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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	:	
	:	
Public Service Electric and Gas Company	:	Docket No. 50-354 OL
	:	
(Hope Creek Generating Station)	:	

APPLICANT'S RESPONSE TO INTERVENOR'S SECOND SET OF INTERROGATORIES AND REQUEST FOR PRODUCTION OF DOCUMENTS

Pursuant to the rules of practice of the Nuclear Regulatory Commission ("NRC"), 10 C.F.R. Section 2.740(b), and the Order of the Atomic Safety and Licensing Board of December 21, 1983 and the special prehearing conferences of November 22, 1983 and December 17, 1984, Applicant, Public Service Electric and Gas Company ("PSE&G"), hereby responds to the interrogatories propounded by the Intervenor, The Public Advocate of New Jersey, Joseph H. Rodriguez.

Several documents listed herein are proprietary and protected pursuant to 10 CFR 2.790 of the Commission's Regulations. If the intervenor desires to review these documents, it will be necessary to enter into an appropriate protective agreement with the designated company.

D503

PSE&G Public Service Electric and Gas Company

80 Park Plaza, Newark, NJ 07101 / 201 430-6468 MAILING ADDRESS / P.O. Box 570, Newark, NJ 07101

Richard Fryling, Jr. Associate General Solicitor - T5E

December 28, 1984

Richard E. Shapiro, Esq.
Director
Division of Public Interest Advocacy
Department of the Public Advocate
CN 850
Trenton, NJ 08625

Re: **Applicant's Response to Intervenor's Second Set of Interrogatories and Request for Production of Documents**
Hope Creek Generating Station
Docket No. 50-354 OL

Dear Mr. Shapiro:

Transmitted herewith is Applicant's Response to Intervenor's Second Set of Interrogatories as modified by Mrs. Laverty's December 20, 1984 letter to you. Documents referenced in these answers will be made available with the documents provided in response to your request for documents. Mr. Thurber has tentatively scheduled January 2, 1985 for this purpose.

Very truly yours,

Richard Fryling, Jr.

RF:mbb
Enclosures

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

Public Service Electric and Gas Company	)	
	)	Docket No. 50-354-OL
(Hope Creek Generating Station)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Response to Intervenor's Second Set of Interrogatories" in the captioned matter have been served upon the following by deposit in the United States mail on this 28th day of December, 1984:

Marshall E. Miller, Esq.
Chairman
Atomic Safety and
Licensing Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Dr. Peter A. Morris
Atomic Safety and
Licensing Board Panel
U.S. Nuclear Regulatory
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Washington, D.C. 20555

Dr. David R. Schink
Atomic Safety and
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Atomic Safety and
Licensing Appeal Panel
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8th Floor
820 N. French Street
Wilmington, DE 19810

Richard Fryling, Jr.

* Hand Delivered with service upon John P. Thurber, Esq.

STATE OF NEW JERSEY)
: SS.
COUNTY OF ESSEX)

RICHARD D. RIPPE, being first sworn, deposes and states:

That he is the Assistant General Manager - Engineering of Public Service Electric and Gas Company, the Applicant herein; that he has read the foregoing Applicant's Response to Intervenor's Second Set of Interrogatories and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

Richard D. Rippe

Richard D. Rippe
Assistant General Manager - Engineering

Subscribed and sworn to
before me this 28th day
of December, 1984.

Margaret M. Glynn

MARGARET M. GLYNN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires March 28, 1989

PUBLIC ADVOCATE

SECOND SET OF INTERROGATORIES

PART I PIPE CRACKS

1. For each of the following types of piping, list and identify all piping of that type that has been or is planned to be used in safety-related systems in the construction of the Hope Creek Generating Station. For each such piping, list the chemical composition, diameter, wall thickness, operating pressure and temperature, design pressure and temperature, and identify the system of which it is a part:

ANSWER:

(a) type 304 stainless steel piping;

Chemical Composition	Percentage
Carbon	0.08 (max.)
Manganese	2.00 (max.)
Phosphorus	0.045 (max.)
Sulfur	0.03 (max.)
Silicon	1.00 (max.)
Chromium	18.00 - 20.00
Nickel	8.00 - 12.00

Diameters	Nominal Wall Thicknesses	Part of System
4"	.337"	Reactor Water Clean-Up
12"	.711"	RHR Return
12"	.711"	Risers
20"	.966"	RHR Suction
22"	1.134"	Loops
28"	1.200"	Suction
28"	1.41"	Discharge

PUBLIC ADVOCATE
SECOND SET OF INTERROGATORIES
PART I - PIPE CRACKS

1. (a) Continued

DESIGN:	(Recirc. Suct.)	Pressure	1250 psig
		Temperature	575°F
DESIGN:	(Recirc. Disch.)	Pressure	1500 psig
		Temperature	575°F
OPERATING:		Pressure	1050 psig
		Temperature	550°F

(b)
(c)
(d) NOT
(e)
(f) APPLICABLE
(g)
(h)
(i)
(j)
(k)
(l)

PUBLIC ADVOCATE

SECOND SET OF INTERROGATORIES

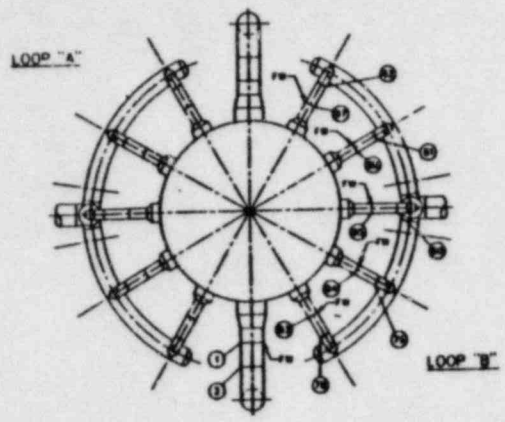
PART I - PIPE CRACKS

2. Provide a listing of all piping welds on all type 304SS or 316SS piping. Identify each weld by serial number or other weld identification number; state whether the weld is a field weld or a shop weld and identify any and all IGSCC-countermeasures used or applied; and provide the quantification of the stress rule index value for each of the welds.

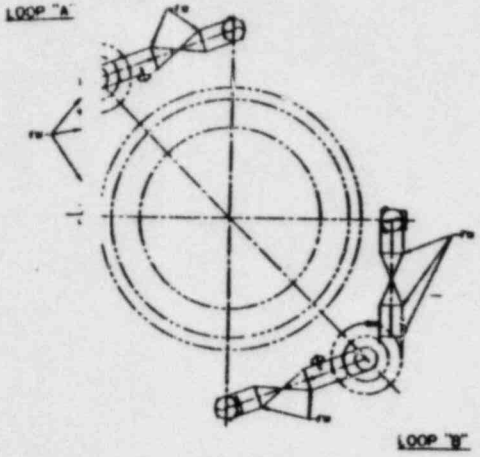
ANSWER:

Reference attached G.E. Drawing 796E916 Rev. 2 for listing of recirculation piping system (Loops A&B) weld numbering and IGSCC remedy application.

The recirculation piping system has had IGSCC remedies applied in accordance with NUREG 0313 and 0313 Rev. 1; hence, the stress rules index, for the selection of weldments to receive IGSCC remedies, is not applicable.

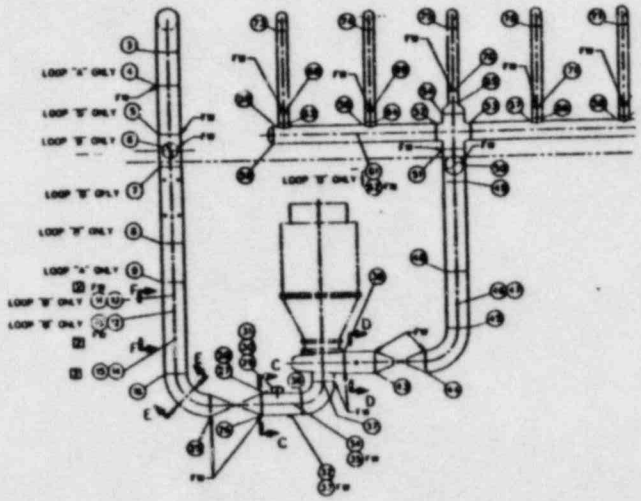


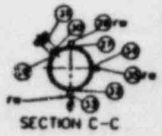
PLAN VIEW



PLAN VIEW
BELOW RPV SHORT LINE

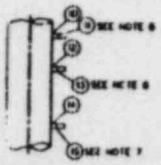
DETAIL A





SECTION C-C

SECTION D-D



VIEW F-F

NOTES

1. WELDS DECLD IN BOTH LOOPS A AND B EXCEPT AS NOTED A OR B. FOR 28 SE WELD NUMBER DOES NOT INDICATES WELD OCCURS IN LOOP B ONLY. SIMILARLY FOR AN "A" FOLLOWING A WELD NUMBER.
2. APPLIES ONLY TO CIRCUMFERENTIAL BUTT WELDS CONNECTING NOZZLE SAFE ENDS AND SOCKET WELDS.
3. AN X UNDER COL. HEADED "SHT" OR CRC INDICATES THAT THE WELD HAS BEEN SOLUTION HEAT TREATED OR HAS CORROSION RESISTANT CLADDING. OTHER MITIGATION IS INDICATED BY TYPE IN THE OTHER COLUMN. IF ALL THREE COLUMNS ARE BLANK IT INDICATES THAT NO SPECIAL MITIGATION ACTION HAS TAKEN PLACE.
4. MATERIAL AT SAFE ENDS WELD-MITIGATED
   INLET - 304L C - 0.02%
   OUTLET - SA 508 CL 2 C - 0.23%
5. "A" OR "B" FOLLOWING A WELD NUMBER INDICATES THE LIFE MEAN ON DOWNSTREAM SIDE OF THE WELD OTHERWISE "A" & OPPOSITE A WELD NUMBER REFERS TO BOTH SIDES OF THE WELD.
6. WELDS (28) AND (33) WERE PLUGGED IN THE FIELD WITH SA182 GR 304L.
7. WELD (15) WAS PLUGGED IN THE SHOP WITH SA479 TYPE 304L MATERIAL AND ALSO RECEIVED SOLUTION HEAT TREATMENT.

LEGEND

(28)	- WELD IDENTIFICATION
SHT	- SOLUTION HEAT TREATMENT
IGSCC	- INTERGRANULAR STRESS CORROSION CRACKING
IHSI	- INDUCTION HEATING STRESS IMPROVEMENT
CRC	- CORROSION RESISTANT CLADDING
FW	- UPSTREAM SIDE OF WELD DETAIL A1
	- FIELD WELD
D	- DOWNSTREAM SIDE OF WELD DETAIL A1
*	- CONTOUR NOZZLE OR SOCKET WELD NOZZLE

TABLE 1
IGSCC MITIGATION STATUS (SEE NOTE 3)

WELD	SAFE END SHT	SAFE END CRC	SAFE END OTHER	WELD	SAFE END SHT	SAFE END CRC	SAFE END OTHER
1	X			57	X		
2	X			58	X		
3	X			59	X		
4A	X			60	X		
5A	X			61	X		
6A	X			62	X		
7A	X			63	X		
8A	X			64	X		
9A	X			65	X		
10A	X			66	X		
11A	X			67	X		
12A	X			68	X		
13A	X			69	X		
14A	X			70	X		
15A	X			71	X		
16A	X			72	X		
17A	X			73	X		
18A	X			74	X		
19A	X			75	X		
20A	X			76	X		
21A	X			77	X		
22A	X			78	X		
23A	X			79	X		
24A	X			80	X		
25A	X			81	X		
26A	X			82	X		
27A	X			83	X		
28A	X			84	X		
29A	X			85	X		
30A	X			86	X		
31A	X			87	X		
32A	X			88	X		
33A	X			89	X		
34A	X			90	X		
35A	X			91	X		
36A	X			92	X		
37A	X			93	X		
38A	X			94	X		
39A	X			95	X		
40A	X			96	X		
41A	X			97	X		
42A	X			98	X		
43A	X			99	X		
44A	X			100	X		
45A	X			101	X		
46A	X			102	X		
47A	X			103	X		
48A	X			104	X		
49A	X			105	X		
50A	X			106	X		

PUBLIC ADVOCATE

SECOND SET OF INTERROGATORIES

PART I - PIPE CRACKS

3. Identify and describe all plans and procedures to mitigate intergranular stress corrosion cracking (IGSCC) by means of hydrogen water chemistry at the Hope Creek Generating Station. If hydrogen water chemistry is not to be utilized as a countermeasure to IGSCC, explain why it is not to be so used.

ANSWER:

Hydrogen water chemistry is not planned for the Hope Creek Generating Station. The recirculation piping system has had IGSCC remedies applied in accordance with NUREG 0313 and 0313 Rev. 1.

PUBLIC ADVOCATE

SECOND SET OF INTERROGATORIES

PART I - PIPE CRACKS

4. Identify and describe all plans and procedures to mitigate IGSCC in safety-related systems by means of reducing the tensile residual stress level in the heat-affected zones of susceptible piping. In responding to this interrogatory, include the following information.

ANSWER:

(a) None

(b) None

(c) each instance in which corrosion-resistant cladding (CRC) of field welds was utilized at the Hope Creek Generating Station. For each such instance, identify the piping on which the weld was performed by its size and type and the system of which the piping is a part.

Answer.

CRC was shop applied to all field butt weld ends. See G.E. Drawing 796E916 Rev. 2 submitted as part of question No. 2.

(d) None

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I.. PIPE CRACK INTERROGATORIES

5. IDENTIFY AND DESCRIBE THE INSPECTION TECHNIQUES, METHODS, PLANS AND PROCEDURES THAT WILL BE UTILIZED AT THE HOPE CREEK GENERATING STATION TO DETECT IGSCC. FOR EACH SUCH INSPECTION TECHNIQUE, METHOD, PLAN OR PROCEDURE, IDENTIFY OR DESCRIBE:

   A. THE PLANNED FREQUENCY OF THE INSPECTION;

   B. THE RELIABILITY OF THE TECHNIQUE, METHOD, PLAN AND PROCEDURE IN MEASURING THE LENGTH AND DEPTH OF PIPE CRACKS;

   C. THE EQUIPMENT TO BE UTILIZED;

   D. THE PERSONNEL THAT WILL CONDUCT THE INSPECTION;

   E. THE SPECIFIC PROCEDURES TO BE FOLLOWED; AND

   F. THE REPORTS THAT WILL BE PREPARED FOLLOWING THE INSPECTION.

RESPONSE

   A. PUBLIC SERVICE ELECTRIC AND GAS COMPANY WILL SCHEDULE EXAMINATIONS IN ACCORDANCE WITH THE ASME SECTION XI EDITION THAT IS IN EFFECT FOR THE FIRST 10-YEAR ISI INTERVAL AT THE HOPE CREEK GENERATING STATION.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

B. THE RELIABILITY OF CURRENTLY AVAILABLE SIZING TECHNIQUES TO MEASURE LENGTH AND DEPTH OF PIPE CRACKS IS QUANTIFIED IN EPRI PRESENTATION "STATUS OF IGSCC DEPTH SIZING," PRESENTED BY DR. GARY DAU TO THE BWR OWNER'S GROUP, OCTOBER 5, 1984.

C. SIZING OF INDICATIONS WILL BE PERFORMED USING COMMERCIALLY AVAILABLE STANDARD ULTRASONIC INSTRUMENTS AND TRANSDUCERS, AS WELL AS THE RECENTLY DEVELOPED SOUTHWEST RESEARCH INSTITUTE (SWRI) SLIC-40 TRANSDUCER WHICH IS USED AS PART OF THE EPRI IGSCC SIZING QUALIFICATION PROGRAM. PERSONNEL THAT WILL BE CONDUCTING UT INSPECTIONS AT HOPE CREEK GENERATING STATION WILL BE QUALIFIED IN ACCORDANCE WITH THE APPLICABLE EPRI TRAINING PROGRAMS FOR IGSCC DETECTION AND/OR SIZING.

D. ALL PERSONNEL PERFORMING UT ON IGSCC SENSITIVE AREAS AT HOPE CREEK GENERATING STATION WILL BE TRAINED AND QUALIFIED WITH THE EPRI QUALIFICATION PROGRAM FOR IGSCC DETECTION AND CERTIFIED AS LEVEL II EXAMINERS IN ACCORDANCE WITH SNT-TC-1A. IN ADDITION, EACH INDIVIDUAL WILL HAVE SUCCESSFULLY PASSED AN SWRI TRAINING PROGRAM THAT INCLUDES CLASSROOM AS WELL AS PRACTICAL TRAINING AND COMPETENCY TESTS. THE EXAMINERS WILL HAVE SUCCESSFULLY DEMONSTRATED THEIR EXPERIENCE AND KNOWLEDGE AS SPECIFIED BY SNT-TC-1A. THE PERSONNEL TO PERFORM THESE EXAMINATIONS HAVE NOT YET BEEN IDENTIFIED.

INTERVENOR'S SECOND SET OF INTERROGATORIES

HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

E. SOUTHWEST RESEARCH INSTITUTE PROCEDURES SWRI-NDT-600-31 and SWRI-NDT-800-100 WILL BE USED FOR IGSCC DETECTION AT HOPE CREEK UNLESS SUPERSEDED BY LATER TECHNIQUES DURING ISI.

