LONG ISLAND LIGHTING COMPANY
SHOREHAM NUCLEAR POWER STATION
P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

JOHN D. LEONARD, JR.
VICE PRESIDENT - NUCLEAR OPERATIONS

September 6, 1984 SNRC-1075

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Operating Shift Staff
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

References:
1. Letter from D. G. Eisenhut (NRC) to M. S. Pollock (LILCO) dated May 31, 1984
2. Letter (SNRC-1064) dated July 2, 1984
3. Letter (SNRC-1068) dated July 25, 1984
4. Letter (SNRC-1070) dated July 22, 1984
5. Letter (SNRC-1073) dated September 5, 1984

Dear Mr. Denton:

In telephone conversations between LILCO and the NRC, your Mr. Ralph Caruso requested the following information:

Item 1: Updated resumes for the On-Shift Advisors (OSA)

Item 2: Answer key for examinations, and final grades

Item 3: Was an industry group (such as the Utility Group on Operating Shift Experience) survey performed at Shoreham? If so, Mr. Caruso requested a copy of the survey report.

With respect to Item 1, Mr. Paul Oreshack has recently tendered his resignation. The remaining resumes submitted in SNRC-1068 are current with the exception of Mr. Howard Drake's, which has been updated and enclosed (see Enclosure 1).

It shall be noted that new or replacement Shift Advisors will have their resumes submitted emphasizing on-shift operating experience. These new or replacement Shift Advisors will also be trained in accordance with this and any previous submittals regarding this subject.

A003
1/1

Enclosure 2 tabulates specific operating experience information for each OSA at Shoreham . This includes the date each OSA received his RO and SRO certification, the total length of time spent on shift, and the end date (if not currently on shift) of operating experience.

Enclosure 3 represents the response to Item 2, the answer key. The final grades have been previously submitted as Enclosure 2 to SNRC-1073, and all of the OSA's have satisfactorily completed the requirements of the Shoreham training program.

LILCO is not aware of any formal industry group survey performed at any utility by the Utility Group on Operating Shift Experience. LILCO was an active participant on the Utility Group with the then Chief Operating Engineer devoted to the effort. He was closely associated with the development of the Utility Group Position, and with the development of the position paper presented to the NRC Commissioners in February of 1984. LILCO supports the position presented by this group during the February meeting.

We trust this is responsive to the NRC's requests. For further information, please do not hesitate to contact this office.

Very truly yours,

John D. Leonard, Jr.
Vice President - Nuclear Operations

Enclosures

cc: P. Eselgroth
C. Petrone

NRL:ck

Enclosure 1

Resume of Howard Drake

Experience

5-84 to Present — Shoreham Nuclear Power Station
Operating Engineer (Consultant)

Satisfactorily completed six weeks of "On Shift Advisor" training. Assigned to the Operations Group and reporting to the Operating Engineer. Primary duty is assisting the Watch Engineers and the Operating Engineer in conducting the surveillance program. Monitor surveillance testing and other plant tests (such as the Integrated Electrical Test) and review the results for compliance to the Technical Specifications. Additionally, perform Technical Reviews and Safety Evaluation on Safety-Related Procedures.

2-83 to 4-84 — Beaver Valley Unit II
Principal Engineer

Responsible for directing the activities of a small group of experienced personnel in the preparation of the operational section of the draft technical specifications for this new unit. Responsible for coordinating with other groups that are responsible for the development of the portions of this effort and with the NRC. This effort requires a detailed knowledge of the NRC and Unit I technical specification requirements so as to make Unit II specifications as identical as possible to Unit I's Initially assigned as an Engineer and responsible for the review of procedures developed by other sections. These procedures dealt primarily with the electrical and I&C disciplines as they affected plant operations.

9-82 to 2-83 — Beaver Valley Unit II
Engineer

Responsible for the development and obtaining approval of General Test Methods to be used during the Initial Startup Program. These methods will be used to specify the test to be performed on each component and system during the initial testing period and are required to specify the methods to be used to perform each test, the system line-up needed, and the required support systems.

8-82 to 9-82 — Shoreham Nuclear Power Station
Engineer

Member of a special task group that was responsible for determining the effects on non-safety related instrumentation of a major pipe line break. Responsible for determining what, if any, effects these failures would have on safety-related systems. Provided operational guidance to the group because of prior BWR experience.

