

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION I
SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE
YANKEE ATOMIC ELECTRIC COMPANY
YANKEE NUCLEAR POWER STATION
AUGUST 30, 1982

8301060242 830103
PDR ADOCK 05000029
G PDR

TABLE OF CONTENTS

	<u>Page</u>
I. Introduction	1
II. Summary of Results	3
III. Criteria	4
IV. Performance Analysis	5
1. Plant Operations	5
2. Radiological Controls	7
3. Maintenance	9
4. Surveillance	10
5. Fire Protection	12
6. Emergency Preparedness	13
7. Security and Safeguards	15
8. Refueling	16
9. Licensing Activities	18
V. Supporting Data and Summaries	20
1. Licensee Event Reports	20
2. Investigative Activities	22
3. Escalated Enforcement Actions	22
4. Management Conferences During the Assessment Period	22

TABLES

Table 1 - Tabular Listing of LER's by Functional Area	23
Table 2 - Violations	24
Table 3 - Inspection Hours Summary	25
Table 4 - Inspection Activities	26

ATTACHMENTS

Attachment 1 - Enforcement Data	27
---------------------------------	----

1. INTRODUCTION

a. Purpose and Overview

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

The assessment period is July 1, 1981 through June 30, 1982. This assessment, however, contains pertinent NRC activities, and observations of licensee performance through August 1982. The prior SALP assessment period was July 1, 1980 through June 30, 1981. Significant findings of this assessment are provided in the applicable Performance Analysis Functional Areas (Section IV).

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

- b. SALP Board:
- R. W. Starostecki, Director, Division of Project and Resident Programs, Region I
 - S. D. Ebnetter, Chief, Engineering Programs Branch, Division of Engineering and Technical Programs
 - G. H. Smith, Director, Division of Emergency Preparedness and Operational Support
 - R. R. Keimig, Chief, Projects Branch No. 2, Division of Project and Resident Programs
 - R. Caruso, Licensing Project Manager, Operating Reactor Branch 5, Division of Licensing, Office of NRR
 - S. J. Collins, Senior Resident Inspector, Yankee Nuclear Power Station
- Other Attendees:
- T. Foley, Senior Resident Inspector, Indian Point, Unit 3
 - J. T. Wiggins, Reactor Inspector, Projects Section IA, Division of Project and Resident Programs

c. Background

(1) Licensee Activities

The facility was in the middle of a (ninety day) refueling outage at the beginning of the assessment period. Steam Generator Eddy current testing, Reactor Coolant Pump replacement, NUREG 0737 items, and Fuel Sipping and Reconstitution, due to a fuel element failure, were the major events which took place during the refueling.

The licensee completed refueling, startup testing and synchronized to the grid on July 30, 1981. The unit operated for approximately one month when the plant tripped due to Reactor Coolant Pump overcurrent/undercurrent trip, caused by voltage fluctuations on the grid during a thunderstorm. During this event the licensee deenergized the remaining Reactor Coolant Pumps in accordance with procedures and commenced cooldown on natural circulation.

The licensee returned to full power two days later, and operated continuously for two hundred and eighty nine (289) days, when the plant tripped due to a false low reactor coolant flow signal, caused by a voltage fluctuations on the grid during a thunderstorm. This is the ninth time the licensee operated for more than one hundred days without interruption, and set a new plant record. The unit resumed power operation the following day and operated continually through the end of the assessment period.

(2) Inspection Activities

A Senior Resident Inspector was assigned to the site during the entire appraisal period. Total NRC inspection hours: 1,521 by resident and region based inspectors (795 hours, 53%) was for Emergency Preparedness Inspections). Distribution of Inspection Manhours is shown in Table 3. A tabulation of inspection activities is attached as Table 4.

Based on the licensee's previous SALP review findings and as authorized by the Regional Administrator, the Minimum Inspection Program has been implemented at Yankee NPS for the period of April 1 through September 30, 1982. A Resident Inspector turnover was conducted with inspectors rotating between assigned sites to maintain program requirements at Yankee NPS. The selection and assignment of a full time resident inspector at Yankee was completed on July 11, 1982.

