REGION IV

DIVISION OF REACTOR PROJECTS

PRESALP BOARD

FOR

SOUTH TEXAS PROJECT

MAY 23, 1991

SALP PERIOD

FEBRUARY 01, 1990 THROUGH MAY 31, 1991

[redacted]

5844-

TABLE OF CONTENTS

I. CHRONOLOGY OF EVENTS

UNIT 1

March 29, 1990	Reactor trip from 100 percent power. Loss of feedwater because of a feedwater booster pump trip on ground fault. Identified that water, oil mist and dust caused the ground fault. Two FWIVs failed to close. Licensee identified that the FRYQUEL 150 EHC fluid had degraded because of high temperature, moisture, and copper.
March 30, 1990	Began second refueling outage six days earlier than planned because of previous reactor trip.
April 9, 1990	Approximately 17,000 gallons of borated water spilled from the lower reactor vessel internals storage area to the lowest containment elevation. A 6" line had not been installed prior to flooding operations. No independent verification for critical steps, activity not specifically described, and lack of sign-offs for critical steps.
June 20, 1990	Reactor trip from 15 percent power because of a loss of power to all 4 reactor coolant pumps. Following a main generator overspeed test, the operators were paralleling the generator to the grid when a transformer blackout occurred. The generator pole relay failed causing the loss of power.
June 21, 1990	Main generator breaker closure to end the outage. Refueling outage 2 lasted 84 days as compared to the planned 65 days.
June 23, 1990	Reactor trip from 76 percent power because of a turbine trip. The EHC line to the No. 3 turbine throttle valve ruptured. A loose lead to the governor control circuitry caused pressure oscillations in the line.
July 2, 1990	Reactor trip from 90 percent power on an OTdT trip. One channel had been placed in trip condition for an ANALOG CHANNEL OPERATING TEST. A second channel received a trip signal when the RCS preesure decreased and was not appropriately considered by the operators.
July [illegible], 1990	NOUE because of shutdown required by TS. A FWIV failed to stroke during a surveillance test. Pressure to the accumulators on the FWIVs was improperly set.

July 16, 1990	Reactor trip from 100 percent power during reactor trip breaker TADOT. The operator failed to ensure the Urgent failure had cleared when he repositioned the switch. The procedure did not provide cautions for what to verify. The feedwater booster pump failed after the trip for reasons apparently similar to those that caused a previous feedwater booster pump trip.
July 19, 1990	NOUE because of a loss of one RCP and a TS required shutdown. An operator performed a break before make transfer from the auxiliary transformers to the standby transformers. The RCP lost power because of the improper transfer. Power was reduced from 10 to 1 percent and the pump restarted.
July 30, 1990	Manual reactor trip from 100 percent power because of a loss of feedwater to a S/G. An I&C technician hooked up to the wrong terminals during a FWIV stroke test and caused the valve to completely close. A subsequent valve lineup error on an AFW pump discharge line caused one steam generator to not be supplied for 40 minutes.
August 6, 1990	An inadvertent boron dilution occurred from 100 percent power while placing a new mixed bed demineralizer in service without determining the initial boron concentration in the bed.
September 10, 1990	Reactor shutdown required by TS. Declaration of NOUE. Event result of an inoperable vital inverter that could not be restored within the TS time limit.
September 12, 1990	During a mode change to hot standby, the TS temperature limit was exceeded with a HHSI pump out of service.
September 24, 1990	Reduced power to 90 percent because of a circulating water pump trip.
September 29, 1990	Manual trip from 100 percent power because of an I&C technician landing leads on the incorrect terminal resulting in a FWIV closure.
November 24, 1990	A reactor trip from 100 percent power resulted from a main generator trip. The generator tripped on an overcurrent condition which may have resulted from a leak in the stator cooling water system. Extensive generator repairs required.
November 30, 1990	Inadvertent sodium hydroxide addition to the steam

	generators with the unit shutdown. The licensee had not provided a means of sampling chemicals prior to addition.
December 12, 1990	Licensee extended the forced outage to include RF3.
January 15, 199[illegible]	The licensee began the third refueling outage. Activities include a full core offload.
January 20, 1990	D/G injector hold down bolt failures because of potentially bad installation process.
February 2, 1991	HP technician contaminated with 0.5 uCi Co60. Source of contamination was determined to be a vacuum cleaner which was improperly installed.
February 15, 1991	Partial LOOP occurred because an electrician improperly inserted a relay.
February 22, 1991	A reactor plant operator pulled the incorrect fuse causing the deenergization of an auxiliary bus. This occurred during clearance tagging.
March [illegible]5, 1991	Partial LOOP because of an in advertent pilot wire actuation during a surveillance test.
March [illegible]1, 1991	Reactor critical following refueling outage.
April [illegible],1991,	Generator output breaker closed. RF-3 ends.
April [illegible], 1991,	Manual reactor shutdown because of an an inoperable FWIV. Power was reduced from 77 percent. A NOUE was declared.
April [illegible]2, 1991,	Reactor trip on negative flux rate because of dropped rods. Both M/G sets had 0 voltage output.

UNIT 2

Feb. [illegible]. 1990	Reactor trip from 100 percent power. The "S" train of the reactor trip breaker spuriously opened causing a main turbine trip on loss of EHC pressure and subsequent reactor trip. No cause for the event was identified. The 15 "S" train universal logic cards were subsequently replaced.
March [illegible]6, 1990	Reactor trip from 100 percent power because of low steam generator level. The disc had separated from the feedwater regulating valve. (Copes-Vulcan Model No. D100-160) Installed fillet weld on disc.
April [illegible]4,1990	Reactor trip from 99 percent power. An EHC line

	failed causing a turbine trip/reactor trip. Fatigue failure of the line to the governor valve.
May 8, 1990	A NOUE was declared because of RCS pressure boundary leakage on a S/G bottom head drain. The plant was subsequently shutdown and placed in Mode 5.
May 12, 1990	The licensee identified an extra wire on the "C" train logic card which had been in place since the card was manufactured.
June 13, 1990	Unit taken offline to inspect Conax junction boxes inside the biological shield wall.
July 5, 1990	The reactor was taken off line to repair an MSIV PORV that had failed because of congealed FRYQUEL 150 EHC fluid. The licensee had experienced similar problems with the FRYQUEL fluid in the FWIVs. A main generator bearing replacement also occurred.
July 13, 1990	A feedwater isolation occurred at 8 percent power because of a detached feedwater regulating valve position feedback arm. The valve was being placed back in service following the forced outage.
September 17, 1990	Trip from 100 percent power when a nonlicensed operator actuated the wrong trip breaker during the surveillance test. The operator actuated the wrong trip breaker after having been in the correct cabinet.
September 26, 1990	An I&C technician connected his leads to the incorrect terminal points causing a control room ventilation system isolation.
September 28, 1990	Unit entered its first refueling outage.
October 13, 1990	Complete core offload begins.
October 31, 1990	During initial reflooding of the vessel which was defueled, a spill of 50 gallons occurred because drain and vent valves were left open. Clearances were not restored after surveillance testing prior to reflooding.
November 10, 1990	Core reload begins.
November 20, 1990	Midloop operations begins to allow for removal of steam generator dams.
December 6, 1990	Reactor taken critical following RF-1

December 19, 1990	NOUE because of fire in the area of the main turbine bearing No. 1. Source of fire was oil soaked insulation.
January 7, 1991	NOUE because of TS required shutdown. Urgent failure alarm actuated during SSPS logic train TADOT because of blown fuse. Power reduced to 61 percent.
January 9, 1991	Manual reactor trip from 100 percent when FWIV 2C closed when an operator incorrectly removed a fuse to a trip solenoid during troubleshooting activities.
February 15, 1991	A feedwater transient occurred when a contract electrician cut the wrong cable, tripping an operating FWBP. A reactor trip would have occurred if the standby FWBP had not started.
March 9, 1991	Partial LOOP because of a faulted breaker in the switch yard. This also affected Unit 1.
March 14, 1991	Unit trip from 100 percent because of a main generator lockout. The licensee was attempting to reenergize the Unit 1 main transformer.
March 30, 1991	Unit trip from 100 percent because of a main generator lockout. The licensee was attempting to energize the main transformer. The licensee identified that the CTs were not balanced. Saturation times were different.
May 22, 1991	Unit trip from 100 percent power when a nonlicensed operator leaned against the main turbine local panel and initiated a turbine trip. This incident follows comments by the RIs in report 91-11, that control room professionalism had recently declined.

II. PLANT OPERATIONS

II.A PREVIOUS SALP RATINGS

SALPs		OPPRs			
88	90	08-90	12-90	02-91	05-91
2	1	1D	2	2	NA

II.B OVERVIEW OF 90 SALP

Strengths

- The licensee safely and efficiently completed Unit 2 cold precritical testing. A planned program with good management attention was evident.
- The Unit 2 startup program was completed in accordance with the FSAR. A safety attitude prevailed through out the program.
- Licensed operator professionalism and abilities apparent throughout SALP cycle.
- No reactor trips or startups with operator error.
- Realistic schedule established for attaining black board status by early 1991.

Weaknesses

- Early cycle weaknesses in procedural compliance, control of temporary scaffolding, control of fire and locked doors, secondary system leaks, equipment nomenclature inconsistencies with procedures.
- Poor housekeeping practices noted on several occasions.
- Ten Unit 1 and 2 reactor trips were caused by equipment failures. The remaining two trips resulted from I&C errors during surveillance testing.

II.C LICENSEE PERFORMANCE

- Extensive use of overtime during refueling outages
- Lack of attention to details resulted in missed TS required actions. One event was repeated for both units.
- Lack of attention to detail resulted in reactor trip and/or ESF actuations.
- Generally good configuration control. One instance of a mispositioned valve rendered a train of AFW inoperable.
- Locked valve program not strictly adhered to.
- Lack of attention to detail for clearance orders.

II.D OBSERVATIONS

* Performed well during plant challenges
* Improved attention to housekeeping
* Licensed operator professionalism and abilities apparent throughout SALP period
* Some concerns with control room communications between operators and/or plant staff
* Plant procedures contained weaknesses which lead to plant transients (inadvertent RCS dilution at power)

II.E DRP QPPR REVIEW AND RECOMMENDATIONS

QPPR COMMENTS

08-90 A decline in operator performance was noted based on the number of personnel errors which resulted in challenges in plant equipment, including reactor trips. The operators performed well to control the boron dilution event.

12-90 Operator performance did not improve during this QPPR period. Operator errors resulted in challenges to safety-related equipment, TS violations, and a contaminated water spill in the Unit 2 containment.

02-91 Operator performance remained steady during this inspection period. The previously noted number of personnel errors declined during this period. However, the operators did not have adequate guidance for return from no mode to Mode 6. The lack of controls over the status of clearances resulted in the RCS spill in the containment. Troubleshooting activities, as they related to recovery from the loss of power to the FWIV hydraulic skid, were not well defined and there were apparent weaknesses in the alarm response procedure.

TREND EVALUATION

A declining trend was noted for the number of equipment problems and reactor trips. A special assessment conducted August 7-10 identified that BOP problems may be a partial contributor to some of the events. The inadvertent dilution event and subsequent recovery illustrated that the licensee had not adequately considered actions which could affect reactivity. Personnel errors resulting TS violations and challenges to safety systems continued to occur although at a declining frequency. Equipment problems are still occurring (i.e. Unit 1 main generator stator damage). The licensee has implemented (December 1, 1990) an Operational Improvement Plan to address, in part, operator performance. The overall improvements which are expected from this program have not had sufficient time to become evident. Housekeeping is improving in most areas and is good

overall in most areas.

Recommended Rating - NA

Recommended Inspection Program Changes - NA

II.F INSPECTION PROGRAM STATUS

****CORE INSPECTION PROGRAM*****

Unit	Module	Status		Inspection Report(s)
B	64704	C		90-19, 100
B	71707	C		90-08, 100; 90-09, 100; 90-11, 100; 90-18, 100; 90-23, 100; 90-24, 100; 90-26, 100; 90-30, 100; 90-34, 100; 90-38, 100; 91-01, 100; 91-08, 100; 91-11, 100; 91-15, 100
1	71710	C		90-18, 100; 90-34, 100; 91-11, 100
2	71710	C		90-08, 100; 90-38, 100; 91-15, 100;
B	93702	C		90-08, 100; 90-09, 100; 90-11, 100; 90-18, 100; 90-23, 100; 90-24, 100; 90-26, 100; 90-28, 100; 90-30, 100; 90-31, 100; 90-34, 100; 90-38, 100; 91-01, 100; 91-08, 100; 91-11, 100;

*****Regional Initiative*****

B	42700	C		90-21, 010; (91-13, 100)
1	60705	C	2 req.	90-09, 50; 90-18, 100; 90-38, 50; 91-08, 100
2	60705	C		90-38, 100
1	60710	C	2 req.	90-11, 50; 90-18, 100; 91-01, 50; 91-08, 100
2	60710	C		90-30, 50; 90-34, 100

3	71500	C	90-11, 90-23, 90-29, 100
1 -	86700	C	90-09, 50; 90-11, 100
2	86700	C	90-30, 50; 90-34, 100
3	71714	C	90-38, 100
2	71715	C	90-34, 100

II.G ENFORCEMENT AND REGULATORY ISSUES

1. VIOLATIONS

Number	Description	
498/499	9028-02	Failure to provide adequate acceptance criteria for placing a demineralizer bed in service. (ENF. CONF) S4
498/499	9031-01	Inoperable high head safety injection system during a unit heatup. (ENF. CONF)
/499	9034-02	TS violation for failure to meet ESF power alignment requirements for Modes 5 & 6. S4
498/	9108-01	120 volt AC vital bus dist panel was not energized from its associated inverter. Same as 499/9034-02
498/499	9111-01	Valves were not secured in accordance with the locked valve program. A SS did not ensure that a pretest briefing was conducted. S4
498/	9111-02	TS violation for failure to control licensed operator hours. S4

2. NONCITED VIOLATIONS

Report		Description
498/499	9009-01	Valves on the spent fuel cooling system were not locked per the locked valve program. These valves were to be locked for good engineering practice and not TS.
498/	9018-01	CCW valve to the fuel pool heat exchanger was not locked open as required by the approved checklist.
498/	9108-04	Fuel movement activities were performed with

the fuel handling building doors open.

3. LERs -

Number	Description
498/90-02	Entry into 3.0.3 and NOUE because of FWIV failure. A solenoid valve associated with the FWIV failed because of particulate buildup. 01/03/90
498/90-05	A feedwater booster pump tripped on a ground fault indication. The reactor tripped from 100 power on low S/G level. Moisture and dirt caused the ground fault. PM revised to clean the air filter. This pump had tripped previously during rain storms. 04/29/90
498/90-06	A technician mislanded a jumper causing a FWIV to close during testing. A mispositioned AFW recirculation valve complicated the recovery. The plant was manually tripped prior to a trip 07/30/90
498/90-07	All three trains of containment isolation inoperable because of procedure guidance and miscommunications with the operators. 04/30/90
498/90-09	Non licensed operators did not identify that the instrument used to obtain log data was inoperable. The instrument was the toxic gas analyzer. 05/14/90
498/90-16	Reactor trip on OT/dT. OT/dT setpoint drifted with one channel in trip. Reduced pressure caused channel to trip with second channel in trip for surveillance. 07/02/90
498/90-18	Entry into TS 3.0.3 because of an inoperable feedwater isolation valve. 7/7/90
498/90-21	Class 1E inverter failure requiring a plant shutdown. 9/9/90
498/90-22	Mode change with HHSI pump inoperable and the temperature limit exceeded. 9/12/90
498/90-24	Operators failed to recognize that the one subcooling monitoring channel was inoperable, and thus the appropriate TS action was not taken. 10/18/90
498/90-25	ESF caused by a generator ground fault on the stator cooling end turn. 11/90

498/90-26	Train B LOOP occurred when a breaker failed to open during a transfer of offsite power supplies. 12/90
498/91-05	FHB door left open while fuel movement was on going. 02/18/91
498/91-06	The Class 1E 120 volt vital distribution panel was energized from an alternate power supply, a TS violation. This also occurred previously on Unit 2. 02/24/91
498/91-08	A second LOOP occurred because the operator did not consider the plant electrical lineup while utilizing the OFNs. 03/15/91
499/90-01	A hot license trainee released a spring loaded switch which over traveled and caused a SI on low steam pressure. The licensee had identified the switch problem during the Control Room Design Review. The Job Task Analysis did not provide for instruction of switch operation. 01/08/90
499/90-04	The feedwater regulating valve plug separated from the stem restricting flow to 50 percent with the reactor at 100 percent. Reactor trip on low steam generator level. Problem corrected on Unit 1 during refueling outage. 02/14/90
499/90-05	Fatigue stress on a weld for EHC caused the line to rupture and and subsequent reactor trip. 04/14/90
499/90-06	Failed toxic gas analyzer caused control room ventilation actuation. 04/26/90
499/90-08	A pressure boundary leak at the S/G drain line required a plant shutdown and NOUE. 05/08/90
499/90-17	Licensee identified that the Train A Class 1E 120v distribution panel was powered from its alternate supply with the plant in Mode 6. 11/04/90
499/91-01	Manual reactor trip due to full closure of FWIV during operational problem investigation. 01/09/91
499/91-03	ESF actuation on low S G level during recovery

from reactor trip. MSIV was opened with levels at minimum. Subsequent shrink caused actuation of AFW. 03/30/91

II.H INSPECTION REPORT SUMMARY

IR 90-08 RI

Operations personnel responded well to system failures following a Unit 2 reactor trip. The charging flow failed high and a steam dump valve failed open. The operators had maintained plant configuration control for the containment purge system.

