LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

ANNUAL OPERATING REPORT

DECEMBER 7, 1984 THROUGH DECEMBER 31, 1985

W E Steiger 2/28/86

Approved Date
W. E. Steiger
Plant Manager

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1.0 Summary of Operating Experience

Low Power (.001%) Operating License NPF-19 was issued to the Shoreham Nuclear Power Station by the U. S. Nuclear Regulatory Commission on December 7, 1984. Following receipt of this license, the operational sources were loaded into the reactor vessel on December 17. Fuel loading commenced on December 21, and was completed on January 19, 1985. Initial reactor criticality occurred at 6:25 P.M. on February 15, which was followed by two days of core physics testing. The core reactivity was found to be within .06% of its design value, well within the acceptance criteria.

All testing that could be performed under the license limitation of low power testing at atmospheric pressure was completed on February 17. For the next four and a half months Shoreham was maintained in cold shutdown pending receipt of an operating license that would authorize Phase III and IV activities as described in several licensing submittals before the Low Power Atomic Safety and Licensing Board. During this outage a vessel leak test was performed and the Control Rod Drive mechanism cooling water orifices were cleaned and replaced to correct a low flow problem caused by spalling of scram inlet valve seats which were made of Teflon.

Following the issuance of the Partial Initial Decision on emergency diesel generators LBP-85-18, operating license NPF-36 was issued on July 3, 1985, enabling low power testing at power levels not to exceed 5% of rated power. Plant heatup commenced on July 7 and continued for three months. On July 14 the first reactor scram occurred (one of only four to occur during the year). Rated reactor pressure was reached on August 7, followed by a gradual heatup. Testing was performed at intervals during this and subsequent heatups to ensure that all systems were operating correctly. The events comprising initial criticality and low power testing are described in the Startup Test Report (Reference SNRC-1216).

Repeated problems were experienced with the reactor level instrumentation, the most serious of which resulted in an Unusual Event being declared on September 8 and the fourth reactor scram on September 12. The root cause was traced to inadequate slope for portions of the reference legs of both loops. Interim corrective action was taken and a permanent modification is now complete.

On September 27 an alert was declared, in accordance with Emergency Planning Procedure EPIP 1-0, when the eye of Hurricane Gloria approached to within 10 miles of the plant. The reactor had been shut down in anticipation of this occurrence. No damage occurred to the plant.

On October 6 the main turbine generator was rolled to rated speed, but was not synchronized to the grid. On October 8 essentially all testing possible under the existing low power testing license had been completed. The reactor was shut down on that date, and remained shut down through the end of the year. Major activities during this outage included replacement of the neutron sources and implementation of the remaining Environmental Qualification Modifications (Reference SNRC-1235).

At the years end the reactor was in Cold Shutdown, with the vessel head removed and the reactor cavity fully flooded while plant modifications were being performed.

2.0 Summary of Operating Experience Relating to Safety-Related Non-Corrective Maintenance

During 1985, Safety Related Maintenance performed during non-outage periods consisted primarily of Preventive Maintenance Program implementation and minor corrective Maintenance tasks in support of the Power Ascension Test Program. Preventive Maintenance has been classified into two major categories, Mechanical/Electrical, and Instrument and Controls (I&C).

In the category of Mechanical/Electrical, 924 preventive tasks were completed and in the I&C category, 413 tasks were completed.

Additionally, LILCO continues to perform surveillances and preventive maintenance activities as suggested by the engine manufacturer on the Transamerica DeLaval, Incorporated emergency diesel generators. The specific preventive maintenance activity which began in the November - December 1985 time period fulfills the eighteen month surveillance requirement contained in Section 4.8.1.1.2, paragraph e, item 1, and is expected to be complete by mid-April 1986.

3.0 Summary of Events Conducted During Outage

Between February 17 and July 7, 1985, Shoreham was shut down pending issuance of the low power testing license NPF-36. During this outage a vessel leak test was performed and the control rod drive mechanism cooling water orifices were cleaned and replaced. There were no reportable occurrences pertaining to this outage.

On October 8, 1985 Shoreham's heatup testing under the existing low power testing license NPF-36 was completed except for the synchronization of the main turbine generator to the grid. The reactor was placed in Cold Shutdown to replace the neutron sources and to perform several plant modifications. LILCO installed various pieces of equipment necessary to satisfy the Commission regulation concerning environmental qualification of electrical equipment, 10 CFR 50.49; increased the number of fire detectors and relocated others to enhance the fire protection program; made necessary changes to the post-accident sampling facility; and performed other minor modifications.