4-81 to 6-82 — Shoreham Nuclear Power Station
Engineer

Responsible for reviewing and revising station operating procedures as necessary to reflect current NRC, industry groups, and the client's requirements for the station operation. Responsible for the development of procedures to implement the Inservice Testing Program as required by the Technical Specifications. Because of prior background and experience in the electrical and I&C disciplines, provided technical guidance to other engineers in these areas and reviewed these procedures to assess the operational impact.

9-80 to 4-81 — Textile Mills
Maintenance Supervisor

Reported to the plant manager and was responsible for the operations and maintenance of the mill's steam plant and HVAC equipment. Responsible for the development and implementation of the departmental budget and manpower requirements. Improved the mill's operating efficiency and reliability by instituting various maintenance and testing programs.

9-76 to 9-80 — Pilgrim Station
Nuclear Operating Supervisor

Responsible for supervising in the activities of plant operations personnel during normal, off-normal, and refueling periods. Insured that the plant was operated in compliance with all NRC, technical specification, and Utility requirements. Exercised operational control over maintenance

activities, coordinated work activities with other plant requirements to insure that all technical specification requirements were met or directed corrective actions to be taken, determined the requirements for pre and post work testing and reviewed the results of this testing to insure system or component operability.
Directed refueling activities from the control room and refueling deck as required.

8-57 to 9-76 U S Navy
Engineering Watch Supervisor/Engineering Officer of the Watch

Responsible for supervising all phases of plant operation and maintenance. Responsible for providing technical assistance in the areas of nuclear plant instrumentation and electronics. Qualified reactor operators/technicians for initial plant testing and subsequent operation. Assisted in preparing submarines for nuclear safeguards examinations.

EDUCATION

1979 Northeastern University B. S. Industrial Management

Various Naval Programs

LICENSES

Senior Reactor Operator Permit - Pilgrim Station

Senior Nuclear Plant Supervising Engineer - Mass.

Enclosure 2

Operating Experience of the On-Shift Advisors
For Shoreham Nuclear Power Station

	RO Cert. Date	SRO Cert. Date	End Date of Oper. Exp.	Total Time on Shift
H. Drake	6/76	6/76	9/80	4 1/4 years
D. Lee	-	11/76	7/79 occasionally on shift	2 2/3 years
B. Strickland	6/80	8/81	currently on shift	4 1/3 years ongoing
R. Varnadore	7/80	7/80	currently on shift	4 years ongoing

ENCLOSURE 3 - SNRC 1075

SHOREHAM NUCLEAR POWER STATION
SHIFT OPERATIONS ADVISOR
CERTIFICATION EXAMINATION KEY

June 21, 1984

Prepared By _____

Reviewed By _____

Approved By _____

		Pt. Value
1.	Plant Systems	18.0
2.	Procedures: Normal and Emergency	17.0
3.	Administrative Procedures & Technical Specifications	18.0

SECTION 1 Plant Systems

1. For each of the following systems, list the signals and setpoints which will result in automatic actuation of the system:

   a. Low Pressure Coolant Injection System (1.0)

   b. Automatic Depressurization System (1.0)

   c. Reactor Building Standby Ventilation System (1.0)

ANSWER:

a.1. Drywell Pressure 1.69 psig

2. RPV Water Level Low -132.5"

b.1. RPV Water Level Low -132.5" and,

2. RPV Water Level Low +12.5" and

3. 105 Second Timer

4. CS or RHR Pump Discharge Pressure Indicated

c.1. Drywell Pressure 1.69 psig

2. RPV Water Level Low -38 in.

3. Loss of Normal 480 VAC Power

4. Reactor Bldg dp -.3" H_2O

5. High Radiation Level Refueling Floor Exhaust 35 mr/hr

6. Rx Bldg Vent AOV's Not Full Open (Any one)

2. Using the attached diagram which shows the status of the ADS control room annunciators, controls and indications, identify the condition of the system at the time this "snapshot" was taken. If the system condition indicates that all required automatic actions have not occurred, state the immediate actions required of the operator.

(2.0)

ANSWER:

1. ADS "A" Logic satisfied for initiation with timer not timed out.

2. ADS "B" Logic satisfied with exception of RHR/CS running and timer rot timed out.

3. ADS should initiate at completion of 105 second time period.

NOTE: Diagram given to students should have had Auto Isolation annunciators colored in. This may cause some confusion.

3. Using the attached diagram which shows the status of the HPCI System control room annunciators, controls and indications, identify the condition of the system at the time this "snapshot" was taken. If the system condition indicates that all required automatic actions have not occurred, state the immediate actions required of the operator.

(2.0)

ANSWER: HPCI has auto initiated due to low water level. MOV-036 has failed to close due to Motor Overload. Operator should initiate action to close MOV-036.