IR 90-11 RI

The operators responded well to prevent a Unit 2 turbine/reactor trip during maintenance activities on the intercept valve. Several small valves on the main steam system were not properly lock wired. The fuel movement operations were handled in accordance the procedures.

IR 90-18 RI

Very good housekeeping practices observed except in EOF D/G area.

IR 90-19 DRS

The licensee had technically adequate procedures to implement the fire protection program. Personnel training, qualifications, and responsibilities were adequately provided. Fire protection was tested.

IR 90-23 RI

Modifications, maintenance and operation of the open loop auxiliary cooling system was determined to be of acceptable quality.

IR 90-24 RI

Operator opened breaker before closing the tie breaker. This was contrary to the procedure. Turnovers and decorum in the control room was professional and disseminated the appropriate information. MAB chilled water system procedures and P&IDs contained errors which are incluced in the upgrade program. No safety significance.

IR 90-26 RI

No change in operator performance was noted. The need for the aggressive procedures upgrade program was still evident. Valve line ups on the AFW system were proper to support operation.

IR 90-28 RI

A plant operator failed to properly position a valve on the AFW system which resulted in one train being inoperable. The independent verification was not properly performed.

The licensee had not considered all the means of adding reactivity. The placement of a demineralizer bed in service resulted in an unplanned power increase.

IR 90-29 BOP TEAM

Some BOP work activities required unsafe work practices.

IR 90-30 RI

An unlicensed operator tripped the incorrect reactor trip breaker, causing a reactor trip. This event caused the licensee to begin the "detailed self verification training program". A continuous observation of a Unit 2 startup noted that the operators were knowledgeable and understood the procedures they were using. Unit 2 refueling activities were performed in accordance with the approved procedures.

IR 90-31 RI

The unit operator exhibited poor command and control during a unit mode change. The TS temperature limit was exceeded with the HHSI system inoperable.

IR 90-34 RI

Licensed operators did not fully understand the affect the DPU had on the subcooling monitor channel. This resulted in a TS violation. Poor control of Unit 2 reflooding activity resulted in a spill in the containment.
Clearance status status was not properly considered prior to reflooding.

A system walkdown of the DG 13 was satisfactory. During sustained control room observations, the licensee properly fulfilled the Mode 5 restraints prior to entry and controlled midloop operation well.

Unit 2 reload activities were performed well with the exception that materials on the FH bridge were not secured. Plant housekeeping continued to improve.

IR 90-38 RI

Inadequate hydrazine testing program resulted in the sodium contamination of the SGs. Operators responded well to the Unit 2 NOUE and bearing fire. An ESF walkdown of the containment spray system found all components properly aligned. Cold weather preparations were well implemented.

IR 91-01 RI

The shift supervisor did not verify the fuse list for repowering the MFWIV hydraulic units. This list was given to a nonlicensed operator. No specific troubleshooting controls existed for operations. The operators had not received training on loss of power to the hydraulic units. The AFWST was below the minimum required TS level, but was not recognized by the reactor operator trainee, licensed operator, or SRO.

The emergency boration path was verified to be properly aligned for power operations.U2

U-1 refeuling activities were properly performed and housekeeping was appropriate.

IR 91-08 RI

A nonlicensed operator pulled the incorrect fuse while hanging a clearance. This caused a loss of power to an auxiliary bus.

A second AFW actuation was received when the MSIV was opened when S/G levels were at minimum following a reactor trip.

An operator did not consider the plant electrical lineup while recovering from a partial LOOP and caused an additional partial LOOP

IR 91-11 RI

Some degradation was noted in the CR communication, and command and control.

III. RADIOLOGICAL CONTROLS

III.A PREVIOUS SALP RATINGS

SALPs		QPPRs			
88	89	08-90	12-90	02-91	05-91
2	2I	2I	1	1	NA

III.B OVERVIEW OF 89 SALP

Strengths

- The radiation department is well staffed with a low turnover rate. Some additional contract staffing is needed to prevent delays during some day shift activities.
- A well defined radiation training and qualification program is well established for personnel at the technician level.
- The radiation program is well managed. Management plays an active role in scheduling activities.
- Good performance based audits of the radiological program.
- Excellent radiochemistry and water chemistry program.

Weaknesses

- ALARA manual development needed. Controlled by department procedures. Need to include source term evaluation and chronic radiation sources.

III.C LICENSEE PERFORMANCE

* Good program for environmental monitoring
* Programs supported by proper facilities, equipment and supplies
* QA audits comprehensive and performance based
* RWEP was well implemented
* Good training programs for technicians
* Well implemented ALARA program

III.D OBSERVATIONS

* Developed source term reduction program with subsequent lower exposures and contaminations
* High turnover rate
* Effective management tours of RCA

III.E DRP OPPR REVIEW AND RECOMENDATIONS

OPPR COMMENTS

08-90 The licensee's performance is indicative of 2I. Continued performance at this level would indicate the licensee has attained a performance level of 1.

12-90 The licensee's performance has continued to improve and is considered a 1.

02-91 No change in the licensee's good performance was noted. However, one example of improper contaminated vacuum cleaner reassembly led to a not particle exposure event. Lack of sampling of 35 percent hydrazine solution contributed to a SG sodium contamination event.

TREND EVALUATION

The licensee has continued to show improvement in this area. There have been no events or findings to indicate the licensee is not a top performer.

Recommended Rating - NA

Recommended Inspection PROGRAM CHANGES - NA

III.F INSPECTION PROGRAM STATUS

***** CORE MODULE*****

Unit	Module	Status	Inspection Report
3	84750	C	90-12, 030; 90-39, 100
3	83750	C	90-20, 100; 90-27, 100: 90-35, 100; 91-09, 100
3	86750	C	91-09, 100
*****Regional Initiative*****			
3	80521	C	90-12,100
3	80721	C	90-12,100
3	83522	C	91-09, 100
3	83523	C	91-09, 100

B	83722	C	91-09, 100
B	83723	C	91-09, 100
B	83728	C	90-20, 100
B	83729	C	90-20, 100
B	84725	C	91-09, 100

III.G ENFORCEMENT AND REGULATORY ISSUES

VIOLATIONS

Number	Description
498/9109-01	A security officer was observed entering a posted HRA without proper dosimetry, RWP or HP cognizance. S 4.

III.H INSPECTION REPORT SUMMARY

IR 90-12 DRSS

The radiological environmental monitoring program was implemented in accordance with TS and the USAR. Adequate procedures have been implemented to control REMP. The staffing has remained relatively steady. The training program for RSL staff was being implemented and properly documented. The licensee's programs were backed up with the proper facilities, equipment, and supplies. The meteorological monitoring program was verified to be properly implemented and maintained. The licensee's audits of these programs were comprehensive and satisfied TS audits.

IR 90-18 RI

Radiological controls well implemented in in Unit 1 RCB.

IR 90-20 DRSS

Licensee had placed increased emphasis on improving and expanding the ALARA program. External and internal exposure controls well controlled. Contract HPs screened prior to being brought on site and trained. A lack of communication during planned ventilation system outage resulted in contamination to 10 persons on loss of negative pressure.

IR 90-27 DRSS

QA audits were comprehensive and performance based. An adequate training program has been implemented. A slight increase in turnover was noted. There is no corporate H. P. group to provide support and oversight of the onsite H. P. department. The licensee has established position descriptions for all the positions except technicians. Licensee received INPO accreditation during July 1990.

IR 90-35 DRSS

The inspector noted the licensee's organization and management controls were appropriate. Additional support for the Unit 2 refueling outage was provided. The training provided the HP technicians met the licensee's commitments.

The licensee's activities during the Unit 2 RF-1 were in compliance with the TS and CFR. Meetings of the work control organization provided for free exchange of information. Prejob briefings were thorough, although disrupted by uninvolved personnel. Tighter controls were being implemented to ensure the appropriate personnel attend the briefings. Good ALARA practices were evident, including use of strippable coatings. Potentially very high radiation areas were locked. Preperations, and the shipment of radioactive waste was well controlled.

IR 90-39 DRSS

The licensee has implemented the RWEP in accordance with the the RETS and the ODCM. Radioactive effluent releases have been within the limits established in the RETS. The licensee's dose calculations were found to be more conservative than the NRC's. Programs were generally well implemented. Licensee actions associated with the isolated instance of radiological survey log falsification were thorough and met the criteria for enforcement discretion.

IR 90-01 RI

A skin contamination occurred from an improperly assembled vacuum cleaner. The HEPA filter had been left out. No specific instructions were provided for reassembly.

IR 91-08 RI

A potentially contaminated (system had not been used) boron regeneration system was not properly considered for potential contamination in the work order. Good radiological controls were observed during the refueling outage.

IR 91-09 DRSS

- The turnover rate for the past year in HP was 20 percent. Corporate oversight of HP has been improved through the use of contractors. A corporate level assessor position has been created. Management has used tours and radiological reporting procedures effectively.

  HP technicians have received specific training on radiological problems. Few HP technicians are registered with NRRPT, but they are encouraging certification.

  The licensee had adopted lower radiological limits and has been extremely effective at reducing personnel exposure. Posting and controls within the RRA have been good. There appears to be too heavy a reliance on technicians knowledge of contamination levels within individual systems.

  The licensee has developed a source term reduction program and has been successful at keeping personnel exposure and contaminations low. The valid period for RWPs has been reduced.

  The licensee has an effective program for preparing radioactive waste for shipment.

IR 91-15 RI

The Unit 2 ECW system was contaminated because of because of failure to survey a hose from the hot tool room.

IV. MAINTENANCE/SURVEILLANCE

IV.A PREVIOUS SALP RATINGS

SALPs		OPPRs			
88	89	08-90	12-90	02-91	05-91
2	1	2	2	2	NA

IV.B OVERVIEW OF 89 SALP

Strengths

- The PM program enhancement plan resulted in a reduced and more focused scope of the PM program and a reduced PM deferral rate.
- The backlog of PMs and CMs has been aggressively reduced. This was done by providing additional contract personnel.
- An effective work order control system has been established.
- The licensee has been effective in establishing a strong retest program.

Weaknesses

- Two reactor trips from improperly performed surveillances.
- Several missed surveillances early in the SALP cycle.

IV.C LICENSEE PERFORMANCE

- Surveillance activities were generally well controlled. Some implementation problems resulting in plant events.
- Routine maintenance activities, generally well performed. Some implementation problems.
- Good ISI program
- Good implementation of predictive maintenance program
- Oversight of contractors did not ensure proper job performance
- Superior CILRT and LLRT program

IV.D OBSERVATIONS

- ESF actuations and reactor trips because of procedure adherence and personnel error problems
- Equipment problems required increased surveillances
- Labeling and procedure problems
- Maintenance goals well established
- Poor moral in certain groups
- Several weaknesses identified during MTI still apparent

IV.E DRP QPPR REVIEW AND RECOMMENDATIONS

QPPR COMMENTS

08-90 A declining trend based on personnel errors, procedure problems and maintenance backlog was identified.

12-90 Personnel errors continued to be a significant problem resulting in challenges to safety-related equipment.

02-91 Personnel errors are continuing, however the rate appears to have decreased. The licensee demonstrated good implementation of the ISI program and the startup testing program. Many aspects of problems previously reviewed are included in the OIP. The effectiveness of this plan has not been realized. The licensee is investigating the activities of the Bechtel maintenance group and has already confirmed instances of work request falsification. Other examples of less than adequate safety-related maintenance activities have been identified during the last quarter. Surveillance procedures and records were evaluated as strong and ILRT and CILRT were well controlled.

TREND EVALUATION

Adverse trends have been identified, however, good programs in this area are still evident. Procedure upgrade program is ongoing. The OIP is an essential component of improving the performance in this area.

Recommended Rating - NA

Recommended Inspection Program Changes - NA

IV.F INSPECTION PROGRAM STATUS

*****CORE MODULE*****

Unit	Module	Status	Inspection Reports
B	61726	C	90-08, 100; 90-09,100; 90-11, 100; 90-18, 100; 90-23, 100; 90-24, 100; 90-26, 100; 90-30, 100; 90-34, 100; 90-38, 100; 91-01, 100; 91-08, 100; (91-15, 100)
B	62703	C	90-08, 100; 90-09, 100;

			90-11, 100; 90-18, 100; 90-23, 100; 90-24, 100; 90-26, 100; 90-30, 100; 90-34, 100; 90-38, 100; 91-01, 100; 91-08, 100; 91-11, 100; (91-15, 100)
3	73753	C	90-14, 100; 90-33; 100 91-04, 100

*****Regional Initiative*****

1	55050	C	90-14, 100
1	55100	P	90-14, 040
3	61700	C	90-01, 100; 90-25, 100
2	61701	C	90-34, 100
2	61702	C	91-02, 100
2	61705	C	91-02, 100
2	61706	C	91-02, 100
2	61707	C	91-02, 100
2	61708	C	91-02, 100
2	61710	C	91-02, 100
3	61715	C	90-15, 090; 90-37, 100
3	61720	C	90-15, 100; 90-37, 100
3	62700	C	90-01, 100
3	62702	C	90-01, 100
3	62704	C	90-01, 100
3	62705	C	90-01, 100
2	72700	C	91-02, 100
3	25597	C	90-01, 100 Status only
3	25101	C	89-14, 100 Status only
.	25103	C	90-17, 100
2	25103	C	90-36, 20; 91-07, 100
.	70323	O	TEST RESULTS NOT COMPLETED BY END OF SALP PERIOD

IV.G ENFORCEMENT AND REGULATORY ISSUES

VIOLATIONS

Number	Description
498/499 9001-01	Two instances were identified where procedures were not followed. One for tape inside the primary pressure boundary and the second for improper constraining of a gas cylinder in a diesel generator room. S IV.
498/499 9008-01	The licensee did not include in their monthly verification of component cooling water manual valves which are not locked or

	sealed, all the valves required to be verified by the TS. S 4
498/499 9034-03	Electrician did not follow a procedure which resulted in a loss of power to a safety-related bus. Procedures were not revised correctly, resulting in a lesser review of the change than required for the procedure. S 4
498/ 9108-02	W breaker trip shafts were not lubricated in accordance with the PM. S 4.

2. NONCITED VIOLATIONS

Report	Description
499/9008-02	During a surveillance test, the first I&C crew failed to identify the as-found toggle position. Following a shift change, the next crew was not aware of the proper position.
498/499 90-33	The licensee had not adequately trained contract personnel involved in ISI examinations.