3.1 Reportable Occurrences

Licensee Event Reports (LER) 85-006, 85-017, 85-020, 85-038, 85-042 and 85-043 prompted an engineering evaluation for modifications to the "A" and "B" water level instrumentation reference legs. Materials were ordered in December for these modifications and work is now complete. LER 85-055 reports on the completion of replacement of electrical equipment that was not environmentally qualified per 10CFR50.49 and license condition 2.C.8 of NPF-36.

3.2 Corrective Maintenance Pertaining to the Outage

3.2.1 Corrective Maintenance for Environmental Qualification

Corrective Station Modifications for the environmental qualification of electrical equipment that were completed in 1985 are as follows:

Design Output Package No. (DOP)	Station Mod. No.	Title	Return to Service
83-052	85-048	Addition of Circuit Breakers	10-10-85
83-074	85-084	Restore Beck Actuator Wiring	11-23-85
83-084	85-014	Replace (2) Barton Level Transmitters with Rosemount Transmitters	11-29-85
83-085	85-029	Replace Bailey Pressure Transmitters	9-05-85
83-094	85-049	Addition of 125 VDC Series Breaker to Recirculation Pump Trip Switchgear	8-29-85
83-095	85-045	High Radiation Area Monitor Cable Assembly Replacement	12-27-85
83-096	85-077	Low Pressure Coolant Injection Motor-Generated Sets Feeder Breakers Trip Control Circuits	12-18-85
83-113	85-085	EQ Modification to Charcoal Filter Train	11-30-85
83-126	85-090	Change-Out Components on Hydrogen Recombiner	12-26-85
84-002	85-095	Replace Raymond MASR Series Damper Actuators (9) (with SURE series)	12-20-85
84-007	85-079	Replacement of Flow Transmitter in the Reactor Building Standby Ventilation System	12-12-85
84-008	85-052	Install a Breaker to Isolate Radiation Monitor Panel in Turbine Building	11-06-85
84-009	85-088	Replace High Pressure Coolant Injection Control Panel to Reduce Radiation Dose	11-30-85
84-031	85-054	Replace Low Range Accident Radiation Monitoring Panel	12-24-85

Design Output Package No. (DOP)	Station Mod. No.	Title	Return to Service
84-098	85-055	Replacement of Flexible Conduit for (93) GE Instrument Panels in Reactor Building	11-26-85
85-006	85-070	Replacement of SMB-3 Actuators with SB 3 Type	10-30-85
85-017	85-092	Replacement of Ametek Flow Element Transmitter	12-30-85
85-038	85-099	Component Change Out 480V AC MCC (Affects 4 MCC Units)	11-29-85
85-039	85-076	HVAC Instrumentation	11-30-85
85-046	85-064	Replacement of Magnetrol Level Switches (6)	11-25-85
85-062	85-050	Fuse Isolation for Unqualified Position Switch on HPCI Turbine Skid	11-15-85
85-246	85-121	Splicing Instrument Cables to Eliminate Terminal Blocks for EQ	11-29-85
85-263	85-122	Three (3) ASCO Pressure Switches to be Eliminated because of a lack of suitable Dynamic Qualification Data	11-30-85
EEAR 85-047***		Replacement of ASCO Pressure Switches	11-29-85 (last of 15)
LDR 85-118		Replacement of GE Radiation Detector Waterproof Kits.	11-29-85

3.2.2 Corrective Maintenance for NRC Unresolved Item 84-46-05

Corrective maintenance in response to NRC Inspection Report 84-46 (Unresolved Item 84-46-05, non-conformance to NFPA 72 D/E) for the installation of additional fire detectors and the relocation of others were evaluated under Design Output Package 85-016 and performed under Station Modification 85-012. Work conducted under this Station Modification was performed throughout the year and completed in December 1985. Six (6) Function B type heat detectors were relocated in the HPCI skid area. A total of 305 fire detectors have been installed. A break down of type and location are as follows:

Location	Fire Detector Type	Additional Installation
Control Building	Function B Heat	18
	Function A Smoke	57
	Function A Flame	9
Rx. Bld. Secondary Containment	Function A Heat	29
	Function A Smoke	190
Screenwell Pump House	Function A Smoke	2

A license amendment has been requested via SNRC-1220 to reflect the revised detector locations.

