Public Service
Electric and Gas
Company

Steven E. Miltenberger
Vice President and Chief Nuclear Officer

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United States Nuclear Regulatory Commission
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Gentlemen:

TECHNICAL SPECIFICATION 6.9.1.5 ANNUAL REPORTS
SALEM AND HOPE CREEK GENERATING STATIONS
DOCKET NOS. 50-272, 50-311 AND 50-354

Public Service Electric and Gas Company (PSE&G) hereby submits the enclosed Annual Reports for Salem and Hope Creek Generating Stations, in accordance with Technical Specification 6.9.1.5.a and 6.9.1.5.b of Appendix A to Facility Operating License Nos. DPR-70, DPR-75, and NPF-57.

Pursuant to Technical Specification 6.9.1.5.a, Enclosures 1,2, and 3 are submitted for Salem Unit 1, Salem Unit 2, and Hope Creek Unit 1, respectively. These enclosures contain tabulations on an annual basis of the number of station, utility and other personnel receiving exposures greater than 100 mrem/year and their associated man rem exposures according to work and job function for each unit. These tabulations are intended to supplement the requirements of 10CFR20, Section 20.407.

Pursuant to Technical Specification 6.9.1.5.b, Enclosure 4 is submitted for Salem Unit 1. Enclosure 4 documents the results of steam generator tube inservice inspections performed during the 8th Refueling Outage of Salem Unit 1 in April 1989. Salem Unit 2 did not have any steam generator tube inspections in 1989.

The Annual Report of Challenges to Main Steam Line Safety/Relief Valves for the Hope Creek Generating Station required by Technical Specification 6.9.1.5.b of Appendix A to facility Operating License No. NPF-57 is being transmitted separately.

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Should you have any questions or comments regarding this submittal, please contact us.

Sincerely,

Enclosures (4)

C Mr. J. C. Stone
Licensing Project Manager - Salem

Mr. C. Y. Shiraki
Licensing Project Manager - Hope Creek

Mr. T. Johnson
Senior Resident Inspector

Mr. W. T. Russell, Administrator
Region I

Mr. Kent Tosch, Chief
New Jersey Department of Environmental Protection
Division of Environmental Quality
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CN 415
Trenton, NJ 08625

PUBLIC SERVICE ELECTRIC
HANCOCK'S BRIDGE, N.J. 08038

DATE 01/16/90
REGULATORY
REPORT FOR
YEAR: 1989

SALEM 1
PERSONNEL AND MAN-MREM BY WORK AND JOB FUNCTION

WORK AND JOB FUNCTION (PERSONNEL GROUPING)	NUMBER OF PERSONNEL (>100 MREM) STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS	TOTAL MAN-MREM STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS
REACTOR OPERATIONS AND SURVEILLANCE						
MAINTENANCE	0	0	0	434	1	251
OPERATING	0	0	0	587	0	45
HEALTH PHYSICS	2	0	0	834	76	154
CHEMISTRY	0	0	0	0	0	0
SUPERVISORY	0	0	0	0	12	5
ENGINEERING	0	0	0	66	5	0
I&C	0	0	0	146	0	0
SECURITY	0	0	0	0	0	0
ROUTINE MAINTENANCE						
MAINTENANCE	0	0	0	1623	69	1224
OPERATING	1	0	0	1733	0	44
HEALTH PHYSICS	11	0	1	2794	104	289
CHEMISTRY	0	0	0	133	0	0
SUPERVISORY	0	0	0	7	151	9
ENGINEERING	1	0	0	336	71	44
I&C	0	0	0	144	0	151
SECURITY	0	0	0	0	0	227
INSERVICE INSPECTION						
MAINTENANCE	0	0	0	0	0	141
OPERATING	0	0	0	0	0	0
HEALTH PHYSICS	0	0	0	4	0	1
CHEMISTRY	0	0	0	0	0	0
SUPERVISORY	0	0	0	0	2	0
ENGINEERING	0	0	0	0	0	0
I&C	0	0	0	0	0	0
SECURITY	0	0	0	0	0	0
SPECIAL MAINTENANCE						
MAINTENANCE	0	0	6	1411	28	2842
OPERATING	0	0	0	74	0	4
HEALTH PHYSICS	4	0	0	1729	0	141
CHEMISTRY	0	0	0	11	0	0
SUPERVISORY	0	0	0	1	54	0
ENGINEERING	1	0	0	172	7	0
I&C	0	0	0	12	0	80
SECURITY	0	0	0	0	0	3