F. UT DATA SHEETS WILL BE COMPLETED AT THE TIME OF THE EXAMINATION. RESOLUTION SHEETS WILL BE PREPARED TO DOCUMENT THE DISPOSITION OF ALL INDICATIONS. DATA WILL BE SUMMARIZED ON SITE AND KEPT ON FILE DURING ALL ON-SITE ACTIVITIES. A REPORT WILL BE PREPARED AT THE COMPLETION OF PRESERVICE EXAMINATION ACTIVITIES.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

6. DESCRIBE ANY AND ALL PLANS DESIGNED TO MINIMIZE OR ELIMINATE VARIABILITY IN OPERATOR PROCEDURE IN IGSCC DETECTION.

RESPONSE

SEE ITEM 5-D.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

7. DESCRIBE ANY AND ALL PLANS DESIGNED TO MINIMIZE OR ELIMINATE VARIABILITY IN EQUIPMENT PERFORMANCE IN IGSCC DETECTION.

RESPONSE

SWRI HAS ITS OWN FACILITIES TO CERTIFY ALL OF THE EQUIPMENT NORMALLY USED FOR AN ISI. MAINTENANCE PROCEDURES ARE IMPLEMENTED TO ASSURE INSTRUMENT ACCURACY, UNIFORMITY, AND RELIABILITY EVEN BEYOND FACTORY SPECIFICATIONS. THE CERTIFICATION PROGRAM IS PERFORMED IN ACCORDANCE WITH SWRI'S OPERATING PROCEDURES. ULTRASONIC INSTRUMENTS AND TRANSDUCERS ARE RECERTIFIED EVERY SIX MONTHS OR MORE FREQUENTLY IF NECESSARY.

VARIOUS BRANDS, SIZE, TYPES, AND FREQUENCIES OF UT TRANSDUCERS (SEARCH UNITS) ARE PROVIDED BY SWRI. EACH TRANSDUCER IS TESTED FOR FREQUENCY AND BEAM PROFILE AND IS CERTIFIED IN ACCORDANCE WITH THE APPROPRIATE PROCEDURE.

SONIC FTS MK I UT INSTRUMENTS ARE USED FOR THE UT EXAMINATIONS. THESE INSTRUMENTS ARE ALSO USED AS NECESSARY FOR THICKNESS GAUGING OF MATERIALS AND AS AN AID IN DETERMINING THE ACOUSTIC CHARACTERISTICS/ PROPERTIES THROUGH MEASUREMENT OF THE TRANSMISSION AND ATTENTUATION OF ULTRASOUND IN MATERIALS. THESE INSTRUMENTS ARE ALIGNED AND CERTIFIED PRIOR TO THEIR USE DURING AND ISI OR PSI.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

8. STATE:

A. WHETHER THE CALIBRATION BLOCKS FOR ULTRASONIC TESTING (UT) WILL CONTAIN WELDS:

B. WHERE ON THE CALIBRATION BLOCKS THE CALIBRATION REFLECTORS WILL BE LOCATED; AND

C. WHETHER NOTCHES OR SIDE-DRILLED HOLES WILL BE USED AS CALIBRATION REFLECTORS ON THE CALIBRATION BLOCKS.

RESPONSE

A. CALIBRATION BLOCKS FOR UT EXAMINATION OF WELDS IN CORROSION-RESISTANT CLAD MATERIAL WILL HAVE WELDS. CALIBRATION BLOCKS FOR UT EXAMINATION OF WELDS IN STANDARD PIPING MATERIAL WILL HAVE NO WELDS IN THEM.

B. CALIBRATION BLOCKS TO BE USED FOR THE PRESERVICE EXAMINATION AT HOPE CREEK GENERATING STATION WILL HAVE CALIBRATION REFLECTORS LOCATED IN THE BASE METAL.

C. STANDARD SHEAR-WAVE TECHNIQUES TO BE UTILIZED FOR RECIRCULATION PIPING UT EXAMINATIONS AT HOPE CREEK GENERATING STATION WILL UTILIZE SIDE-DRILLED HOLES FOR CALIBRATION BECAUSE THESE REFLECTORS OFFER THE MOST SENSITIVE CALIBRATION. HOWEVER, REFRACTED LONGITUDINAL (RL) TECHNIQUES TO BE USED FOR THE EXAMINATION OF CORROSION-RESISTANT CLAD PIPING MATERIALS WILL UTILIZE THE NOTCH REFLECTORS.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

9. STATE WHETHER 60° SHEAR WAVE UT EXAMINATION WILL BE PERFORMED.

RESPONSE

SIXTY-DEGREE SHEAR-WAVE UT EXAMINATION WILL BE PERFORMED AS REQUIRED BY THE JOINT CONFIGURATION OF THE INDIVIDUAL WELD TO BE DETERMINED BY THE "AS BUILT" CONDITION. IT MAY BE USED FOR EVALUATION OF INDICATIONS OR TO CHARACTERIZE FLAWS IF REQUIRED.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

10. STATE WHETHER A SKEWED SCAN UT EXAMINATION WILL BE PERFORMED ON WELDS TO DETECT DEFECTS ORIENTED OTHER THAN PARALLEL OR PERPENDICULAR TO THE WELD.

RESPONSE

A SKEWED SCAN UT EXAMINATION WILL BE PERFORMED ON RECIRCULATION PIPING WELDS TO DETECT DEFECTS ORIENTED OTHER THAN PARALLEL OR PERPENDICULAR TO THE WELD.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

11. STATE WHETHER THE 50% DAC METHOD OF CRACK LENGTH SIZING WILL BE REVISED FOR USE AT THE HOPE CREEK GENERATING STATION TO REQUIRE THAT END POINTS OF A FLAW BE DETERMINED BY LOSS OF SIGNAL AMPLITUDE TO THE BACKGROUND NOISE LEVEL.

RESPONSE

FIFTY PERCENT DAC SIZING OF CRACK LENGTH AT HOPE CREEK GENERATING STATION WILL BE RECORDED DURING ALL ULTRASONIC EXAMINATIONS. IN ADDITION, 20 PERCENT DAC LENGTHS WILL BE RECORDED DURING EXAMINATIONS. INDICATIONS WHICH ARE SUSPECTED TO BE OTHER THAN GEOMETRY MAY BE SIZED USING OTHER AVAILABLE ULTRASONIC TECHNIQUES AS REQUIRED TO DETERMINE THE NATURE AND LOCATION OF THE INDICATION. SUCH TECHNIQUES MAY INCLUDE, BUT NOT BE LIMITED TO, EXTRA ANGLES, MODES OF PROPAGATION, MULTIPLE BEAM AND SATELLITE PULSE CRACK TIP DIFFRACTION TECHNIQUES. FIFTY PERCENT DAC METHOD OF CRACK LENGTH SIZING WILL BE CONSIDERED A FIRST STEP IN THE LONG PROCESS OF EVALUATING FLAW TYPE INDICATIONS AT HOPE CREEK GENERATING STATION.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

12. STATE WHETHER CONSIDERATION WAS OR IS NOW BEING GIVEN IN THE PLANNING, DESIGN, OR CONSTRUCTION OF HOPE CREEK TO THE NEED FOR ADEQUATE ACCESS FOR UT WELD INSPECTION IN PIPE JOINT DESIGN AND INSTALLATION. IF SO, DESCRIBE IN FULL ALL CHANGES IN DESIGN OR INSTALLATION THAT HAVE RESULTED OR WILL RESULT FROM THIS CONSIDERATION.

RESPONSE

DURING THE DESIGN OF THE HOPE CREEK GENERATING STATION, SOUTHWEST RESEARCH INSTITUTE CONDUCTED AN ACCESS ENGINEERING PROGRAM IN ACCORDANCE WITH THE REQUIREMENTS OF SUBARTICLE IWA-1500 OF ASME SECTION XI. THIS PROGRAM WAS DEVELOPED BY SWRI WORKING DIRECTLY WITH THE ARCHITECT-ENGINEER, BECHTEL POWER CORPORATION.

EARLY IN THE DESIGN STAGES, REQUIREMENTS FOR PRESERVICE AND INSERVICE INSPECTION WERE IDENTIFIED, AND EFFORTS BY SWRI AND BECHTEL WERE DIRECTED TOWARD ENSURING THAT THE PLANT WOULD BE INSPECTABLE. INITIALLY, THE ACCESS ENGINEERING PROGRAM WAS PERFORMED UNDER THE INSPECTION REQUIREMENTS CONTAINED IN THE 1974 EDITION OF SECTION XI WITH ADDENDA THROUGH SUMMER 1975. THIS EDITION IS THE PRESERVICE INSPECTION REQUIREMENT AND WAS THE LATEST APPROVED CODE AT THAT TIME. AS MORE RECENT EDITIONS AND ADDENDA WERE APPROVED BY NRC, THESE LATER REQUIREMENTS WERE CONSTANTLY EVALUATED AGAINST THE NEWER REQUIREMENTS TO ENSURE INSPECTABILITY UNDER LATER CODES.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

12. STATE WHETHER CONSIDERATION WAS OR IS NOW BEING GIVEN IN THE PLANNING, DESIGN, OR CONSTRUCTION OF HOPE CREEK TO THE NEED FOR ADEQUATE ACCESS FOR UT WELD INSPECTION IN PIPE JOINT DESIGN AND INSTALLATION. IF SO, DESCRIBE IN FULL ALL CHANGES IN DESIGN OR INSTALLATION THAT HAVE RESULTED OR WILL RESULT FROM THIS CONSIDERATION.

RESPONSE (CONTINUED)

IN GENERAL, VERY FEW DESIGN CHANGES HAD TO BE MADE BECAUSE OF THE EARLY AND CONSTANT INVOLVEMENT OF SWRI. TWO SPECIFIC CASES WHERE DESIGN CHANGES WERE MADE TO ENSURE SUFFICIENT ACCESS WERE (1) MODIFICATION TO BIOLOGICAL SHIELD DOORS, AND (2) INSTALLATION OF FLOW DIVERTERS ON THE RECIRCULATION OUTLET NOZZLES. IN SEVERAL CASES, THE ORIGINAL BIOLOGICAL SHIELD DOOR DESIGN DID NOT OPEN SUFFICIENTLY TO ALLOW COMPLETE ACCESS TO ALL THE PIPING AND VESSEL WELDS. BECHTEL REDESIGNED THE DOORS TO ALLOW COMPLETE ACCESS.

SEVERAL YEARS AGO, FLOW DIVERTERS WERE PLACED AROUND THE RECIRCULATION OUTLET NOZZLES. INITIAL DESIGNS OF THE FLOW DIVERTER RESTRICTED ACCESS TO THE SAFE END WELDS; HOWEVER, AFTER REVIEW AND REDESIGN OF THE FLOW DIVERTER, A DESIGN WAS ACCEPTED AND EVENTUALLY CONSTRUCTED WHICH ALLOWED ACCESS AND THE INSTALLATION OF AN ISI TRACK FOR INSPECTIONS OF THE WELD.

DURING THE FINAL STAGES OF CONSTRUCTION, ACCESS AND INSPECTABILITY ARE CONTINUING TO BE REVIEWED AND MODIFICATIONS MADE WHERE NECESSARY.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

12. STATE WHETHER CONSIDERATION WAS OR IS NOW BEING GIVEN IN THE PLANNING, DESIGN, OR CONSTRUCTION OF HOPE CREEK TO THE NEED FOR ADEQUATE ACCESS FOR UT WELD INSPECTION IN PIPE JOINT DESIGN AND INSTALLATION. IF SO, DESCRIBE IN FULL ALL CHANGES IN DESIGN OR INSTALLATION THAT HAVE RESULTED OR WILL RESULT FROM THIS CONSIDERATION.

RESPONSE

ACCESS TO PERFORM ULTRASONIC PIPING INSPECTION WAS PROVIDED IN SEVERAL WAYS. FIRST, PIPING ISOMETRIC DRAWINGS WERE REVIEWED TO ENSURE THAT FITTING-TO-FITTING WELDS WERE MINIMIZED. SECONDLY, CRITERIA FOR SURFACE PREPARATION, ID COUNTERBORE, AND WELD CONTOUR WERE PROVIDED TO BECHTEL FOR INCLUSION IN THEIR PIPING SPECIFICATIONS. THIRDLY, CLEARANCE DIMENSIONS FOR WELDS REQUIRING UT WERE FURNISHED TO BECHTEL FOR THEIR USE IN ENSURING THAT SUPPORTS AND OTHER STRUCTURES DID NOT INTERFERE WITH WELD INSPECTION.

THROUGHOUT THE ENGINEERING PHASE OF HOPE CREEK, SWRI, IN ADDITION TO OTHER PROCEDURES, WORKED ON THE HOPE CREEK MODEL AT THE BECHTEL OFFICE AND CONDUCTED A DETAILED REVIEW ON THE MODEL ON A WELD-BY-WELD AND LINE-BY-LINE BASIS TO ENSURE THAT ACCESS WAS MAINTAINED. WELD LOCATIONS WERE VERIFIED AND ROUTES TRACED TO ENSURE THAT EACH WELD COULD BE REACHED AND INSPECTED.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

13. IDENTIFY ALL EMPLOYEES OF PSE&G AND OF ITS CONTRACTORS AND SUBCONTRACTORS THAT HAVE PERFORMED BASELINE UT INSPECTIONS DURING THE CONSTRUCTION STAGE OF THE HOPE CREEK GENERATING STATION. FOR EACH INDIVIDUAL WHO PERFORMED SUCH BASLINE UT INSPECTIONS, STATE THE INDIVIDUAL'S NAME, AGE, JOB DESCRIPTION, QUALIFICATIONS, EDUCATIONAL LEVEL, TRAINING AND EXPERIENCE. ALSO IDENTIFY WHETHER EACH SUCH INDIVIDUAL WILL CONTINUE TO BE UTILIZED TO PERFORM PERIODIC UT INSPECTIONS DURING THE LIFE OF THE PLANT.

RESPONSE

SEE RESPONSE TO QUESTION 5.D

NO BASELINE UT INSPECTIONS HAVE BEEN COMPLETED FOR THE RECIRCULATION PIPING SYSTEM TO DATE.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

14. STATE WHETHER PASSING THE EPRI/NDE CENTER ONE-WEEK TRAINING COURSE ON IGSCC CRACK DETECTION (EPRI/NDE TRAINING COURSE) WILL BE A JOB REQUIREMENT FOR HOPE CREEK UT OPERATORS. IDENTIFY ALL OTHER TRAINING THAT WILL BE REQUIRED OF OR PROVIDED TO SUCH OPERATORS.

RESPONSE

YES. IN ADDITION, OTHER TRAINING PROGRAMS WILL BE USED. SEE INTERROGATORY 5-D.

I. PIPE CRACKS

15. List and describe the ways in which the requirements of IEB 83-02 and IEB83-03 have been or will be complied with at Hope Creek.

RESPONSE

IEB 83-02 was issued to Hope Creek for information only.

IEB 83-03 pertains to check valves, outside the scope of the contention.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

16. STATE WHETHER THE CRACK-TIP DIFFRACTION SIZING APPROACH WILL BE UTILIZED IN CRACK DETECTION AT HOPE CREEK. IF SO, DESCRIBE THIS APPROACH, ESTIMATE ITS ACCURACY, IDENTIFY THE OPERATORS THAT WILL BE UTILIZING THIS APROACH AND STATE THE PLANNED FREQUENCY OF SUCH INSPECTIONS.

RESPONSE

PSE&G PRESENTLY INTENDS TO USE, IF NECESSARY, THE CRACK TIP DIFFRACTION APPROACH FOR CRACK SIZING BUT NOT FOR CRACK DETECTION. CRACK DETECTION WILL PROBABLY BE ACHIEVED BY MEANS OF SIGNAL AMPLITUDE FROM A 45° REFRACTED LONGITUDINAL WAVE DUAL TRANSDUCER (SEND-RECEIVE) SYSTEM. HOWEVER, CRACK SIZING, AS WELL AS CRACK DETECTION, TECHNIQUES ARE STILL BEING INVESTIGATED. BECAUSE OF THE RAPIDLY CHANGING STATE-OF-THE-ART IN IGSCC CRACK DETECTION AND SIZING, PSE&G WILL NOT DECIDE ON A SPECIFIC SYSTEM OR TECHNIQUE UNTIL THE ACTUAL NEED ARISES.

INTERVENOR'S SECOND SET OF INTERROGATORIES

HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

17. STATE WHETHER AUTOMATED UT DATA COLLECTION BY MECHANICAL SCANNERS WILL BE UTILIZED AT THE HOPE CREEK GENERATING STATION. IF SO, DESCRIBE THE PROCEDURES AND EQUIPMENT TO BE UTILIZED, AND IDENTIFY THE SYSTEMS TO BE INSPECTED USING THIS MEANS.