3.2.3 Corrective Maintenance to the Post Accident Sampling Facility

Corrective maintenance to the Post Accident Sampling Facility were made to provide a more representative coolant gas sample, prevent nitrogen overpressurization, provide a back-up water and air supply, replace the oxygen analyzer sensor with a new high pressure sensor, replace regulating air metering valves with fine control metering valves, and to modify the PASS Control Panel mimic diagram to depict the as-built condition.

The Station Modifications for the Post Accident Sampling Facility are as follows:

Design Output Package No. (DOP)	Station Mod. No.	Title	Return to Service
85-043	85-071	Tubing Modification	10-11-85
85-072	85-072	Nitrogen Overpressurization Prevention	9-12-85
85-134	85-086	Addition of an Ultimate Condensate Water Supply	10-31-85
85-149	85-083	Addition of an Ultimate Compressed Air Source	10-17-85
85-286	86-005	PASS Oxygen Analyzer & Subsidiary Modification	*

* Work is currently being performed. Return to Service will be within the first quarter of 1986.

3.3 ECC Systems Outage

From December 7, 1984 to December 31, 1985 there were 65 limiting conditions for operations (LCO's) for the ECC Systems. 32 of the 65 LCO's were actual requirements per Technical Specifications. The remaining 29 were for tracking. At Shoreham, an LCO is categorized as a "tracking LCO" if the technical specification LCO occurred while the reactor was in an operational mode other than that for which the LCO is applicable. It is for this reason that the HPCI inoperability due to the turbine exhaust check valve problem is not included in the table describing the thirty-two (32) LCOs. Tracking LCOs are none-the-less important because they provide assurance that operability will be restored prior to entering the applicable operational mode. Of the 32 actual LCO's the breakdown is as follows.

16 are for E11, Residual Heat Removal (RHR)
6 are for E21, Core Spray (CS)
9 are for E41, High Pressure Coolant Injection (HPCI)
1 is for all the ECC systems

These 32 actual LCO's are detailed in Table 3.3-1 indicating for each component by system the outage dates, duration, and the reason for the outage. 24 of the 32 actual LCO's placed the system inoperable due to surveillance testing. 8 were due to equipment failure. The corrective action for these are described below.

LCO 85-325
Problem description: Panel 1H21-PNL-103B power supply inverter 1B21-INV-625D output failed low-no power light on.

Corrective Action: Replaced with new inverter.

LCO 85-350
Problem description: Thermal blew as valve 1E41*320MOV-041 went shut. Valve was found fully shut when thermal was reset.

Corrective action: Found valve operator torqueing too hard into seat. Torque currents were 70-118 amps. Lowered torque switch to 1.0 from 1.5 and torque currents dropped to 15.8 - 24.9 amps.

LCO 85-442
Problem description: With flow on RHR "A" Loop, valve E11*MOV-42A did not open when closed down.

Corrective action: Replaced two broken electrical terminal connection lugs for this valve.

LCO 85-453
Problem description: Water level indicators for the "B" reference leg read high and diverged from the water indicators for the "A" reference leg due to excess condensate accumulation in the steam line leading to the condensing chamber.

Corrective action: Added additional insulation and installed a hanger on the line to assure that line slope remains constant.

LCO 85-476
Problem description: Locking screw broke on flow switch making the switch repeatedly inaccurate.

Corrective action: Replaced flow switch with new one.

LCO 85-482 and 85-483
Problem description: Leak discovered at pipe weld test connection near MOV-40A.

Corrective action: Repaired leak in weld pipe to coupling connection.

LCO 85-487
Problem description: HPCI suction relief valve 1E41*320RY-145 leaks. Found disc and seat pitted.

Corrective action: Repaired valve: machined and lapped seat and disc.

TABLE 3.3-1

SYSTEM	COMPONENT	LCO #	DATE OUT OF SERVICE	DATE RETURNED TO SERVICE	DURATION DAYS	DURATION HRS.	REASON OUT
E11	Loop "B"	A85-040	1/30/85	1/31/85	1	8	Removed loop from service for LLRT
E11	MOV 47/48	A85-048	2/4/85	2/14/85	9	12	84.002.03 implementation of this surveillance procedure
E11	MOV 47/48	A85-088	3/4/85	3/4/85		5	I&C Hi/Press isolation surveillance.
E11	Snubber	A85-126	3/24/85	5/22/85	59	10	Snubber was removed to allow for CRD maintenance
E11	RHR sys A	A85-127	3/24/85	5/22/85	59	12	Snubber removed RHR A injection line
E11	RHR Shutdown cooling	A85-229	5/28/85	5/30/85	2	1	Repack MOV-047
E11	B LPCI Low Permissive	A85-325	7/4/85	7/4/85		14	B LPCI low pressure permissive affected by ECCS analog trip cabinets
E11	Shutdown cooling	A85-353	7/20/85	7/22/85			Perform TP 41.012.03
E11	Shutdown Cooling	A85-368	7/27/85	7/27/85		9	Shutdown cooling isolation surveillance
E11	MOV 042B	A85-417	8/22/85	8/22/85	1	11	Routine Operation of RHR for Suppression Pool cooling antirotational device
E11	Shutdown cooling	A85-424	8/25/85	8/26/85	1	10	Surveillance disables Shutdown cooling mode
E11	MOV-042A	A85-442	9/4/85	9/4/85			While running A loop in Suppression Pool cooling mode
E11	Shutdown Cooling	A85-465	9/13/85	9/13/85		13	In preparation of "B" Ref leg hydro