II. SUMMARY OF RESULTS

YANKEE NUCLEAR POWER STATION

<u>FUNCTIONAL AREAS</u>	<u>CATEGORY 1</u>	<u>CATEGORY 2</u>	<u>CATEGORY 3</u>
1. Plant Operations	X		
2. Radiological Controls Radiation Protection Radioactive Waste Management Transportation Effluent Control and Monitoring	X		
3. Maintenance	X		
4. Surveillance (Including Inservice and Pre- operation Testing)	X		
5. Fire Protection	X		
6. Emergency Preparedness	X		
7. Security and Safeguards	X		
8. Refueling	X		
9. Licensing Activities	X		

III. CRITERIA

The following evaluation criteria were applied to each functional area:

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

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

The SALP Board conclusions were categorized as follows:

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

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

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

IV. Performance Analysis

1. Plant Operations (22%)

During the previous assessment period (July 1, 1980 - June 30, 1981) eleven inspections by the resident inspector identified no violations. All major items of concern were resolved in a timely manner.

During the current assessment period, the operations area was under continual review by the resident inspector. Inspections were performed in the areas of design change/modifications, quality assurance, drawing control, audits, training, housekeeping and cleanliness, licensee corrective action system, outage management and Plant Operations Review Committee Activities. Two violations were identified.

One violation of concern identified in Inspection Report 82-07, revealed that licensee management failed to provide adequate corrective action when responding to problems identified by quality assurance audits. In several cases various departments corrected the specific problem items, but did not determine the cause of the problem nor take action to prevent recurrence.

The other violation in this area was first identified in Inspection Report 79-09 which revealed that some operators did not receive their requalification examination within a 15 month period. This item was left unresolved because NRC Operator Licensing Branch (OLB) cancelled the May license examination date for Yankee NPS and this cancellation had delayed the start date of the requalification program cycle. The licensee received verbal concurrence for the delay in their licensee examination program from the Chief of OLB, NRR. Yankee committed to revising their procedure to incorporate a requirement that requalification examination frequency would not exceed 15 months with a further requirement that an examination would be administered to each licensed operator every calendar year. Subsequently, Inspection Report 81-18 identified one operator who had not been examined within a 15 month period; a violation was issued.

The licensee continues to experience component failures, as demonstrated by the repetitive Licensee Event Reports issued in regard to the Main Coolant Flow Over/Under Current Pump Relays; 5 LERs issued, and Auxiliary Feedwater Flow channel power supplier; 4 LERs issued. Details and corrective actions taken are discussed in Section V.1. of this report. Licensee long-term corrective action plans appear adequate.

Housekeeping and cleanliness were continuously observed by the inspector during his daily activities. With the exception of problems in the fuel pool area discussed in section IV.8 of this assessment, housekeeping is good. The licensee constantly endeavors

to maintain a clean plant as evidenced by the low background radiation levels in the radiological controlled areas and lack of fire hazards on site.

QA/QC personnel are significantly involved in plant modifications. Reviews of modifications by the resident have identified no violations. Reviews of Plant Operations Review Committee activities revealed that management displays an attitude of concern for nuclear safety.

IE Bulletins and Circulars are routinely routed through each department and are PORC reviewed. Required responses to these have been acceptable.

During the refueling outage, coordination of work and management of schedules was effective, as evidenced by a timely completion of the last outage, accompanied by few problems and few delays.

One inspection by the resident inspector identified a problem in drawing control (IR-81-16, October 1981). The control of drawings within the Control Room is now adequate, however, the timeliness of the resolution for the problem was marginal. The slow response was apparently due to differing opinions between the site and corporate office staffs. Licensee corporate representative presence onsite appears to have decreased from the previous assessment period. As of this assessment period, there have been no programmatic breakdowns in the licensee's performance. The operations staff in conjunction with other departments continues to function in an exemplary manner as evidenced by the plant's performance history.

CONCLUSION

Category 1

Board Recommendations

None

*Refer to Supplement Page 6a

to maintain a clean plant as evidenced by the low background radiation levels in the radiological controlled areas and lack of fire hazards on site.

QA/QC personnel are significantly involved in plant modifications. Reviews of modifications by the resident have identified no violations. Reviews of Plant Operations Review Committee activities revealed that management displays an attitude of concern for nuclear safety.

IE Bulletins and Circulars are routinely routed through each department and are PORC reviewed. Required responses to these have been acceptable.

During the refueling outage, coordination of work and management of schedules was effective, as evidenced by a timely completion of the last outage, accompanied by few problems and few delays.