RESPONSE

REMOTE SCANNING EQUIPMENT WILL BE UTILIZED FOR EXAMINATION OF THE NOZZLE-TO-SAFE END AND SAFE END-TO-PIPING WELDS. THESE DEVICES DERIVE POSITION INFORMATION FROM THE CHAIN OR GEAR TEETH ON THE TRACKS WHICH ARE FIXED PERMANENTLY OR TEMPORARILY TO THE VESSEL NOZZLES AND PIPING. DIGITAL ENCODERS ARE GEARED DIRECTLY TO THE DRIVING MECHANISM TO PROVIDE POSITION INFORMATION. MOVEMENT OF THE DEVICES IS BY MEANS OF VARIABLE-SPEED DC MOTORS. THE OPERATOR HAS DIRECT CONTROL OF "STOP", "START", AND "JOG" MODES OF OPERATION. THE SCANNING DEVICES CAN BE HAND-CARRIED THROUGH THE PERSONNEL HATCH IN THE CONTAINMENT, CONNECTED, AND INSTALLED AFTER AN INITIAL CONNECTION AND CHECKOUT JUST OUTSIDE OF CONTAINMENT.

I. PIPE CRACK INTERROGATORIES

18. STATE WHETHER AUTOMATED UT DATA RECORDING TECHNIQUES WILL BE UTILIZED AT THE HOPE CREEK GENERATING STATION. IF SO, DESCRIBE THE TECHNIQUES AND EQUIPMENT TO BE UTILIZED.

RESPONSE

AUTOMATED UT DATA COLLECTION WILL BE UTILIZED DURING MECHANIZED SCANNING. THE SWRI STANDARD DATA ACQUISITION SYSTEM (SDAS) IS A MAN-PORTABLE, COMPACT, MODULAR SYSTEM DESIGNED FOR RAPID AND ACCURATE RECORDING OF CONVENTIONAL ULTRASONIC INFORMATION OBTAINED DURING A REMOTE-CONTROLLED MECHANIZED INSPECTION. SDAS IS COMPOSED OF FOUR ULTRASONIC INSTRUMENTS WITH CONVENTIONAL PEAK DETECTION GATES, A TIME-CORRECTED-GAIN (TCG) SYSTEM, A DIRECT VIDEO CONVERSION MODULE, A VIDEO RECORDING SYSTEM, AND A MULTI-CHANNEL STRIP-CHART RECORDER. SDAS INTERFACES WITH THE SWRI ATTACHMENT POSITIONING SYSTEM. THE SYSTEM RECORDS ULTRASONIC SIGNAL DATA AND POSITION LOCATION INFORMATION ON VIDEO TAPE AND ON A MULTI-CHANNEL STRIP-CHART RECORDER. THE NORMAL SYSTEM IS CAPABLE OF SUPPORTING UP TO FOUR CHANNELS OF PULSE-ECHO ULTRASONIC DATA, BUT THE SYSTEM CAN BE INCREASED TO NINE CHANNELS.

SDAS STORES DATA IN TWO FORMS: VIDEO TAPE AND STRIP CHART. THE VIDEO TAPE IS A RECORDING OF THE CRT DISPLAY FOR EACH OF THE ULTRASONIC INSTRUMENTS. A CAMERA IS FOCUSED ON EACH DISPLAY SCREEN AND ITS OUTPUT IS SENT TO A VIDEO MIXER FOR FORMATTING ONTO A SIGNAL DISPLAY.

I. PIPE CRACK INTERROGATORIES

18. STATE WHETHER AUTOMATED UT DATA RECORDING TECHNIQUES WILL BE UTILIZED AT THE HOPE CREEK GENERATING STATION. IF SO, DESCRIBE THE TECHNIQUES AND EQUIPMENT TO BE UTILIZED.

RESPONSE (Continued)

IN ADDITION, THE PEAK SIGNAL AMPLITUDE AND TIME VALUES AS WELL AS THE TRANSDUCER MODULE LOCATION ARE SENT TO A DIRECT-VIDEO-CONVERSION MODULE WHERE THESE ANALOG AND BINARY-CODED DECIMAL VALUES ARE CONVERTED TO CHARACTERS AND SENT TO THE VIDEO MIXER TO ADD DIGITAL INFORMATION TO THE DISPLAY. THE VIDEO RECORDING CONSISTS OF THE INSTRUMENT A-SCAN DISPLAYS, THE DIGITAL VALUES CORRESPONDING TO PEAK SIGNAL AMPLITUDE AND TIME, AND THE DIGITAL LOCATION COORDINATES OF THE TRANSDUCER MODULE. WITH THIS INFORMATION, IT IS POSSIBLE TO REVIEW THE DATA IN THE SAME SEQUENCE THAT THE OPERATOR OBSERVED IT DURING THE INSPECTION. THE VIDEO RECORD PRESERVES THE A-SCAN SHAPE AS WELL AS THE DYNAMICS ASSOCIATED WITH TRANSDUCER MOVEMENT WHICH ARE ESSENTIAL TO THOROUGH DATA EVALUATION.

A HARD-COPY RECORD OF THE INSPECTION IS PROVIDED BY THE STRIP-CHART RECORDER. IN THIS RECORD, PEAK SIGNAL AMPLITUDE AND TIME VALUES FOR EACH OF THE ULTRASONIC CHANNELS ARE TRACED AS A FUNCTION OF TRANSDUCER LOCATION. SIGNAL AMPLITUDE AND TIME ARE APPROPRIATELY

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

18. STATE WHETHER AUTOMATED UT DATA RECORDING TECHNIQUES WILL BE UTILIZED AT THE HOPE CREEK GENERATING STATION. IF SO, DESCRIBE THE TECHNIQUES AND EQUIPMENT TO BE UTILIZED.

RESPONSE (CONTINUED)

SCALED AND TRACED OVER THE CHART-PAPER GRID SO THAT VALUES CAN BE INTERPOLATED AT A LATER TIME. TRANSDUCER MODULE LOCATION IS RECORDED BY MEANS OF AN EVENT-MARKER CHANNEL. ACTUAL POSITION DATA ARE SENT TO AN ELECTRONIC CIRCUIT WHERE EVENT SIGNALS ARE GENERATED FOR THE STRIP CHART AS A FUNCTION OF OPERATOR-SELECTED DEVICE MOVEMENT INTERVALS. FOR EXAMPLE, AN EVENT MARK CAN BE GENERATED FOR EVERY 1, 5, 10, 100, ETC. UNITS OF DEVICE MOVEMENT. AN EVENT MARK IS MADE ON A CHANNEL ON THE STRIP CHART FOR EVERY SIGNAL GENERATED BY THE ELECTRONIC CIRCUIT. THE OPERATOR IS THEN ABLE TO DETERMINE THE LOCATION OF THE TRANSDUCER MODULE BY KNOWING THE START LOCATION AND THE EVENT INTERVAL AND BY COUNTING THE EVENT MARKERS.

THE VIDEO-TAPE RECORDINGS AND THE STRIP CHART PROVIDE COMPLETE DOCUMENTATION OF THE ULTRASONIC INSPECTION. THE STRIP-CHART DATA ARE CORRELATED WITH THE VIDEO-TAPE RECORDING THROUGH POSTION LOCATION INFORMATION. ADDITIONAL DATA THAT ARE NOT AUTOMATICALLY RECORDED ARE WRITTEN ON THE STRIP CHART OR SPOKEN INTO A MICROPHONE SO THEY ARE RECORDED ON THE AUDIO TRACK OF THE VIDEO-TAPE.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

19. STATE WHETHER AUTOMATED UT DATA INTERPRETATION SYSTEM OR SYSTEMS WILL BE UTILIZED AT THE HOPE CREEK GENERATING STATION. IF SO, DESCRIBE THE EQUIPMENT AND PROCEDURES TO BE UTILIZED, AND IDENTIFY THE INTERPRETATION ALGORITHM TO BE USED.

RESPONSE

AUTOMATED UT DATA INTERPRETATION IS NOT PRESENTLY SCHEDULED FOR USE AT HOPE CREEK GENERATING STATION.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

20. DESCRIBE THE PROCESSES THAT WILL BE USED FOR CONDUCTING "BLIND TEST" PERFORMANCE DEMONSTRATIONS TO QUANTIFY THE FLAW DETECTION PROBABILITY AND CHARACTERIZATION ACCURACY FOR CANDIDATE ULTRASONIC INSERVICE INSPECTION SYSTEMS (UT/ISI).

RESPONSE

BLIND TEST PERFORMANCE DEMONSTRATIONS ARE INCLUDES AS PART OF THE EPRI TRAINING PROGRAMS REQUIRED OF ALL EXAMINERS THAT WILL PERFORM EXAMINATIONS ON RECIRCULATION PIPING AT HOPE CREEK GENERATING STATION. THE PROBABILITY OF DETECTION HAS BEEN DETERMINED TO BE APPROXIMATELY 72% (55% FOR THE ISOLATED CRACK CASE). THESE FIGURES HAVE BEEN DETERMINED BY EPRI AND WERE PRESENTED TO THE PVRC NDE SUBCOMMITTEE BY DR. GARY DAU ON OCTOBER 16, 1984.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

21. SPECIFY THE FLAW DETECTION PROBABILITY AND CHARACTERIZATION ACCURACY STANDARDS THAT WILL BE IMPLEMENTED AT HOPE CREEK AS A QUALIFIATION FOR PERFORMING UT/ISI.

RESPONSE

FLAW DETECTION PROBABILITY AND CHARACTERIZATION ACCURACY STANDARDS WILL BE THOSE DETERMINED BY EPRI (SEE ITEM 20).

INTERVENOR'S SECOND SET OF INTERROGATORIES

HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

22. STATE WHETHER YOU WILL MEET THE MINIMUM REQUIREMENTS DEVELOPED BY THE AD HOC COMMITTEE FOR DEVELOPEMENT OF QUALIFICATION REQUIREMENTS FOR NUCLEAR UTILITY EXAMINATION PERSONNEL IN SEPTEMBER 1983 (NUR-MR-IA). IF SO, PROVIDE A COPY OF YOUR "WRITTEN PRACTICE" AS REQUIRED NUR-MR-IA SPECIFYING HOW YOU WILL COMPLY WITH THOSE MINIMUM REQUIREMENTS.

RESPONSE

MINIMUM REQUIREMENTS BY THE AD HOC COMMITTEE FOR DEVELOPMENT OF QUALIFICATION REQUIREMENTS FOR NUCLEAR UTILITY EXAMINATION PERSONNEL, DOCUMENT NUR-MR-IA, ARE NOT RECOGNIZED AS A REQUIREMENT FOR HOPE CREEK GENERATING STATION. NUR-MR-IA REPRESENTS A COMPILATION OF VARIOUS STANDARDS.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

23. STATE WHETHER YOU WILL INTEND TO MEET THE PROCEDURE AND PERSONNEL QUALIFICATION REQUIREMENTS CODE CASE BEING DEVELOPED BY THE ASME SECTION XI WORKING GROUP ON NONDESTRUCTIVE EXAMINATION.

RESPONSE

THE CODE CASE DESCRIBED IN THIS INTERROGATORY IS PRESUMED TO BE N-409 WHICH HAS NOT YET BEEN APPROVED BY ASME OR THE NRC. NO DECISION WILL BE MADE BY PSE&G ON ADOPTION OF THIS CODE CASE UNTIL A FINAL VERSION HAS BEEN APPROVED AND PUBLISHED.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

24. STATE WHETHER YOU WILL MEET THE REQUIREMENTS OF THE LATEST VERSION OF CODE CASE N-335.

RESPONSE

WHILE THE PROCEDURE REQUIREMENTS OF N-335 ARE IN MOST CASES ACCEPTABLE TO PSE&G, THE ANGLE BEAM CALIBRATION REQUIREMENTS OF SECTION 3.2.2(D) ARE NOT ACCEPTABLE. NORMALIZATION OF THE SHEAR WAVE DAC SENSITIVITY TO THE NOTCH RESPONSE YIELDS A LESS SENSITIVE CALIBRATION THAN THE SIDE-DRILLED HOLE RESPONSE AND AS SUCH IS CONSIDERED UNACCEPTABLE FOR THE EXAMINATION OF IGSCC SENSITIVE MATERIALS.

PUBLIC ADVOCATE

SECOND SET OF INTERROGATORIES

PART I - PIPE CRACKS

25. State whether the Hope Creek Generating Station will utilize an acoustic leak detection system. If so, describe the system that will be utilized at Hope Creek and identify where and how it will be used.

ANSWER:

Acoustic leak detection is not utilized at the Hope Creek Generating Station.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

26. STATE WHETHER THE HOPE CREEK GENERATING STATION WILL UTILIZE A MOISTURE-SENSITIVE TAPE LEAK DETECTION SYSTEM. IF SO, DESCRIBE THE SYSTEM THAT WILL BE UTILIZED AT HOPE CREEK AND IDENTIFY WHERE AND HOW IT WILL BE USED.

RESPONSE

A MOISTURE SENSITIVE TAPE LEAK DETECTION SYSTEM IS NOT PRESENTLY PROPOSED FOR USE AT THE HOPE CREEK GENERATING STATION.

INTERROGATORIES

SECTION I, ITEM 27

DESCRIPTION:

State whether the Hope Creek Generating Station will utilize a sump pump monitoring system to detect pipe cracks and leaks. If so, describe the system that will be utilized at Hope Creek and identify where and how it will be used. Also identify the surveillance and limits on unidentified leakage to be utilized.

RESPONSE/COMMENTS:

Hope Creek Generating Station design incorporates a sump pump monitoring system as stated in FSAR 1.8.1.45. The sump pump monitoring system is described in FSAR 5.2.5.1. a and b. The surveillance requirements for the sump pump monitoring system as stated in Technical Specifications 4.4.3.1.b. The surveillance requirements for reactor coolant sytem leakage are stated in Technical Specifications 4.4.3.2. The limits on unidentified leakage are stated in Technical Specification 3.4.3.2.

PART I - PIPE CRACKS

28. Identify all recirculation piping withing the Hope Creek Generating Station that you have determined are very unlikely to be susceptible to IGSCC. Explain the reasons for this determination.

ANSWER:

All. Remedies have been applied in accordance with NUREG 0313 and 0313 Rev. 1.

PART I - PIPE CRACKS

29. Identify all recirculation piping within the Hope Creek Generating Station that you have determined are likely to be susceptible to IGSCC. Explain the reasons for this determination.

ANSWER:

See Answer to Interrogatory I/28.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

30. PROVIDE YOUR FLAW EVALUATION CRITERIA FOR IGSCC.

RESPONSE

INITIAL SCREEING OF INDICATIONS WILL BE IN ACCORDANCE WITH SECTION XI ('77-78 EDITION). EVALUATION CRITERIA OF IGSCC WILL BE DETERMINED IN ACCORDANCE WITH THAT CODE, FURTHER ENGINEERING EVALUATION WILL BE PERFORMED IN ACCORDANCE WITH ACCEPTED PRACTICES AND NRC SPECIFICATIONS AT THE TIME OF OCCURRENCE.

31. Identify all instances in which continued operation without repair will be permitted where crack length exceeds 27% of pipe circumference.

WITHDRAWN

32. For each of the following categories, state whether you will inspect pipe welds according to the following minimum schedule:

(a) 25% of the welds of each pipe size in ten years, with one-third of these inspected every three and one-third years or the nearest refueling outage: for welds on stainless steel type 304L, 316L, 316K, 304NG, 316NG, 347NG and 308L piping; low-strength carbon steel piping; NRC-approved nickel-based piping; cast low-carbon/high ferritte austenic stainless steels; and welds solution heat-treated after fabrication and welding:

b) 50% of the welds of each pipe size in ten years, with at least one-third of these inspected every three and one-third years of the nearest refueling outage: for welds on piping to which IHSI, HSW or LPHSW has been applied, where hydrogen water chemistry has been continuously implemented.

(c) 100% in six years, with at least one-half of these to be inspected every three and one-third years or the nearest refueling outage; for all other welds.

RESPONSE

(a) Welds in the recirculation piping system, including shop welds which have been solution heat treated after fabrication and welding, will be inspected in accordance with Table IWB 2500-1 of the applicable Edition of ASME Sec. XI which presently calls for 25% of the welds every ten years.

(b) Not applicable.

(c) See Response 5A and (a) above.

33. Estimate the total cost, including the cost of purchasing replacement power during shut-down, of IGSCC-related damage to the Hope Creek Generating Station during the life of the plant. List separately each category of estimated expenses for each expected incident and the statistical source for all such estimates.

RESPONSE:

The Interrogatory is irrelevant because costs to implement necessary safety requirements or modifications are irrelevant.

34. List your estimate of the current cost of replacing all type 304 stainless steel piping with IGSCC-resistant piping for each system within the Hope Creek Generating Station that utilizes type 304 piping. Identify the statistical sources for all such estimates.

RESPONSE:

See Answer to I/33.

INTERVENOR'S SECOND SET OF INTERROGATORIES
HOPE CREEK GENERATING STATION

I. PIPE CRACK INTERROGATORIES

35. LIST AND IDENTIFY ALL WELDS THAT WILL REQUIRE MANUAL RATHER THAN AUTOMATED UT INSPECTION, AS STATED AT PAGE 10 OF APPLICANTS' ANSWER TO PROPOSED CONTENTIONS OF THE PUBLIC ADVOCATE OF THE STATE OF NEW JERSEY DATED NOVEMBER 18, 1983. FOR EACH SUCH WELD, IDENTIFY THE DIMENSIONS OF THE PIPING INVOLVED, ITS TYPE AND THE SYSTEM OF WHICH IT IS A PART.