4. Using the attached diagram which shows the status of the Control Room Air Conditioning System controls, indications and annunciators, identify the condition of the system at the time this "snapshot" was taken. If the system condition indicates that all required automatic actions have not occurred, state the immediate actions required of the operator.

(2.0)

ANSWER: CRAC Auto initiation with failure of "B" system components to start, reposition, or isolate. Operator should close AOV-039B, open MOV-032B, and close AOV-036B.

5. For each of the following systems or components, list the signals and setpoints which will result in automatic isolation of the systems or components:

a. Main Steam Lines (1.0)

b. Reactor Core Isolation Cooling System (1.0)

c. Reactor Water Cleanup System (1.0)

ANSWER:

a.1. MSL Low Pressure: 825 in RUN

2. MSL High Temp (Area): 185°F

MSL Tunnel High T: 50°F

MSL High Temp (TB): 155°F

3. RPV Low Water Level: -38"

4. MSL High Rad: 3x normal

5. MSL High Flow: 106 psid ($\approx$130%)

6. Low Condenser Vacuum: 8.5" Hg

b.1. High Steam Line Flow: 291" H_2O

2. Low Steam Supply Press: 57 psig

3. High Exhaust Pressure: 10 psig

4. High Area Temp: 155°F
High Area Temp (63'): 193°F

c.1. Δ Flow High: 44 GPM

2. High Area Temp: 155°F

3. SLC Initiation

4. RPV Low H_2O Level: -38"

5. MSL Area High Temp: 175°F

6. Non regen Hx outlet temp high: 140°F

6. Using the attached diagram which shows the status of the Reactor Core Isolation Cooling System control room annunciators, controls and indications, identify the condition of the system at the time this "snapshot" was taken. If the system condition indicates that all required automatic actions have not occurred, state the immediate actions required of the operator.

(2.0)

ANSWER: System isolation on high steamline flow with failure of MOV-041 to close. Close MOV-041 although line has already isolated.

7. Using the attached diagram which shows the status of the Reactor Water Cleanup System control room annunciators, controls and indications, identify the condition of the system at the time this "snapshot" was taken. If the system condition indicates that all required automatic actions have not occurred, state the immediate actions required of the operator.

(2.0)

ANSWER: System Isolation on high Hx outlet temperature no malfunctions or immediate actions required.

8. Using the attached diagram which shows the status of the Reactor Building Closed Loop Cooling Water System control room annunciators, controls and indications, identify the condition of the system at the time this "snapshot" was taken. If the system condition indicates that all required automatic actions have not occurred, state the immediate actions required of the operator. (A system diagram is provided to aid you in formulating your answers).

(2.0)

ANSWER: RBCLCW System split or isolation on Low-Low heat tank level - no malfunctions or immediate actions required.

SECTION 2 Procedures Normal and Emergency

1. During operation at 75% power the TBCLCW System is aligned in the following manner: Pump A is in service, Pump B is tagged out for maintenance and is expected to be out of service for 4 hours. While operating in this condition, the malfunction indicated on the attached diagram occurs. State the immediate actions to be taken by the operator.

(2.0)

ANSWER: Loss of TBCLCW; reduce recirc pump speed to minimum and initiate emergency shutdown procedure SP 29.010.01

2. Using the attached diagrams which show the status of affected controls, indications and alarms in the control room identify the event and state the required immediate operator actions. This event occurred during operations at 100% power and has been accompanied by a reactor scram and turbine trip.

(2.5)

ANSWER: Loss of offsite power; verify automatic actions have occurred and initiate SP 29.010.01, emergency S/D procedure. (2.0)

Auto Actions Are:

1. EDG's start and reenergize emergency 4KV and 480V buses. (.125)
2. 120V UPS transfers to battery power (.125)
3. RBSVS initiates (.125)
4. RBSVS/CRAC chillers start (.125)

3. With the plant operating at 1% power during low power physics testing following initial fuel loading, the Watch Engineer is informed by the System Operator that a severe weather warning has been issued for the Shoreham area. State the required immediate operator actions.

(2.0)

ANSWER: Commence an orderly shutdown to cold shutdown conditions.

As per 29.001.02 (Acts of Nature ($\leq$5% power) OR as per 29.001.01 Notify all personnel of impending event and provide updates as conditions change.

4. Using the appropriate Symptomatic Emergency Procedure(s) list the required operator actions for <u>each</u> event in the following scenario:

<u>Event #1:</u> During plant operation at 100% power a transfer of RBCLCW coolers results in a Division I lo-lo head tank level.