One inspection by the resident inspector identified a problem in drawing control (IR-81-16, October 1981). The control of drawings within the Control Room is now adequate, however, the timeliness of the resolution for the problem was marginal. The slow response was apparently due to differing opinions between the site and corporate office staffs. Licensee corporate representative presence onsite appears to have decreased from the previous assessment period. During prior years a dedicated corporate representative was frequently onsite. Based on additional steps initiated by senior managers, other measures are being employed to foster improved communication between the site and the engineering offices. These steps include more frequent telephone conferences and site visits on the part of the engineering support group. Consequently, reduced presence of one individual is not indicative of reduced corporate involvement. As of this assessment period, there have been no programmatic breakdowns in the licensee's performance. The operations staff in conjunction with other departments continues to function in an exemplary manner as evidenced by the plant's performance history.

CONCLUSION

Category 1

Board Recommendations

None

*Supplementary material based on information made available after SALP board.

2. Radiological Controls (3%)

During the previous assessment there were two regular Health Physics inspections resulting in no violations. The resident inspector identified four violations (failure to barricade a high radiation area, failure to conduct surveys, failure to post a high radiation area, and failure to use process or engineering controls to limit airborne concentrations). A Health Physics Appraisal was conducted January 5, 1981 through January 16, 1981. Weaknesses were identified in the area of internal exposure control, and the licensee's respiratory protection program was determined to be deficient. The licensee implemented corrective measures by installing new equipment, revising procedures and employing additional personnel to upgrade the health physics area.

During the current assessment period no inspections were performed by region based inspectors. Rad Protection, Rad Waste Management, and Transportation were reviewed routinely by the resident inspector. Subsequent to the assessment period a prerefueling outage inspection was conducted by a region based inspector, IR 82-11, August, 1982.

Radiation Protection

One violation was identified during the routine operational reviews conducted by the resident inspector (IR 82-04, failure to post or barricade a high radiation area). Licensee corrective action was prompt and adequate.

The Health Physics Appraisal inspection conducted in January, 1981, the INPO Audit conducted in the fall of 1981, and a recent prerefueling outage inspection, 82-11 August 1982, identified weaknesses in the licensee's General Employee Radiation Protection Training and Radiation Protection departmental training programs. Management attention is necessary in these areas to ensure timely and adequate corrective action is implemented prior to the scheduled refueling outage which commences in September 1982.

Accumulated average exposure for all LWRs for 1981 was 779 person-rem per reactor unit, the average for all PWR facilities for 1981 was 656 person-rem per reactor unit. Accumulated exposure at Yankee-NPS was 302 person-rem for the same period.

Rad Waste Management

One violation was identified during periodic resident inspector reviews in this area (IR 81-21 - failure to implement proper approved procedures for radioactive waste operations). NRC has reviewed the licensee's corrective actions which adequately encompass the concerns and should prevent recurrence of this type of

event. The NRC views this item as an isolated case, not indicative of routine licensee practice.

Transportation

Shipments were routinely surveyed and reviewed by the resident inspector during the period under review.

Effluent Control and Monitoring

This area was periodically reviewed by the resident inspector. No region based inspections were conducted. No violations were identified.

Six LERs, involving primary vent stack (PVS) inoperable monitors due to moisture entering the detector were submitted by the licensee during this period. As noted in Section V, these events were initiated by failure of the air dryer, and licensee plans are underway to replace the dryers with a more reliable system. Each failure of these components, constitutes a licensee identified violation of Technical Specifications. These failures have been repetitive in nature from previous assessments. The facility design in this area has little redundancy and therefore lends itself to having a significant number of such failures. The long-term corrective action to prevent recurrence of these failures has been discussed with plant management on several occasions. Licensee long-term corrective actions to prevent recurrence of these failures warrants management attention.

Conclusions

Category 1

Board Recommendations

Licensee should address PVS Monitor failure history.

Inspection of licensee action on Health Physics Appraisal items should be completed during the next assessment period.

3. Maintenance (3%)

During the previous assessment period, no inspections were conducted by regional based inspectors, however, the resident observed maintenance activities on a monthly basis, and no violations or adverse trends were identified.

During the current assessment period maintenance activities were routinely reviewed by the resident inspector, no inspections were performed by regional based inspectors and no violations were identified. The resident noted in inspection report 81-18 that departmental training in the area of maintenance was particularly good; that records were well organized; that ANSI standards were surpassed, and that the area is managed in a manner that exceeds the regulatory requirements.