3. LERs

Number	Description
498/90-01	A containment ventilation isolation occurred on a loss of power to the radiation monitor. During modification work, the following problems occurred: 1.)failure of the planner to identify an interference problem; 2.) failure of the workers to revise the job plan; and 3.) changing the initial modification work plan by the planner. 01/03/90
498/90-03	Failure to include the required valve checks for CCW in the surveillance per TS. Reference 498/9008-01. 02/22/90
498/90-04	A technician bypassed a procedural step and jumpered a slave relay, causing an actuation of the diesel generator. 04/24/90
498/90-05	A feedwater booster pump tripped on a ground fault indication. The reactor tripped from 100 power on low S/G level. Moisture and dirt caused the ground fault. PM revised to clean

	the air filter. This pump had tripped previously during rain storms. 04/29/90
498/90-06	A technician mislanded a jumper causing a FWIV to close during testing. A mispositioned AFW recirculation valve complicated the recovery. The plant was manually tripped prior to a trip 07/30/90
498/90-08	Licensee reinstalled a PORV in Sept 1989, without performing a postmaintenance test. This also rendered the COMS inoperable. 09/04/89
498/90-10	Sealed source surveillance not performed within the TS allowable period. Causes of the event were: unclear test completion dates in the procedure; confusion by the technician of procedure requirements; and surveillance not scheduled on a semiannual basis. 05/15/90
498/90-11	The CARS radiation monitor was not returned to service following maintenance activities. The sample line was not reconnected. 06/12/90
498/90-13	NI cables cross connected. Inadequate labeling and test procedures for completion of the surveillance activity. 06/16/90
498/90-17	TS surveillance on RCS isolation valves missed. Operators misinterpreted the TS requirements; did not use the formalized TS interpretation process. 7/6/90
498/90-19	Shift personnel did not remain cognizant as to when power range instrumentation calibration was due. Time limit for calibration was exceeded. 7/8/90
498/90-20	Reactor trip because of both SSPS being in an urgent alarm condition during surveillance testing. Personnel error. 7/16/90
498/90-23	Manual reactor trip to preclude automatic trip on partial loss of feedwater. A technician misplaced a lead causing a feedwater isolation valve to close. 9/29/90
498/91-02	ESF during PM to test the SI reset timer. The work instructions were not properly reviewed by the system engineer, or the I&C supervisor. 01/26/91
498/91-04	An electrician touched a trip contact in the

process of inserting the protective relay. A partial LOOP resulted. 02/15/91

498/91-08 A partial LOOP resulted from a surveillance test on a pilot wire relay. 03/15/91

498/91-13 B train SI with LOOP actuated because of a improperly reviewed troubleshooting instructions. 04/12/91

499/90-03 A wiring error was discovered during a troubleshooting activity on the FHB exhaust system. A previous PM resulted in the error. 02/14/90

499/90-07 Potential for D/G room flooding because of inadequate instructions for sealing removable panels. 04/26/90

499/90-10 An electrician connected leads across the undervoltage relay causing a D/G start. The proper lead locations were clearly marked. 05/15/90

499/90-11 Inoperable S/G PORV. 7/5/90

499/90-12 ESF actuation because of detached feedwater regulating valve positioning arm. Set screw was not properly installed. 7/13/90

499/90-13 Reactor trip from incorrect actuation of trip breaker test button. 9/7/90

499/90-14 Improper use of test equipment resulted in a containment ventilation isolation. 9/26/90

499/91-02 Missed ASME PMT CPT on the AFW piping that had been welded during the outage. 01/31/91

IV.H INSPECTION REPORT SUMMARY

IR 90-01 MTI

During the later SALP period and this SALP period the MTI was performed. The following strengths and weaknesses were identified:

STRENGTHS

The Maintenance Department goals and objectives were provided annually and reflected corporate management's oversight.

Policies to encourage and to address employee comments, especially questions affecting safety, quality, or management were established.

Maintenance activities including work and status documentation were formalized, followed, and tracked closely by management.

Performance indicators were used extensively and several status and trending reports were issued periodically.

Job planning was a strong and well implemented program. Work instructions were well written and detailed so that they could be easily followed by craft personnel.

The overall work control process was effectively implemented. The backlog of open maintenance and contractor work requests (i.e., Priority 1 & 2s) was not excessive. Postmaintenance testing was a strong program with adequate acceptance criteria, well implemented at the planning level, and performed well in the field.

A QC review matrix had been developed, which had saved the planners many hours of preparation time.

State-of-the-art technology (C-view) for as low as reasonably achievable and maintenance prejob planning were used in the radiological protection program and contributed to low plant exposures and low levels of contaminated waste.

Easy access to the deficiency reporting systems allowed any plant person to initiate a work request or problem report.

Documents could be retrieved easily using the computerized retrieval system.

Most maintenance and test equipment, including radiation monitoring equipment, was calibrated on site.

Station personnel demonstrated a strong and healthy attitude toward reducing backlogs and developing programs to become more proactive in their maintenance philosophy and program implementation.

The Independent Safety Engineering Group activities relating to the oversight of maintenance activities was very insightful and provided management with

meaningful conclusions that could be of significant benefit in improving the maintenance process.

The licensee had taken several initiatives to improve the storage of materials, including the construction of a state-of-the-art warehouse. Labeling each material item with a bar code that included the shelf-life expiration date, and the use of shrink wrap packaging had recently been initiated.

WEAKNESSES

The priority scheme for preventive maintenance on motor-operated valves appeared to place greater weight and considerations on the availability of personnel rather than technical justification for continued preventive maintenance deferral. This factor was further exacerbated by not recognizing the connection between an increased number of motor-operated valves failing to function upon demand and the preventive maintenance deferrals.

Concerns related to industrial safety existed. Personnel wore athletic shoes in prohibited areas, maintenance craft worked on electrical circuitry without first verifying the circuits were deenergized, gas cylinders were inadequately retained, and some deferred corrective maintenance items were allowed to degrade.

Some instances were noted in which station personnel failed to follow maintenance support procedures.

Tools and equipment necessary to support maintenance activities were not always available to craft personnel.

The maintenance history program did not effectively address diagnostic examination results and there was no program for trending preventive maintenance data and operational log results.

The licensee's plant walkdown program was ineffectively applied in less trafficked areas and plant management failed to formally document their monthly implementation of their 5-year action plan.

The weaknesses in electrical safety practices and preventive maintenance deferral had been previously identified by Independent Safety Engineering Group but had not been effectively corrected.

IR 90-08 RI

The PMs and surveillance tests were conducted in accordance with the procedure, with the exception of the missed toggle switch position which was not identified in the comments section for the as found position. Improved PM instructions were needed.

IR 90-09 RI

Maintenance and surveillance activities were performed in accordance within the procedure. One error was made by an I&C technician during hook up of leads. This was promptly corrected and the procedure revised to clarify the the sequence of steps.

IR 90-11 RI

Good communication was exhibited with the operators to prevent a reactor trip on loss of EHC fluid. Procedures were generally followed with exception of surveillance on a station Class 1E battery, were an inspector prompted the technicians into reevaluating their lead hookups. Proper reviews were performed for a switch found out of position during a surveillance activity.

IR 90-14 DRS

The licensee has implemented an effective program for the control of safety-related welding activities. ISI examinations were performed by qualified personnel, utilizing appropriate procedures.

IR 90-15 DRS (VOICE)

The licensee has implemented a strong program in the area of CILRT and LLRT. No valve discrepancies were identified during the 100 percent walkthrough of isolation components. Valves and penetrations which were not labelled, were promptly corrected.

IR 90-18 RI

Tests and WR were generally performed in accordance with the procedures. Verbatim compliance with approved procedures was not observed. Other case, procedures would not work as written and were not followed until corrected.

IR 90-23 RI

The licensee properly implemented the PM and CM programs for the Met monitoring system and 130 VDC battery charger ammeter. Surveillances were performed in accordance with the procedures.

IR 90-24 RI

Operator performing surveillance on SSPS Train R Logic Cabinet did not verify that the urgent alarm had cleared. This was not required by the procedure. Procedural and personnel deficiency. (Cook booking of procedure) I&C technician placed lead on wrong terminal to FWIV. This caused valve to close and operator to manually trip the plant. Personnel observed performing maintenance/surveillance activities were knowledgeable of the activities.

IR 90-25 DRS

Required surveillance tests were scheduled and performed in accordance with approved procedures. Personnel performing the tests had received the required training. The test data sheets wee independently verified. Good control of the use of N/As.

Surveillance of safety-related equipment was scheduled and performed in accordance with the TS. The plant surveillance procedures were of a high quality. The acceptance criteria was clearly stated. The data package retrieval system was a noted strength.

IR 90-26 RI

Maintenance activities were performed in accordance with approved documents. However not all activities performed were thorougnly documented on the work documents. Personnel that performed the surveillances were knowledgeable of the test requirements and adhered to the procedures.

IR 90-29 BOP TEAM

The licensee has implemented appropriate programs and procedures to effectively operate and maintain BOP equipment. The same maintenance program was used for both safety and non-safety related equipment. Some personnel hazards were noted for the operation of BOP equipment. Moral of many groups was low.

IR 90-30 RI

A Unit 2 CRVIS and Unit 1 partial loss of feedwater occurred because of technician errors during surveillances. These were additional examples of personnel errors causing challenges to safety-related equipment. A Unit 2 fuel pool activity was not well planned which resulted in operators having to fill and vent the system several times. General maintenance activities were performed in accordance with approved procedures.

IR 90-33 DRS

The licensee has effectively implemented nondestructive examinations as specified in the ISI plan. One NCV was identified for inadequate training of contract personnel performing examinations.

IR 90-34 RI

Maintenance and surveillance activities were well controlled. Two instances of procedure noncompliance were identified: inadvertent start of the EDG and failure to follow a procedure for procedure revision.

A complex surveillance was observed and the results evaluated. No problems were identified.

IR 90-37 DRS (VOICE)

The licensee has a strong program in the areas of containment leak rate testing and local leak rate testing. Three penetrations were found not to have been labeled, but this condition was promptly corrected. The licensee had a strong training program for persons involved with the Appendix J local leak rate testing.

IR 90-38 RI

Maintenance was performed in accordance with approved procedures and calibrated test equipment. Good oversight of a trainee was observed.

IR 91-01 RI

A required code pressure test was not performed as required for the TDAFWP steam supply line following revision to the maintenance job plan. Technicians improperly performed a battery surveillance. SDG injector pump holddown studs were improperly installed. LOOP because of a problem with a new surveillance procedure.

IR 91-02 DRS

- The Unit 2 post-refueling start up test results were reviewed. The inspectors noted the test procedures were well written and their performance coordinated. The tests proceeded smoothly as noted by the test logs. Two coordinating procedures did not receive formal review and signatures.

IR 91-04 DRS

NDE specified in the ISI program for Unit 1 was well implemented. Clarification was needed on what constitutes a sample expansion requirement.

IR 91-08 RI

Several examples of inattention to detail were noted
- o an electrician inserted a relay incorrectly and caused a LOOP;
- o A U-2 feedwater transient was experienced when a contract electrician cut the wrong cable;
- o A partial LOOP occurred because of an inadequate procedure used on a pilot wire surveillance; and
- o A technician transferred the wrong conversion data for a rad monitor.

I&C performed well while troubleshooting the D/G heat exchanger outlet flow transmitter. Surveillance procedures were performed by qualified personnel.

IR 91-11 RI

Maintenance and surveillance instructions were performed generally in accordance with the instructions/procedures.

The inappropriate test gauge was utilized during a surveillance because the correct gauge was not available.

A shorting screw was used on CT which caused a FWBP to trip. An alternate pump started to prevent a trip.

IR 91-12 DRS

Potential work falsification issue. Enforcement conference to be scheduled.

IR 91-15 RI

Maintenance Support Group activities were generally well controlled. Review of a work package associated with the IASn on fire protection revealled that the work activity

ha not been performed in exact compliance with the work instructions. No integrity issues were identified.

V. EMERGENCY PREPAREDNESS

V.A. PREVIOUS SALP RATINGS

SALPs		OPPRs			
88	89	08-90	12-90	02-91	05-91
2	2	2	2	2I	NA

V.B OVERVIEW OF 89 SALP

Strengths

- Good performance from CR, TSC, and OSC.
- Good physical layout of CR, OSC, and EOF.
- Mostly demonstrated a clear and resolved approach to correcting weaknesses.

Weaknesses

- April 1989 drill had a significant weakness in that they underestimated the offsite dose calculation because the dose assessment computer was not properly programmed.
- Inability to demonstrate timely and effective personnel accountability. This was a repeat from the previous exercise.
- Inadequately trained response personnel and inability to effect protection of emergency equipment.

V.C LICENSEE PERFORMANCE

* Improved management involvement to correct previous weaknesses
* Good performance from CR, TSC, and EOF
* Personnel knowledgeable and proficient in their duties

V.D OBSERVATIONS

* EP upgrade effectively overseen by management
* Marked improvement from personnel changes, additional staffing, use of contractors, additional management involvement, and facility improvements

V.E DRP OPPR REVIEW AND RECOMMENDATIONS

OPPR COMMENTS

08-90 The level of performance remained the same. Management

involvement in was needed to rectify continuing deficiencies.

12-90 No significant inspection has been performed in this area. The licensee did make the required notifications for the NOUE that occurred. The readiness evaluation will performed the week of 12/03/90.

02-91 The licensee has properly implemented changes to the EP demonstrating management involvement in these upgrades. The cognizant personnel were able to evaluate events and classify them appropriately in most cases. Marked improvements have occurred as a result of personnel changes, increased staffing, extensive use of contractors, additional management involvement, and facility improvements.

TREND EVALUATION

The licensee's performance has improved significantly since the April 1990 exercise.

Recommended Rating - NA

Recommended Inspection Program Changes - NA

V.F INSPECTION PROGRAM STATUS

*****CORE MODULE STATUS*****

Unit	Module	Status	Inspection Reports
3	82301	C	90-10, 100
3	82302	C	90-10, 100
3	82701	C	91-03, 100

*****Regional Initiative*****

3	82202	C	91-03, 100
3	82205	C	91-14, 100
3	82206	C	91-03, 100

V.G ENFORCEMENT AND REGULATORY ISSUES

VIOLATIONS

Number	Description
498/499 9114-01	Inadequacies in staff augmentation S4

WEAKNESSES

Number	Description
498/499 9010-01	Failure to consider the scope of the security threat in the scenario.
498/499 9010-02	Failure to perform habitability checks in the control room and to issue dosimetry.
498/499 9010-03	Poor radiological practices in determining habitability of TSC. (Similar to 9005-03). Also failure to follow RP procedures.
498/499 9010-04	Licensee's procedures did not clearly define the conditions for entering the GE level in this case.
498/499 9010-05	Failure to identify the location of all personnel within 30 minutes following the site evacuation.
498/499 9010-06	Numerous technical inadequacies and scenario problems.
498/499 9010-07	The self-critique did not properly characterize several important exercise weaknesses.

V.H INSPECTION REPORT SUMMARY

IR 9010 DRSS

Several weaknesses were identified including repeats for personnel accountability and determining habitability of the TSC.

The licensee performed well on other aspects of the emergency exercise such as: emergency facility staffing and activation, detection, and classification. Generally, the licensee's response was adequate to protect the public.

IR 90-30 RI

The TSC condition has improved. The door to the TSC has been locked. The inspector did note that chairs had been removed from the TSC, but that the TSC was operable and be promptly furnished if required.

IR 91-03 DRSS

- The licensee has properly implemented enhancements to the emergency plan. Generally personnel performed well during the walkthroughs and were knowledgeable and proficient in their duties. Some clarification of the STA's duties was needed. A means of correcting emergency notifications once the notice was sent was needed. There were a few cases of incorrect event notifications.

IR 91-11 RI

Licensee demonstrated the capability to effectively evacuate personnel from the P.A. The move to the new administrative building will simplify future evacuations.

IR 91-14 DRSS

The licensee has established physical and adminisrtative mechanisms to provide shift staffing and augmentation. Delays were noted in the implementation of the emergency notification response system. (Possible training issue, neither security supervisor onshift knew the code word to activate the ENRS.)

VI. SECURITY

VI.A PREVIOUS RATINGS

SALPs		QPPRs			
88	89	08-90	12-90	02-91	05-91
2	1	1	1	1	NA

VI.B OVERVIEW OF 89 SALP

Strengths

- The security system has been well designed and tested.
- The licensee's management has been dedicated to the security program. QA and compliance programs were effective in identifying areas of improvement.

VI.C LICENSEE PERFORMANCE

- Continued problems with vehicle access control
- Security program well implemented
- Changes to security plan well implemented

VI.D OBSERVATIONS

- Security force well trained and implemented
- Firearm introduced into protected area.

VI.E ORP QPPR REVIEW AND RECOMMENDATIONS

QPPR COMMENTS

08-90 Continued good performance.

12-90 No substantial security inspections were performed this QPPR period.

02-91 The RER initial review supports the previous assessments.

TREND EVALUATION

No change in this assessment area has been noted.

Recommended Rating - NA

Recommended Inspection Program Changes - NA

VI.F INSPECTION PROGRAM STATUS

*****CORE MODULE*****

Unit	Module	Status	Inspection Reports
3	81700	C	90-13, 050; 90-22, 100

***** Regional Initiative*****

3	81038	C	90-22, 100
3	81810	C	90-13, 100
3	85102	O	*
3	81072	C REACTIVE	91-17, 100
3	25102	C	90-13, 100
3	25106	C	91-10, 100

*85102 will not be completed this SALP period.