(1.0)

<u>Event #2:</u> After 5 minutes head tank level has not been restored, weighted average drywell temperature has risen to 145°F and is rising at a rate of 1°F/minute. Indicated drywell pressure is 16.1 psia and increasing.

(1.0)

<u>Event #3:</u> After 15 minutes weighted average drywell temperature has risen to 155°F and drywell pressure is 16.3 psia and increasing.

(1.0)

<u>Event #4:</u> After 25 minutes weighted average drywell temperature has risen to 165°F and drywell pressure has risen to 16.4 psia. A reactor scram has occurred and the appropriate isolations for these conditions have occurred.

(1.0)

<u>ANSWER:</u> Event #1: No actions required per symptomatic procedures.

Event #2: No actions required per symptomatic procedures as temperature is not $>$145°F. Actions taken according to event #3 at this time are conservative and acceptable. Attempt to restore/maximize dw cooling.

Event #3: Enter SP 29.023.03 step 3.2.1 and attempt to restore/maximize dw cooling.

Event #4: Enter level control SP 29.023.01 Step 3.1

5. Using the appropriate Symptomatic Emergency Procedure(s), list the required operator actions to be taken following the events listed in the scenario below:

Scenario: With the plant operating at 100% power and HPCI out of service, condensate booster pump "B" trips on motor overload resulting in a trip of both RFPT's on low suction pressure. Within 15 seconds, feedwater flow has decreased to 0 gpm and reactor vessel water level has decreased to -38 inches. In the next 15 seconds, the MSIV's close, Group 1 SRV's open to relieve pressure and then fail to close, and water level decreases to -130 inches.

(4.0)

ANSWER: Enter level control SP 29.023.01 Step 3.1, maintain RPV water level in accordance with Step 3.2. When level has stabilized, enter SP 29.023.02; cooldown. Operator can correctly assume that level can't be maintained above TAF for the scenario. If this is the case then step 3.4 of level control directs him to enter level restoration: Step 3.1 (29.023.04)

6. List the plant conditions which require the initiation of Standby Liquid Control. (2.5)

ANSWER:

1. ATWS: Condition requires scram but a failure to scram exists and

   a. Reactor Power > 6% or (0.5)

   b. RPV Level cannot be maintained or (0.5)

   c. Suppression Pool Temperature reaches 110°F (0.5)

2. Criticality predicted within one hour following inability to S/D with control rods. (0.5)

3. Hazards exist to plant personnel or environment or plant abandonment is required. (0.5)

SECTION 3 Administrative Procedures and Technical Specifications

1. With the reactor operating at 45% power following a rod sequence exchange and the completion of control rod scram time testing to satisfy tech spec surveillance 4.1.3.2.c; it is determined that the average scram insertion time to notch 39 of all operable control rods is .87 seconds. Using the Technical specifications, state the actions to be taken with regard to:

   A. Minimum critical power ratio (1.0)

   B. Control rod average scram insertion times (1.0)

   C. Linear heat generation rate (1.0)

   ANSWER: A. No action required

   B. Place the plant in hot shutdown within 12 hours

   C. No action required

2. With the plant operating at 100% power, the oncoming crew arrives for relief of the 4:00-12:00 pm shift crew. The relieving crew complement is the following:

1. WE (SRO licensed)
2. WS - absent
3. NSO - absent
4. NASO (RO licensed)
5. NASO (RO licensed)
6. EO (2)
7. STA (1)

The crew being relieved has the following complement with each just completing a double shift because of a major winter storm:

1. WE (SRO licensed)
2. WS (SRO licensed)
3. NSO (RO licensed)
4. NASO (RO licensed)
5. NASO (RC licensed)
6. EO (2)
7. STA (1)

State the action to be taken to allow continued operation in Condition 1.
(2.5)

ANSWER: An SRO and RO must be held over to man the absent WS and NSO positions through shift turnover. Immediate action must be taken to replace absent and held over crew members (1 RO position can remain vacant after shift turnover for up to 2 hours). Held over crew members will have exceeded 16 hrs in a 24 hr period which requires documentation of authorization by Plant Manager or his Designee.

3. With the plant operating at 100% power a turbine trip occurs which results in a reactor scram. State the location to which each member of the operating crew reports and list the primary responsibility of each person at that location. (Assume a normal shift complement).

(2.5)

ANSWER:

WE: Reports to CR and directs required immediate and followup actions

WS: Maintains initial command and control function in control room.

NSO/NASO: First to H11-P603 assumes responsibility for maintaining core coverage.