During the assessment period the licensee reorganized it's staff, providing senior qualified individuals with the time and resources to act as consultants/advisors to supervisors in the maintenance area. These "advisors" became actively involved in the pre-planning of refueling and outage coordination.

Maintenance work requests are kept up-to-date and records are well organized, complete and accurate. The licensee utilized Yankee Nuclear Services Division (YNSD) for technical support and resolution of technical issues.

Design change and modification packages are generally developed off-site, reviewed and PORC approved on site. Implementation is often overseen by a YNSD engineer.

The maintenance department utilizes a preventative maintenance philosophy rather than a corrective maintenance philosophy. The licensee's resources are ample and effectively used.

Conclusion

Category 1

Board Recommendations

None

4. Surveillance (5%)

During the previous assessment period inspections in this area were performed by both the resident and regional inspectors. No violations were identified.

During the current assessment period, one inspection by a regional inspector was performed identifying one violation (IR 81-19, 11/3-11/6/81) concerning failure to use approved procedures for the calibration of plant installed instruments which are used to verify Technical Specification surveillance requirements. This violation was classified as a severity level VI. The instruments were being calibrated but procedures to document and perform the calibrations were not available. The regional inspector also identified a concern that logs which monitor safety related plant parameters were not procedurally controlled as required by ANSI N18.7. The inspector noted that although the plant logs were not part of a procedure, the logs were reviewed by plant management and were updated as required, to reflect latest Technical Specification information.

The problems identified were considered minor and overall performance of surveillance tests appeared to be well controlled.

Surveillance activities were routinely reviewed by the resident inspector. One violation was identified (IR 81-16, 8/18-10/5/81) concerning failure to demonstrate primary containment integrity. This occurred as the result of the Main Steam Isolation Valve Automatic Closure Modification during the May - July, 1981 refueling outage. The additional valves were incorporated into the licensee Technical Specifications but not into the licensee's monthly valve position verification procedure. The licensee conducted a review of the Containment Isolation Valve list and no further discrepancies were identified. The licensee locked closed the valves of concern and issued a change to the Containment Isolation Valve list procedure. The NRC verified the licensee's corrective action and determined it was timely and adequate.

Eleven of the total thirty-eight LER's submitted during the review period were classified in the surveillance area. Six of the eleven are due to main coolant flow failed relays as discussed in Section V, Casual Analysis.

Licensee records are routinely complete, well maintained and available. Surveillance procedures and policies are adhered to and corrective action systems promptly address non-reportable concerns. Surveillance activities typically exhibit conservatism and technical issue approaches by the licensee are sound and thorough in almost all cases.

Conclusion

Category 1

Board Recommendations

None

5. Fire Protection (2%)

During the previous assessment period, one regional based inspection was conducted noting no violations.

During this assessment period, one inspection was conducted by a region based inspector; the resident inspector provided routine review of fire protection/prevention activities. No violations were identified. The licensee's audit and corrective action program was reviewed and found to be effective.

Housekeeping and maintenance practices reviewed were acceptable. Licensee identified deficiencies were corrected in a timely manner. The Plant Fire Protection Coordinator (PFPC) was notified of and reviewed tasks that could affect the fire systems. Adequate policies and procedures were issued and implemented and management involvement in site activities was aggressive.

Review of fire protection modifications per License Amendment No. 56 indicated general licensee understanding of issues and, although all modification designs have not been reviewed and accepted by NRC, the licensee has met modification commitments.

The licensee was responsive to NRC initiatives based upon timely licensee implementation of commitments per license Amendment No. 56 with exceptions properly identified to NRC.

The Plant Fire Protection Coordinator (PFPC) provides adequate staff attention to performance of the tasks defined in the Fire Protection Plan. The Corporate Fire Protection Coordinator, through the Plant Fire Protection Coordinator, has direct management involvement in site activities.

Licensee development and implementation of a training program and schedules have contributed to an adequate understanding of personnel duties and adherence to procedures by plant personnel.

The licensee's resources are ample and effectively utilized.

Conclusion

Category 1

Board Recommendations

None

6. Emergency Preparedness (53%)

During the current assessment period, an Emergency Preparedness Implementation Appraisal (EPIA) was conducted on December 1-9, 1981. A Confirmatory Action Letter was sent to the licensee on February 25, 1982 which described the actions the licensee had agreed to complete for the three most significant findings. The licensee has corrected CAL actions and was responsive to NRC concerns.