VI.G ENFORCEMENT AND REGULATORY ISSUES

ITEMS IDENTIFIED THIS SALP PERIOD

1. VIOLATIONS

Number	Description
498/499 9110-01	Training not provided to contract supervisors on FFD prior to granting contractors unescorted access. S4
498/499 9117	Potential escalated for firearm and ammunition entered into PA. Inadequate searches of packages may be partial cause.

2. NONCITED VIOLATIONS

498/499 9022-01 Inadequate control of access vehicles.

3. LERs

Number	Description
91-S01	Voluntary reduction of compensatory measures because of severe weather. 02/11/1991
91-S02	Pistol brought on site by employee. 05/02/91

VI.H INSPECTION REPORT SUMMARY

IR 90-13 DRSS

The security force is well trained and highly motivated.

IR 90-22 DRSS

Licensee had not taken adequate actions to preclude continuing problems with access control of vehicles. False and nuisance alarm rate is a concern. Changes to the security plan were properly supported.

IR RER

Exit notes indicate that licensee performed well. Report had not been issued at the time of this review.

IR 91-10 DRSS

The FFD program generally satisfied the rule objectives. Employee confidence in the program appeared high. The inspector noted it was possible to gain access to sensitive areas of the testing facility undetected. Training had not been provided to all contract supervisors prior to contractors being given unescorted access on site. TI 2515/106

IR 91-17 DRSS Pending

Firearm introduced into protected area undetected. Repeat violation similar to bringing ammunition onsite. Package control issues.

VII. ENGINEERING/TECHNICAL SUPPORT

VII.A PREVIOUS RATINGS

SALPs		QPPRs			
88	89	08-90	12-90	02-91	05-91
2	2	2I	2	2	NA

VII.B OVERVIEW OF 89 SALP

Strengths

- Provided lead role in coordination of most major plant outages.
- Capable of handling significant technical challenges, with a strong attention to plant safety matters.
- Initiated a task force to review aspects of improving plant reliability.
- Initiated a four year design basis document verification review.
- Implemented the Quality Engineering Group to perform technical surveillances.
- A successful training program for licensed personnel and an effective training program for nonlicensed personnel have been implemented.

Weaknesses

- Several procurement program weaknesses.
- No formal program existed for system engineers.

VII.C LICENSEE PERFORMANCE

* Proceeding well with design basis document verification review
* Good departmental communication on resolving safety issues
* Good implementation of 50.59, TS, and codes for design modifications
* Good implementation of TMI issues
* Good implementation of GL requirements

VII.D OBSERVATIONS

* Unimplemented design modifications contributed to ESF actuations/increased surveillance frequencies
* Good initiative taken with regard to CBOG

* Extensive workload has resulted in missed or late commitments
* System engineer concept not fully implemented
* Some interface weaknesses with operations
* System engineers are involved mostly with emergent work- plant manager pursuing more proactive role.

VII.E DRP QPPR REVIEW AND RECOMMENDATIONS

QPPR COMMENTS

12-90 Licensee performance has remained relatively constant. Timeliness of corrective actions as controlled by engineering support may have resulted in some of the recent events. Licensee effectively implemented TMI modifications in Unit 2.

02-91 The licensee has effectively implemented the modification programs. The engineering department is active in evaluating equipment failures such as the toxic gas monitors. Engineering failed to identify ASME requirements associated with 2 MWRs. The licensee has implemented a formal system engineering training program. -

TREND EVALUATION

Continued good performance in this area. Backlog of corrective actions possibly contributing to recent events. No trends noted at this time.

Recommended Rating - NA

Recommended Inspection Program Changes - NA

VII.F INSPECTION PROGRAM STATUS

*****CORE MODULE*****

Unit	Module	Status		Inspection Reports
B	37700	C		90-32, 100
*****Regional Initiative*****				
B	37701	C		90-32, 100
B	37828	C		90-32, 100
1	71711	C	2 req.	90-23, 100; 91-11, 100
B	25103	C		90-17, 100; 90-36, 020 91-07, 100

Generic Area Team Inspection

B	25107	O	91-05, Perform EDSFI next SALP

VII.G ENFORCEMENT AND REGULATORY ISSUES

1. VIOLATIONS

Number	Description

2. NONCITED VIOLATIONS

Report	Description
498/9106-02	Failure to redline a drawing in the control room to reflect the installation of an ESW heat exchanger used for bifouling testing.

3. LERs

Number	Description
498/90-02	Entry into 3.0.3 and NOUE because of FWIV failure. A solenoid valve associated with the FWIV failed because of particulate buildup.01/03/90
498/90-14	Reactor trip because of a spurious actuation of the generator circuit breaker protective relay. The PM had not been evaluated to calibrate the relay. 06/20/90
498/90-15	Reactor trip because of an EHC line rupture. Line vibrations caused the line to rupture. The supports were less than adequate. 06/28/90
498/90-18	Entry into TS 3.0.3 because of an inoperable feedwater isolation valve. 7/7/90
498/90-25	ESF caused by a generator ground fault on the stator cooling end turn. 11/90
498/91-01	Spurious radiation monitor actuation resulted in containment ventilation isolation. 01/22/91
498/91-03	Spurious rad monitor actuation resulted in CRVIS. No cause for actuation was identified. 01/27/91
498/91-07	Switch yard breaker experienced a phase to ground fault. 03/09/91
498/91-09	D/G cracked fuel injector nozzles. 03/10/91
498/91-10	Manual initiation of control HVAC because of a toxic monitor alarm. 04/04/91

498/91-11 Reactor shutdown because of inoperable FWIV solenoid. Valve failed because of polymerization of EHC fluid. 04/08/91

498/91-12 Unit trip on loss of both M/G set voltage to control rod grippers. 04/12/91

499/90-02 Spurious actuation of the Train S reactor trip breaker. No cause was identified. 02/02/90

499/90-05 Fatigue stress on a weld for EHC caused the line to rupture and and subsequent reactor trip. 04/14/90

499/90-06 Failed toxic gas analyzer caused control room ventilation actuation. 04/26/90

499/90-15 Spurious toxic gas monitor actuation. This problem is under the review of the Toxic Gas Subcommittee. 10/90

499/90-16 Loss of power to the FHB radiation monitor. 10/90

499/90-18 Electrical transient caused by the closure of an inverter input breaker which caused ESF actuations. 11/07/90

499/91-03 Reactor trip caused by actuation of generator protective relay while energizing the U-1 main transformer. 03/14/91

499/91-04 Reactor trip caused by actuation of generator protective relay. 03/30/90

499/91-05 Control room HVAC actuated for unknown reason 04/11/91

VII.H INSPECTION REPORT SUMMARY

IR 90-17 DRS

The licensee s programmed enhancements met the intent of GL88-17. The DHR monitoring instrumentation was diverse and had a high level of redundancy. The DHR computer screens were near completion, but the associated procedures still required updating. The procedures also needed to be updated to reflect lessons learned. Unit 2 work still remained to be performed.

IR 90-18 RI

Good departmental communications on resolving steam generator leak and SSPS extra wire. Continued problems with CCW procedures and P&IDs.

IR 90-23 RI

MAB ventilation system procedures and P&IDs contained errors. Systems were restored to operable following the Unit 1 refueling outage. Core physics testing was properly performed.

IR 90-24 RI

Good support for operations on failed FWIV.

IR 90-32 DRS

The inspector reviewed 4 modifications which required NRC approval prior to being implemented. Each modification was completed in accordance with 10 CFR 50.59, TS, and applicable codes. The systems were tested prior to being restored to service.

Six plant modifications were reviewed which did not require NRC approval. The procedures provided sufficient controls to develop, install and test the modifications. The modifications were implemented in accordance with the procedure.

The inspector reviewed 9 temporary modifications. Each modification was implemented in accordance with the procedure and none of the modifications exceeded the expiration dates.

IR 90-36 DRP

A team inspection of TMI items for Unit 2 verified that the licensee had effectively implemented the modifications to the unit.

IR 91-01 RI

D/G fuel pump stud failure because of installation procedure.

IR 91-06 DRS

Implementation of GL 89-13, Service Water Systems. Bifouling controls were observed to be effective, with satisfactory inspections to detect bifouling.

Weakness with procedural guidance for conducting the bifouling inspection activity. Pressure and temperature

anomalies were noted to invalidate the test results because the test procedure did not specify the instrument to be used.

IR 91-07 DRS

The GL 88-17 program enhancements satisfy the intent of the GL. The indications and alarms to monitor the core are diverse and redundant. Procedures and administrative controls are generally comprehensive and functional.

IR 91-08 RI

The U-1 refueling activities were well coordinated. The predictive maintenance program was well implemented for the incorrectly wired inverter. A previous review of the U-1 polar crane interferences was not well performed.

The licensee has headed the CBOG.

IR 91-11 RI

The licensee handled the electrical distribution issues well. EQ issues were not thoroughly evaluated, in particular the FWIV SOVs. An evaluation of the B train sequencer recommended that it be replaced while energized which lead to an ESF actuation.

Design engineering considered themselves unable to meet commitment dates because of the heavy work loads. An inadequate engineering review was performed for a generator rely drift. Instrument drift was not considered in the corrective action.

A startup engineer attempted to direct a test for which he was unfamiliar. No pretest briefing was conducted.

Straps were approved for use to restrain breaker trip assemblies, which bent the arms.

VIII. SAFETY ASSESSMENT/QUALITY VERIFICATION

VIII.A PREVIOUS RATINGS

SALPs		QPPRs			
88	89	08-90	12-90	02-91	05-91
1	1	1D	2	2	

VIII.B OVERVIEW OF 89 SALP

Strengths

- Licensee amendments demonstrated a clear understanding of safety issues.
- Implemented a conservative approach in the implementation of 10 CFR 50.59.
- Licensee response to NRC bulletins and generic letters are timely.
- Self-assessment activities are effective. NSRB and the PORC active in resolving concerns. Good root cause analysis of reactor trips is performed.
- Performed SSFIs of key safety systems.

VIII.C LICENSEE PERFORMANCE

- Inadequate oversight of overtime for key personnel
- Good implementation of safety assessment program
- Mostly proactive in pursuing event causes (exception was D/G bolt failure)
- Missed/late commitments on LERs

VIII.D OBSERVATIONS

- Demonstrated good understanding of event safety significances
- OIP has not corrected reoccurring problems(i.e. equipment/personnel)
- Implemented Corrective Action Review Meetings to evaluate effectiveness of corrective actions.
- The OIP is generally making STP a better place to work
- License submittals have been good

VIII.E DRP QPPR REVIEW AND RECOMMENDATIONS

QPPR COMMENTS

08-90 A potential decline in the functional area was noted. The licensee has experienced many events, but has not been able to determine the root causes for the events, however, the safety assessment programs have been proactive in many of their activities to identify the root causes for the events.

12-90 Licensee performance continued to decline. A self verification program was implemented, but the results of that program have, as of yet, been inconclusive. Human factors input from the BOP inspection indicated the program was not as well taken as perceived by licensee management.

02-91 The licensee's audits of the modification program were effective. The NSRB has served as an effective reviewer of events and the associated corrective actions. The licensee implemented the CARM (corrective action review meeting) in December. This group is to ensure corrective actions are appropriate by review from others outside the immediate organization. LER quality is good. Licensee actions associated with the failure of the SDG injector pump was not as timely as could have been. There was one example of a problem associated with the receipt and dedication of the hold down bolts. PSRC administrative procedure did not designate all the TS required members, but always had a quorum.

TREND EVALUATION

Continued good performance from the safety assessment program. The licensee's programs are good for problem identification, but a slight down turn was observed based on the licensee not having determined the causes for the numerous events. This trend has continued during the last three months. Special assessment of recent events identified that the licensee was proactive in pursuing the cause for the events. In addition, the licensee has recently implemented an Operational Improvement Program to address several previously identified problem areas.

Recommended Rating - NA

Recommended Inspection Program Changes - NA

VIII.F INSPECTION PROGRAM STATUS

*****CORE MODULE*****

Unit	Module	Status	Inspection Reports
B	40500	C	(91-13,050);(91-16, 100)

Regional Initiative

3	35502	C	91-01; 100
3	90712	C	91-01
3	92700	C	90-30, 90-34, 90-39, 91-01, 91-08, (91-11)
3	92702	C	90-14, 90-21, 90-30,90-34, 90-38, 91-08
3	35750	C	(90-16, 100)
3	37702	C	90-01, 100
3	92701	C	90-10, 90-11, 90-18, 90-21, 90-22, 90-24, 90-30, 90-32, 90-37, 90-38, 91-03, 91-08, 91-11
3	92720	C	90-29, 100; (91-13, 100)
3	2515/91	C	91-13, 100

Meetings

3	94600	O
3	30702	O

VIII.G ENFORCEMENT AND REGULATORY ISSUES

1. VIOLATIONS

Number	Description
498/499 9008-01	The licensee failed to identify all the CCW valves which service safety-related components and verify they were properly positioned as required by TS. This applied to those valves not locked or sealed. S IV.
498/ 9111-02	Use of overtime was not properly approved or documented

2. LERs

Number	Description
498/90-12	Missing O-rings in Conax junction boxes. Excellent safety assessment by the licensee to evaluate and correct the deficiency.
499/90-09	An extra wire was identified in the SSPS that would not have prevented the fulfillment of safety functions.

VIII.H INSPECTION REPORT SUMMARY

IR 90-08 RI

The containment purge system drawings and checklist contained errors. Power supply missing from checklist and P&ID did not reflect locked valves. Same condition existed for CCW system. Procedure upgrade program still ongoing.

IR 90-09 RI

Diesel generator support system review identified multiple P&ID errors. steps within the procedure referencing the wrong instrument because of typographical error, and some equipment not referenced. These errors would not preclude properly aligning the SDG.

IR 90-11 RI

Several errors with the P&IDs for the main steam system existed. Several P&ID and valve lineup problems were noted for the TSC support systems.

IR 90-16 DRS

The licensee has established a comprehensive QA program for M&TE which was well structured and provided excellent technical controls. The program was being well implemented and with appropriate oversight being performed by the QA function.

IR 90-18 RI

The licensee demonstrated an excellent safety approach for their work on the S/G bottom head drains and subsequent modification to the remaining S/Gs before restarting, and the aggressive pursuit of the extra wire on the logic card.

IR 90-19 DRS

QA audits of the fire protection program were comprehensive and in depth. Responses were tracked to closeout and actions reviewed for adequacy.

IR 90-23 RI

Following calibration of the RTDs, licensee identified lack of O-ring in Conax junction box. Shutdown Unit 2 to inspect these boxes. Excellent safety perspective demonstrated by licensee.

IR 90-26 RI

An assessment of the licensee's corrective actions for multiple events was reviewed in August. The licensee was

found to have been proactive in their evaluation. A procedural task force was initiated to review the procedural related events and make recommendations. The ISEG personnel were performing their own assessment.

IR 90-32 DRS

The licensee performed several audits of design changes and modifications in August and September. Deficiencies which were identified by the inspector were documented in the audits and corrective actions were underway.

IR 90-38 RI

The licensee's root cause analysis of the EDG stud bolt failures did not identify the cause.

IR 91-01 RI

The inspectors reviewed 38 LERs during this inspection period. The corrective actions stated were found to have been appropriately implemented. The NSRB had reviewed each of the LERs. Questions were insightful to both the event and the corrective actions. Persons were held accountable for their responses. An area of emphasis is that the NSRB is striving to have the questions asked and resolved prior to their review.

IR 91-08 RI

Problems which the OIP was implemented to correct have continued (i.e. random equipment failures, personnel errors, and inadequate procedures)

IR 91-11 RI

Five commitments were either missed or completed on time.

IR 91-13 DRS

Overall self assessment was effective. Some weaknesses were noted in promptness and notification of management of issues. Corrective action program not fully effective with identification, classification, investigation, and documentation of problems.