PERSONNEL EXPOSURE AND MONITORING FOR EXPOSURE YEAR: 1989

NRC DOCKET NUMBER: 50-272

LICENSEE: PUBLIC SERVICE ELECTRIC AND GAS DATE: 01/16/90

PUBLIC SERVICE ELECTRIC
HANCOCK'S BRIDGE, N.J. 08038

DATE:01/16/90

SALEM 1
PERSONNEL AND MAN-MREM BY WORK AND JOB FUNCTION

REGULATORY REPORT FOR YEAR: 1989

WORK AND JOB FUNCTION (PERSONNEL GROUPING)	NUMBER OF PERSONNEL (>100 MREM) STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS	TOTAL MAN-MREM STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS
WASTE PROCESSING						
MAINTENANCE	0	0	2	71	0	540
OPERATING	1	0	0	283	0	0
HEALTH PHYSICS	8	0	1	2657	104	453
CHEMISTRY	0	0	0	0	0	0
SUPERVISORY	0	0	0	0	112	0
ENGINEERING	0	0	0	147	0	0
I&C	0	0	0	0	0	4
SECURITY	0	0	0	0	0	12
REFUELING						
MAINTENANCE	100	1	327	59453	829	166040
OPERATING	22	0	1	5680	0	119
HEALTH PHYSICS	31	2	47	18279	1377	21883
CHEMISTRY	0	0	0	91	10	0
SUPERVISORY	0	8	2	77	2109	490
ENGINEERING	8	2	3	3025	684	782
I&C	2	0	6	904	0	3162
SECURITY	0	0	0	0	0	116
TOTAL						
MAINTENANCE	100	1	335	62992	927	171038
OPERATING	24	0	1	8357	0	212
HEALTH PHYSICS	56	2	49	23503	361	22921
CHEMISTRY	0	0	0	2896	1377	0
SUPERVISORY	0	8	2	211	341	504
ENGINEERING	10	2	3	3417	2192	826
I&C	2	0	6	1398	684	3397
SECURITY	0	0	0	114	0	358
GRAND TOTAL:	192	13	396	102888	5882	199256

PERSONNEL EXPOSURE AND MONITORING FOR
EXPOSURE YEAR: 1989

NRC DOCKET NUMBER:50-272

LICENSEE: PUBLIC SERVICE ELECTRIC AND GAS DATE: 01/16/90

PUBLIC SERVICE ELECTRIC
HANCOCK'S BRIDGE, N.J. 08038

DATE 01/16/90
REGULATORY
REPORT FOR
YEAR: 1989

SALEM 2
PERSONNEL AND MAN-MREM BY WORK AND JOB FUNCTION

WORK AND JOB FUNCTION (PERSONNEL GROUPING)	NUMBER OF PERSONNEL (>100 MREM) STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS	TOTAL MAN-MREM STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS
REACTOR OPERATIONS AND SURVEILLANCE						
MAINTENANCE	0	0	0	247	0	154
OPERATING	0	0	0	472	0	56
HEALTH PHYSICS	0	0	0	182	15	50
CHEMISTRY	0	0	0	0	0	0
SUPERVISORY	0	0	0	0	13	5
ENGINEERING	0	0	0	42	3	7
I&C	0	0	0	198	0	0
SECURITY	0	0	0	0	0	0
ROUTINE MAINTENANCE						
MAINTENANCE	2	0	0	1974	71	1554
OPERATING	1	0	0	1837	0	44
HEALTH PHYSICS	12	0	1	3029	105	674
CHEMISTRY	0	0	0	127	0	0
SUPERVISORY	0	0	0	7	237	11
ENGINEERING	1	0	0	373	8	44
I&C	0	0	0	114	0	215
SECURITY	0	0	0	0	0	227
INSERVICE INSPECTION						
MAINTENANCE	0	0	0	0	0	125
OPERATING	0	0	0	0	0	0
HEALTH PHYSICS	0	0	0	0	0	1
CHEMISTRY	0	0	0	9	0	0
SUPERVISORY	0	0	0	0	0	0
ENGINEERING	0	0	0	0	0	0
I&C	0	0	0	0	0	0
SECURITY	0	0	0	0	0	0
SPECIAL MAINTENANCE						
MAINTENANCE	4	0	11	2165	64	2866
OPERATING	0	0	0	165	0	0
HEALTH PHYSICS	0	0	0	688	1	3
CHEMISTRY	0	0	0	4	0	0
SUPERVISORY	0	1	0	0	121	0
ENGINEERING	0	0	0	97	6	0
I&C	0	0	0	116	0	16
SECURITY	0	0	0	2	0	28