The most significant deficiency identified during the EPIA was associated with the unshielded containment. Due to the absence of shielding, a Regulatory Guide 1.4 type release into containment could result in dose rates greater than 1000 R/hr throughout the site. It was recognized that such levels of radiation would interfere with corrective or emergency actions onsite. The assessment noted that to prevent this condition, an early classification of emergencies and a prompt response are essential. The Emergency Preparedness appraisal found that this concept was understood by management and by operational staff, but was not formally incorporated into their training program. This was identified during review of the licensee's Emergency Plan Training/Retraining program. The program was considered adequate, however it was recommended that the licensee provide training to employees on emergency radiation protection considerations due to the unshielded containment. This item is being tracked as a recommended improvement item in EPIA Report 81-20.

The emergency organization was well defined, except that augmentation capability did not meet the augmentation goals of NUREG-0654. Emergency facilities and equipment were adequate, except in the area of post-accident sampling. Implementing procedures and instructions were generally adequate, but deficiencies were identified in the following areas: post-accident sampling and analysis; emergency action levels; and transmission of protective action recommendations to local officials and the public. The training program was found to be adequate and emergency personnel interviewed demonstrated that their knowledge was consistent with their emergency responsibilities.

A follow-up inspection is scheduled for October 1982 to verify the licensee's corrective actions.

During the assessment period the licensee installed, tested and declared operable an Emergency Public Notification System (PNS). FEMA has not yet determined the acceptability of the PNS system at Yankee.

A full scale exercise, on March 25, 1982, was evaluated. This evaluation determined that the licensee demonstrated the capability to implement their Emergency Preparedness Program in a manner to adequately protect the health and safety of the public. The

findings of FEMA concerning the exercise were that the objectives of the exercise were generally achieved by the State and local agency responses.

The licensee has been responsive to NRC initiatives, and has provided acceptable resolution in a timely, viable and sound manner.

Conclusion

Category 1

Board Recommendations

None

7. Security and Safeguards (8%)

During the previous assessment period two regional based Physical Protection inspections were conducted noting no violations. Two violations were identified by the resident inspector stemming from failures to adhere to established procedures; the assessment noted that additional management attention may be warranted in this area.

During the current assessment period two routine, unannounced physical protection inspections were conducted by region-based inspectors. Three violations (one level IV, two levels V, IR 81-12) concerning alarm stations were identified during the first inspection conducted July 20-24, 1981. One violation (level V, IR 82-02) concerning the security plan was identified during the last inspection conducted February 22-26, 1982. Two violations from an earlier inspection remain open. The NRC is reviewing the licensee's request to withdraw these violations and not consider them as noncompliance. Historically there have been problems with low manning of the contract security force and high personnel turnover rate. Staffing was increased last year on the back shifts by one additional person per shift.

Conclusion

Category 1

Board Recommendations

None

8. Refueling (4%)

During the previous assessment period the resident inspector witnessed preparations for refueling and refueling activities prior to and during the refueling outage of May thru July 1981. No inspections by a regional specialist were conducted. No violations were identified.

Refueling activities were in progress at the beginning of the current assessment period. The resident inspector routinely observed refueling activities and one regional inspection was performed in the area of post refueling startup testing. These inspections identified no violations, however, several concerns were identified.

Inspectors identified concerns in Inspection Reports 81-06 and 81-14. The concerns were linked to procedural inadequacies. Two items indicated that licensee supervisory reviews of recorded test data were, in some cases, not timely or thorough. The licensee committed to establish a means for test data package review. Another item was determined to be an isolated case of a missing review signature. However, management involvement and control in assuring quality is evident due to: well stated, disseminated and understandable policies; records that were generally complete, well maintained and available; procedures and policies were rarely violated and corrective action systems that recognize and address non-reportable concerns.

A review of the staffing indicated that key positions were identified and authorities and responsibilities are defined, key positions are filled in a reasonable time, and staffing is adequate. PORC meetings are held on a timely basis during outages. Management routinely tours the plant and witnesses key events.

The training and qualification program contributes to an adequate understanding of work and adherence to procedures with few personnel errors. As an example, the reactor engineer recognized the inadequacy of several procedures and performed additional training in these areas.

The licensee's approach to resolution of technical issues from a safety standpoint generally demonstrated an understanding of issues, a viable, sound and thorough approach, and resolutions which were generally sound. This is based on licensee performance during the refueling outage, of major tasks such as: main coolant pump replacement, reconstitution of fuel, eddy current testing and timely completion of NUREG 0757 items.