RESPONSE

RECIRCULATION SYSTEM WELDS CURRENTLY SCHEDULED TO BE EXAMINED BY MANUAL TECHNIQUE ARE IDENTIFIED IN ATTACHMENT 1. ADDITIONAL INFORMATION ON WELD DIMENSIONS AND ISOMETRIC SKETCHES IS FOUND IN THE HOPE CREEK PRESERVICE EXAMINATION PLAN, PREPARED BY SWRI IN COLLABORATION WITH THE PSE&G ISI GROUP.

ATTACHMENT 1 TO INTERROGATORY I-35

RECIRCULATION SYSTEM WELDS - MANUAL EXAMINATION

A-LOOP	
1-BB-28VCA-012-1LD	SUCTION
1-BB-28VCA-012-2, 2LU, 2LDI, & 2LDO	SUCTION
1-BB-28VCA-012-3, 3LUI, 3LUO, 3LD	SUCTION
1-BB-28VCA-012-4, 4LU, 4LD	SUCTION
1-BB-28VCA-012-5, 5LU, 5LD	SUCTION
1-BB-28VCA-012-6, 6LU, 6LD	SUCTION
1-BB-28VCA-012-7, 7LU, 7LDI, 7LDO	SUCTION
1-BB-28VCA-012-8, 8LUI, 8LUO	SUCTION
1-BB-28VCA-012-9, 9LD, 9BC1, 9BC2	SUCTION
1-BB-28VCA-012-10, 10LU, 10LDI, 10LDO	SUCTION
1-BB-28VCA-012-11, 11LUI, 11LUO	SUCTION
1-BB-28VCA-013-1, 1BC1, 1BC2	DISCH.
1-BB-4VCA-013-1	DISCH.
1-BB-28VCA-013-2, 2LU	DISCH.
1-BB-28VCA-013-3, 3LDI, 3LDO	DISCH.
1-BB-28VCA-013-4, 4LUI, 4LUO, 4LD	DISCH.
1-BB-28VCA-013-5, 5LU, 5LD	DISCH.
1-BB-28VCA-013-6, 6LU, 6LD	DISCH.
1-BB-28VCA-013-7, 7LU	DISCH.
1-BB-22VCA-013-1, 1LD, 1BC1, 1BC2	DIST. HDR
1-BB-22VCA-013-2, 2LU	DIST. HDR
1-BB-22VCA-013-3, 3LD, 3BC1, 3BC2	DIST. HDR
1-BB-22VCA-013-4, 4LU	DIST. HDR
1-BB-12VCA-013F-1, 1LD	RISERS
1-BB-12VCA-013F-2, 2LU, 2LD	RISERS
1-BB-12VCA-013F-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-013F-4, 4LUI, 4LUO, 4LD	RISERS

ATTACHMENT 1 TO INTERROGATORY I-35

1-BB-12VCA-013G-1, 1LD	RISERS
1-BB-12VCA-013G-2, 2LU, 2LD	RISERS
1-BB-12VCA-013G-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-013G-4, 4LUI, 4LUO, 4LD	RISERS
1-BB-12VCA-013H-1, 1LD	RISERS
1-BB-12VCA-013H-2, 2LU, 2LD	RISERS
1-BB-12VCA-013H-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-013H-4, 4LUI, 4LUO, 4LD	RISERS
1-BB-12VCA-013J-1, 1LD	RISERS
1-BB-12VCA-013J-2, 2LU, 2LD	RISERS
1-BB-12VCA-013J-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-013J-4, 4LUI, 4LUO, 4LD	RISERS
1-BB-12VCA-013K-1, 1LD	RISERS
1-BB-12VCA-013K-2, 2LU, 2LD	RISERS
1-BB-12VCA-013K-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-013K-4, 4LUI, 4LUO, 4LD	RISERS
1-BC-12CCA-116-5, 5LU	RHR RETURN
1-BC-12CCA-116-4, 4LD, 4LUI, 4LUO	RHR RETURN
1-BC-12CCA-116-3, 3LDI, 3LDO, 3LU	RHR RETURN
1-BC-12CCA-116-2, 2LD, 2LUI, 2LUO	RHR RETURN
1-BC-12CCA-116-1, 1LU, 1LDI, 1LDO	RHR RETURN
1-BG-4CCA-012-1	RWCU
1-BG-4CCA-012-2	RWCU

ATTACHMENT 1 TO INTERROGATORY I-35

B-LOOP	
1-BB-28VCA-011-1, 1LD	SUCTION
1-BB-28VCA-011-2, 2LU, 2LDI, 2LDO	SUCTION
1-BB-28VCA-011-3, 3LUI, 3LUO, 3LD	SUCTION
1-BB-28VCA-011-4, 4LU	SUCTION
1-BB-28VCA-011-5, 5LD	SUCTION
1-BB-28VCA-011-6, 6LU, 6LD	SUCTION
1-BB-28VCA-011-7, 7LU, 7LDI, 7LDO	SUCTION
1-BB-28VCA-011-8, 8LUI, 8LUO	SUCTION
1-BB-28VCA-011-9, 9LD, 9BCI	SUCTION
1-BB-28VCA-011-10, 10LU, 10LDI, 10LDO	SUCTION
1-BB-28VCA-011-11, 11LUI, 11LUO	SUCTION
1-BB-28VCA-014-1, 1LD, 1BCI, 1BC2	SUCTION
1-BB-4VCA-014-1	DISCH.
1-BB-28VCA-014-2, 2LU	DISCH.
1-BB-28VCA-014-3, 3LDI, 3LDO	DISCH.
1-BB-28VCA-014-4, 4LUI, 4LUO, 4LD	DISCH.
1-BB-28VCA-014-5, 5LU, 5LD	DISCH.
1-BB-28VCA-014-6, 6LU, 6LD	DISCH.
1-BB-28VCA-014-7, 7LU	DISCH.
1-BB-22VCA-014-1, 1LD, 1BC1, 1BC2	DIST. HDR
1-BB-22VCA-014-2, 2LU	DIST. HDR
1-BB-22VCA-014-3, 3LD, 3BCI, 3BC2	DIST. HDR
1-BB-22VCA-014-4, 4LU	DIST. HDR
1-BB-12VCA-014A-1, 1LD	RISERS
1-BB-12VCA-014A-2, 2LU, 2LD	RISERS
1-BB-12VCA-014A-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-014A-4, 4LUI, 4LUO, 4LD	RISERS

1-BB-12VCA-014B-1, 1LD	RISERS
1-BB-12VCA-014B-2, 2LU, 2LD	RISERS
1-BB-12VCA-014B-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-014B-4, 4LUI, 4LUO, 4LD	RISERS
1-BB-12VCA-014C-1, 1LD	RISERS
1-BB-12VCA-014C-2, 2LU, 2LD	RISERS
1-BB-12VCA-014C-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-014C-4, 4LUI, 4LUO, 4LD	RISERS
1-BB-12VCA-014D-1, 1LD	RISERS
1-BB-12VCA-014D-2, 2LU, 2LD	RISERS
1-BB-12VCA-014D-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-014D-4, 4LUI, 4LUO, 4LD	RISERS
1-BB-12VCA-014E-1, 1LD	RISERS
1-BB-12VCA-014E-2, 2LU, 2LD	RISERS
1-BB-12VCA-014E-3, 3LU, 3LDI, 3LDO	RISERS
1-BB-12VCA-014E-4, 4LUI, 4LUO, 4LD	RISERS
1-BC-12CCA-115-5, 5LU	RHR RETURN
1-BC-12CCA-115-4, 4LD, 4LUI, 4LUO	RHR RETURN
1-BC-12CCA-115-3, 3LDI, 3LDO, 3LU	RHR RETURN
1-BC-12CCA-115-2, 2LD, 2LUI, 2LUO	RHR RETURN
1-BC-12CCA-115-1, 1LDI, 1LDO, 1LU	RHR RETURN
1-BC-20CCA-114-1, 1LD	RHR SUCTION
1-BC-20CCA-114-2, 2LU, 2LDI, 2LDO	RHR SUCTION
1-BC-20CCA-114-3, 3LUI, 3LUO, 3LD	RHR SUCTION
1-BC-20CCA-114-4, 4LU, 4LDI, 4LDO	RHR SUCTION
1-BC-20CCA-114-5, 5LUI, 5LUO, 5LD	RHR SUCTION
1-BC-20CCA-114-6, 6LU	RHR SUCTION
1-BG-4CCA-011 2 WELDS	RWCU

PUBLIC ADVOCATE
SECOND SET OF INTERROGATORIES
PART I PIPE CRACKS

36. Identify each person whom you expect to call as an expert witness with respect to contention I relating to pipe cracks. For each such person, state the subject matter on which he or she is expected to testify, the substance of the facts and opinions to which he or she is expected to testify, and a summary of the grounds for each such opinion. Also describe the educational and professional qualification of each such person, the publications, if any, of the person, and identify any previous proceeding in which that person has testified.

PSE&G Employees

J. E. Rogozenski
R. F. Brandt
L. Lake
G. J. Schnabel
G. L. Duncan

General Electric Company

G. M. Gordon

SWRI Employees

W. T. Flach
W. A. Weis
S. W. Richter
E. H. Reuscher
G. J. Gruber

III. MANAGEMENT COMPETENCE: INTERROGATORIES

1. Identify and describe all steps PSE&G has taken or plans to take to meet the "character" requirement of Section 182(a) of the Atomic Energy Act, 42 U.S.C. Sections 2232(a), to operate the Hope Creek Generating Station.

RESPONSE

See Application, FSAR Sec. 13 and remainder ot responses to management competence interrogatories submitted herewith and documents provided in response to management competence request for documents.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

2. Identify and describe all steps PSE&G has taken or plans to take to ensure its "technical qualification" within the meaning of 10 CFR Part 50, Sec. 50.56 and 50.57(a)(4), to operate the Hope Creek Generating Station.

RESPONSE

See response to Interrogatory III/1.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORY #3: Identify and describe what PSE&G has learned regarding its management practices from the failures and problems experienced at the Salem Generating Station.

RESPONSE:

Detailed evaluations of the Salem Generating Station reactor trip breaker events by PSE&G, the Nuclear Regulatory Commission and outside consultants identified specific short term and longer term actions to improve management practices of the Salem station. Implementation of these actions is now either complete or progressing toward a scheduled completion.

See also response to Interrogatories 3, 4 of the Public Advocate's First Set of Interrogatories dated Februaryb 14, 1984 and the attached list of referenced meetings and documents.

RESPONSE:

Meetings between PSE&G and the NRC were held on:

1. February 28, 1983, as documented in the NRC Meeting Summary, dated March 14, 1983;

2. March 5 and 10, 1883, as documented in the NRC's Salem Restart Status Report, dated March 14, 1983;

3. March 15, 1983, as documented in the official Transcript of Proceedings before the NRC, dated March 15, 1983, and NRC Summary of Meeting, dated April 18, 1983,

4. March 24, 1983, as documented in Briefing of the Nuclear Regulatory Commission on Salem Post-Trip Report, dated March 24, 1983;

5. March 31, 1983, as documented in a letter from R. A. Uderitz to D. G. Eisenhut, dated April 4, 1983;

6. April 7, 1983, as documented in the draft Salem Restart Authorization (SECY-83-98E), dated April 11, 1983;

7. April 20, 1983, as documented in Briefing on Salem Public Meeting, dated April 20, 1983;

   These documents and all other documents and other writing discussed or produced as a result and additional information regarding the NRC's concerns or recommendations and PSE&G's response to these concerns have been provided to the Department of the Public Advocate In the Matter of the Motion of Public Service Electric and Gas Company to Reduce the Level of the Levelized Energy Adjustment Clause before the State of New Jersey Board of Public Utilities, Docket No. 831-25. (See response to Interrogatory 2 of Contention 2, dated February 14, 1984).

8. March 18, 1983. Management Meeting held to discuss initial findings of Management Analysis Company (MAC) diagnostic of PSE&G, as documented in Combined Meeting Report No. 50-272/83-21 and 50-311/83-21, dated July 20, 1983;

9. August 9, 1983, Management Meeting held to discuss PSE&G's progress toward completion of long-term corrective actions from the May 6, 1983 order, as documented in Combined Meeting Report No. 50-272/83-26 and 50-311/83-27, dated September 7, 1983;

10. October 11, 1983, Management Meeting held to discuss the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report No. 50-272/83-31 and 50-311/83-32, dated October 26, 1983;

11. November 18, 1983, Management Meeting held to discuss the status and details of the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report No. 50-272/83-34 and 50-311/83-34, dated November 30, 1983;

12. December 1, 1983, meeting to discuss the Systematic Assessment of Licensee Performance (SALP) Board Report for the period October 1, 1982 through September 30, 1983, as documented in NRC letters dated November 22, 1983, and January 19, 1984;

13. January 5, 1984, Management Meeting held to discuss the status and details of the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report No. 50-272/84-01 and 50-311/84-01, dated January 10, 1984;

14. March 6, 1984, Management Meeting held to discuss the status and details of the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report No. 50-272/84-12 and 50-311/84-12, dated March 22, 1984;

15. May 18, 1984, Management Meeting held to discuss the status and details of the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report 50-272/84-20 and 50-311/84-20, dated June 21, 1984;

16. July 19, 1984, Management Meeting held to discuss the status of the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report No. 50-272/84-30 and 50-311/84-29, dated July 30 and August 2, 1984;

17. November 15, 1984, meeting to discuss the SALP Board Report No. 50-272/84-37 and 50-311/84-36, dated November 5, 1984, for the period October 1, 1983 through August 31, 1984. The NRC meeting report has not yet been made available;

18. November 16, 1984, Management Meeting held to discuss the status of the PSE&G Action Plan for improvement of Nuclear Department operations, as documented in Combined Meeting Report No. 50-272/84-30 and 50-311/84-29, dated December 17, 1984;

The documents listed above in items 8 through 18 will be provided as part of the response to Request for Documents III Request No. 2

19. July 23 - 25, 1984, meeting to review the proposed organization for the operation of the Hope Creek Generating Station from the level of senior corporate officer down to and including the proposed operating staff.

(Ref. Section 13.1.1.1, Hope Creek SER, NUREG-1048)

SECTION III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORY #4: Identify and describe all of the management related causes, identified by Public Service Electric and Gas Company and consultants, of the ATWS incident that occurred February 22-25, 1983 at the Salem Generating Station.

RESPONSE: None, but see response to Interrogatory III/3.

SECTION III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORY #5: Identify and describe each of the changes in management structure, practice, staffing, philosophy or training suggested by any and all consultants retained by PSE&G related to PSE&G's Nuclear Department or the operation of the Hope Greek generating stations.

RESPONSE: Changes in PSE&G Nuclear Department management structure, management practice, management staffing, management philosophy or management training suggested by consultants retained by PSE&G are identified and described in the Management Assessment and Action Plan for Improvement of Salem Stations 1 and 2 Operations, dated June 24, 1983 (Management Analysis Company); and the Hope Creek Management Review Update dated April 1984 (Theodore Barry & Associates)

See, also, response to Interrogatory III/3.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

6. **Identify and describe each of the changes in PSE&G management structure, practice, staffing, philosophy or training suggested by the NRC or its staff.**

RESPONSE

Any changes in PSE&G management structure, practice, staffing, philosophy or training were developed as a result of PSE&G's interpretation of the evaluation of the ATWS or through or by consultants who were contracted to provide guidance in the areas described in our response to Interrogatory 5 of Section III or through informed discussions with NRC or its staff.

See, also, response to Interrogatory III/3.

PUBLIC ADVOCATE
SECOND SET OF INTERROGATORIES
PART III - MANAGEMENT COMPETENCE

7. Identify each instance in which PSE&G has been fined or cited for any deficiency by the NRC. For each such instance, identify (a) the reason for the NRC's action; (b) PSE&G's response to the notice of violation involved; (c) PSE&G's response to the proposed fine; and (d) any and all corrective measures undertaken by PSE&G in response to the NRC's action.

Response: No civil penalties proposed by the NRC for Hope Creek Generating Station. Documents related to deficiencies identified during NRC inspections will be made available in response to the request for documents.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

8. State the reasons why PSE&G found it necessary or appropriate to reorganize its Nuclear Department in 1984; identify and describe each of the changes in the structure and staffing of the Nuclear Department that resulted from this reorganization; and for each such change, identify and describe in full the specific reason therefor.

RESPONSE

See response to Interrogatory III/3 and III/5.

INTERROGATORIES

SECTION III, ITEM 9

DESCRIPTION:

Identify how P.S.E. & G. will ensure that the management and staff of the Hope Creek Generating Station will be aware of and learn from the experiences of the management and staff of the Salem Generating Station. Identify all documents that in any way discuss this issue.