PERSONNEL EXPOSURE AND MONITORING FOR
EXPOSURE YEAR: 1989

NRC DOCKET
NUMBER:50-311

LICENSEE: PUBLIC SERVICE ELECTRIC AND GAS DATE: 01/16/90

PUBLIC SERVICE ELECTRIC
HANCOCK'S BRIDGE, N.J. 08038

DATE:01/16/90

SALEM 2
PERSONNEL AND MAN-MREM BY WORK AND JOB FUNCTION

REGULATORY REPORT FOR YEAR: 1989

WORK AND JOB FUNCTION (PERSONNEL GROUPING)	NUMBER OF PERSONNEL (>100 MREM) STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS	TOTAL MAN-MREM STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS
WASTE PROCESSING						
MAINTENANCE	0	0	4	43	0	1176
OPERATING	0	0	0	6	0	0
HEALTH PHYSICS	8	0	3	2939	130	967
CHEMISTRY	0	0	0	0	0	0
SUPERVISORY	0	0	0	0	196	0
ENGINEERING	0	0	0	100	0	0
I&C	0	0	0	45	0	4
SECURITY	0	0	0	0	0	0
REFUELING						
MAINTENANCE	3	0	1	2135	3	1246
OPERATING	0	0	0	54	0	1
HEALTH PHYSICS	0	0	0	868	11	162
CHEMISTRY	0	0	0	20	0	0
SUPERVISORY	0	0	0	0	68	1
ENGINEERING	0	0	0	97	159	36
I&C	0	0	0	161	0	55
SECURITY	0	0	0	0	0	0
TOTAL						
MAINTENANCE	9	0	16	6564	138	7121
OPERATING	1	0	0	2534	0	101
HEALTH PHYSICS	20	0	4	7715	262	1857
CHEMISTRY	0	0	0	151	0	0
SUPERVISORY	0	1	0	7	635	17
ENGINEERING	1	0	0	709	176	87
I&C	0	0	0	634	0	290
SECURITY	0	0	0	2	0	255
GRAND TOTAL:	31	1	20	18316	1211	9728

PERSONNEL EXPOSURE AND MONITORING FOR EXPOSURE YEAR: 1989

NRC DOCKET NUMBER:50-311

LICENSEE: PUBLIC SERVICE ELECTRIC AND GAS DATE: 01/16/90

PUBLIC SERVICE ELECTRIC
HANCOCK'S BRIDGE, N.J. 08038

DATE 01/16/90
REGULATORY
REPORT FOR
YEAR: 1989

HOPE CREEK
PERSONNEL AND MAN-MREM BY WORK AND JOB FUNCTION

WORK AND JOB FUNCTION (PERSONNEL GROUPING)	NUMBER OF PERSONNEL (>100 MREM) STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS	TOTAL MAN-MREM STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS
REACTOR OPERATIONS AND SURVEILLANCE						
MAINTENANCE	2	2	8	3000	387	5757
OPERATING	37	1	0	14561	289	6
HEALTH PHYSICS	16	0	5	3840	102	2319
CHEMISTRY	9	1	1	2727	185	172
SUPERVISORY	0	0	0	262	93	71
ENGINEERING	1	0	0	1357	159	102
I&C	7	0	0	3757	0	24
SECURITY	0	0	1	13	0	625
ROUTINE MAINTENANCE						
MAINTENANCE	1	0	6	563	181	3229
OPERATING	0	0	0	100	0	0
HEALTH PHYSICS	11	0	3	3149	64	1529
CHEMISTRY	1	0	0	733	34	0
SUPERVISORY	0	0	0	0	2	12
ENGINEERING	0	0	0	59	43	34
I&C	5	0	0	3055	0	11
SECURITY	0	0	0	5	0	46
INSERVICE INSPECTION						
MAINTENANCE	0	0	47	174	6	33574
OPERATING	0	0	0	26	0	0
HEALTH PHYSICS	1	0	1	379	0	199
CHEMISTRY	0	0	0	0	0	0
SUPERVISORY	0	0	0	0	0	46
ENGINEERING	3	0	0	899	78	0
I&C	0	0	0	0	0	48
SECURITY	0	0	0	0	0	0
SPECIAL MAINTENANCE						
MAINTENANCE	51	1	113	19443	261	36468
OPERATING	13	0	0	5632	7	10
HEALTH PHYSICS	28	0	11	10634	23	3079
CHEMISTRY	0	0	0	31	0	12
SUPERVISORY	0	1	1	179	166	184
ENGINEERING	1	2	0	570	649	41
I&C	41	0	1	13456	0	236
SECURITY	0	0	0	0	0	44