IR 91-16 OIP Assessment

Assessment to be completed last week in May

IX. OPEN ITEMS STATUS

		DRS	DRSS			DRP
			SEC	EP	HP	
1988	LERSO		0	0	0	0
	O 4		0	0	0	0
	V- 2		0	0	0	0
1989	LERS-0		0	0	0	2
	O- 1		1	0	2	2
	V- 1		0	0	1	0
	U- 0		0	0	0	0
	F 0		0	0	1	0
1990	LERS-03		0	0	0	14
	O- 0		2	W3	2	0
	V- 3		1	1	0	6
	U- 0		0	0	0	1
	F- 1		0	0	0	1
	D 0		0	0	0	1
1991	LERs 1		0	0	0	12
	O- 2		0	0	1	1
	F- 5		0	0	0	0
	U- 0		0	0	0	1
	V- 0		1	0	1	2
	W- 0		0	0	0	0

TOTALS: OI20 LERs-1 OI-6 OI-4 LERs-1 OI- 7 LERs-0 LERs-0 OI- 12 LERs-27

X. INSPECTIONS PERFORMED THIS SALP

INSPECTION	HOURS	INSPECTOR(S)	INSPECTION DATES
90-01	1093	MTI	01/09/90 to 03/09/90
90-06		PREVIOUS SALP REPORT	
90-08	132	Tapia, Evans	02/01/90 to 02/28/90
90-09	265	Tapia, Evans	03/01-90 to 03/31/90
90-10	138	Terc, Spitzberg	04/02/90 to 04/06/90
90-11	219	Tapia, Evans	04/01/90 to 04/30/90
90-12	42	Nicholas	05/07/90 to 05/10/90
90-13	30	Earnest	04/16/90 to 04/20/90
90-14	72	Gilbert	04/16/90 to 04/20/90
90-15	72	Singh	05/07/90 to 05/11/90
90-16	30	Garrison	05/07/90 to 05/11/90
90-17	34	Bundy	05/14/90 to 05/18/90
90-18	232	Tapia	05/01/90 to 05/31/90
90-19	38	Murphy	05/21/90 to 05/25/90
90-20	38	Ricketson	05/14/90 to 05/17/90
90-21	35	Hunter	05/21/90 to 05/25/90
90-22	70	Earnest	06/04/90 to 06/08/90
90-23	251	Tapia, Evans	06/01/90 to 06/30/90
90-24	191	Tapia, Evans	07/01/90 to 07/31/90
90-25	69	Singh, Kelley	07/23/90 to 07/27/90
90-26	249	Tapia, Evans	08/01/90 to 08/31/90
90-27	44	Ricketson	08/13/90 to 08/17/90
90-28	36	Tapia	07/30/90 to 08/08/90
90-29	210	Cummins	10/09/90 to 10/18/90
90-30	415	Tapia, Jones	09/01/90 to 10/12/90

90-31	12	Tapia	09/12/90 to 12/21/90
90-32	71	Johnson	11/26/90 to 11/30/90
90-33	33	Gilbert	10/15/90 to 10/19/90
90-34	262	Tapia	10/13/90 to 11/20/90
90-35	43	Ricketson	10/29/90 to 11/02/90
90-36	119	Jones	11/05/90 to 11/09/90
90-37	73	Singh, Kelley	11/26/90 to 11/30/90
90-38	147	Tapia, Jones	11/21/90 to 01/02/91
90-39	78	Ricketson	12/11/90 to 12/18/90
91-01	477	Tapia, Jones	01/02/91 to 02/12/91
91-02	71	Bundy	01/14/91 to 01/18/91
91-03	53	Terc	01/07/91 to 01/11/91
91-04	41	Gilbert	01/28/91 to 02/01/91
91-05	Next Salp Period	Wagner(EDSFI)	06/03/91 to 06/28/91
91-06	109	Ellershaw	02/04/91 to 02/08/91
91-07	72 U2	Bundy	02/25/91 to 03/01/91
91-08	340	Tapia	02/13/91 to 03/20/91
91-09	44	Ricketson	03/18/91 to 03/20/91
91-10	28.5	McLean	05/09/91 to 05/12/91
91-11	309	Tapia	03/13/91 to 04/25/91
91-12	07	Singh	04/04/91 to 05/31/91
91-13	204	Whittimore	05/06/91 to 05/10/91
91-14	27	Terc	04/30/91 to 05/03/91
91-15	251	Tapia	04/26/91 to 05/31/91
91-16		Howell	05/02/91 to 05/31/91
91-17		McLean	05/08/91 to 05/24/91
91-18	12	Tapia	05/16/91 to 06/03/91

(FOR OFFICIAL USE ONLY) QUARTERLY PLANT PERFORMANCE REVIEW (QPPR) - FEBRUARY 1991
South Texas Project, Unit 1, DN 50-498; Unit 2, DN 50-499
Present SALP (Cycle 8) 2/1/90 - 5/31/91

Functional Area	Prev SALP 88	Last SALP 90	Midcycle 9/90	12/90	2/91	5/91
A. Plant Ops	2	1	1D	2	2	

BOP equipment problems continue to affect plant operations. Operation improvement plan (OIP) has not had sufficient time to demonstrate improvement. Housekeeping good in most areas.

B. Rad Controls	2	2I	2I	1	1	

Continues to show improvement.

C. Maint/Surv	2	1	2	2	2	

Personnel errors continuing, but the rate appears to have declined. Good programs evident. Procedure upgrade program ongoing. OIP critical to improving this area.

D. Emer Prep	2	2	2	2	2I	

Marked improvement as a result of personnel changes, increased staffing, extensive use of contractors, additional management involvement and facility improvements.

E. Security	2	1		1	1	

Continued superior performance - RER results superior.

F. Eng/Tec Support	2	2	2I	2	2	

Continued good performance. ASME requirements missed on 2 MWRS. Effective 50.59 program. Implemented formal system engineer training program.

G. Safety Assess Quality Verif			1D	2	2	

Continued good programs. OIP effectiveness not yet realized. Good NSRB involvement in LERS. Proactive in pursuing events. SDG injector pump failure root cause not as timely as it should have been.

D=Declining I=Improving NR=Not Reviewed NA=Not Applicable

NRC Changes:

Add Delete	ID	Prg	Hrs	Title	IP	Justification
	40500	42C5	140 hrs.	Safety Assessment Effectiveness	3D	QPPR recommendation for extra 100 hours to evaluate effectiveness of OIP.

Docket Nos. 50-498
50-499
License Nos. NPF-76
NPF-80

SEP 6 1991

Houston Lighting & Power Company
ATTN: Donald P. Hall, Group
Vice President, Nuclear
P.O. Box 1700
Houston, Texas 77251

Gentlemen:

This forwards the final report of the Systematic Assessment of Licensee Performance (SALP) Board Report for South Texas Project (STP), Units 1 and 2, for the period of February 1, 1990, through May 31, 1991. This final report includes:

1. The initial SALP Board Report with a revision sheet.

2. A meeting summary and a list of attendees at our August 16, 1991, meeting at STP to discuss the SALP Board Report.

3. Your August 29, 1991, response to the initial SALP Board Report.

The next SALP period for South Texas Project is scheduled to last 14 months from June 1, 1991, through August 1, 1992.

Sincerely,

Original signed by
Robert D. Martin

Robert D. Martin
Regional Administrator

Enclosures:
1. Revision sheet
2. Initial SALP report with revision
3. Meeting summary and list of attendees
4. HL&P response to the initial SALP report

cc: (see next page)

*RIV:DRP/D	*SRI	*PM/NRR	*C:DRP/D	*AD/DRPWIII,IV,V	D:DRSS
WBJones;df	JITapia	GFDick	ATHowell	MJVirgilio	LJCallan
9/ /91	9/ /91	9/ /91	9/ /91	9/ /91	9/6 /91

*D:DRS	D:DRP	DRA JMM	RA RDM	
SJCollins	ABBeach	JMMontgomery	RDMartin	
9/ /91	9/6/91	9/6/91	9/6/91	

*previously concurred

9109110041 4pp.

C/4
IE40/

cc w/enclosures:
Houston Lighting & Power Company
ATTN: William J. Jump, Manager
Nuclear Licensing
P.O. Box 289
Wadsworth, Texas 77483

City of Austin
Electric Utility Department
ATTN: J. C. Lanier/M. B. Lee
P.O. Box 1088
Austin, Texas 78767

City Public Service Board
ATTN: R. J. Costello/M. T. Hardt
P.O. Box 1771
San Antonio, Texas 78296

Newman & Holtzinger, P. C.
ATTN: Jack R. Newman, Esq.
1615 L Street, NW
Washington, D.C. 20036

Central Power and Light Company
ATTN: D. E. Ward/T. M. Puckett
P.O. Box 2121
Corpus Christi, Texas 78403

INPO
Records Center
1100 Circle 75 Parkway
Atlanta, Georgia 30339-3064

Mr. Joseph M. Hendrie
50 Bellport Lane
Bellport, New York 11713

Bureau of Radiation Control
State of Texas
1101 West 49th Street
Austin, Texas 78756

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, Texas 77414

Licensing Representative
Houston Lighting & Power Company
Suite 610
Three Metro Center
Bethesda, Maryland 20814

Houston Lighting & Power Company
ATTN: Rufus S. Scott, Associate
General Counsel
P.O. Box 61867
Houston, Texas 77208

bcc to DMB (IE40)

bcc distrib. by RIV:
R. D. Martin
DRP (2)
DRS
DRSS-RPEPS
RIV File
RSTS Operator
The Chairman (MS: 17-D-1)
RRIs at all sites
Commissioner Rogers (MS: 16-H-3)
Commissioner Curtiss (MS: 16-G-15)
Commissioner Remick (MS: 16-G-3)
J. M. Taylor, EDO (MS: 17-G-21)
J. M. Montgomery
J. T. Gilliland, PAO
Resident Inspector
Section Chief (DRP/D)
MIS System
Lisa Shea, RM/ALF
R. Bachmann, OGC
Project Engineer (DRP/D)
Records Center, INPO
Chief, TSS
G. F. Sanborn, EO
C. A. Hackney
A. B. Beach, D:DRSS
L. A. Yandell, DRSS
B. Murray, DRSS
C. L. Cain, DRSS

ENCLOSURE 1

REVISION SHEET

STP 1991 SALP BOARD REPORT

Page	Line	Now Reads	Should Read
24	20	duration was 101 days	duration was 73 days

Basis: The Unit 2 first refueling outage was from September 28 through December 11, 1990, for a duration of 73 days.

ENCLOSURE 2

Docket Nos. 50-498/91-99
50-499/91-99
License Nos. NPF-76
NPF-80

JUL 31 1991

Houston Lighting & Power Company
ATTN: Donald P. Hall, Group
Vice Presicent, Nuclear
P.O. Box 1700
Houston, Texas 77251

Gentlemen:

SUBJECT: INITIAL SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE REPORT (SALP)

This forwards the initial SALP report (50-498/91-99; 50-499/91-99) for the South Texas Project (STP), Units 1 and 2. The SALP Board met on July 10, 1991, to evaluate STP's performance for the period February 1, 1990, through May 31, 1991. The performance analyses and resulting evaluations are documented in the enclosed initial SALP report.

In accordance with NRC policy, I have reviewed the SALP Board's assessment and concur with their ratings, as discussed below:

- The performance in the functional area of Plant Operations was rated as Category 2. Although performance in this area was good, performance declined from a previous superior level. This decline was attributed to a large number of equipment failures and personnel errors which resulted in unnecessary challenges to the plant and Technical Specification violations.

- The functional area of Radiological Controls was rated as Category 1. Significant challenges were experienced during a series of refueling outages and the resulting performance was superior. Strong and effective management was noted as well as aggressive and innovative approaches to the resolution of technical issues.

- The functional area of Maintenance/Surveillance was rated as Category 2. Maintenance and surveillance programs were considered a strength; however, a decline in performance was noted because of implementation weaknesses. These implementation weaknesses included some that resulted in unnecessary challenges to the plant.

- The functional area of Emergency Preparedness was rated as Category 2. Effective corrective actions to address previously identified weaknesses were noted.

- The functional area of Security was rated as Category 1. Strong management commitment enhanced by a well qualified and dedicated staff resulted in continuing superior performance. In stark contrast to this superior performance, two apparent violations pertaining to search inadequacies were identified late in the assessment period. Final NRC assessment and resolution of these apparent violations were still ongoing at the end of the assessment period.

- The functional area of Engineering/Technical Support was rated as Category 2 with an improving trend. Engineering support of plant activities was generally a strength; however, the implementation of some plant modifications was not timely and, as a result, was inconsistent with plant safety and regulatory requirements. Strong management commitment to enhancing the engineering and technical support programs was noted. A noted weakness was the inability of the training department to provide licensed operator examination material to the NRC that was consistently good quality.

- The functional area of Safety Assessment/Quality Verification was rated as Category 1 with a declining trend. Programs to assure quality, including the self-assessment process, were generally performed at a superior level. Some examples were noted where timely recognition and resolution of issues were not forthcoming.

Overall, licensee performance was good and improvements were noted in certain areas, as discussed above. However, I am disappointed by the decline in performance in the areas of plant operations and maintenance/surveillance and the declining trend in safety assessment/quality verification. Performance in these areas was evaluated as superior during the previous assessment period. This past performance was noteworthy, especially during the first years of commercial operation. However, rather than sustaining this superior performance, declining performance was observed in these important areas. Although the safety policies and programs at STP are still viewed as a strength, human and equipment performance problems were common contributing factors in the declining performance observed during this period. To a lesser extent, another common element was the untimely resolution of some technical issues. Collectively, these problems were indicative of weaknesses in management support of and involvement in day-to-day operations. Accordingly, I encourage you to carefully evaluate the results of this assessment and take those actions that are appropriate to restore the level of performance that was demonstrated in the past.

At the conclusion of the assessment, an NRC inspection of the adequacy of your investigations of several employee integrity issues, that occurred during the assessment period that ended May 31, was still ongoing. Although some of these issues are addressed in this report, a final NRC assessment of these issues will be completed during the current assessment period. Additionally, other apparent violations of NRC requirements that were identified prior to May 31, 1991, are also being reviewed in accordance with the NRC Enforcement Policy. Final NRC assessment and resolution of these apparent violations will also be completed during the current assessment period.

On the basis of the SALP Board's assessment, the length of the SALP period will be approximately 14 months. Accordingly, the next SALP period will be from June 1, 1991, to July 31, 1992.

A management meeting has been scheduled with you and your staff at the STP site on August 16, 1991, at 9 a.m. to review the results of the SALP Board. Within 20 days of this management meeting, you may provide written comments on and amplification of, as appropriate, the initial SALP report. Your written comments, a summary of our meeting, and the results of my consideration of your comments will be issued as an appendix to the enclosed initial SALP report and will constitute the final SALP report.

Sincerely,

ORIGINAL SIGNED BY
ROBERT D. MARTIN

Robert D. Martin
Regional Administrator

Enclosure:
Initial SALP Report
50-498/91-99
50-499/91-99

cc w/enclosure:
Houston Lighting & Power Company
ATTN: William J. Jump, Manager
Nuclear Licensing
P.O. Box 289
Wadsworth, Texas 77483

City of Austin
Electric Utility Department
ATTN: J. C. Lanier/M. B. Lee
P.O. Box 1088
Austin, Texas 78767

City Public Service Board
ATTN: R. J. Costello/M. T. Hardt
P.O. Box 1771
San Antonio, Texas 78296

Newman & Holtzinger, P. C.
ATTN: Jack R. Newman, Esq.
1615 L Street, NW
Washington, D.C. 20036

Central Power and Light Company
ATTN: D. E. Ward/T. M. Puckett
P.O. Box 2121
Corpus Christi, Texas 78403

INPO
Records Center
1100 Circle 75 Parkway
Atlanta, Georgia 30339-3064

Mr. Joseph M. Hendrie
50 Bellport Lane
Bellport, New York 11713

Bureau of Radiation Control
State of Texas
1101 West 49th Street
Austin, Texas 78756

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, Texas 77414

Licensing Representative
Houston Lighting & Power Company
Suite 610
Three Metro Center
Bethesda, Maryland 20814

Houston Lighting & Power Company
ATTN: Rufus S. Scott, Associate
General Counsel
P.O. Box 61867
Houston, Texas 77208

TABLE OF CONTENTS

ENCLOSURE 2

INITIAL SALP REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

INSPECTION REPORT NUMBER

50-498/91-99
50-499/91-99

Houston Lighting & Power Company

South Texas Project

Units 1 & 2

February 1, 1990 through May 31, 1991

I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance based upon this information. The program is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. It is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful feedback to licensee's management regarding the NRC's assessment of their facility's performance in each functional area.

An NRC SALP Board, composed of the staff members listed below, met on July 10, 1991, to review the observations and data on performance and to assess licensee performance in accordance with Chapter NRC-0516, "Systematic Assessment of Licensee Performance."

