, welding, open items.

TABLE 5 (continued)

Unit 1/Unit 2 Report Nos.	Inspection	Area(s) Inspected
83-13/ --	Specialist	Emergency preparedness.
83-14/ --	Resident	Bypassing of reactor vessel high water level trip of main turbine.
83-15/83-07	Resident	Preops, operations, maintenance, surveillance; Unit 2 hydro, construction, TMI action items; LER's open items.
-- /83-08	Specialist	Primary system hydro test.
83-16/ --	Specialist	Physical Protection
-- /83-09	Specialist	Instrumentation
-- /83-10	Specialist	Preop program, QA interface, shared systems.
83-17/ --	Specialist	Radiation Protection
83-18/ --	Specialist	Radiation Protection
83-19/83-11	Resident	Preops, operations, maintenance, surveillance, engineered safeguards, construction, LER's, equipment status, open items.
-- /83-12	--	Not applicable (Report No. cancelled).
-- /83-13	Specialist	Preoperational test program.
83-20/ --	Resident	Containment atmosphere monitor inoperability.
83-21/83-14	Resident	Operations, maintenance, surveillance, preops, Unit 2 TMI items, LER's, open items, plant status.
-- /83-15	Specialist	Instrumentation and electrical circuits.

TABLE 5 (continued)

Unit 1/Unit 2 Report Nos.	Inspection	Area(s) Inspected
-- /83-16	Specialist	Preop testing, fuel receipt, open items.
-- /83-17	Specialist	Independent NDE measurements.
-- /83-18	Specialist	Preop testing.
-- /83-19	Team	As-built configuration, preservice inspection, independent NDE, welder qualifications, weld histories, materials certification.
83-22/83-20	Specialist	Physical security.
83-23/83-21	Resident	Preops, operations, maintenance, surveillance, Unit 2 TMI items, LER's, open items, plant status.
-- /83-22	Specialist	Structural integrity test, integrated leak rate test.
83-24/ --	Resident	Main Condenser Offgas Treatment System inoperability, failure to maintain two independent off site power sources to a 4KV bus.
-- /83-23	Specialist	Preop testing, fuel receipt, open items.
83-25/83-24	Resident, Specialist	Operations, maintenance, surveillance, preops, Unit 2 TMI items, LER's, open items, plant status.
83-26/83-27	RI Mgmt.	Meeting to discuss temperature/pressure design input to qualify piping.
83-27/83-26	Specialist	Radwaste

TABLE 5 (continued)

Unit 1/Unit 2 Report Nos.	Inspection	Area(s) Inspected
83-30/83-25	Team	Unit 1 changes since license issue; Unit 2 readiness for operation; operations, training, maintenance, instrumentation and control, technical support, QA/QC.
-- /83-28	Specialist	Preops, fuel receipt, start-up program, outage activities, snubbers, open items.
-- /83-29	Specialist	CDR's, bulletins, open items.
83-28/83-30	Specialist	Radiation protection, radwaste management, contaminated waste spill, unplanned release.
83-31/83-31	Specialist	Plant procedures.
83-29/83-32	Resident	Operations, maintenance, preop testing, Unit 2 TMI items.
-- /84-01	Specialist	Preops
84-01/ --	Specialist	Transportation
84-02/84-02	Specialist	Radiation protection, radwaste, preop testing.
-- /84-03	Specialist	Preop QA
84-03/84-04	Specialist	Improper relief valve settings, discrepant piping design temperatures/ pressures, CRD insert/withdraw line support adequacy.
84-04/ --		Not applicable (inspection cancelled).
84-05/84-06		Not applicable (outside the SALP period).
84-06/84-05	Specialist	Electrical/instrumentation.