PERSONNEL EXPOSURE AND MONITORING FOR EXPOSURE YEAR: 1989

NRC DOCKET NUMBER: 50-354

LICENSEE: PUBLIC SERVICE ELECTRIC AND GAS DATE: 01/16/90

PUBLIC SERVICE ELECTRIC
HANCOCK'S BRIDGE, N.J. 08038

HOPE CREEK
PERSONNEL AND MAN-MREM BY WORK AND JOB FUNCTION

REGULATORY REPORT FOR YEAR: 1989

WORK AND JOB FUNCTION (PERSONNEL GROUPING)	NUMBER OF PERSONNEL (>100 MREM)			TOTAL MAN-MREM		
	STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS	STATION EMPLOY-EES	UTILITY EMPLOY-EES	CONTRACT WORKERS & OTHERS
WASTE PROCESSING						
MAINTENANCE	0	0	4	230	3	1280
OPERATING	12	0	0	3031	0	0
HEALTH PHYSICS	12	0	4	3170	18	1447
CHEMISTRY	0	0	0	5	1	3
SUPERVISORY	0	0	0	34	9	42
ENGINEERING	0	0	0	258	0	1
I&C	0	0	0	118	0	0
SECURITY	0	0	0	0	0	33
REFUELING						
MAINTENANCE	59	2	364	24370	600	185125
OPERATING	26	1	0	7527	145	34
HEALTH PHYSICS	30	0	28	14140	11	14734
CHEMISTRY	1	0	0	207	0	2
SUPERVISORY	4	2	3	1585	436	982
ENGINEERING	6	8	2	2128	6637	546
I&C	43	0	0	17198	0	252
SECURITY	0	0	0	0	0	67
TOTAL						
MAINTENANCE	113	5	542	47780	1438	265433
OPERATING	88	2	0	30877	441	50
HEALTH PHYSICS	98	0	52	35312	218	23307
CHEMISTRY	11	1	1	3703	220	189
SUPERVISORY	4	3	4	2060	706	1337
ENGINEERING	11	10	2	5271	7566	724
I&C	96	0	1	37584	0	571
SECURITY	0	0	1	18	0	815
GRAND TOTAL:	421	21	603	162605	10589	292426

PERSONNEL EXPOSURE AND MONITORING FOR EXPOSURE YEAR: 1989

NRC DOCKET NUMBER: 50-354

LICENSEE: PUBLIC SERVICE ELECTRIC AND GAS DATE: 01/16/90

ISI SUBMITTAL TO
SALEM UNIT 1 ANNUAL OPERATING REPORT FOR 1989
STEAM GENERATOR TUBE INSERVICE INSPECTION

In April of 1989, Westinghouse Nuclear Services Division, under the direction of the Salem ISI group, performed steam generator inspections at Public Service Electric and Gas Company's Salem Generation Station Unit 1 during the 8th refueling outage. All eddy current testing was collected from the hot leg side of the steam generators with the SM-10W No Entry Fixture, using the MIZ-18A digital multi-frequency eddy current system. Eddy current testing was divided into two phases as shown below:

Phase 1 - 11 steam generator was selected as the Tech. Spec. sample generator. The original scope called for testing of approximately 35% of the tubes (1202) in 11 steam generator which included:

(a). 12% random sample required by technical specification (406 tubes)

(b). Row 1 and 2 tubes as per a commitment made in Unit 2 LER 311/88-019-00.

(c). Row 8 through 12 tubes for AVB geometry analysis and to meet the requirements of NRC Bulletin 88-02.

(d). All tubes with previous indications from past refueling outages.

Phase 2 - Row 1 and 2 tubes in 12, 13 and 14 steam per a commitment made in Unit 2 LER 311/88-019-00 and any tubes in these generators which had previous indications from past refueling outages.

The following is a summary of results:

NOTE As a result of the Row 1 and 2 testing conducted in Phase 1 and Phase 2, evidence of tangential cracking in a number of Row 1 tubes was discovered. PSE&G decided to mechanically plug all previously unplugged Row 1 tubes in 11 through 14 steam generators

a. PHASE 1 TESTING -

11 Steam Generator - A total of 1402 tubes were tested. Due to the detection of one pluggable indication while performing Phase 1 (a) testing, an additional 200 tubes were inspected.