NSO/NASO: Second announces casualty and assumes responsibility for maintaining reactor heat sink and AC power available.

NASO: Reports to Radwaste CR to ensure proper operation of Cond. Demin System

EO: Reports to plant areas as directed where auto actions are occuring.

4. The attached TPC is submitted to allow a change to be made to K_f in the process computer calculation of MCPR. The computer engineer requests that the TPC be approved so that the program change can be made during the present shift. State whether this TPC should be approved or disapproved by the SRO on shift and state the reason why is should be approved or disapproved.

(2.0)

ANSWER: This TPC may be approved as procedural intent is not altered and the change will not result in exceeding a TS limit.

If the TPC is not approved, the reason would be that a change to K_f is not urgent and a formal procedural review via SPCN will not prevent continued operation in a conservative manner.

5. With the plant operating in Condition 3, a 1 hour load test of EDG 103 is in progress (EDG paralleled with NSST and loaded to 3500 KW). Upon completion of the test, the NASO in error opens the EDG 103 breaker without first unloading the diesel generator. Bus 103 voltage is maintained at 4160 volts by the NSST but EDG 103 trips on overspeed. Using the Technical Specifications state any actions which must be taken following this event.

ANSWER: EDG 103 is INOP according to 4.8.1.1.2.e.3. Perform surveillance requirements of 4.8.1.1.1.a and 4.8.1.1.2.a.4 for one EDG at a time within one hour and once per 8 hours thereafter. Restore EDG 103 to operability within 72 hrs or be in Cold Shutdown within following 36 hours.

6. During operation in Condition 1, the Equipment Operator reports from elevation 8' in the Reactor Building that a standpipe and float assembly used to measure water level on that elevation has been damaged. The standpipe has been bent near its base and the float is jammed below the bend. The EO also reports that the other standpipe and float assembly on this elevation appears to be in good working order. Using the Technical Specifications, state any actions which must be taken based on these conditions.

(2.0)

ANSWER: Restore the inoperable level detector to operable status within 7 days or verify the drain sump level detection alarm instrumentation operable at least once per 12 hours by local actuation.

7. With the plant in Condition 3, the "FULL IN" position indicator for control rod 22-03 deenergizes. The indicator lamps are replaced but the position indicator fails to illuminate. Using the Technical Specifications, state the actions to be taken.

(2.0)

ANSWER: No action is required in Condition 3.

8. Using the Technical Specifications, list all required actions for the scenario below. Assume that plant conditions change as necessary to comply with the Technical Specifications.

Initial Conditions (2/1/84 at 3:30 PM)

- o Reactor operating at 35% power; withdrawing control rods to 100% rod pattern. Startup was commenced from a refuel outage at 10 AM on 1/31/84.

Scenario

2/1/84 at 4:15 PM - With all the condensate demineralizers in operation, the "D" cond demin outlet conductivity monitor suddenly pegs upscale. A chemistry sample on the outlet of the bed indicate all chemistry in spec. (0.5)

2/1/84 at 6:00 PM - While reviewing the results of the MSIV surveillances performed during the recent outage, the Operating Engineer notes the "A" MSIV inboard valve closure time 5.8 seconds. (0.5)

2/2/84 at 3:00 AM - The conductivity monitor at the combined condensate demineralizer outlet reads 0 umho/cm. A sample at this point reveals actual conductivity is 0.06 umho/cm. (0.5)

2/2/84 at 10:00 AM - While performing a surveillance on the EOC RPT system, it is noted that the low pressure EHC trip from the turbine control valves will not send a trip signal to the "A" RPT circuit. (0.5)

ANSWER:

A. Perform action 3.3.7.8.b for the "D" condensate demineralizer or take D Condensate Demineralizer out of service.

B. Per Tech Spec 3.4.7 or 3.6.3, the MSIV closure times must be between 3 and 5 seconds, if not the valve is INOP, the ACTION statement requires the valve to be restored to operable within 8 hours (4 hrs for 3.6.3) or, an MSIV in that line be closed and deactivated. Under these conditions, shut and deactivate an "A" MSIV.

C. Per Tech Spec 3.3.7.8, sample the outlet of the combined demins at least once per 4 hours.

D. Per Tech Spec 3.3.4.2, Action b; place the low pressure sensing switch in the tripped condition within 1 hour. Restore the inop. trip system to operable within 72 hours or reduce thermal power to less than 30% within the next 6 hours.

NOTE: If it is assumed that both trip systems are inoperable, restore at least one trip system to operable status within one hour or reactor power to < 30% within 6 hrs.