The resident inspector, who tours the fuel pool area regularly, witnessed portions of fuel pool activities including; fuel sipping, handling and reconstitution of fuel during refueling. Most of the

resident concerns were resolved in a timely fashion. However, the cleanliness of and the housekeeping control established for the fuel pool area were lacking. This was discussed with plant management on several occasions. The cleanliness of the area is often below licensee and industry standards. The design of the structure does not lend it self to the easy maintenance of clean conditions. However, the licensee seems to be doing little to improve the housekeeping in this area.

Conclusion

Category 1

Board Recommendations

Encourage licensee to establish and maintain cleanliness in the spent fuel pool area consistent with cleanliness in other facility areas.

9. Licensing Activities

Licensee management involvement shows evidence of planning and assignment of priorities, and decision making seems to be at a level that ensures management review. Management involvement in assuring quality was evident in meeting the requirements of Appendix R, the Systematic Evaluation Program, and responses to NUREG-0737.

The Yankee plant is a 30-year old design, and as such is not readily adaptable to regulatory solutions based on more modern designs. This design, coupled with a long history of successful operations, results in proposed solutions by YAEC which rely more on operator training and action than on additional hardware. This approach has been most evident in responses to Appendix R, to the question of degraded grid voltage, and to several NUREG-0737 items. These solutions, while not necessarily inadequate, are different enough to require extra review effort to ensure that they provide an acceptable level of safety. The licensee's understanding of technical issues from a safety standpoint is apparent and conservatism is exhibited.

The licensee's responsiveness to NRC initiatives is judged to be generally timely with few long standing regulatory issues attributed to the licensee. The resolutions proposed are usually acceptable with no or only slight modification required. Only in the area of the Systematic Evaluation Program has considerable NRC effort or repeated submittals been required to reach a resolution.

There appears to be significant improvement in the licensees handling of reportable events. The reports are submitted in a timely manner with reasonable identification of the facts. The events are accurately identified, although some analysis is marginal, corrective action is taken but may not be effective as indicated by event repetition. As a general comment, NRC review of Licensee Event Reports (LERs) identified an apparent reluctance on the licensee's part to utilize "Design, Manufacturing, Construction/Installation" as the proximate cause code in describing the nature of the cause of the reported events. Events directly attributable to this cause code are instead described as component failures. Typical examples of this practice are the reported AFW power supply failures, PVS monitor failures, and main coolant flow relay failures. This practice, is in conflict with NUREG-0161, Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File, and Yankee NPS procedure AP-0002, Licensee Event Reports. The concern in this area is that adequate event analysis and root cause determination with subsequent long term corrective action may be overlooked if events are systematically attributed to component failure.

The licensees staffing is adequate, and only occasional difficulties exist in resolving the backlog of technical issues. It is noted

that this licensee has about the longest experience in commercial nuclear power production of any utility, and consequently the level of staff experience is high. However, it appears that some of the problems this licensee has had in submitting timely responses to the SEP may be due to overloading the staff, and the assignment of additional manpower may alleviate the problem.

With regard to operator licensing, 2 of the 4 the license candidates failed the examination given in the fall of 1981, but all 6 of 6 candidates passed the spring 1982 set of exams.

Conclusion

Category 1

Board Recommendations

None

V. Supporting Data and Summaries

1. Licensee Event Reports

Tabular Listing

Type of Events:

A. Personnel Error	4
B. Design/Mfg/Constr/Install.	2
C. External Cause	1
D. Defective Procedures	0
E. Component Failures	31
X. Other	0

TOTAL 38

Licensee Event Reports Reviewed

Report No. 81-18/03L through 82-20/03L

Causal Analysis

Sets of common mode events were identified:

- a. LERs 82-03-03L, 82-04-03L, 82-13-03L, and 82-14-03L involve failed auxiliary feedwater flow channel power supplies due to high environmental temperatures. The licensee has been replacing the failed equipment in kind and has committed to replacing the instrumentation during the next refueling outage.
- b. LERs 82-09-03L, 82-07-03L and 81-18-03L are events that involve inoperable containment isolation valves caused by poor valve seating, relaxation of flange bolting, and material buildup in valve seat area, respectively.
- c. The following subsets each involve radiation monitoring instrumentation:
 - (1) LERs 81-22-03L, 81-25-03L, 81-26-03L, 81-27-03L, 81-30-03L, and 82-06-03L involve inoperable noble gas (4 events), iodine (3 events) and particulate (1 event) primary vent stack monitors all contributed to moisture entering the detector caused by failure of the air dryer. The licensee notes in LER 82-06-03L that plans are underway to replace the dryers with a more reliable scheme.
 - (2) LERs 82-05-03L and 82-16-03L involve the primary vent stack noble gas monitor (intentional) and the vapor container air particulate monitors (inadvertently) being taken out of service during troubleshooting.