This report is the NRC's assessment of the licensee's safety performance at the South Texas Project for the period February 1, 1990, through May 31, 1991.

The SALP Board for the South Texas Project was composed of:

Chairman

T. P. Gwynn, Deputy Director, Division of Reactor Projects (DRP), Region IV

Members

M. J. Virgilio, Assistant Director, Region IV & V Reactors, Division Reactor Projects III, IV, & V, Office of Nuclear Reactor Regulation (NRR)
L. J. Callan, Director, Division of Reactor Safety (DRS), Region IV
L. A. Yandell, Deputy Director, Division of Radiation Safety and Safeguards (DRSS), Region IV
A. T. Howell, Chief, Project Section D, DRP, Region IV
G. F. Dick, Project Manager (PM), STP, NRR
J. I. Tapia, Senior Resident Inspector, STP, DRP, Region IV

The following personnel also participated in the SALP Board meeting:

J. R. Curtiss, Commissioner
J. M. Montgomery, Deputy Regional Administrator
D. C. Trimble, Technical Assistant, Office of the Commissioner
C. L. Cain, Chief, Nuclear Materials and Safeguards Inspection Section (NMSIS), DRSS, Region IV
J. E. Gagliardo, Chief, Operational Programs Section, DRS, Region IV
B. Murray, Chief, Radiological Protection and Emergency Preparedness Section (RPEPS), DRSS, Region IV
I. Barnes, Chief, Materials & Quality Programs Section, DRS, Region IV
J. L. Pellet, Chief, Operator Licensing Section, DRS, Region IV
W. C. Seidle, Chief, Test Programs Section, DRS, Region IV
T. F. Stetka, Chief, Plant Systems Section, DRS, Region IV
W. B. Jones, Senior Project Engineer, Project Section D, DRP, Region IV
R. J. Evans, Resident Inspector, STP, DRP, Region IV
N. M. Terc, Emergency Preparedness Analyst, RPEPS, DRSS, Region IV
A. B. Earnest, Physical Security Specialist, NMSIS, DRSS, Region IV

II. SUMMARY OF RESULTS

A. Overview

Overall, licensee performance was good and improvements were noted in some areas. However, the licensee was unable to sustain the superior level of performance that was achieved in the previous SALP assessment period in the areas of plant operations, maintenance, and surveillance. Performance in the plant operations area was considered good, having declined from a previous superior level. This decline was also seen in the maintenance/surveillance area. Although strong programs exist, implementation weaknesses in both of these areas resulted in personnel errors that unnecessarily challenged the plant. The need for greater management involvement in both routine operations and event response was evident. Ongoing problems with equipment failures also had a detrimental effect on performance. The radiological protection program was challenged several times during the assessment period because of outages. Performance in this area was superior. Strong and effective management was evident in this area as well as in security. Well qualified and dedicated staff contributed to this overall superior level of performance. A vigorous effort to improve the performance in emergency preparedness was noted. However, the implementation of improvements in this area has yet to be assessed. Engineering and technical support activities were generally strong; however, the implementation of some plant modifications which would improve the reliability of some safety-related equipment was not timely. Overall, an improving trend was noted in the engineering and technical support area. Safety assessment and quality assurance programs, including the self-assessment process, were evaluated as superior. However, a declining trend was noted because there were some instances where timely recognition and resolution of issues affecting safety-related equipment was not forthcoming.

The licensee's performance category rating for each functional area assessed is provided in the following table, along with the ratings from the previous SALP assessment period.

Functional Area	Rating Last Period 01/01/89-01/31/90	Rating This Period 02/01/90-05/31/91	Trend
Plant Operations	1	2	
Radiological Controls	2	1	
Maintenance/Surveillance	1	2	
Emergency Preparedness	2	2	
Security	1	1	
Engineering/Technical Support	2	2	Improving*
Safety Assessment/ Quality Verification	1	1	Declining**

*Improving Trend - Licensee performance was determined to be improving during this assessment period. Continuation of the trend may result in a change in the performance rating.

**Declining Trend - Licensee performance was determined to be declining during this assessment period and the licensee had not taken meaningful steps to address this pattern. Continuation of the trend may result in a change in performance rating.

III. CRITERIA

The evaluation criteria, category definitions, and SALP process methodology that were used, as applicable, to assess each functional area are described in detail in NRC Manual Chapter 0516, dated September 28, 1990. This chapter is available in the Public Document Room files. Therefore, these criteria are not repeated here, but will be presented in detail at the public meeting to be held with licensee management on August 16, 1991, at 9 a.m.

IV. PERFORMANCE ANALYSIS

A. Plant Operations

1. Analysis

This functional area consists primarily of the control and execution of activities directly related to operating the plant.

NRC inspection effort consisted of the core inspection program with regional initiative inspections, including a Balance-of-Plant team inspection, a fire protection program inspection, and three special inspections related to an inadvertent reactor coolant system boron dilution event, a high head safety injection train being inoperable during a reactor startup, and the reliability of the anticipated transient without scram (ATWS) mitigation system actuation circuitry (AMSAC).

The previous SALP report (NRC Inspection Report 50-498/90-06; 50-499/90-06) noted strong performance by operators and excellent management support to reduce reactor trips and recommended that the licensee continue to improve housekeeping efforts plant-wide.

The licensee's overall performance in the plant operations area declined during this assessment period. While individual operator performance continued to be superior during transient recovery operations, equipment failures and operator errors resulted in several unnecessary plant challenges and Technical Specification (TS) violations. While performance remained good overall, it declined from a previously superior level.

Enforcement history in this area was good. Two enforcement conferences were held to discuss an inadvertent dilution event and a violation of TS temperature limits associated with the operation of the high head safety injection system. Neither of these violations resulted in escalated enforcement. Additional violations were identified associated with failures to meet engineered safety features (ESF) power alignment requirements, locked valve program requirements, and licensed operator overtime requirements. An enforcement conference was

held after the assessment period for apparent violations of 10 CFR 50.62, identified by the NRC at the end of the assessment period, pertaining to the failure to maintain AMSAC reliability.

Operations department management was not always effective in reviewing events and conditions for needed corrective actions. The licensee attributed several plant events to insufficient self-verification (e.g., an improperly positioned auxiliary feedwater test return line valve resulted in lowering steam generator water level following a manual reactor trip). However, NRC inspections revealed that other factors may have contributed to personnel errors (e.g., operator fatigue and inaccessibility of some plant equipment). Collectively, the events highlighted the need for greater management involvement in both routine operations and event response. In part, as a result of these problems and the need to ensure that management expectations were better understood and effectively implemented, the licensee implemented the Operational Improvement Plan (OIP). Some improvements were noted at the end of the assessment period as a result of the OIP. For example, a decline in the number of personnel errors and equipment problems was noted during the latter part of the assessment period. However, the overall improvements which are expected from this program have not had sufficient time to become established.

The material condition of the facility improved during the assessment period. Early on, numerous equipment failures in secondary plant systems were identified as contributors to plant events. These equipment malfunctions also caused reactor operators to experience a certain degree of distraction from their normal duties in order to compensate for equipment that was not operating as designed. Operators were compensating for a lack of corrective maintenance by assuming manual control of some equipment. One example of this was a feedwater booster pump recirculation valve which contributed to a reactor trip, when it did not close after sufficient pump flow had been established. Refueling outages in the second half of the assessment period afforded the licensee the opportunity to address some of these long standing equipment problems. As a result, improvements were noted in the availability of automatic control functions for some plant equipment and in a reduction of steam and hydraulic leaks in secondary systems. Housekeeping improved throughout the assessment period and was assessed as superior.

Several long standing equipment problems were noted as a result of inspections conducted in the latter half of the assessment period. Examples include numerous control room control board deficiencies, secondary temperature control valve deficiencies, reliability problems with AMSAC systems, reliability problems with Cooper-Bessemer emergency diesel generators, and continuing problems associated with the polymerization of feedwater isolation valve (FWIV) hydraulic fluid. These problems were indicative of a need for increased management commitment to address and prioritize the resolution of these problems.

During this assessment period, management exhibited strong support for operations by pursuing the completion of design changes intended to result in the elimination of control room nuisance annunciators. Of 26 design change packages for Unit 1, all but one had been completed and 23 of the 26 packages

for Unit 2 had been completed. These design changes had been effective in clearing annunciators which do not indicate an abnormal condition.

Although the licensee implemented an extensive plant labeling program, several deficiencies were noted during the assessment period. NRC licensing examiners observed multiple equipment labeling errors during the April and September 1990 requalification examinations. Most of the mislabeling was associated with electrical panels and breakers. Late in the assessment period, an electrician was shocked because of a labeling problem associated with the No. 22 emergency diesel generator (EDG) lubricating oil heaters.

Overall, plant operating procedures were good and have improved during the assessment period. A 5-year procedure enhancement program had been ongoing for more than 2 years. However, some plant operating procedures were identified which contained weaknesses that led to plant transients. An inadvertent dilution of the RCS at power was one example where an inadequate procedure for restoration of a mixed bed demineralizer to service resulted in a significant challenge to plant operators. One annunciator response procedure was identified as having weaknesses during the recovery from the loss of power to an FWIV hydraulic skid. During this assessment period, all Emergency Operating Procedures were revised and work was begun on the Off Normal and Annunciator Response Procedures. Adherence to procedures by operators has been generally good, but there have been a few instances of procedural noncompliance that have resulted in an inadvertent loss of power to an electrical bus, TS violations, and violations of the locked valve program. Problems with procedure implementation appears to have occurred, in part, because of a relatively high number of temporary changes (Field Change Requests). The licensee initiated a Procedural Compliance Task Force to evaluate the weaknesses in procedural compliance and adequacy. The recommendations of this task force were incorporated into the OIP.

During this assessment period, several senior and middle management personnel changes were implemented. These changes occurred as the result of management position vacancies and the desire to broaden the experience level of several department managers. For example, the Plant Manager was selected as the Vice President of Nuclear Operation. The Chairman of the Nuclear Safety Review Board was selected as the Plant Manager, and the Manager of the Independent Safety Engineering Group was selected as the Manager of Plant Operations following the completion of senior reactor operator training and licensing. The effects of these changes on organizational performance were still being evaluated at the end of the assessment period.

Operating crew performance remained superior in response to plant transients. However, a decline in operator performance was noted based on the number of personnel errors which resulted in challenges to plant equipment and TS violations during routine operations. Some of the events were attributable to ineffective communications and a lack of command and control. For example, a violation of the TS occurred because of miscommunications and a lack of attention to detail that resulted in the misalignment of a safety-related inverter to its alternate power source. Similar observations pertaining to communication weaknesses were noted by NRC licensing examiners during simulator examinations.

Overall operations department staffing was evaluated as good. Operations support staffing was considered superior as evidenced by the personnel that were available to enhance procedures and disposition special problem reports. The licensee continued to maintain staffing levels to support a five-shift rotation in each unit. However, the senior operating license personnel staffing level was minimal to meet shift staffing requirements. The licensee has initiated an aggressive operator training program to increase the number of personnel both licensed and nonlicensed. This program was implemented, in part, because minimal staffing levels resulted in a significant use of overtime during consecutive outages in late 1990 and early 1991, particularly for nonlicensed operators. Several nonlicensed operator candidates hired by the licensee should reduce the amount of required overtime during future outages. Additionally, as a result of attrition there were only five shift technical advisors (STAs) at the end of the assessment period; however, the licensee has a certification program for STAs which should result in increased STA staffing in the near future.

In summary, performance in the area of plant operations was good. Although operators performed well in response to plant events, there was a decline in attentiveness to procedural requirements and equipment status. Overall, operator staffing was good. Equipment failures continued to challenge the operations staff, and the licensee has not corrected some long standing equipment problems. Increased management involvement and oversight was evident during the latter part of the assessment period. Some improvements were noted at the end of the assessment period as a result of the licensee's Operational Improvement Plan. Overall, material condition and housekeeping of the secondary plant continuously improved throughout the assessment period.

2. Performance Rating

The licensee is considered to be in Performance Category 2 in this functional area.

3. Recommendations

a. NRC Actions

Inspection effort in this area should be consistent with the core inspection program, with regional initiatives in the areas of plant operating procedures and the labeling program.

b. Licensee Actions

The licensee should continue to assess performance and implement improvements in human performance and station reliability in order to reduce the number of unnecessary challenges to the plant. The licensee should continue initiatives to improve secondary plant material condition, procedural adequacy and compliance, and plant labeling.

B. Radiological Controls

1. Analysis

This functional area consists primarily of activities related to radiation protection, radioactive waste management, radiological effluent control and monitoring, radiological environmental monitoring, and transportation of radioactive materials.

This area was inspected by both the resident inspectors and region-based inspectors. The region-based inspection effort consisted of the core inspection program and regional initiative inspections involving organization and management controls, training and qualifications, and internal exposure controls.

The previous SALP report noted that strong management support was evident as demonstrated by facility upgrades and appropriate staffing. Also, the previous SALP report recommended that efforts be considered to enhance the as low as reasonably achievable (ALARA) program.

During the previous assessment period, concerns were identified involving the unauthorized shipment of radioactive sewage sludge to an offsite disposal site; lack of a formal training program for radiation protection (RP) professionals; lack of detail in position descriptions; lack of comprehensive quality assurance (QA) audits; and limited ALARA staffing and narrowness of the scope of the ALARA program. During this assessment period, the licensee vigorously pursued these concerns and implemented program improvements to address these issues.

Management support for the radiation protection program was very good, as evidenced by the addition of such technical equipment as electronic alarming dosimetry, extensive audio and video equipment, and robotic observation devices, as well as trips by RP supervisory personnel to observe work activities at other reactor facilities. A corporate health physics (HP) assessor position was authorized to provide support and oversight of the RP program, and the QA department added an auditor with HP experience to its staff.

Audits performed during this assessment period were performance based and included technical recommendations for RP program improvements. RP responses to audit findings were timely and technically correct.

The RP department maintained a good working relationship with other departments. Managers and supervisors were very effective in their supervision of the program and spent sufficient time in the radiologically controlled area (RCA) observing work activities. This was evidenced by the fact that they took an active role, on a rotating basis, in reviewing the radiological conditions and work performed through a series of management inspections of the plant. RP used radiological occurrence reports effectively to identify, trend, and correct problem areas. Management also appeared to have developed good communications with the workers, utilizing both a good system of distributing information and receiving feedback.

RP procedures were good, but the licensee recognized some weaknesses with their use, and implemented a program to rewrite and reorganize RP procedures so as to provide more guidance and make procedures easier to use.

The ALARA program received strong management support as evidenced by increased staffing. ALARA staff members attended offsite training and the ALARA group played a prominent role in outage planning. The licensee achieved superior results as evidenced by the total exposure being below its ALARA goal in each of three major outages that occurred during the assessment period. The quality of the ALARA radiation work permit (RWP) packages also improved. ALARA personnel performed comprehensive reviews and established detailed job histories of the work performed. The ALARA suggestion program had good participation. The licensee was in the early steps of implementing a comprehensive source term reduction program. A source term committee was established and met to maintain radiation levels as low as reasonably achievable.

The licensee maintained a sufficient permanent plant RP staff and did not use contract technicians during routine operations. The turnover rate of approximately 20 percent was slightly higher than the previous assessment period, but no decline in performance was noted. The licensee developed detailed position descriptions for RP supervisors and technicians. Training provided to the RP personnel was very good. The instructors were experienced in RP activities and the instruction included systems training and radiological hazards associated with the systems. The RP technicians received supplemental training in current industry events and special training was presented by plant division supervisors on various topics, such as source term calculations, use of special dosimetry, air sampling, ALARA, and the radioactive waste program. Managers and supervisors attended offsite training in the form of seminars and professional meetings. Communications between the RP and training departments were good.

The licensee implemented written screening examinations to assist in the selection of prospective contract RP personnel. Contractors that successfully passed the screening examination were also required to complete a 3-day course on site-specific procedures and demonstrate their knowledge of the procedures through practical testing.

The RWP program was an effective tool in controlling radiological work activities. The RP staff conducted periodic reviews to determine whether or not the RWP instructions, precautions, and coverage were appropriate for the conditions. The licensee maintained a superior enforcement record with one violation identified by NRC when an individual failed to follow RWP instructions and entered a high radiation area. The RP department identified that an individual deliberately disregarded RWP instructions and entered a highly contaminated area. The licensee took prompt and effective corrective actions for both issues.