TABLE 3.3-1 (Con't)

SYSTEM	COMPONENT	LCO #	DATE OUT OF SERVICE	DATE RETURNED TO SERVICE	DURATION DAYS	DURATION HRS.	REASON OUT
E11	Low Pressure Coolant Injection "A" loop (WR 230 pipe)	A85-482	9/21/85	9/22/85	1	4	Leak at pipe weld in line number WR 230
E11	Suppression Pool spray	A85-483	9/21/85	9/22/85	1	4	Leak at pipe weld in line number WR 230
E11	RHR Shutdown Cooling	A85-560	11/13/85	11/18/85	5		Removed from service for I&C surveillance preventive maintenance
E21	Core Spray System "B" Loop	A85-075	2/24/85	2/28/85	4	15	Operations moved check valve must recheck local leak rate
E21	MOVs 33A/B	A85-144	4/4/85	4/4/85		2	Core spray injection valve surveillance
E21	MOV 33A/B	A85-200	5/11/85	5/11/85		4	Core spray injection valve open permissive surveillance
E21	Core Spray injection valve	A85-401	8/14/85	8/14/85			To perform SP 44.203.09
E21	Core spray injection valve "A" Loop	A85-459	9/11/85	9/11/85		7	Surveillance
E21	Core Spray injection valve "B" Loop	A85-462	9/11/85	9/11/85		4	Surveillance
E41	HPCI system	A85-329	7/9/85	7/9/85		11	Reactor pressure 150 psig
E41	HPCI system	A85-333	7/12/85	7/12/85			Performance of STP-15 de-energization of system motor operated valves and turbine quick start

TABLE 3.3-1 (Con't)

SYSTEM	COMPONENT	LCO #	DATE OUT OF SERVICE	DATE RETURNED TO SERVICE	DURATION DAYS	DURATION HRS.	REASON OUT
E41	MOV-041 steam inlet	A85-350	7/18/85	7/20/85	2	18	Upon receipt of isolation signal valve thermals blew
E41	Turbine stop valve	A85-378	8/3/85	8/10/85	7	7	SP 44.202.01 being performed
E41	HPCI Pump	A85-412	8/18/85	8/23/85	4	8	STP-15
E41	MOV-41	A85-464	9/12/85	9/16/85	3	8	MOV closed on automatic isolation
E41	FS-003	A85-476	9/19/85	9/20/85	1	5	Technician broke off locking screw while performing test
E41	HPCI system	A85-487	9/23/85	9/24/85			Outage for repair of leaking relief valve
E41	HPCI system	A85-488	9/24/85	9/28/85	4	2	Removed from service for hot restart & hot alignment
E11/E21/ E41	ADS, core spray	A85-453	9/8/85	9/8/85		.4	"B" RPV level reference leg leak

4.0 Personnel and Man-Rem by Work and Function

4.1 The following table entitled "SNPS Annual Dose (20.407) Report" was prepared to provide the information required by Technical Specification Section 6.9.1.4 and 10 CFR 20.407(a)(2). The total number of individuals for whom personnel monitoring was provided exceeds the total number of individuals for whom personnel monitoring is required under 10 CFR 20.202(a). This information is included in this annual operating report and will be transmitted to the Director, Nuclear Regulatory Research under another transmittal letter.