- (3) LERs 82-11-03L and 82-12-03L involve No. 4 steam generator blowdown monitor inoperability due to electrical component failure and intentional isolation to repair an associated valve seat leak.
- d. The following subsets involve main coolant flow system instrument failures:
 - (1) LERs 81-29-01T-1, 81-31-03L, 81-32-03L, 81-33-03L, and 82-18-03L involve main coolant flow system failed surveillance caused by failure of under current relays to drop out when deenergized. The licensee reported in LER 81-29-01-T that vendor analysis determined that failures of this type are due to relay bushing wear resulting from mechanical vibration that occurs when the relay is continuously picked up, the normal condition of the relays in this application. They also determined that use of Westinghouse Dual SC-1 Relays in this manner is a misapplication. The licensee committed to increased surveillance pending replacement of the plunger bushings for the undercurrent relays, and a program to investigate replacement relays. Presently per 82-18-03L corrective actions the system is scheduled for modification during the next refueling outage.
 - (2) LER 82-01-03L also involves failure of main coolant flow system under current relays to drop out when deenergized. These relays are Westinghouse type SC-1, rebuilt per LER 81-29-01T-1 corrective actions. The cause of this event was attributed to burrs on the relay plunger. The licensee committed to inspect all other rebuilt relays.
- e. LERs 81-17-03L, 81-23-03L and 82-15-03L involve failure to follow procedure, missed surveillance test and personnel error events respectively.
- f. LERs 81-16-03L and 81-34-03L involve failed emergency diesel generator surveillance due to degraded cooling (radiator blockage) and a broken starter motor housing respectively.
- g. LERs 81-28, 82-08-03L and 82-10-03L involve degradation of the plant fire protection system due to loose mechanical fittings and insufficient valve seating.
- h. LERs 82-17-03L and 82-20-03L involve a main steam nonreturn valve trip circuit inoperability and inoperable valve respectively due to electrical component failure.
- i. LERs 81-19-03L, 81-20-03L, 81-24-03L, 82-02-03L, and 82-19-03L report other miscellaneous events such as intentional equipment removal from service (1 LER), various electrical component

failures (2 LERs), setpoint drift (1 LER), and a plant trip due to lightening (1 LER).

2. Investigation Activities

No formal investigations were conducted during the assessment period.

Allegations regarding security received by the Region were followed up by the resident inspector and by regional inspectors via telephone calls with the licensee.

3. Escalated Enforcement Actions

a. Civil Penalties

None

b. Orders

Order Modifying License dated July 10, 1981 confirming licensee commitments for TMI related requirements contained in NUREG 0737 (Issued to all licensees).

c. Conformatory Action Letters (CAL)

Confirmatory Action Letter 82-10 dated June 10, 1982 confirming actions in response to a request for the status of installation of the Emergency Public Notification System within the Yankee Emergency Planning Zone.

Confirmatory Action Letter 82-04 dated June 25, 1982 confirming actions taken in response to Emergency Preparedness Appraisal findings.

4. Management Conferences Held During the Assessment Period

SALP Cycle II Management Meeting at the Yankee Nuclear Power Station on October 7, 1981.

TABLE I
 TABULAR LISTING OF LERs BY FUNCTIONAL AREA
 YANKEE NUCLEAR POWER STATION

<u>Area</u>	<u>Number/Cause Code</u>		<u>Total</u>
1. Plant Operations	1/A	18/E	19
2. Radiological Controls			
3. Maintenance	1/A	1/E	2
4. Surveillance	1/A, 1/B	9/E	11
5. Fire Protection		3/E	3
6. Emergency Preparedness			
7. Security and Safeguards			
8. Refueling	1/A		1
9. Licensing Activities			
10. Other (Original Design Errors and Equipment Failures Not Classifiable Into Areas 1-9).	1/B, 1/C		2
TOTAL			38

Cause Codes:

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

TABLE 2

VIOLATIONS (7/1/81 - 6/30/82)