The RP department demonstrated the ability to maintain proper RP controls during stressful situations, such as refueling outages. Robotics were used where appropriate for surveillance activities, thereby reducing the dose received by workers. Considering the number of refueling outages during this

assessment period, the number of personnel contaminations was very low and trended downward from outage to outage. Under upper management direction, the RP staff actively sought means to reduce personnel contaminations by employing a task force to evaluate causes and devise methods to prevent contaminations. Individuals were assigned the responsibility to investigate contaminations and propose corrective actions. Radiological housekeeping was generally good and the total contaminated area in both units was very small.

An inspection of the radioactive waste management and radioactive effluent control and monitoring programs was conducted during the assessment period. An effective liquid and gaseous release permit program was maintained to ensure that planned releases to the environment received proper review and approval prior to release. The licensee implemented a radioactive waste effluent management program which demonstrated compliance with the Radiological Effluent Technical Specifications and the Offsite Dose Calculation Manual. Procedures for the sampling and analysis program were well written. No unplanned releases occurred during the assessment period. Testing and surveillance of plant ESF air cleaning systems were performed in accordance with TS requirements.

The Semiannual Radioactive Effluent Release Reports were submitted in accordance with TS requirements and contained the required information. Initial confirmatory dose calculations were performed for offsite dose calculations. The licensee's results were in close agreement with those of the NRC. QA audits of this area were comprehensive and audit teams included members with the appropriate expertise to evaluate the program.

The radiological environmental monitoring program (REMP) was inspected once during the assessment period. No significant problems were identified. The Technical Services Department, including the Radiological Services Laboratory (RSL) administered and implemented a superior REMP in accordance with regulatory requirements. All environmental samples were collected and analyzed as required. No anomalous sample results were identified. Environmental sampling stations and associated equipment were well maintained, calibrated, and operational. The licensee's ability to properly analyze environmental samples was superior. High quality procedures were implemented for radiological instrument calibration and quality control and for sample collecting, processing, and analyzing. The licensee's environmental thermoluminescent dosimeter (TLD) results were in close agreement with the NRC TLD results for collocated TLD sites. Overall, the licensee maintained a superior radiological monitoring program.

An effective meteorological monitoring program was maintained. The annual Radiological Environmental Operating Reports were submitted on time and contained the required information. The licensee experienced a low personnel turnover in the RSL and the staff was well qualified and trained. QA conducted comprehensive audits and surveillances, utilizing personnel who were technically qualified in the radiological environmental area.

The radioactive waste transportation and processing programs were inspected twice during the assessment period. Detailed procedures for classification and characterization of radioactive waste and detailed procedures with checklists

for the preparation and shipment of the waste were implemented. The staff dedicated specifically to this functional area was small, but it was supplemented as needed from the operational RP group and overall the program was very effective.

In summary, improvements were made in the radiological controls area. The RP program was significantly challenged during the assessment period with a series of refueling outages, and performance was superior. The RP program was both aggressive and innovative in its approach to technical issues. Solutions of technical problems were technically correct and timely. Superior performance was also evident in the radiological environmental monitoring, radwaste, chemistry, and transportation areas. The superior performance in this area reflects strong and effective management. Performance of QA and training in this assessment area was very good. Enforcement history was superior.

2. Performance Rating

The licensee is considered to be in a Performance Category 1 in this functional area.

3. Recommendations

None

C. Maintenance/Surveillance

1. Analysis

This functional area consists of activities associated with the maintenance of plant structures, systems, and components; installation of plant modifications; and with the procurement and qualification controls associated with these activities. This area also includes the conduct of surveillance testing, containment integrated leak rate testing, welding activities, and inservice inspection/testing (ISI/IST) activities.

This area was inspected by both the resident inspectors and by region-based inspectors. The region-based inspections included a maintenance team inspection (MTI), a verification of isolation component exemptions (VOICE) inspection (for each unit), a containment integrated and local leak rate test inspection, an inspection of postrefueling startup testing activities, an inspection of ISI and welding activities, a decay heat removal inspection (Generic Letter 88-17), an inspection of complex surveillance activities including the applicable surveillance procedures and records, and a balance of plant (BOP) team inspection.

The previous SALP report characterized performance in this functional area as superior. Prompt management attention resulted in the correction of personnel errors which occurred early in the previous assessment period. The SALP report recommended that the licensee enhance maintenance and surveillance programs.

The two VOICE inspections, which involved a 100 percent visual inspection of accessible containment penetrations, concluded that the licensee implemented strong programs for conducting integrated containment and local leak rate tests. The inspectors found a good training program for the personnel involved in the testing.

Surveillance tests were being scheduled and performed as required by the TS. The missed surveillance rate was extremely low. The approved plant surveillance procedures were of high quality and included acceptance criteria that were clearly stated and referenced in the test results. Appropriate instructions for returning equipment to service were given, and independent verifications and reviews were clearly documented. The licensee's data package retrieval system was considered a strength of the program.

Although the surveillance program was considered superior, there were a number of human errors during the implementation of surveillance procedures which resulted in several plant events, including reactor trips. For example, a technician mislanded a jumper, causing a feedwater isolation valve to close. This resulted in a partial loss of main feedwater flow, and the plant was manually tripped because of lowering steam generator water level. The licensee attributed many of these personnel errors to inadequate self-verification. NRC inspections, however, identified other potential factors that may have resulted in the human errors. Examples included low maintenance technician morale and fatigue from excessive outage overtime.

The postrefueling startup testing procedures were well written. The chronological test logs indicated that the tests generally proceeded smoothly, and the test results indicated that thermal and reactor physics parameters met acceptance and review criteria, and were very close to predicted values. Reactor engineering staff members appeared to be well trained and competent, but two coordinating test result packages did not receive the licensee's usual structured review. The licensee indicated that a more structured review and approval process would be developed for future test packages.

ISI activities were being effectively performed and included the nondestructive testing examinations specified in the ISI examination plans. A weakness in the training of contractor personnel used to perform the ISI examinations was identified. The licensee addressed this weakness by developing and implementing a comprehensive training program for the contractor examination personnel, and by increasing the surveillance and overview of contractor examination activities. Subsequent inspections of Unit 1 ISI work activities verified that the training and overview actions were effectively implemented to resolve the concerns in this area.

The licensee's safety related welding program was generally good. The licensee took effective corrective action to resolve the problems associated with weld monitoring and weld material control that were identified in the previous assessment period.

The licensee had established a comprehensive QA program for Measuring and Test Equipment (M&TE) which was well structured and had been effectively implemented.

Overall, the enforcement record continued to be good. Completed enforcement actions in this functional area did not indicate any significant programmatic weaknesses. However, at the end of the assessment period, apparent violations pertaining to record falsification by contractor maintenance personnel were being considered for escalated enforcement action.

The MTI was performed at the beginning of this assessment period and found that the licensee had a well developed maintenance program. The inspection identified strengths in job planning, the work control process, postmaintenance testing, Independent Safety Engineering Group (ISEG) oversight, material storage, and the deficiency reporting systems. However, weaknesses were identified that indicated the program was not fully implemented. The weaknesses included the prioritization of preventive maintenance on components critical to safety, a relatively large backlog of corrective maintenance activities, maintenance history implementation, the availability of tools, the trending of maintenance data and operational log results, and the implementation of the plant walkdown program. In the BOP area, some of the program work instructions were inadequate and some of the identified work practices resulted in potential industrial safety concerns.

The maintenance work backlog decreased throughout the assessment period. Management was sensitive to the size of the maintenance backlog and provided a contractor work force in order to decrease the backlog.

A worsening trend in the area of procedural compliance and attention to detail during this assessment period resulted in unnecessary challenges to safety systems during maintenance activities. For example, a loss of power to a safety-related electrical bus occurred because an electrician did not follow a preventive maintenance procedure. In another instance, the trip shafts of a Class 1E breaker were not lubricated in accordance with the governing procedure.

The BOP team concluded that the licensee implemented appropriate programs and procedures to effectively operate and maintain BOP equipment. However, the BOP team inspection found that maintenance technicians suffered from eroding morale because of work pressures, impediments to work progress, and personnel safety concerns in the plant. The process for accomplishing maintenance was not always efficient because of inadequate work instructions or communications, and unavailability of repair parts. As a result of this BOP inspection and other licensee, NRC, and third-party identified weaknesses, licensee management initiated the OIP and other initiatives to correct the concerns. An NRC assessment of the OIP, conducted at the end of the assessment period, concluded that the ongoing implementation of the OIP generally resulted in improved working conditions at the site, but it was too early to determine whether other OIP actions would result in improved station availability and reliability.

Several initiatives were taken by the licensee to improve their maintenance program and increase its involvement in the industry. For example, consultants recently completed an indepth evaluation of maintenance activities and programs. The licensee initiated activities to provide mutual support for members through information exchange and identification of common concerns.

Inspectors of routine maintenance and surveillance activities identified well trained personnel. Training in the self-verification process was strongly emphasized. The training program for personnel involved with the Appendix J Local Leak Rate Testing was considered to be superior. Maintenance personnel were observed to be conscientious in conducting on-the-job training (OJT) of helpers. However, a licensee investigation that was completed near the end of the assessment period found that many maintenance craft and supervisory personnel were not consistently implementing the OJT requirements. Licensee management attributed this to a failure to properly convey the OJT requirements to maintenance department personnel.

Overall, staffing was considered to be good. Additional positions were developed within the maintenance department, including the maintenance shift supervisor, maintenance director, and head journeyman positions. The maintenance shift supervisor and director positions increased work implementation efficiency and improved communications between departments. A maintenance training section was formed within the maintenance support division. However, the NRC staff determined that for several months in 1990-1991 (during two back-to-back refueling outages) the aggregate maintenance craft personnel overtime was approximately 58 percent. The overtime rate declined, however, following completion of the 1991 Unit 1 refueling outage. Maintenance department morale, at the end of the assessment period, was low because of the failure to resolve the issue of shift crew realignment. The licensee was aware of this issue and was pursuing its resolution.

In addition to implementing a predictive maintenance program, numerous plant upgrades were completed, including cold weather and freeze protection system upgrades, installation of access platforms, and upgrading the turbine generator and support systems. Although the licensee implemented several plant modifications to improve station reliability, there were still a number of long-standing equipment problems that were not resolved. In most of these instances, the licensee's understanding of the issues was generally good; however, some problems recurred because resolution was delayed or the root cause had not been identified. For example, several emergency diesel generator injector holddown studs failed before the licensee determined that the root cause was an inadequate installation method and procedure.

In summary, good management involvement in this area was evident. Maintenance and surveillance programs were a strength, but there were a number of implementation weaknesses, including some that resulted in unnecessary challenges to the plant. Management implemented several initiatives to improve weaknesses identified by self-assessment and third-party assessments. Numerous upgrades to the plant were made to enhance human and equipment performance; however some long-standing equipment problems were not corrected. Only a few minor violations were noted during the assessment period, and they were not indicative of programmatic weaknesses. Apparent violations pertaining to record falsification were being considered for possible escalated enforcement action at the end of the assessment period. Overall maintenance training was considered good, but the licensee found that OJT requirements were not being uniformly implemented because of a lack of understanding of the requirements by maintenance department personnel.

2. Performance Rating

The licensee is considered to be in Performance Category 2 in this functional area.

3. Recommendations

a. NRC Actions

Inspection effort in this functional area should be consistent with the core inspection program, with a regional initiative in the area of work control improvement initiatives.

b. Licensee Actions

The licensee should maintain the good levels of maintenance and surveillance program development and improve program implementation during the next assessment period. The licensee should continue to devote additional attention to the initiatives taken to assure procedural and work instruction adherence. The licensee should continue to improve the material condition of the plant.

D. Emergency Preparedness

1. Analysis

This functional area consists of activities related to the establishment and implementation of the emergency plan and implementing procedures and interactions with onsite and offsite emergency response organizations during planned exercises and actual events.

Evaluation of this functional area was based on the results of three inspections by regional inspectors and observations made by the resident inspectors. The three inspections included one emergency exercise, one operational status inspection, and one regional initiative inspection of the licensee's staff augmentation capabilities.

The previous SALP report identified a repeat of weaknesses from the April 1989 exercise involving the ability to demonstrate timely and effective personnel accountability during site evacuation, and a potentially significant weakness resulting from the underestimation of offsite doses. The SALP report noted that, because of these and other weaknesses identified during the January 1990 operational status inspection, an increased management review was needed. Early in the assessment period, weaknesses were noted in this area; however, improvements have been made during the remainder of the assessment period to address these problems.

Overall, the licensee's response during the course of the April 1990 exercise to demonstrate the ability to protect the health and safety of the public was good. However, several exercise weaknesses were identified, including examples of scenario problems that contributed to the lack of realism and free play, and inhibited the licensee's ability to respond to the simulated emergency. In

addition, the licensee's self-critique of the exercise fa led to identify and properly evaluate some important issues arising from this exercise. The licensee, however, performed well on those aspects of the exercise that focused on emergency preparedness capabilities.

The operational status inspection included a walkthrough examination of control room personnel. This inspection concluded that the licensee's emergency preparedness program would ensure an appropriate response should an emergency occur. However, the inspection identified two violations. One violation arose because both technical support centers (TSCs) were not secured and equipment was missing. The other violation concerned the emergency response personnel who had not been trained in new changes to the procedure used for classifying emergencies, making protective action recommendations, and performing offsite dose projections. Aside from this issue, emergency response teams that were interviewed performed well and exhibited a superior level of knowledge of duties and responsibilities.

During this assessment period, the violations and exercise weaknesses were corrected. For example, the licensee took effective actions to ensure that both TSC's would be functional and secured, demonstrating a sound and thorough approach in the resolution of most technical issues. Because of the problems identified during the previous assessment and the early part of this assessment period, a management meeting was held on August 30, 1990. During the meeting, senior licensee management made a strong commitment to upgrade their emergency preparedness program. The licensee demonstrated positive actions during the latter part of this assessment period to carry out their commitments. For example, management changes were made within the emergency preparedness organization including the addition of two licensed senior reactor operators to the emergency preparedness staff. In addition, a consultant group was on site during the past year to conduct a thorough review and update of emergency implementing procedures. Furthermore, on April 8, 1991, the licensee finalized changes to improve personnel accountability during the evacuation of the protected area.

Inspection of shift staffing and augmentation capabilities of the emergency response organization found shift staffing was adequate in numbers and in functional capability. However, a violation was identified due to the licensee's inability to demonstrate that the emergency augmentation staff could respond within the required time. As a result of the inspection, the licensee made commitments to the NRC to implement corrective measures in the immediate future. While all the corrective actions were not completed at the end of the assessment period, the licensee has been improving the ability to augment the emergency response organization in a timely manner.

There were eight events during this assessment period which resulted in the declaration of notification of unusual events (NOUEs) and implementation of the emergency preparedness program. Six of these NOUEs were caused by TS-required shutdowns. Of the other two NOUEs, one involved a fire and explosion in the owner controlled area, and the other involved a small nonsafety-related fire in one of the turbine buildings. Each event was appropriately classified and the required state and federal notifications were made within the required period.

The licensee maintained an excellent working relationship with state and local officials. A sufficient number of emergency personnel were maintained to implement the emergency preparedness program and maintain the emergency plan. During this assessment period, the emergency preparedness staff was augmented with personnel that had strong expertise in engineering and operations.

The licensee was in the process of relocating the operational support centers (OSCs) to locations adjacent to the radiation protection access control points at each unit in order to address concerns with habitability and timeliness of response. In addition, the licensee maintained superior emergency response facilities along with an efficient group of well trained personnel to implement the emergency preparedness program.

Management oversight of the emergency preparedness program was evident by the performance of effective QA audits. Audit findings were resolved in a timely manner and the licensee's responses demonstrated a clear understanding of issues. During this assessment period, a comprehensive program for correcting emergency preparedness issues received strong support from the licensee's senior management.

In summary, although several violations and weaknesses were identified, the licensee undertook vigorous initiatives to perform a comprehensive review and revision of their emergency preparedness program and implemented extensive and effective corrective actions. In addition, the licensee continued to perform independent audits and to improve the quality of emergency preparedness personnel staff. The licensee's response to actual events and training interviews revealed an effective response staff. The licensee demonstrated aggressive actions to improve their overall performance during this assessment period.

2. Performance Rating

The licensee is considered to be in Performance Category 2 in this functional area.

3. Recommendations

a. NRC Actions

Inspection effort in this functional area should be consistent with the core inspection program, with a regional initiative to review changes in the program.

b. Licensee Actions

The licensee should ensure that improvements and changes to the emergency preparedness program are fully implemented and continue to provide oversight and support to the emergency preparedness program.