Note. Credit was taken for the tubes inspected in (b) and (c) of the Phase 1 testing in the sample expansion.

Eighty-eight (88) tubes were plugged as a result of this eddy current inspection of which eighty-four (84) were Row 1 tubes.

b. PHASE 2 TESTING -

Steam Generator 12: A total of 205 tubes were tested. Eighty-nine (89) tubes were plugged as a result of this eddy current inspection of which eighty-four (84) were Row 1 tubes.

Steam Generator 13: A total of 207 tubes were tested. Eighty-six (86) tubes were plugged as a result of this eddy current inspection of which eighty-three (83) were Row 1 tubes.

Note: Three (3) Category "4" plugs were removed from 13 steam generator hot leg and replaced with Category "16" plugs and one (1) Category "4" plug had a hot leg PIP (plug in plug) installed.

Steam Generator 14: A total of 710 tubes were tested. One-hundred (100) tubes were plugged as a result of this eddy current inspection of which eighty-four (84) were Row 1 tubes.

Note: One (1) hot leg PIP (plug in plug) installed in 14 steam generator due to an unanalyzed plug heat existing in that location.

Current Status of the Steam Generators:

At this time the total number of tubes plugged in Salem Unit 1 Steam Generators is:

Generator #	11	12	13	14
Tubes plugged	102	107	103	131

Note: The first five (5) and the last five (5) tubes in row 1 were explosively plugged because of a generic wearing problem on the tubes due to the vibration of the tube lane blocking device.

This attachment is a listing, by steam generator, of the location and [illegible] of all-thickness penetration for each indication of an imperfection left unplugged, which is required to be included in the Annual Operating Report.

Indication Term Descriptions:

TSH, TSC - Top of tubesheet hot and cold
#H, #C - # of support plate hot and cold, e.g., 1H, 2C, etc.
AV1, AV2, AV3, AV4 - Anti-Vibration Bars

11 STEAM GENERATOR

ROW	COLUMN	% WALL THICKNESS	LOCATION
37	21	<20%	1C
43	38	<20%	2C
46	48	24%	1C
39	50	27%	AV3
44	59	20%	2C
11	66	<20%	TSH
19	66	24%	TSH
11	67	<20%	TSH
11	68	23%	TSH
11	69	<20%	TSH
21	86	23%	AV3
45	40	<20%	2C

12 STEAM GENERATOR

ROW	COLUMN	% WALL THICKNESS	LOCATION
40	24	29%	AV3
45	37	20%	AV3
38	46	27%	AV3
43	48	29%	AV2
39	54	24%	AV1
41	63	29%	AV2
27	69	27%	AV2

13 STEAM GENERATOR

ROW	COLUMN	% WALL THICKNESS	LOCATION
28	11	<20%	2C
9	13	<20%	TSC
38	24	21%	AV2
43	31	<20%	1C
38	63	26%	5C
31	67	<20%	6C
37	76	21%	1C
35	78	<20%	1C
34	79	29%	2C
28	85	22%	2C

14 STEAM GENERATOR

ROW	COLUMN	% WALL THICKNESS	LOCATION
8	2	28%	1C
10	2	29%	1C
11	4	29%	1C
12	4	24%	1C
13	4	<20%	1C
15	4	29%	1C
16	4	25%	1C
17	6	29%	1C
28	10	23%	1C
25	11	28%	2C
29	12	<20%	1C
28	13	26%	2C
30	13	29%	1C
31	14	<20%	1C
33	16	27%	2C
32	17	<20%	1C
33	17	22%	2C
35	17	29%	1C
41	27	20%	AV2
44	35	<20%	1C
28	44	27%	AV2
45	58	24%	2C
45	59	<20%	2C
42	62	26%	2C
19	63	28%	2H
18	64	<20%	6H
41	65	24%	AV3
42	66	26%	3C
14	75	26%	TSC
35	76	<20%	2C
34	78	22%	1C
32	79	23%	1C
29	81	21%	1C
31	81	28%	1C
28	83	<20%	1C
29	83	<20%	1C
24	85	24%	1C
18	87	<20%	5C
22	87	<20%	1C
22	88	<20%	1C
23	88	21%	1C
20	89	20%	1C
7	92	<20%	1C
7	93	<20%	1C
11	93	20%	1C
3	94	<20%	1C

Robert Brandt
Inspection Services Engr
2/7/90