RESPONSE

As a result of the P.S.E. & G. Action Plan to perform an indepth analysis of the roles of the Vice President - Nuclear and his Direct Reports, senior management organizational changes were made to establish the most effective organizational structure possible. As part of this organizational structure, the Assistant Vice President - Nuclear Operations and his staff provide full time senior management oversight of the operating functions of both Salem and Hope Creek Generating Stations. This reporting structure will encourage communication between the stations as well as other Nuclear Department groups. The operating activities of both stations are administratively controlled by programs and procedures which stem from and comply with the Vice President Nuclear Procedures (VPNs) as a common base. The experience of both stations, as well as the nuclear industry, will be continuously factored into improvements of these common programs. The Hope Creek Generating Station has implemented an operating experience assessment program which provides for the evaluation of Hope Creek, Salem and other nuclear industry operating events. The programs of both stations will be coordinated through common Nuclear Department support groups to provide effective transfer of information. Additionally, operating events and procedural changes affecting safety will be independently reviewed by the common Nuclear Safety Review Department.

See, also, response to Interrogatory III/3.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

10. Identify and describe all changes to the Hope Creek FSAR that resulted from the Director's Order of May 6, 1983, as referred to in Applicants' Answer to Proposed Contentions of the Public Advocate of the State of New Jersey at 23 n. 48.

RESPONSE:

No changes to the Hope Creek FSAR have been made as a direct result of the May 6, 1983 Order; however, numerous changes have been made as a result of the internal programs and evaluations that have been conducted. See, specifically Chapter 13, Conduct of Operations.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

11. Identify each instance in which NRC staff met with PSE&G personnel after February 25, 1983, to discuss issues related to management-related causes of the ATWS events or the management of Hope Creek, including but not limited to PSE&G administration, quality assurance, personnel matters, staffing levels, training, philosophy of management, staff or management experience, management failures or human error.

For each such instance, identify:

(a) the date of the meeting;

(b) the individuals in attendance;

(c) whether a transcipt, recording, notes, memos, or minutes exist from the meeting;

(d) the subject matter of the discussion;

(e) all documents or other writings discussed;

(f) all documents or other writings produced as a result;

(h) the NRC's concerns or recommendations in their discussions;

(i) PSE&G's response in these discussion to the NRC's concerns or recommendations;

(j) any modifications or change in management practices or procedures implemented as a result of the discussions;

(k) any concerns or recommendations of the NRC not acted upon by PSE&G; and

(l) the reasons PSE&G did not act upon any of the recommendations or concerns listed in 11(k)

Response: See response to Interrogatory III/3.

III. MANAGEMENT COMPETENCE; INTERROGATORIES

12. Identify all documents or other writings in your possession regarding or relating to:

a) management turnover in the Nuclear Department;

Monthly Retention Analysis Report
Monthly Personnel Change Report
Out-of-Service File
Exit Interview Reports
Personnel Change Authorization Forms

b) management turnover at the Salem Generating Station;

Same reports identified in Interrogatory 12(a).

c) management turnover at the Hope Creek Generating Station;

Same reports identified in Interrogatory 12(a).

d) Management turnover at the Engineering and Construction Department.

Management turnover for the period February 25, 1983, through December 31, 1984, has been 0.

e) problems, in management liasion or coordination with Bechtel and other Hope Creek contractors and subcontractors.

None.

f) allegations or reports of records falsification at Hope Creek.

The following documents were identified as relating to an allegation of records falsification by a soils testing technician employed by GEO Construction Testing Inc.:

a) GEO Construction Testing Inc. letter to Bechtel CLB-204, dated October 10, 1984. Subject is "Technician Termination and Quality Evaluation."

b) Bechtel letter to GEO Construction Testing Inc., BLC-331, dated October 15, 1984. Subject is "Technician Testing Deviation."

c) GEO Construction Testing Inc. letter to Bechtel CLB-205, dated October 18, 1984. Subject is "Technician Testing Deviation."

III. MANAGEMENT COMPETENCE; INTERROGATORIES

g) allegations or reports of drug or alcohol use at the Hope Creek Generating Station;

WITHDRAWN

h) management absenteeism at the Hope Creek Generating Station;

Report of Employee Absence or Tardiness
Report of Absence Due to Illness
Excessive Unavailability Report
Report of Absence of Permanent Employees Due to Illness - Quarterly

i) allegations or reports of management inadequacy, ineffectiveness or incompetence at the Hope Creek Generating Station;

None.

j) allegations or reports of inadequate, inaccurate, improper or poor planning by the Nuclear Department.

None

k) allegations regarding the substandard management performance of the Engineering and Construction Department.

None

III. MANAGEMENT COMPETENCE: INTERROGATORIES

SUGGESTED RESPONSE
TO HOPE CREEK INTERROGATORIES

#13

Identify and describe all procedures and methods instituted by PSE&G to monitor and evaluate the performance of its managerial employees in the Nuclear Department.

Management Personnel Performance Appraisal Program - Corporate Personnel Practices Manual Section 12.1

Guide to Personnel Performance Appraisal Program

The PSE&G Management Personnel Performance Appraisal Program has been implemented for the following reasons:

1. To systematically and objectively appraise each individual's performance.

2. To create, establish and implement an incentive tool facilitating personal growth, career development, and opportunities for advancement consistent with and in support of departmental objectives.

3. To provide a basis for establishing and understanding between the individual and his/her superior pertaining to the expectations of both as they relate to the duties and responsibilities of the job and the departmental goals and objectives.

4. To provide the basic performance data necessary for an equitable merit salary program.

The Guide to Personnel Performance Appraisal Program was designed to assist management employees in the implementation of the process.

CONTENTION 2: MANAGEMENT COMPETENCE

14. Identify each person whom you expect to call as an expert witness with respect to Contention 2 relating to Management Competence. For each such person, state the subject matter on which he or she is expected to testify, the substance of the facts and opinions to which he or she is expected to testify, and a summary of the grounds for each such opinion. Also describe the educational and professional qualifications of each such person, the publications, if any, of the person, and identify any previous preceedings in which that person has testified.

Response - The following personnel may testify on behalf of Public Service Electric & Gas Company relative to the PSE&G Senior Management Competence to safely operate the Hope Creek Nuclear Generating Facility.

PSE&G Co.

R. M. Eckert, Sr. Vice President - Nuclear & Engineering
R. A. Uderitz, Vice President - Nuclear
J. T. Boettger, Asst. Vice President - Nuclear Operations Support
R. A. Burricelli, General Manager - Nuclear Engineering
S. LaBruna, Asst. General Manager - Hope Creek Operations
L. A. Reiter, Asst. General Manager - Hope Creek Transition
H. D. Hanson, Manager - Nuclear Training

The educational and professional qualifications of PSE&G personnel are contained in Chapter 13 of the Hope Creek FSAR.

Management Analysis Company

R. C. Traylor, Sr. Vice President

John E. Ward, Vice President

III. MANAGEMENT COMPETENCE: INTERROGATORIES

15. State what programs, policies or other mechanism have been established to ensure commitment by upper level corporate management to take all steps necessary to ensure the safe and efficient operation of its nuclear power plants.

RESPONSE:

Commitment by upper level corporate management to take all steps necessary to ensure the safe and efficient operation of its nuclear power plants is addressed in the following programs, policies or other mechanisms:

Nuclear Department Policy Manual approved by the Vice President - Nuclear provides overall guidance and direction for the Nuclear Department. It addresses how corporate level policies are implemented in the Nuclear Department.

The CEO, Senior Vice President and Vice President - Nuclear have committed to frequent meetings and communications to maintain a high level of awareness and readiness to respond.

A PSE&G Nuclear Oversight Committee has been established to provide Company management and the Board of Directors an independent basis for evaluating the effectiveness of the Company's nuclear plant operations. Specific attention is to be provided to evaluating overall management attention to nuclear safety and evaluating progress in resolving open evaluations of Company nuclear operations.

All of the above items are designed to ensure an appropriate degree of involvement at all levels of management that provides timely decision making authority to enhance the safe and efficient operation of the PSE&G Nuclear Power Plants.

See response to Interrogatory III/3.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

16. Identify all individuals and departments within P. S. E. &G. and all individuals and organization outside PSE&G that have evaluated in writing PSE&G's Nuclear Department or its management of the operations of either the Salem or Hope Creek generating stations.

RESPONSE: The individuals and departments within PSE&G and all individuals and organization outside PSE&G that have evaluated in writing PSE&G's Nuclear Department or its management of the operations of Hope Creek Generating Station are listed below:

INTERNAL PUBLIC SERVICE ORGANIZATIONS

Safety Review Group (SRG)

PSE&G
P. O. Box 236
Hancocks Bridge, NJ 08038

The following individuals may be contacted at the PSE&G Nuclear Department address listed above:

B. E. Hall
Safety Review Engineer - Group Head

J. A. Fest
Safety Review Engineer

A. Carolyn Taylor
Safety Review Engineer

P. E. Steinhauer
Safety Review Engineer

R. J. Atkisson
Safety Review Engineer

L. Fink
Safety Review Engineer
Atlantic Electric Co.

C. Littleton
Safety Review Engineer

Nuclear Review Board (NRB)

PSE&G
Nuclear Department
P. O. Box 236
Hancocks Bridge, NJ

P. M. Krishna
Nuclear Review Board Manager

J. T. Boettger
Assistant Vice President - Operations Support

R. S. Salvesen
General Manager - Hope Creek

J. M. Zupko
General Manager - Salem Operations

R. P. Douglas
Manager - Licensing and Analysis

H. J. Midura
General Manager - Nuclear Services

R. L. Mittl
General Manager - Nuclear Assurance & Regulation

A. Nassman
Assistant to General Manager - Nuclear Engineering

R. D. Rippe
Assistant General Manager - Engineering & Construction

C. P Johnson
General Manager - Nuclear Quality Assurance

W. T. Ullrick
Superintendent Nuclear Services
2301 Market Street
P.O. Box 8699
Philadelphia, PA 19101

T. R. Robbins
Consultant
Pickerard, Lowe & Garrick Inc.
1200 18th Street North West
Suite 612
Washington, D.C. 20036

Nuclear Assurance and Regulation
PSE&G
80 Park Plaza
Newark, NJ 07101

R. L. Mittl
General Manager
Nuclear Assurance and Regulation

Nuclear Safety Assurance
PSE&G
P. O. Box 236
Hancocks Bridge, NJ 08038

J. C. Gueller
Manager
Nuclear Safety Assurance

J. J. Wang
Lead Engineer
Nuclear Safety Assurance

F. P. Omohundro
Manager
Corporate Quality Assurance

R. D. Evans
Assistant Manager
Corporate Quality Assurance

NUCLEAR OVERSIGHT COMMITTEE (NOC)

MEMBERSHIP:

Dr. M. B. Gottlieb, Chairman
Director - Emeritus
Princeton Plasma Physics Lab
P. O. Box 451
Princeton, NJ 08544

Dr. S. Levy
President - S. Levy Inc.
1999 South Bacom Ave.
7th Floor
Campbells, Calif. 95008

Dr. K. C. Rogers
President
Stevens Institute of Technology
Castle Point Station
Hoboken, NJ 07030

Dr. W. F. Witzig
Nuclear Engineering Department Head
Penn State University
231 Sackett BLDG
University Park, PA 16802

Admiral E. P. Wilkinson
President
Institute Nuclear Powere Operations
1100 Circle 75 Parkway
Atlanta, GA 30339

Nuclear Department Quality Assurance

PSE&G
P. O. Box 236
Hancocks Bridge, NJ 08038

The following individuals may be contacted at the PSE&G Nuclear Department address listed above:

C. P. Johnson
General Manager
Nuclear Quality Assurance

E. Witkin
Quality Assurance Controls Engineer

R. P. Bivona
Principal Staff Engineer
Reports

H. Gross
Senior Engineer - Trending

J. R. Franks
Senior Engineer
Commitment Verification

M. Maraded
Lead Engineer
Commitment Verification

M. Rosenzweig
Engineering and Procurement Engineer

E. Rozovsky
Principal Engineer
QA Engineering

W. Blazek
Lead Engineer
QA Engineering
Mechanical

W. Reuther
Principal Engineer
QA Supplier Control

D. Hauth
Lead Engineer
QA Supplier Control
Planning

W. B. Keeffe
Senior Staff Engineer
QA Supplier Control
Evaluation

R. E. Tierney
Senior Engineer
QA Supplier Control
Fuels QA

A. Robinson
Principal Staff Engineer
QA Recieving Control

H. Fistel
Lead Engineer
QA Recieving Control

W. R. Schultz
Programs and Audits Engineer

W. R. Hunsinger
Senior Engineer - Programs Evaluation

W. Nevins
Principal Staff Engineer
Training and Certification

P. A. Benini
Principal Engineer - Audits

H. S. Lowe
Senior Engineer - Audits Evaluation

R. A. Jorgenson
Lead Engineer - QA Recieving Control

D. A. Perkins
Station Q. A. Engineer

T. Cocco
Lead Engineer - Operations

A. E. Siebert
Lead Engineer - Operations

R. Dulee
Principal Engineer - Services

R. J. Skibinski
Senior Engineer - Services

J. M. DeStefano
Senior Staff Engineer - Services

W. Denlinger
Lead Engineer - Services

D. J. Tauber
Principal Engineer - Quality Control

S. Skabicki
Senior Engineer - Quality Control

Internal Auditing
80 Park Plaza
Newark, NJ 07101

The following individuals may be contacted at the above listed address:

W. J. Smith
General Manager
Internal Auditing

R. J. Lipschutz
Manager - Operation Auditing

Nuclear Department - Internal Auditing
PSE&G
P.O. Box 236
Hancocks Bridge, NJ 08038

The following individuals may be contacted at the above listed address:

F. H. Zaksewski
Principal Auditor

E. W. Demarest
Senior Auditor

G. Mori
Staff Auditor

J. J. Lengyel
Staff Auditor

PSE&G Action Plan Task Forces
PSE&G
P. O. Box 236
Hancocks Bridge, NJ 08038

W. C. Bibb
Action Plan Director
Management Analysis Company (MAC)

The following people can be contacted at the PSE&G address listed above unless noted otherwise:

2.1.1 - Functional Analysis of CP - Nuclear

R. A. Burricelli
General Manager
Nuclear Engineering
Sponsor

R. A. Uderitz
Vice President
Nuclear

J. M. Zupko
General Manager
Salem Operations

J. T. Boettger
Assistant Vice President
Nuclear Support

C. P. Johnson
General Manager
Nuclear Quality Assurance

H. E. Lamb (MAC)

S. R. Lamb (MAC)

2.1.2 - Nuclear and Corporate Matrix Relationships

R. A. Burricelli
General Manager
Nuclear Engineering
Sponsor

2.1.3 - Nuclear Department Policy Manual

R. E. Gehret
Manager
Methods and Systems
Sponsor

2.1.4 - Nuclear and Corporate Communications

R. A. Burricelli
General Manager
Nuclear Engineering
Sponsor

2.1.5 - Nuclear Department Transition Managemen

R. A. Burricelli
General Manager
Nuclear Engineering
Sponsor

J. M. Zupko
General Manager
Salem Operations

H. J. Midura
General Manager
Nuclear Support

R. S. Salvesen
General Manager
Hope Creek Operations

J. T. Boettger
Assitant Vice President
Nuclear Support

2.1.6 - Hope Creek Transition Plan

L. A. Reiter
Assitant General Manager
Hope Creek Transition
Sponsor

S. Labruna
Assistant General Manager
Hope Creek Operations

R. D. Rippe
Assistant General Manager
Engineering
80 Park Place
Newark, DE

R. P. Douglass
Manager
Licensing and Analysis
80 Park Place
Newark, DE

A. C. Smith
Assistant Project Manager
Hope Creek

E. G. Towhley
Manager Employement and Placement

2.1.7 - New Employee Recruiting and Hiring

S. M. Kosierowski
Personnel Affairs Manager
Nuclear
Sponsor

2.2.1 - Safety Review Management

P. M. Krishna
Manager
Nuclear Review Board
Sponsor

2.2.2 - Commitment Tracking

E. A. Liden
Manager
Nuclear Licensing and Regulation
Sponsor

R. E. Gehret
Manager
Methods and Systems

J. G. Jackson
Technical Engineer
Salem

J. A. Nicols
Technical Manager
Hope Creek

E. Witkin
QA Controls Engineer

2.3.1/2.3.2 - Configuration Management/Change Control

D. J. Jagt
Assistant General Manager
Nuclear Engineering
Sponsor

M. Rosenzweig
QA Engineering and Procurement Engineer

L. K. Miller
Assistant General Manager
Salem Operations

F. Meyer
Manager
Nuclear Site Maintenance

J. M. Rucki
Maintenance Engineer
Hope Creek

2.4.1 - Plant Cleanliness

L. M. Fry
Operations Manager
Salem
Sponsor

2.4.2 - Technical and Equipment Specifications

L. K. Miller
Assitant General Manager
Salem Operations
Sponsor

R. Hallmark
Interfacs Inc.

2.4.3 - Post Modification/Post Repair Testing

F. Meyer
Manager
Nuclear Site Maintenance

2.4.4 - Site Protection and Emergency Preparedness

P. A. Moeller
Manager
Nuclear Site Protection
Sponsor

2.4.5 - Engineering and Operations Coordination

R. A. Burricelli
General Manager
Nuclear Engineering

2.5.1/2.5.2/2.5.3 - QA Organization/Working Relations/Procedures

C. P. Johnson
General Manager
Nuclear QA
Sponsor

2.6.1 - Maintenance Organization

H. J. Midura
General Manager
Nuclear Services
Sponsor

2.6.2 - Maintenance Planning

E. W. Barradale
Manager
Nuclear Contruction Support
Sponsor

J. E. Gallagher
Maintenance Manager, Salem

V. C. Gadzinski
Senior Maintenance Planning Supervisor

2.6.3 - Maintenance Work Order Backlog

J. E. Gallagher
Maintenance Manager, Salem
Sponsor

V. C. Gadzinski
Senior Maintenance Planning Supervisor

2.6.4 - Measuring and Test Equipment

F. Meyer
Manager
Site Maintenance
Sponsor

D. W. Lyons
Operational Test Engineer

R. W. Vanderdecker, Sr.
Supervisor
I & C Planning, Salem

D A. Ward
Station Planning Engineer, Salem

2.6.5 - Outage Management

J. M. Zupko
General Manager
Salem Operations
Sponsor

D. A. Ward
Station Planning Engineer

E. P. Czuchnicki
Senior Staff Engineer

R. P. Surman
Principal Staff Engineer

T. McCorkell
MAC

2.7.1/2.7.2 - Records Management/Document Control

R. E. Gehret
Manager
Methods and Systems
Sponsor

M. J. Murphy
Senior Methods Analyst

J. G. Jackson
Technical Engineer, Salem

A. J. Ameo
Document Scheduling Administrator

L. F. Lake
ISI Engineer

D. Bhavani
Senior Staff Engineer

M. A. Pardeds
Administration Staff Assistant

W. R. Hunsinger
Engineer

R. A. Ritzman
Group Supervisor TDR, Hope Creek

2.7.3 - Information Systems

R. E. Gehret
Manager
Methods and Systems

2.7.4 - Nuclear Department Training

H. D. Hanson
Manager
Nuclear Training
Sponsor

S. Labruna
Assistant General Manager
Hope Creek Operations

L. K. Miller
Assistant General Manager
Salem Operations

S. Jelenevsky
Assistant Manager
Management Resource Division

2.7.5 - Cost and Schedule Control

V. K. McNamara
Manager
Cost and Scheduling

EXTERNAL ORGANIZATIONS

Basic Engergy Technology Associates, Inc. (BETA)
Arlinton, Virginia

R. W. Bass

R. S. Brodsky

M. E. Miles

W. Wegner

J. C. Grigg
Independent consultant to BETA

Management Analysis Corporation (MAC)
San Diego, California

R. J. Ascherl

R. J. Campbell

R. B. Kelley

L. J. Kube

H. E. Lamb

S. R. Lamb

K. T. Perkins

R. J. Robinson

F. L. Thompson

A. J. Tudury

LIST OF NRC PERSONNEL

The following may be reached at:

Salem Nuclear Generating Station
USNRC, Drawer I
Hancocks Bridge, NJ 08038

J. C. Linville
Senior Resident Inspector, Salem

R. J. Summers
Resident Inspector, Salem

The following may be reached at:

U. S. Nuclear Regulatory Commission
Washington, DC 20555

B. C. DeYoung
Director, Office of Inspection
and Enforcement (I & E)

D. G. Eisenhut
Director, Division of Licensing,
Office of Nuclear Reactor Regulation (NRR)

H. R. Denton
Director, NRR

R. J. Mattson
NRR

G. M. Holahan
NRR

L. Crocker
NRR

M. W. Hodges
NRR

S. L. Israel
NRR

W. G. Kennedy
NRR

G. Lanik
I & E

W. D. Lanning
Office for Analysis and Evaluation
of Operational Data (AEOD)

J. G. Partlow
I & E

C. E. Rossi
NRR

P. C. Shemanski
NRR

H. Silver
NRR

M. Ernst
Office of Nuclear Regulatory Research

C. J. Heltemes
AEOD

E. Jordan
I & E

G. Klingler
Enforcement Specialist
I & E

S. A. Varga
Chief, Operating Reactors
Branch (ORB) 1, Division
of Licensing, NRR

D. C. Fischer
Licensing Project Manager, ORB1, NRR

H. R. Booher
Chief, Licensee Qualifications Branch,
NRR

E. M. Podolak
Chief, Program and Administrative
Service Branch

V. Gilinsky
Commissioner

W. J. Dircks
Executive Director for Operations

The following may be reached at:

U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

T. E. Murley
Regional Administrator

J. M. Allan
Deputy Regional Administrator

R. C. Haynes
Regional Administrator

T. T. Martin
Director, Division of Engineering
and Technical Programs (DETP)

R. W. Starostecki
Director, Division of Project
and Resident Programs (DPRP)

S. D. Ebneter
Chief, Engineering Programs
Branch, DETP

H. B. Kister
Chief, Projects Branch No. 2
DPRP

L. J. Norrholm
Chief, Reactor
Project Section 2B, DPRP

D. F. Limroth
Project Engineer, Projects
Branch 2, DPRP

R. R. Bellamy
Chief, Radiological
Protection Branch, DETP

J. H. Joyner
Chief, Nuclear Materials and
Safeguards Branch, DETP

L. E. Tripp
Chief, Reactor Projects
Section 3A, DPRP

R. R. Keimig
Chief, Projects Branch 3, DPRP

D. L. Caphton
Chief, Management Programs
Section, DETP

W. J. Lazarus
Project Engineer, DPRP

W. J. Raymond
Region 1

C. J. Anderson
Region 1

N. J. Blumberg
Region 1

H. Eichenholtz
Region 1

L. Plisco
Region 1

R. Jacobs
Project Engineer, DPRP

D. Holody
Enforcement Specialist, Region 1

T. Shaub
Region 1

The following may be reached at:

U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street
Suite 3100
Atlanta, GA 30303

J. Olshinski
Region II

The following may be reached at:

Hope Creek Generating Station
USNRC, P. O. Box B
Hancocks Bridge, NJ 08038

W. H. Bateman
Resident Inspector, Hope Creek

A. R. Blough
Resident Inspector, Hope Creek

INPO

Institute of Nuclear Power Operations
1820 Water Place
Atlanta, GA 30339
(404) 953-3600

Mr. Zack T. Pate
President
Institute of Nuclear Power Operations
1100 Circle 75 Parkway
Suite 1500
Atlanta, GA 30339

Mr. Thomas McHenrey
Assistant to President
Institute of Nuclear Power Operations
1100 Circle 75 Parkway
Suite 1500
Atlanta, GA 30339

NOTE: It is against INPO Corporate policy to divulge the names of member utility individuals who comprise the audit teams. For further information please contact the two individuals listed above.

Federal Emergency Management Agency
Federal Plaza
New York, NY 10278

The following individuals may be contacted at the address listed above:

Frank P. Petrone
Regional Director

R. Kowieski

B. Marking

R. Garelik

L. Dillon

B. Houston

R. Rodriguez

M. Wu

P. Cammarata

Pennsylvania Public Utilities Commision
P. O. Box 3265
Commonweath and North Street
Harrisburg, PA 17120

The Honorable:

Linda C. Taliaferro, Chairman
Michael Johnson, Commisioner
James Cawley, Commisioner
William R. Shane, Commisioner
Frank Fischl, Commisioner

New Jersey Board of Public Utilities
1100 Raymond Boulevard
Newark, NJ 07101

Barbara A. Curran, President
George A. Barbour

New Jersey Department of the Public Advocate
Department of the Public Advocate
CN850
Trento, NJ 08025

Joseph H. Rodreiguez, Public Advocate
Richard E. Shapiro, Director Division of Public Interest Advocacy

American Nuclear Insurers (ANI)
The Exchange
Suite 245
270 Farmington Ave.
Farmington, CT 06032

The following individuals may be contacted at the above listed address:

Mr. Ted Banasiewicz
Facility Engineer

Mr. Leo P. Mariani
Vice President
Nuclear Engineering

Nuclear Mutual Limited (NML)
Mr. Quentin Jackson
General Manager
Nuclear Mutual Limited
P.O. Box 2025
Hamilton 5
Bermuda

M&M Protection Consultants
22 South Riverside Plaza
Chicago, IL 60606
Consultant for NML

The following individuals may be contacted at the above listed address:

Mr. Quentin Jackson
General Manager

Mr. Daniel E. Brown
Loss Prevention Supervisor

Mr. George Luer
Loss Prevention Inspector

Mr. Robin Wilson
Boiler & Machinery Inspector

Kemper Authorized Inspector Agency
Lumbermans Mutual Casulty Co.
Kemper Group
1020 Plain Street
Marshfield, MA 02050

The following individuals may be contacted at the above listed address:
R. D. Norris
Regional Manager
Special Inspection Service

D. A. DeBacker
Authorized Nuclear Inspector Supervisor

Theodore Barry & Associates
50 Rockefellar Plaza
New York 20
10th Floor
New York, New York

Thomas Madden
Senior Vice President

SECTION III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORY #17: Identify and describe all corrective action or changes implemented by PSE&G in response to the following suggestions made by the Management Analysis Company (MAC) at page ii of its June 24, 1983 "Management Assessment and Action Plan for Improvement of Salem Stations 1 and 2 Operations" (MAC I report):

Clarification of jurisdictional scopes and individual role responsibilities to enhance site management's capability to manage and to improve accountability throughout the Nuclear Department.

RESPONSE: The documents identified below describe in detail the corrective action or changes implemented by PSE&G relative to the clarification of jurisdictional scopes and individual role responsibilities to enhance site management's capability to manage and to improve accountability throughout the Nuclear Department.

REFERENCE: PSE&G Plan for Improvement on Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Actions Plans
Action Plan numbers; 2.1.1, 2.1.2, 2.1.3 and 2.1.4

Action Plan 2.1.1 - Functional Analysis of the VPN position and all Direct Reports.

OBJECTIVE - Perform a comprehensive functional analysis of the Vice President - Nuclear position and all direct report positions to determine priority functions. Recommend viable structural and/or procedural strategies for maintaining centralized and effective management control of the Nuclear Department

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on September 28, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.1.1.

Action Plan 2.1.2 - Improve the Effectiveness of Working Relationships between Nuclear Department and Corporate Public Relations, Human Resources and Purchasing.

OBJECTIVE - Improve the effectiveness of the working relationships between the Nuclear Department and Corporate Public Relations, Human Resources and Purchasing Departments; assess the feasibility of retaining these functions as matrix agreements; clarify and formalize all working agreements, including agreements about employee performance evaluatoins

between administrative and functional managers, and concerns related to personnel acquisition and procurement procedures.

STATUS - The objectives were met, activities complete and verified by PSE&G, Nuclear - Quality Assurance on October 17, 1984.

REFERENCE - PSE&G Action Plan Close-out Document, Action Plan 2.1.2.

Action Plan **2.1.3** - Completion and Implementation of the Nuclear Department Policy Manual, VPN-1, and Supporting Departmental Procedures.

OBJECTIVE - Complete the ongoing development and control of implementing procedures and directives.

STATUS - This Action Plan is still in progress. Present status on corrective action or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports.

PSE&G Action Plan Weekly Status Reports.

PSE&G Action Plan Monthly Status Reports.

PSE&G (partially complete) Action Plan Close-out Documents, Action Plan 2.1.3.

Action Plan 2.1.4 - Improve Communications Between the Nuclear Department and Corporate.

OBJECTIVE - Assess formal and informal communication systems between Corporate and the Nuclear Department to recommend improved information flow processes. Although the focus of this effort is to increase each organization's understanding of the other's operational realities and the efficiency of their interactions, the accomplishment of this objective will also have a positive impact on improving external relations between PSE&G and regulatory agencies, the media and the public.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on September 26, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.1.4.

INTERROGATORY #17: Development and implementation of an effective transition management process.

RESPONSE: The document identified below describes in detail the corrective action or changes implemented by PSE&G relative to the development and implementation of an effective transition management process.

REFERENCE: PSE&G Plan for Improvement of Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan number; 2.1.5

Action Plan 2.1.5 - Development and Implementation of an Effective Transition Management Process.

OBJECTIVE - Develop and implement an organizational transition management process which will assist management to:

1. Identify and address any remaining adverse effects of the recent Nuclear Department reorganization and relocation in terms of employee perceptions and attitudes (e.g., perceived barriers between the plant organization and other departments which relocated from Newark; confusion about responsibilities and resulting lack of ownership).

2. Clarify (and/or develop as necessary) organizational procedures, including departmental interface agreements, and functional responsibilities for the implementation of management control systems.

3. Identify and resolve intra- and inter-departmental communication problems.

4. Address facilities planning as this relates to problems with geographic fragmentation of work functions or adequate housing of staff resources.

5. Develop realistic plans and implementation schedules for the management of future organization transitions.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on September 7, 1984.

REFERENCE: PSE&G Action Plan Close-Out Document, Action Plan 2.1.5.

INTERROGATORY #17: Timely staffing of open supervisory and support positions required to perform the work of the Nuclear Department effectively.

RESPONSE: The document identified below describes in detail the corrective action or changes implemented by PSE&G relative to the timely staffing of open supervisory and support positions required to perform the work of the Nuclear Department effectively.

REFERENCE: PSE&G Plan for Improvement of Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan number, 2.4.5

Action Plan 2.4.5 - Strengthen Nuclear Engineering and Coordination Between Nuclear Engineering and Operations.

OBJECTIVE - Strengthen the Nuclear Engineering organization and improve coordination between Engineering and Operations.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on October 31, 1984.

REFERENCE: PSE&G Action Plan Close-Out Document, Action Plan 2.4.5.

INTERROGATORY #17: Consolidation of the safety review process and an improved system for commitment tracking.

RESPONSE: The documents identified below describe in detail the corrective action or changes implemented by PSE&G relative to the consolidation of the safety review process and an improved system for commitment tracking.

REFERENCE: PSE&G Plan for Improvement of Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan numbers; 2.2.1 and 2.2.2

Action Plan 2.2.1 - Improve Safety Review Management Activities.

OBJECTIVE - Evaluate the existing safety review management activities to address improvements that would maximize the effective use of resources in a manner consistent with the need to assure safe, reliable operation of the plants.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on October 30, 1984.

REFERENCE: PSE&G Action Plan Close-Out Document, Action Plan 2.2.1

Action Plan 2.2.2 - Improve Commitment Identification, Tracking and Close-out.

OBJECTIVE - Identify and implement changes to consolidate and improve PSE&G commitment tracking systems to assure that established commitments are acceptably closed-out in reasonable time frames. An additional objective is to clearly define the authority to make commitments within the Nuclear Department.

STATUS - This Action Plan is still in progress. Present status on corrective action or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports.

PSE&G Action Plan Weekly Status Reports.

PSE&G Action Plan Monthly Status Reports.

PSE&G (partially completed) Action Plan Close-out Document, Action Plan 2.2.2.

INTERROGATORY #17: Development and implementation of a more comprehensive configuration management program, including improved design change process, document control and records management.

RESPONSE: The documents identified below describe in detail the corrective action or changes implemented by PSE&G relative to the development and implementation of a more comprehensive configuration management program, including improved design change process, document control and records management.

REFERENCE: PSE&G Plan for Improvement of Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan numbers; 2.3.1, 2.3.2, 2.7.1 and 2.7.2.

Action Plan 2.3.1 - Implement a Fully Integrated Configuration Management Program.

OBJECTIVE - Ensure that the Nuclear Department has an integrated program which will effectively control the configuration of the nuclear stations.

Configuration management is a program comprised of many individual elements within the areas of configuration identification, configuration control, configuration status and configuration verification. Most, if not all, of the individual elements currently exist within the Nuclear Department. The goal of this action plan is to ensure that all elements of a configuration management program are fully integrated and implemented.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on September 7, 1984.

REFERENCE: PSE&G Action Plan Close-Out documents, Action Plan 2.3.1.

Action Plan 2.3.2 - Improve Change Control Process

OBJECTIVE - Make the design change process more efficient and more effective. Give particular consideration to screening potential changes, streamlining the Design Change Request/Design Change Package process and incorporating completed changes into appropriate key design documents.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear Quality Assurance on September 21, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.3.2.

Action Plan 2.7.1 - Establish an Effective Records Management Program

OBJECTIVE - Establish an effective, centralized records management program within the Nuclear Department.

STATUS - This Action Plan is still in progress. Present status on corrective action or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports.

PSE&G Action Plan Weekly Status Reports.

PSE&G Action Plan Monthly Status Reports.

PSE&G (partially complete) Action Plan Close-out Document, Action Plan 2.7.1.

Action Plan 2.7.2 - Integrate the Document Control Function

OBJECTIVE - Integrate document control functions performed by all PSE&G organizations that support the Nuclear Department. This applies to both safety and non-safety related documents which support and control the design basis for the plant including drawings, specifications, design criteria, procedures, etc.

STATUS - This Action Plan is still in progress. Present status on corrective action or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports.

PSE&G Action Plan Weekly Status Reports.

PSE&G Action Plan Monthly Status Reports.

PSE&G (partially complete) Action Plan Close-out Documents, Action Plan 2.7.2.

INTERROGATORY #17: Coordination of management systems, procedures and interdepartmental communications to enhance the capacity of all organizations to provide comprehensive technical and administrative support to Operations.