YANKEE NUCLEAR POWER STATION

A. Number and Severity Level of Violations

1. Severity Level

Deviations	0
Severity Level I	0
Severity Level II	0
Severity Level III	0
Severity Level IV	2
Severity Level V	6
Severity Level VI	2
Total	<u>10</u>

B. Violations Vs. Functional Area

FUNCTIONAL AREAS	I	II	III	IV	V	VI	VIO	INF	DEF	DEV
1. Plant Operations					1	1				
2. Radiological Controls					2					
3. Maintenance										
4. Surveillance				1		1				
5. Fire Protection										
6. Emergency Preparedness										
7. Security & Safeguards				1	3					
8. Refueling										
9. Licensing Activities										
10. Others										
Totals				2	6	2				

Total Violations = 10

TABLE 3
YANKEE NUCLEAR POWER STATION
INSPECTION HOURS SUMMARY
July 1, 1981 - June 30, 1982

	<u>HOURS</u>	<u>% OF TIME</u>
1. Plant Operations	335	22.0
2. Radiological Controls	53	3.0
3. Maintenance	52	3.0
4. Surveillance	79	5.0
5. Fire Protection	32	2.0
6. Emergency Preparedness	795	53.0
7. Security and Safeguards	113	8.0
8. Refueling	62	4.0
Total	1521	100%

TABLE 4

INSPECTION REPORT ACTIVITIES

YANKEE NUCLEAR POWER STATION (15 Inspections)

July 1, 1981 - June 30, 1982

Report No. and Inspection Dates	Inspection Hours	Inspector	Areas Inspected
81-12, 7/20-7/24/81	62	Specialist	Physical Security
81-13, 7/1-8/17/81	96	Resident	Routine Resident/ Refueling
81-14, 9/1-9/4/81	31	Specialist	Refueling (core physics and startup testing)
81-15, 6/16-19/81			Outside defined Assessment period
81-16, 8/18-10/5/81	98	Resident	Routine Resident/TMI item
81-17, 10/17/81	10	Regional Administrator	SALP Management Meeting
81-18, 10/7-11/23/81	56	Resident	Routine Resident/ Training
81-19, 11/3-11/5/81	27	Specialist	Calibration and Surveil- lance
81-20, 11/20-12/9/81	650	Specialist	Emergency Preparedness Appraisal
81-21, 11/24-12/31/81	56	Resident	Routine Resident/RAD Waste
82-01, 1/1-2/1/82	51	Resident	Routine Resident/Audit
82-02, 2/22-2/26/82	35	Specialist	Security
82-03, 2/16-2/25/82 3/8-3/12/82 3/22-3/26/82 4/5-4/12/82	70	Resident	Routine Resident/TMI Action
82-04, 4/13-4/19/82 5/19-5/28/82	71	Resident	Routine Resident
82-05, 3/15-3/18/82	31	Specialist	Fire Protection
82-06, 3/24-3/26/82	144	Specialist	Emergency Plan Drill
82-07, 5/4-5/7/82	33	Specialist	Quality Assurance
Total	<u>1,521</u>		

ATTACHMENT

YANKEE NUCLEAR POWER STATION

ENFORCEMENT DATA

June 30, 1981 - July 1, 1982

Inspection Number	Inspection Date	Violation	Reg.	Sev.	Area
81-12	7/20-7/24/81	Failure to arm a physical barrier	SP	IV	7
		Failure to tamper alarm security related hardware	SP	V	7
		Failure to properly construct a vital area barrier	SP	V	7
81-16	8/18-10/5/81	Failure to demonstrate primary containment integrity	TS	IV	4
81-18	10/7-11/23/81	Failure to administer annual Senior Operator requalification exam.	10 CFR 55 App. A.	VI	1
81-19	11/3-11/5/81	Failure to provide or use procedures for instrument calibration	TS	VI	4
81-21	11/24/81-12/31/81	Failure to implement proper approved procedures for radioactive waste operations	TS	V	2
82-02	2/22-2/26/82	Failure to furnish to the NRC SP changes within required period	10 CFR 50.54 (p)	V	7
82-04	4/13-4/19/82 5/6-5/7/82 5/19-5/28/82	Failure to post or barricade a high radiation area	TS	V	2
82-07	5/4-5/7/82	Failure of licensee audit program to determine identified conditions cause and to take action to preclude repetition.	10 CFR 50 App. B	V	1