E. Security

1. Analysis

This functional area consists of activities associated with the security of the plant, including all aspects of access control, security background checks, safeguards information protection, and fitness-for-duty activities and controls.

Evaluation of this functional area was based on the results of two routine security inspections, one reactive security inspection, and one fitness-for-duty inspection performed by regional inspectors, and observations made by the resident inspectors. These inspections included a review of the security program, initiatives in the areas of physical protection of safeguards information and records and reports, licensee actions regarding land vehicle bomb contingency, and the fitness-for-duty program. The reactive inspection was conducted in the area of package access control. Also, a Regulatory Effectiveness Review (RER) was performed during January 1991.

The previous SALP report noted strong performance and did not include any specific recommendations.

The Headquarters RER team commented during their exit meeting that no vulnerabilities were detected in the licensee's perimeter detection and assessment aids systems. The RER team recommended some enhancements to the weapons training and contingency drill areas of the licensee's training programs.

The security QA audits for the assessment period were reviewed during the inspection process. The QA team used an individual with nuclear security expertise from outside the utility as a technical expert. The audits were comprehensive and performance oriented. Security management was prompt in dealing with QA issues.

The security management staff was found to be experienced and well organized. The security force was staffed and trained in a superior manner.

The licensee's response to technical issues was superior. One issue identified during this assessment period pertained to concerns related to false and nuisance alarms occurring in the perimeter detection system. This issue is currently under review by NRC staff.

An inspection of the licensee's fitness-for-duty program identified many program strengths. For example, the program was well staffed and the licensee provided employee assistance program services to contractors and vendors. The program was found to be well implemented and supported by plant staff and management. A violation in fitness-for-duty training for supervisors was identified during this inspection.

The licensee submitted two security event reports pertaining to a voluntary reduction of compensatory actions because of severe weather and for an employee bringing a handgun into the protected area. At the end of the assessment

period, the second event and an apparent violation pertaining to package access control were being considered for possible escalated enforcement action. Overall, the enforcement record in the security area continued to be superior during the assessment period.

During daily operations, the security force exhibited vigilance and responsiveness to routine duties and situations requiring their attention.

In summary, inspection results in this functional area indicated that licensee management demonstrated a continued strong commitment to the implementation of the security program, and that they were experienced and well organized. The security force staffing, training, and overall enforcement history were considered superior.

2. Performance Rating

The licensee is considered to be in Performance Category 1 in this functional area.

3. Recommendations

None

F. Engineering/Technical Support

1. Analysis

This functional area consists of technical and engineering support for all plant activities. It includes all licensee activities associated with the design of plant modifications, engineering and technical support for operations, training, vendor interface activities, and the fire protection and prevention program.

This functional area was inspected on an ongoing basis by the resident inspectors and periodically by the region-based inspectors. The inspection effort also included a special team inspection to assess the programs and procedures used to operate and maintain BOP equipment and systems. Inspection activities by the region-based inspectors were limited during this assessment period.

The previous SALP report noted that this area reflected good response to emergent issues. Continued management attention was needed to establish error-free plant procedures and drawings. The SALP report recommended that the licensee continue to provide management attention in order to improve and strengthen their engineering and technical support capabilities and the environmental qualification and procurement programs.

The engineering organization was restructured during this assessment period. The Manager of the Plant Engineering Department, who previously reported to the Plant Manager, now reports to the Vice President of Engineering. The consolidation of the Design Engineering and the Plant Engineering Departments

under one manager eliminated some duplication of effort in addressing engineering issues. This resulted in better utilization of the licensee's engineering resources.

In response to a previous SALP observation, the licensee formalized System Engineer Guidelines which define system engineer duties and responsibilities. System engineers were involved in analyzing technical problems and have a sense of ownership for their systems; however, their involvement in some of the other responsibilities defined in the System Engineer Guidelines was limited. The utilization of system engineers was effective in maintaining expertise in system operating characteristics; however, the lack of engineering involvement during maintenance troubleshooting contributed to some plant events. For example, one engineered safety features actuation occurred as a result of troubleshooting an energized ESF load sequencer. The lack of sufficient engineering involvement with this troubleshooting activity may have contributed to this event.

Engineering evaluations were generally good and effective corrective actions usually resulted. However, several ongoing issues were not resolved in a timely manner, thereby resulting in repetitive problems. Specifically, proposed modifications to the FWIVs were not implemented as of the end of the assessment period. In addition, delay of the modifications associated with the FWIVs caused plant operators to increase the surveillance frequency on these valves, thereby increasing the likelihood of plant events. Three loss of feedwater events occurred during the assessment period as a result of equipment and human factor problems during FWIV surveillance testing. Two additional FWIV failures occurred which required a plant shutdown in accordance with the TS.

Strong management commitment to enhancing engineering and technical support programs was noted as evidenced by the number of OIP actions and other initiatives in these areas. For example, the licensee is implementing a comprehensive design basis capture program. The licensee is also upgrading plant drawings (including the development of drawings for skid-mounted equipment), as well as developing control wiring diagrams, load lists, relay and fuse lists, and improving the Master Equipment Database. Many of these actions are scheduled to be completed during the next few years, and are intended to result in gradual improvement in overall plant performance.

The licensee's design modification process provided consistent and proper implementation of design changes and modifications. The design engineering staff was technically competent and well versed in procedural administration. Safety evaluations required by 10 CFR 50.59 were conservative and written with a good degree of detail. These facts were indicative of strong management attention to the design engineering area.

Effective implementation of plant changes and modifications was also observed as the result of the BOP team inspection. The engineering staff appeared fully integrated into the modification process. However, it was also noted that miscommunications between technical support organizations, e.g., system engineers and planners and the operations and maintenance organizations, contributed to delays in accomplishing certain maintenance activities. Other

difficulties in obtaining requisite spare parts, unavailability of support functions on backshifts, and incorrect or incomplete maintenance work requests also contributed to these delays. All of these issues were being addressed by licensee management.

The licensee's response to Generic Letter (GL) 89-13, "Service Water System Problems Affecting Safety-Related Equipment," was adequate, and actions taken were consistent with licensee commitments. The licensee appropriately implemented their commitments made with respect to as-built verification and review of maintenance practices, operating and emergency procedures, training, and biofouling controls. The only weakness observed involved the absence of procedural guidance for conducting the biofouling inspection activity.

The licensee's activities involving their commitments with respect to GL 88-17, "Loss of Decay Heat Removal (DHR)," indicated that management involvement in formulating the response and the engineering evaluations was good. The design included diverse and redundant indications and alarms for core exit temperature, reactor coolant system level, and system performance. The computer screens developed for monitoring DHR performance were state-of-the-art and the instrumentation appeared user friendly.

The NRC administered a licensed operator requalification examination in April 1990 and initial examinations in September 1990. Twenty-eight operators were evaluated during the requalification examinations with only 2 senior reactor operators and 2 reactor operators failing the written portion of the examination. All 15 applicants passed the September initial examinations.

During the NRC preparation for these examinations, a weakness was noted in that the examination material supplied by the licensee's training department had significant deficiencies. The licensee was informed in the April requalification examination report that the material submitted to the NRC for that examination's preparation would be unsatisfactory for future examination preparation and visits. The licensee developed new material to support the September initial examinations; however, this material also exhibited weaknesses in that the material still did not meet the standards for NRC use. In addition, this material, which was required to be submitted by the training department to meet the schedule delineated in the 90-day confirmation letter, was neither timely nor complete.

In summary, the licensee's performance in this functional area was good. The licensee's restructured engineering organization should improve and strengthen performance in this area. Evidence of this improvement was demonstrated in a recent major team inspection that was conducted subsequent to this assessment period. The resolution of most technical issues was good, but some plant modifications were not implemented in a timely manner. Weaknesses associated with the ability of the training department to provide licensed operator examination information to the NRC were noted. Management commitment to improve various engineering and technical programs was evidenced by the number of OIP and other initiatives in these areas.

2. Performance Rating

The licensee is considered to be in Performance Category 2 in this functional area with an improving trend noted.

3. Recommendations

a. NRC Actions

None

b. Licensee Actions

The licensee should continue to emphasize effective engineering support activities particularly with regard to the quality, depth, and timeliness of evaluations performed in support of operational/maintenance activities.

G. Safety Assessment/Quality Verification

1. Analysis

This functional area consists of all licensee review activities associated with the implementation of safety policies including licensee activities related to exemption and relief requests and other regulatory initiatives. In addition, it includes licensee activities related to the resolution of safety issues, safety committee and self-assessment activities, and the effectiveness of the licensee's quality verification function in identifying and correcting substandard or anomalous performance, in identifying precursors of potential problems, and monitoring the overall performance of the plant.

This area was routinely inspected by the resident inspectors and periodically by region-based inspectors. The inspection effort also included a special inspection to assess the implementation effectiveness of the OIP.

The previous SALP report noted that high quality safety reviews were being performed, and management consistently demonstrated a conservative attitude towards safety. The SALP report recommended that the licensee continue to provide high quality safety reviews and project a strong safety attitude to all plant personnel.

The licensee demonstrated a continued high level of performance in the evaluation and implementation of safety policies, with some exceptions. The quality of the submittals was very good, with two noted exceptions (License Requests of November 15, 1990, and January 8, 1991). Licensee responses to staff requests for additional information were timely and accurate. The licensee's response to NRC Bulletins and Generic Letters continued to be technically complete and timely. Generic Letter 90-04 requested information about the implementation of Generic Safety Issues. In addition to the acceptability of the licensee's response, an inspection of the records showed them to be well organized and traceable. The technical bases for infrequent requests for temporary waivers of compliance were of high quality.

NRC review of the licensee's probabilistic risk assessment (PRA) continued throughout the assessment period. In 1990, there were two meetings at the site, two at headquarters, and a number of requests for information. The licensee's preparation for the meetings, as well as their response to NRC questions were thorough and indicated a significant area of emphasis by licensee management.

During this assessment period, there were approximately twice as many Unit 1 licensee event reports (LERs) as there were Unit 2 LERs. The difference in the number of reportable events between the two units is primarily attributable to more Unit 1 events caused by BOP equipment problems, and more operations and maintenance department personnel errors. The quality of the LERs was good; however, NRC inspectors identified that some corrective action commitment dates were not adhered to. In several instances, NRC was not notified that extensions to the commitment dates were needed to implement the identified corrective actions. Root cause analyses and corrective actions for specific events were generally good, but the licensee experienced some problems in the identification of root causes and effective corrective actions for certain, complex events that have recurred. For example, a second Unit 2 reactor trip occurred because of a main generator lockout when the Unit 1 main and auxiliary transformers were energized before the root cause was identified and corrected.

The licensee's programs to assure quality, including the self-assessment process, were generally well implemented. QA audits were performance based. Contract auditors were well utilized to supplement the licensee's QA staff. Additionally, the licensee's SPEAKOUT program was effective in investigating conditions adverse to quality.

The licensee demonstrated a conservative approach to the resolution of most safety issues. The licensee was instrumental in addressing industry problems through the development of utility groups. The licensee's actions were notable for the identification of the extra wire in the solid state protection system, missing O-rings in Conax junction boxes, and resolution of steam generator bottom head drain fatigue cracking. Significant resources were devoted to upgrading the emergency response procedures. The licensee has taken a leadership role in the Cooper-Bessemer Owners' Group. The license established a request for action (RFA) program which was found to be appropriately functioning as an integral part of the corrective action system. The program, however, contained a number of requested actions, including identified out-of-tolerance instruments, that had not been resolved in a timely manner.

There were some examples in which the licensee did not recognize the significance of some safety issues. Because these issues were not recognized, they were not appropriately prioritized for resolution. For example, a Unit 1 reactor trip occurred in March 1990 when main feedwater was lost as a result of a feedwater booster pump tripping on a ground fault. The event was further complicated when the recirculation valve associated with a second feedwater booster pump did not close, as designed, upon automatic start of this pump. The licensee attributed the ground fault to moisture intrusion because of heavy rain. The licensee had planned to implement modifications to prevent recurrence

because the pump had tripped in the past due to moisture intrusion; however, the modifications were not given sufficient priority to prevent recurrence.

The corrective action process was found to be generally effective, with recent ennancements resulting in a significant improvement in the quality of problem reports. The licensee utilized the Systematic Problem Solving Process (SPSP) for evaluating station problem reports (SPRs). This process incorporated the Institute of Nuclear Power Operations (INPO) Human Performance Evaluation System into the root cause code tree, and generic implications into the solution selection process. A corrective action review meeting was instituted after January 1991 to evaluate corrective actions and assure assigned responsibilities were carried out. Only personnel trained in the SPSP were permitted to investigate SPRs related to federal and state violations, events reportable to federal and state agencies, events or situations that suggest a marked breakdown in managements ability to control processes, and plant conditions that constitute an unreviewed safety question. Management demonstrated a strong commitment to the SPSP. More than 330 persons have been provided training on this process, with 250 being from the management technical staff.

The licensee implemented the OIP to improve STP availability and reliability, and make STP a better place to work. Improvement was noted in overall personnel morale; however, improvement in the availability and reliability of the units could not be meaningfully assessed during this assessment period. The development and implementation of the OIP are indicative of management involvement in this functional area.

The licensee's overall performance in this functional area continued at a high level; however, weaknesses were noted with management awareness and involvement in the resolution of some safety issues. The self-assessment process was generally well implemented. The response to, analysis, reporting, and corrective actions for most events were generally good. The licensee's training, staffing, and implementation of the SPSP was superior. The licensee demonstrated a heightened sensitivity to most safety issues.

2. Performance Rating

The licensee is considered to be in Performance Category 1 in this functional area with a declining trend noted.

3. Recommendations

a. NRC Actions

Inspection effort in this functional area should be consistent with the core inspection program, with regional initiatives in the areas of licensee resolution of non-TS related plant equipment problems and the implementation effectiveness of the OIP.

see Actions

hould evaluate the self-assessment and corrective action processes
afety issues are promptly identified, evaluated and the
ctive actions are implemented in a timely manner to assure
ation. The licensee should continue to evaluate the
OIP in order to determine whether intended results are

be

V. SUMMARIES

A. Ma es

1. Major

The Unit 1 sec began on March 30, 1990. The outage
duration was 84

The Unit 2 first re on September 28, 1990. The outage
duration was 101 day.

Unit 1 entered into a f ber 24, 1990, because of a
catastrophic leak of the water cooling system. This
resulted in significant da The unit remained in the forced
outage until January 15, 19 ueling outage was entered
approximately 3 months early. was completed in 76 days.

SEE REVISION SHEET

2. License Amendments

Twelve operating license amendments units.

3. Significant Modifications

Installed above ground piping and supports otection.

Replaced steam generator power operated relie new design.

Replaced hafnium control rods with silver-indium

Deleted excessive cool-down protection.

Installed a permanent reactor coolant system level gaug on
for use during midloop operations.

B. Direct Inspection and Review Activities

NRC inspection activity during this SALP period included 30 in
including several team inspections and special inspections, per
approximately 6902 direct inspection hours expended, which did no
contractor hours.

b. Licensee Actions

The licensee should evaluate the self-assessment and corrective action processes to ensure that safety issues are promptly identified, evaluated and the appropriate corrective actions are implemented in a timely manner to assure continued safe operation. The licensee should continue to evaluate the effectiveness of the OIP in order to determine whether intended results are being achieved.

V. SUPPORTING DATA AND SUMMARIES

A. Major Licensee Activities

1. Major Outages

The Unit 1 second refueling outage began on March 30, 1990. The outage duration was 84 days.

The Unit 2 first refueling outage began on September 28, 1990. The outage duration was 73 days.

Unit 1 entered into a forced outage on November 24, 1990, because of a catastrophic leak of the main generator stator water cooling system. This resulted in significant damage to the stator. The unit remained in the forced outage until January 15, 1991, when the third refueling outage was entered approximately 3 months early. The refueling outage was completed in 76 days.

2. License Amendments

Twelve operating license amendments were issued for both units.

3. Significant Modifications

Installed above ground piping and supports to provide freeze protection.

Replaced steam generator power operated relief valve plugs with a new design.

Replaced hafnium control rods with silver-indium-cadmium control rods.

Deleted excessive cool-down protection.

Installed a permanent reactor coolant system level gauge with local indication for use during midloop operations.

B. Direct Inspection and Review Activities

NRC inspection activity during this SALP period included 50 inspections, including several team inspections and special inspections, performed with approximately 6902 direct inspection hours expended, which did not include contractor hours.