RESPONSE: The documents identified below describe in detail the corrective action or changes implemented by PSE&G relative to the coordination of management systems, procedures and interdepartmental communications to enhance the capacity of all organizations to provide comprehensive technical and administrative support to Operations.

REFERENCE: PSE&G Plan for Improvement of Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan numbers; 2.4.5 and 2.7.3

Action Plan 2.4.5 - Strengthen Nuclear Engineering and Coordination Between Nuclear Engineering and Operations

OBJECTIVE - Strengthen the Nuclear Engineering organization and improve coordination between Engineering and Operations.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear - Quality Assurance on October 31, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.4.5

Action Plan 2.7.3 - Information Systems

OBJECTIVE - Determine the management information needs of the Nuclear Department, evaluate how these needs can be met via a common data base management system and construct a plan to implement an integrated system.

STATUS - This Action Plan is still in progress. Present status on corrective action or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports

PSE&G Action Plan Weekly Status Reports

PSE&G Action Plan Monthly Status Reports

INTERROGATORY #17: Clarification of program priorities and the coordination of interdepartmental procedures and communications to improve the effectiveness of the quality programs.

RESPONSE: The documents identified below describe in detail the corrective action or changes implemented by PSE&G relative clarification of program priorities and the coordination of interdepartmental procedures and communications to improve the effectiveness of the quality programs.

REFERENC E&G Plan for Improvement on Nuclear partment Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan numbers; 2.5.1, 2.5.2, and 2.5.3

Action Plan 2.5.1 - Improve the Quality Assurance Department Organization

OBJECTIVE - Improve the internal capability of the Quality Assurance Department (QAD) to mange the salem Quality Assurance (QA) program through enhanced communications.

STATUS - The objectives were met, activities completed and verified by PSE&G, Corporate Quality Assurance on June 21, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.5.1

Action Plan 2.5.2 - Improved Interdepartmental Relationships Between the Quality Assurance and Other Nuclear Department Organizations

OBJECTIVE - Improve coordination procedures and working relationships between the Quality Assurance (QA) and other Nuclear Department organizations.

STATUS - The objectives were met, activities completed and verified by PSE&G, Corporate Quality Assurance on November 19, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.5.2

Action Plan 2.5.3 - Improve the Quality Assurance Department Procedures and Work Activities

OBJECTIVE - Improve Quality Assurance procedures and work activities as these relate to auditing, monitoring and Quality Control inspection functions. Improve quality engineering review during the procurement cycle. Improve QA nonconformance control activity.

STATUS - The Sponsor has met the objectives and completed all activities. The Action Plan Close-out Documents are being verified by Corporate Quality Assurance. The following referenced documents describe in detail the corrective actions or changes implemented.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports

PSE&G Action Plan Status Reports

PSE&G Action Plan Monthly Status Reports

PSE&G (partially complete) Action Plan Close-out Document, Action Plan 2.5.3

INTERROGATORY #17: Organizational and systems improvements for more effective planning and coordination of maintenance and plant betterment activities.

RESPONSE: The Documents identified below describe in detail the corrective actions or changes implemented by PSE&G relative to the organizational and systems improvements for more effective planning and coordination of maintenance and plant betterment activities.

REFERENCE: PSE&G Plan for Improvement of Nuclear Department Operations, submitted to the U.S. Nuclear Regulatory Commission on August 26, 1984.

Section 2.0, Action Plans
Action Plan numbers, 2.6.1, 2.6.2, 2.6.3, 2.6.4 and 2.6.5

Action Plan 2.6.1 - Clarify Organizational Responsibility and Interfaces in the Maintenance Area

OBJECTIVE - Clarify organizational responsibilities and accountabilities associated with the Maintenance function and establish a maintenance management structure that effectively and efficiently meets the needs of the Nuclear Department.

STATUS - The objectives were met, activities complete and verified by PSE&G, Nuclear - Quality Assurance on April 16, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.6.1.

Action Plan 2.6.2 - Enhance Maintenance Planning, Monitoring and Control

OBJECTIVE - Provide a managed maintenance program to facilitate the planning, scheduling and analysis of maintenance work activities.

STATUS - This Action Plan is still in progress. Present status on corrective actions or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports

PSE&G Action Plan Weekly Status Reports

PSE&G Action Plan Monthly Status Reports

Action Plan 2.6.3 - Reduce the Number of Backlogged Maintenance Work Items

OBJECTIVE - Reduce the non-outage work order backlog to permit current maintenance activities to be completed in a timely, well planned manner.

STATUS - This Action Plan is still in progress. Present status on corrective actions or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports
PSE&G Action Plan Weekly Status Reports

PSE&G Action Plan Monthly Status Reports

Action Plan 2.6.4 - Improve Maintenance, Calibration and Control of Measuring and Test Equipment

OBJECTIVE - Ensure that calibration and control of measuring and test equipment is maintained at a high level of performance.

STATUS - The objectives were met, activities completed and verified by PSE&G, Nuclear-Quality Assurance on May 10, 1984.

REFERENCE: PSE&G Action Plan Close-out Document, Action Plan 2.6.4

Action Plan 2.6.5 - Organization for Outage Management and Improving Planning, Monitoring and Control of Outages

OBJECTIVE - Review and strengthen the outage function including management systems and procedures which will aid in the planning, monitoring and controlling (including costs) of outages.

STATUS - This Action Plan is still in progress. Present status on corrective actions or changes implemented are described in the following referenced documents.

REFERENCE: PSE&G Action Plan Sponsors Weekly Status Reports

PSE&G Action Plan Weekly Status Reports

PSE&G Action Plan Monthly Status Reports

SUGGESTED RESPONSE
INTERROGATORY NO. 18

Identify management positions in the Nuclear Department that are open or unfilled as of the date you answer these interrogatories.

At this time, the following management positions remain open:

Assistant Vice President - Nuclear Operations
Manager - Reliability and Assessment

SECTION III. MANAGEMENT COMPETENCE: INTERROGARIES

INTERROGATORY #19: Describe how the "excessive demands placed upon the Vice President - Nuclear" identified at page 3-2 of the Management Analysis Company (MAC) I Report has been corrected or mitigated.

RESPONSE: The issue "excessive demands placed upon the Vice President - Nuclear" was addressed by the plan - "Public Service Electric and Gas Company Plan for the Improvement of Nuclear Department Operations," August 26, 1983, Section 2.1.1, Functional Analysis of the VPN and Direct Reports.

Implementation of this plan was completed in September, 1984. Results are presented in the close-out documents for Action Plan 2.1.1, Functional Analysis of the VPN and Direct Reports.

SECTION III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORY #20: Describe how the problems resulting from the "geographical distance between Corporate and the Nuclear Department" identified at page 3-2 of the Management Analysis Company I report have been corrected or mitigated.

RESPONCE: The entire paragraph on page 3-2 of the referenced Management Analysis Company document reads as follows:

> "The geographic distance between Corporate and the Nuclear Department and the resulting lack of informal daily communications contribute to misunderstandings and misperceptions. The potential thus exists for Corporate to respond too quickly and simply to complex problems in the Nuclear Department. Improved and more frequent communications would minimize this potential."

As part of Action Plan 2.1.4 PSE&G implemented a process for improving communications between the Nuclear Department and Corporate. Attached is a list of improved and more frequent communications which have corrected or mitigated the problems resulting from the "geographical distance between Corporate and the Nuclear Department."

IMPROVING COMMUNICATIONS BETWEEN CORPORATE AND THE NUCLEAR DEPARTMENT

IMPROVEMENT IDENTIFIED

- The Senior Vice President - Nuclear and Engineering, the Chief Executive Officer and the Vice President - Nuclear meet weekly to discuss Nuclear Department concerns and Action Plan Program Status.

- The Chief Executive Officer and the Senior Vice President are also kept updated through written weekly Action Plan Status Reports.

- Visits to Artificial Island by the Chief Executive Officer, the Senior Vice President - Nuclear and Engineering, the Vice Presidents and the General Managers involved in matrixed functions, and other Corporate personnel have increased substantially.

- Establishment of definite focal points for Corporate information requests of the Nuclear Department for better coordination of Department responses.

- Establishment of a full-time management position (Assistant General Manager - Nuclear Joint Owners and Regulatory Activities) to coordinate information gathering, preparation of testimony and other activities related to co-owner and fiscal regulation concerns.

- Streamlining of the Department staffing authorization process by the Senior Vice President - Nuclear and Engineering.

- Substantially increased communications between Corporate and Nuclear Department managers involved in the matrixed functions which has resulted in improved understanding and working relationships in the areas of:

  Human Resources Services

  Purchasing Services

  Computer Systems Development and Applications

  Office Automation

III. MANAGEMENT COMPETENCE: INTERROGATORIES

III #21 Identify and describe all corrective actions or steps taken to implement the suggestions and recommendations contained in the "Assessment of the Public Service Electric & Gas Company Operations Quality Assurance Program for Salem Generating Stations Units 1 and 2" prepared by Management Analysis Company and dated July 27, 1983 (MAC II report).

Response: PSE&G Plan for the Improvement of Nuclear Department Operations August 26, 1983, identifies and describes the corrective actions to be taken which address the subject (MAC II) report. The associated close-out documents describe the actions taken or to be taken for each recommendation. See response to Interrogatory III/3.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

22. Identify which division or office within PSE&G is "specifically responsible for verification of status and completion of all commitment items" as stated at page 2-4 of the MAC II report. Identify the organizational document or manual that establishes this responsibility.

RESPONSE:

The specific responsibilities of the General Manager - Nuclear Quality Assurance, the Manager - Nuclear Licensing and Regulation, and the Managers of departments providing data are provided in VPN-LEP-03.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

III #23 State whether the PSE&G Quality Assurance Department (QAD) makes regularly scheduled audits to assure that the verification program described above is working effectively. If so, identify the frequency of such audits and provide the dates and results of the audits since February 25, 1983.

Response: PSE&G Nuclear Quality Assurance implements a documented program of independent verification of selected regulatory commitments including NRC commitments and completion of the Plan for Improvement of Nuclear Department Operations. In addition to independent verification conducted by Nuclear Quality Assurance a planned QA Audit program of the commitment management and corrective action processes is conducted regularly. These audits are conducted semi-annually. Since February 25, 1983, three audits have been conducted:

Audit No.	Date of Audit
S-83-12	August 15 through September 9, 1983
S-84-1	February 13 through March 8, 1984
S-84-13	July 30 through August 17, 1984

III. MANAGEMENT COMPETENCE: INTERROGATORIES

III #24 State whether a "formal trend analysis program" has been established as recommended at page 2-7 of the MAC II report. If so, describe this program.

Response: A "Formal trend analysis program" has been established in the Nuclear Department as recommended on page 2-7 of the MAC report. This program is detailed in the PSE&G Nuclear Quality Assurance Department Manual, Volume GM9-1, Quality Assurance Procedure (QAP) 7-3, "Trend Analysis", that became effective 10/16/84, and which is implemented by the Quality Assurance Controls Group. It includes the trending of NQA Action Requests, NRC Violations, INPO Findings, Incident Reports/Licensee Event Reports, DCP Reviews, Valve/Breaker Surveillances, and Status of Deficiency Reports.

During Hope Creek Construction, a formal trend analysis program was established to identify recurring deficiencies and to initiate corrective action(s). The program encompasses construction jobsite activities and activities of jobsite subcontractors.

Nonconformance Report (NCR) trend analysis is a documented activity performed by Bechtel Quality Assurance Engineers assigned to the project jobsite.

A trend analysis log is maintained in which all validated NCRs are entered. The trend analysis log is periodically reviewed and at such time that sufficient occurrences of the same nonconformance have been recorded as to indicate a potential trend exists, a trend analysis worksheet is initiated to give visibility to the monitoring and action taken for that group of nonconformances. The potential trend is then investigated to determine whether the fundamental cause(s) of the repetitive nonconformance are similar and thereby indicate a trend.

When evaluation of the basic cause(s) of the repetitive nonconformances indicate that a trend exists, a request for corrective action is issued to the responsible organization. Resultant corrective action requests are evaluated, initiated, reported, closed and documentation of these actions is retained.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

III.25 Describe all steps taken to implement the recommendations and suggestions, as they apply to Hope Creek, contained in "A Review of Public Service Electric & Gas Company Corrective Action Program Related to Reactor Trip Breaker Failures at Salem Generating Station, Unit 1" dated May 27, 1983 and submitted by Basic Energy Technology Associates, Inc. (BETA).

Response

The referenced BETA report included several recommendations related to management issues. These topic areas, which are listed below, are all being addressed in other Public Advocate Interrogatories and/or PSE&G Action Plans.

Topic	Comments
1) Nuclear Oversight Committee (BETA Report IV.C.2.e)	See response to Interrogatory 26.
2) Revised Nuclear Review Board membership (BETA Report IV.C.2.e)	This is being addressed in PSE&G Action Plan 2.2.1 which was to improve Safety Review Management. Specifically, the Nuclear Review Board function will be replaced by a full-time offsite review organization reporting to the General Manager - Nuclear Safety Review.
3) Evaluating Nuclear Department Organizational Functioning (BETA Report IV.C.3.a)	See response to Interrogatory 27.
4) Safety Related Component Testing (BETA Report IV.C.3.b)	See response to Interrogatory 28.
5) Enhance SORC (BETA Report IV.C.3.c)	This is being addressed in PSE&G Action Plan 2.2.1 which was to improve SAfety Review Management. Specifically the SORC review process is being redefined to utilize qualified reviewers to support the SORC process and will allow SORC to concentrate on consideration of safe and reliable operation of the station.

6)	Reduction of Unplanned Trips (BETA Report IV.C.3.d)	See response to Interrogatory 29.
7)	Machinery History Date Base (BETA Report IV,C,3,e)	This is being addressed in Action Plan 2.6.2 which is to develop a Maintenance Management Information System. This system will integrate various aspects of maintenance planning and management including utilization of equipment history data bases for analysis.
8)	Strengthen Incident Report System (BETA IV.C.3.f)	Hope Creek Administrative Procedure No. 6 regarding the Incident Report System will require that each Incident Report include a narrative. This fulfills the BETA recommendation.
9)	Nuclear Engineering Integration with plant operations. (BETA IV.C.3.g)	See response to Interrogatory 30.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

26. State whether PSE&G has established a Nuclear Oversight Committee (NOC). If so, described how the concerns raised in the May 27, 1983 BETA report at p. 12-13 have been resolved. If not, described how the proposed objectives of the NOC have been otherwise accomplished.

RESPONSE

A Nuclear Oversight Committee (NOC) has been established. The concerns raised in the May 27, 1983 BETA report were considered in development of Action Plan 2.2.1 which establishes a revised nuclear safety review organization.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

III.27 Describe how PSE&G senior management has developed a "better capability to determine how well their new organizational plan is functioning, particularly at the lower levels", as recommended by BETA at page 14 of its May 27, 1983 report.

Response

In the August 26, 1983 letter to the Director of Nuclear Regulation, PSE&G included a response to the May 27, 1983 BETA Report. As indicated on page 5 of that response, this particular BETA recommendation was to be addressed by the following PSE&G ACtion Plan sections:

2.1.1 Functional analysis of Vice President - Nuclear and all direct reports.

2.1.4 Communications between the Nuclear Department and Corporate.

2.1.5 Detailed Transition Management process.

2.4.5 Coordination between Engineering and Operations.

The key steps accomplished by these Action Plans that directly respond to the BETA recommendation are as follows:

1. The Nuclear Department reorganization of August 28, 1984, which better defined the span of control of Nuclear Department senior management.

2. Improved communications between Nuclear Department senior management and PSE&G Corporate senior management.

3. Establishment of periodic Nuclear Department management dialogue meetings which provide for an open exchange of information and discussion of topics between the members of the Nuclear Department management team.

4. The addition of an Organizational Development specialist to the Nuclear Department staff.

5. The holding of team building meetings between departmental members at various levels to improve communication and identify difficulties that require resolution.

These key steps demonstrate that senior management has taken positive steps to evaluate and improve the functioning of the Nuclear Department and fulfill the recommendation made by BETA.

I N T E R R O G A T O R I E S

SECTION III, ITEM 28

DESCRIPTION:

State whether P.S.E. & G. has "review(ed) existing pre-start test requirements at Hope Creek to determine if additional testing of safety related components or systems is desirable," as recommneded by BETA at page 15 of its May 27, 1983 report. If so, describe what changes at Hope Creek have been implemented as a result of such a review.

RESPONSE

Hope Creek Operations has developed its pre-startup procedure using as a reference, the Salem procedure, which was revised as a result of the breaker failure incident. In addition, the INPO Good Practice on Post Trip Review was evaluated and used as a reference in the Hope Creek prestart procedure.

INTERROGATORIES

SECTION III, ITEM 29

29. Describe what efforts have been undertaken by PSE&G to reduce the number of unplanned reactor trips at Hope Creek recommended by BETA with regard to Salem Generating Station at page 16 of its May 27, 1983 report.

RESPONSE

PSE&G management is committed to minimizing the number of unplanned trips caused by equipment failure and personnel error. This scram minimization program is based on INPO and NRC guidance and will include the following elements:

1) Thorough review of plant incident reports to determine the root cause of the event, determination of necessary corrective actions and tracking of implementation to completion.