SNPS ANNUAL DOSE (20.407) REPORT

START DATE - 01/01/85
END DATE - 12/31/85

WHOLE BODY EXPOSURE RANGES	NUMBER INDIVIDUALS IN RANGE
NO MEASURABLE EXPOSURE (Rem)	1606
MEASURABLE EXPOSURE ≤0.1	577
0.1 TO 0.25	31
0.25 TO 0.5	4
0.5 TO 0.75	3
0.75 TO 1.00	1
1.00 TO 2.00	0
2.00 TO 3.00	0
3.00 TO 4.00	0
4.00 TO 5.00	0
5.00 TO 6.00	0
6.00 TO 7.00	0
7.00 TO 8.00	0
8.00 TO 9.00	0
9.00 TO 10.00	0
10.00 TO 11.00	0
11.00 TO 12.00	0
12.00+	0

4.2 The following table, entitled "Personnel and Man-Rem by Work and Job Function", was prepared to comply with the requirements of Section 6.9.1.5 of the SNPS Technical Specifications. It was prepared using the guidance contained in Regulatory Guide 1.16, Appendix A, and presents data which goes beyond our Technical Specification requirements. Minor differences are due to rounding off values. The column entitled 'Station Employees' applies to all LILCO employees whose normal work location is the Shoreham Nuclear Power Station. The column entitled 'Utility Employees' applies to LILCO employees whose normal work location is not at the Shoreham Nuclear Power Station.

PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

Work and Job Function[1]	Number of Personnel (>100 mrem)			Total Man-Rem (2)		
	Station Employee	Utility Employees	Contract Worker and Others	Station Employees	Utility Employees	Contract Worker and Others
Reactor Operations and Surveillance						
Maintenance Personnel						
a) Maintenance	3	None	3	1.568	Insignificant	3.214
b) Instrument & Control	-	None	1	0.525	Insignificant	0.448
c) Computer Engineering	-	None	-	0.030	Insignificant	-
Operations Personnel						
a) Operations	1	None	-	1.109	Insignificant	0.076
b) Reactor Engineering	-	None	10	0.212	Insignificant	3.545
c) Systems Engineering	-	None	-	0.144	Insignificant	0.068
Radiological Controls						
a) Health Physics	11	None	8	3.73	Insignificant	2.04
b) Radiochemistry	-	None	-	0.06	Insignificant	0.13
c) Radwaste	1	None	-	0.17	Insignificant	-
Supervisory/Management	-	None	1	0.16	Insignificant	0.410
Engineering (Not Operations)						
a) Rad. Protection	-	None	-	0.070	Insignificant	-
b) Nuclear Systems	-	None	-	0.140	Insignificant	0.010
c) Project Engineering	-	None	-	0.140	Insignificant	0.290
Outage/Modifications						
a) Outage Planning	-	None	-	-	Insignificant	-
b) Planning & Scheduling	-	None	-	0.010	Insignificant	-
c) Modifications	-	None	-	0.050	Insignificant	0.10

PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

Work and Job Function[1]	Number of Personnel (> 100 mrem)			Total Man-Rem (2)		
	Station Employee	Utility Employees	Contract Worker and Others	Station Employees	Utility Employees	Contract Worker and Others
Nuclear Operations Support Department						
a) QA/QC	-	None	-	0.116	Insignificant	0.012
b) Security	-	None	-	0.010	Insignificant	0.430
c) Training	-	None	-	0.07	Insignificant	0.110
Function Total						
Maintenance	3	None	4	2.12	Insignificant	3.66
Operations	1	None	10	1.47	Insignificant	3.69
Radiological Controls (includes H.P.)	12	None	8	3.96	Insignificant	2.17
Supervisory/Management	-	None	1	0.16	Insignificant	0.41
Engineering (not Operations)	-	None	-	0.35	Insignificant	0.30
Outage/Modifications	-	None	-	0.06	Insignificant	0.10
Nuclear Operations Support	-	None	-	0.19	Insignificant	0.56
GRAND TOTAL	16		23	8.32		10.89

(1) Doses associated with low power testing
(2) Represents 100% of cumulative man-rem exposures

5.0 Fuel Performance

There were no indications of fuel failure at Shoreham for 1985. No special irradiated fuel examinations were conducted. Such testing was unwarranted due to the low operational power level.

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

MAR 0 3 1986

SNRC-1238

Dr. Thomas E. Murley
Office of Inspection and Enforcement
Region 1
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Annual Operating Report
Shoreham Nuclear Power Station
Docket No. 50-322

Dear Dr. Murley:

Pursuant to the requirements of Shoreham Technical Specification Sections 6.9.1.4 and 6.9.1.5, attached is a copy of the Annual Operating Report.

If there are any questions, please contact this office.

Very truly yours,

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

PGP:ck

Attachment

cc: R. Caruso
J. A. Berry

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