2) Trend analysis of periodic preventive maintenance, corrective maintenance and surveillance testing activities to identify reoccurring failures or problems.

3) Industry operating experience, including Salem Generating Station, is evaluated for potential applicability to Hope Creek. Corrective actions are identified and tracked to completion.

4) Performance monitoring of selected components is used to identify degrading conditions, and provide input for maintenance planning and scheduling in a predictive mode.

5) Administrative programs which control planning, authorization, coordination and conduct of testing or maintenance activities through validated procedures.

6) Personnel training programs which assure understanding of job responsibilities, as well as an attitude of quality awareness.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

30. Describe all steps taken to "integrate more fully at Hope Creek the nuclear engineering organization into plant operations" as recommended at page 18 of the BETA report of May 27, 1983.

RESPONSE:

Integrating nuclear engineering organization in Hope Creek plant operations is not an applicable process at the present time. Engineering support of Hope Creek Operations is presently being provided by the Engineering and Construction Department through its Site Engineering organization. The integration of the Hope Creek Site Engineering organization into the Nuclear Engineering organization is addressed in the Hope Creek Transition Plan.

SECTION III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORY #31: List and describe all short and long term items in the PSE&G Corrective Action Plan. For each item: (1) describe specifically all steps taken pursuant thereto; (2) describe any steps remaining to be taken; and (3) state the expected or actual completion date.

RESPONSE: Table III-31 provides a listing of the short and long term items in the PSE&G Corrective Action Plan and the expected or actual completion date. More detailed descriptions of these activities are described in the following documents.

> Supplement to Corrective Action Program; Reactor Trip Breaker Failures, No. 1 and 2 Unit Salem Generating Station, submitted to the Nuclear Regulatory Commission April 8, 1983.
>
> Corrective Action Summary; Reactor Trip Breaker Failures, Salem Generating Station Units No. 1 and 2 submitted to the Nuclear Regulatory Commission April 28, 1983
>
> Vendor Manual Review Program; Salem Generating Station Units No. 1 and 2 submitted to the Nuclear Regulatory Commission February 22, 1984.

The only open items on this list are activities C.6.b.i and C.6.b.j which are due January 1, 1985 and activities C.10.a.1 and C.10.a.2 which are ongoing.

TABLE III-31
PSE&G CORRECTIVE ACTION PLAN STATUS

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
A.1	Determination of safety classification of breakers	April 1983
A.2	Identification cause of failure	
a.1	Confirm u/v Trip Att. Inc. all design changes	April 1983
a.2	Measure force required to trip breaker	April 1983
b.1	Submit test program life cycle, etc.	May 1983
b.2	Est. proc. periodically measure force	April 1983
b.2a	Complete breaker test program and analysis and W OG plant data evaluation program	December 1984
A.3	Verification testing program	
a.1	Mfgr. to test u/v trip attachment on test c/b 25 times	April 1983
a.2	After installation test 10 times	April 1983
a.3	Response time test	April 1983
a.4	Test within 24 hours prior to restart	April 1983
A.4	Maintenance and surveillance proc.	
a.1	Cleaning deficiency	April 1983
a.2	Revise maintenance proc. to test 25 cycles	April 1983

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
a.3	Provide acceptance criteria - no failures	April 1983
a.4	Modify maintenance proc. M3Q-2 (3 timing tests)	April 1983
a.5	Modify maintenance proc. M3Q-2 (apply sealant)	April 1983
a.6	Add to M3Q-2 range of dropout voltage	April 1983
a.7	Lubricate breakers	April 1983
a.8	Trip force measurement	April 1983
a.9	Mod. maintenance proc. (6 month test)	April 1983
a.10	Provide functional test proc.	April 1983
a.11	Perform monthly breaker timing test	April 1983
b.1	Tech spec. change Table 1 req.	June 1983
A.5.1	Detailed report	July 1983
1.a	Auto. initiation turbine trip	July 1983
1.b	Diversity in activating reactor scram breakers	July 1983
2.a	Complete generic design	July 1984
2.b	Develop plant specific design	October 1984
B.1	Operating proc. for ATWS	--- ---

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
a.1	Identify indications in control room	April 1983
a.2	Review basis for ATWS proc. etc.	April 1983
b.1	Proc. to ensure operability of SSPS indicators	April 1983
b.2	Schedule upgrade program for emerg. oper. proc.	April 1983
B.2	Operator training	
a.1	Conduct training on revised proc.	April 1983
a.2	Conduct practical exercise	April 1983
a.3	Conduct walkthrough on alarms, etc.	April 1983
a.4	Training for aux. operators	April 1983
a.5	Evaluate trainee's performance	April 1983
a.6	Review training material	April 1983
B.3	Operator response	
a.1	Use of J handle control	April 1983
b.1	Replace trip switch with secure handles	April 1983
b.2	Modifications to annunciators	April 1983
C.1	MEL	
a.1	Verify MEL is complete accurate etc.	April 1983
a.2	Instruct purpose and use of MEL	April 1983

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
b.1	Re-issue MEL as controlled doc.	June 1983
C.2	Procurement proc.	
a.1	Review of past procurement docs.	April 1983
b.1	Classify items important to safety	July 1983
b.2a	Procurement procedures	January 1984
b.2b	QA procedures	January 1984
C.2 b.2c	AP-19	January 1984
b.3	Interim instruct to verify MO/IC's	November 1983
b.4	Prog. & sched. for shelf-life	January 1984
b.5	Develop attributes check list	January 1984
b.6	Tag components in warehouse	January 1984
C.3	Work order proc.	
a.1	QA review all non SR work orders	April 1983
a.2	Training program classification work order	April 1983

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
a.3	Evaluate safety consequences of improper class. of work orders	April 1983
C.4	Post-trip review	
a.1	Post-trip review procedure AD-16	April 1983
C.5	Timeliness of event notification	
a.1	Assign dedicated communicator	April 1983
a.2	Review importance of reporting requirements	April 1983
C.6	Updating vendor-supplier information	
a.1	Update existing document control system	
a.1a)	Audit station files	April 1983
b)	Audit Nuclear Engineering files	April 1983
c)	Compare Station & Nuclear Engg.	April 1983
d)	Contact vendors-confirm manuals	April 1983
-	Request updated copies	April 1983
a.2	Review W tech. bulletins and data letters	April 1983
b.	Long-term actions	
a)	Audit station for manuals, etc.	July 1983
b)	Audit Nuc. Engg. for manuals, etc.	July 1983

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
c)	Compare Station & Nuclear Engg.	August 1983
d)	Confirm manuals technically current, etc.	December 1983
e)	Revise station procedures	July 1983
f)	Control of new/revised manuals	December 1983
g)	Develop proc. to control vendor manuals	May 1983
h)	Vendor manuals in TDR; & revise procedures	July 1984
i)	Review vendor manuals	January 1, 1985
j)	Incorporate findings from h & i	January 1, 1985
k)	Clear direction on use of un-controlled vendor manuals	January 1984
C.7	Involvement of QA with other depts.	
a.1	Retain outside consultant	April 1983
a.2	Modify QA organization policy to more fully integrate	April 1983
b.1	Training on work orders	September 1983
C.8	Post-maintenance operability testing	
a.1a	Revise AP-9	July 1983

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
a.1b	Rev. 2 of AP-9 & A-21	
a.2	Complete review of vendor and engg. recommendations and incorporate necessary changes into departmental documents	January 1984
a.3	Incorporate items into insp. order systems	August 1983
a.4	Complete managed maintenance prog.	June 1984
a.	Complete for 15 systems	February 1984
b.	Complete for critical components	February 1984
c.	Complete for all safety-related systems	June 1984
C.9	Overall mgt. capability & performance	
1.	Complete staffing of N.A.&R. dept.	January 1984
2.	Independent assessment of QA	July 1984
3.	Training program for 1st level supervisors (TSSP-1)	September 1984
4.	Training program for senior supervisors level (TSSP-2)	October 1983

ITEM DESIG	SUBJECT (Brief Desc.)	EXPECTED OR ACTUAL COMPLETION DATE
4.a	Commence training for (TSSP-2)	February 1984
5.	Reg. trng. prog. for supervisory and management personnel (TSSP-3)	March 1984
6.	Dev. tech. trng. for non-station personnel (TSSP-4)	April 1984
7.	MAC management diagnostic final report	June 1983
C.10	Management reports	
a.1	NOC reports to Sr. V.P. (ES&E) & Director of NRR	ongoing
a.2	Provide Dir.-NRR with responses to report	ongoing
a.3	Prelim. report to include N.O.C. charter	January 1983
b.1	MAC rept.-full analysis & sched. for implementation to NRR	August 1983
c.1	Submit to NRR copy of BETA rev.	April 1983
D.	Initial start-up after 2/25 event. Verification of total operability	May 1983

III. MANAGEMENT COMPETENCE: INTERROGATORIES

INTERROGATORIES

SECTION III, ITEM 32

DESCRIPTION:

Identify and describe any and all steps that have been taken or will be taken by P.S.E. & G. to ensure that its management displays "the expected aggressive effort to self evaluate and redirect efforts to correct internally identified problems" found to be lacking by the NRC staff at page 37 of the Salem Restart SER. Identify all documents relating to any such steps.

RESPONSE

The Public Service Electric and Gas Company has implemented a system of performance indicators (described in the VPN procedures) to monitor our performance trends relative to those of the industry on an ongoing basis. Areas, identified by this self-evaluation, requiring efforts to correct deficiencies will be addressed on a case by case basis. An example of self initiated efforts to resolve problems in this way is the task force on capacity factor improvement.

The Public Service Electric and Gas Company "Plan for Improvement of Nuclear Department Operations" is a result of a comprehensive review of Nuclear Department programs and activities. PSE&G engaged Management Analysis Company (MAC) to perform an independent assessment of PSE&G's Nuclear Department to make recommendations for improvements in organization structures, management systems, and quality assurance programs. The results of the MAC diagnostic studies were documented in reports given to the Nuclear Regulatory Commission (NRC).

The P.S.E. & G. "Plan for Improvement of Nuclear Department Operations" incorporates responses to both MAC assessments, by establishing specific objectives for improvement and developing Action Plans to accomplish these objectives.

INTERROGATORIES

SECTION III, ITEM 33

33. Identify and describe any and all steps that have been or will be taken at Hope Creek by PSE&G to prevent the "poor communication among the various departments (that) has hindered the development of a sensitivity with the (Salem) station staff to identify and resolve problems that are outside their direct sphere of influence," as noted by the NRC staff at page 38 of the Salem Restart SER. Identify all documents relating to any such steps.

RESPONSE

PSE&G has implemented a program entitled, "Action Plan to strengthen the Nuclear Engineering Organization and Improve Coordination Between Nuclear Engineering and Operations." This program is a continuing series of team building meetings between all departments and all management levels.

Good communications exist at Hope Creek Station due to the interaction of senior level people from each Department at key site meetings. Examples are:

- Daily Action Meetings run by the Operations Department Managers are attended by key Startup and Engineering representatives.
- Plan of the Day Meeting run by Startup Managers are attended by key Operations Supervisors.
- Weekly Engineering Interface Meeting run by Engineering and attended by key Operations representatives.
- Periodic Management Dialogue Sessions are attended by key management personnel.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

34. Identify and describe any and all steps that have been or will be taken by PSE&G to remedy the "parochialism" that the NRC staff found, at page 38 of the Salem Restart SER to be the result of the isolation of support groups, and inparticular, of maintenance and engineering, from one another. Identify all documents relating to any such steps.

RESPONSE

The engineering support for Hope Creek during its Preoperational Testing Program will be satisfied by personnel from PSE&G's Engineering and Construction Department who have been reassigned to Artificial Island. This organization works hand-in-hand with the Hope Creek Operations Department and plays a major role in the construction completion and startup of the project. To insure that good communications exist, both departments attend key site meetings as indicated in response to interrogatory 2-33. At the point in time when construction and startup activities are completed this Engineering organization as an operable unit, will be transitioned into the Nuclear Department to provide ongoing engineering support for Hope Creek during its operating life. This combination of good project communications and continuity of personnel will preclude the "parochialism" that was identified in the Salem Restart SER.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

35. Identify and describe any and all steps that have been or will be taken to PSE&G to remedy the "problem.....of high level station management and first line station supervision failing to adequately assess the performance of their subordinates, especially with respect to adherence to procedures," as noted by the NRC staff on page 38 of the Salem Restart SER. Identify all documents relating to any such steps.

RESPONSE

A Technical Supervisory Skills Program (TSSP) has been developed and implemented to promote intellectual curiosities and technical competence to ensure a high caliber of supervisory personnel is developed and maintained at both the Hope Creek and Salem Generating Station.

TSSP (as applicable to station personnel) is comprised of three separate courses, each having its own unique/specific objectives, scope, and criteria.

TSSP-1 is approximately eight weeks in duration and is tailored specifically for first-level supervisors.

TSSP-2 is approximately five weeks in duration and is tailored specifically for senior supervisory level personnel.

TSSP-3 serves as a refresher course and is periodically offered to both first-line supervisors and senior supervisory level personnel.

TSSP includes, but is not limited to, the following subject areas:

- Stress Management
- Performance Appraisal
- Progressive Discipline
- Communications
- Group Dynamics
- Ethics
- Time Management
- Motivation
- Planning

The Vice President - Nuclear uses regularly scheduled management dialogue meeting to motivate and remind higher level management personnel to become more involved in station activities and to raise their expectations of acceptable response. These topics are futher disseminated to middle management through plant managers staff meetings.

See response to Interrogatory III/3.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

36. Identify and describe any and all steps that have been or will be taken by PSE&G to remedy the problem identified by the NRC staff on page 38 of the Salem Restart SER that "First line supervisors appear to refrain from raising issues outside of their defined scope of responsibility..." Identify all documents relating to any such steps.

RESPONSE

See response to Interrogatory 35.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

III #37 Identify and describe any and all steps that have or will be taken by PSE&G to remedy the problems that suggested to the NRC staff that there had been "a major breakdown in management and quality assurance program implementation at the Salem Nuclear Generating Station". Salem Restart SER at 38. Identify all documents relating to any such steps.

Response: Actions and associated documents have been provided in response to Interrogatories III/3, 17 and 21.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

38. Identify and describe all steps taken by PSE&G to correct or remedy the "lack of resolve on the part of, PSE&G managers and supervisors in enforcing adherence to procedures" perceived by the NRC staff identified by the NRC on page 39 of the Salem Restart SER as one of the principal causes of the February 22 and 25, 1983 events at Salem Unit 1. Identify all documents relating to any such steps.

RESPONSE

See response to Interrogatory III/35.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

Interrogatory 39, Section III.

Identify and describe all steps taken by PSE&G to improve "the safety perspective displayed by the corporate management" identified by the NRC staff at Page 39 of the Salem Restart SER as one of the principal causes for the February 22 and 25, 1983 events at Salem Unit 1. Identify all documents relating to any such steps.

RESPONSE.

The following steps were taken to improve the safety perspective displayed by the corporate management.

1. Strengthened Nuclear Review Board with participation by persons from outside organizations.

2. Assignment of a member of the Safety Review Group to serve on the Station Operations Review Committee.

3. Establishment of the Nuclear Assurance and Regulation Department reporting to the Senior Vice President - Nuclear and Engineering.

   Details of items 1, 2, and 3 above are discussed in a letter dated March 18, 1983 from R. A. Uderitz to R. W. Starostecki on Docket No. 50-272. (Copy attached).

4. A Nuclear Oversight Committee consisting of nationally recognized experts has been established by the Company's Board of Directors to oversee safety aspects of the Company's nuclear operations. Details regarding the Oversight Committee are covered in responses to Interrogatories 26 and 44.

5. Pursuant to the recommendations resulting from Action Plan on Safety Review Management, a management decision has been made to establish a Nuclear Safety Review Department headed by a General Manager and a non-Technical Specification Nuclear Safety Advisory Board, both reporting to the Vice President - Nuclear. Details of the subject Action Plan are included in response to Request for Documents #3, Section IV.

6. The corporate policy stating that "Nuclear Safety is of the highest priority and shall take precedence over matters concerning power production" is included in the Nuclear Department Manual. This policy is constantly emphasized by the Vice President - Nuclear and other corporate officials.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

40. Identify and describe all steps taken by PSE&G to become "proactive" rather than "reactive" in its approach to the kinds of problems resulting in the February 22 and 25, 1983 events at Salem Unit 1, as suggested by Region I Administrator Thomas Murley at a meeting with PSE&G officials on April 10, 1984. Identify all documents relating to any such steps.

RESPONSE

The Management of Public Service Electric and Gas Company is aggressive and proactive in pursuing appropriate solutions to problems that occur, not only at the present time but also in the past. Our management style has always been aggressive in areas where we believe aggressiveness was required. For example, in the design and engineering of the Salem Plants we displayed initiative and a capacity for innovation, such as the control room design, which we believe produced a superior plant design. We built one of the finest Nuclear Training Centers without any pressure from outside sources because we believed it was the right thing to do. This aggressive attitude continued when we took a major step in 1981 and organized a separate Nuclear Department and began relocation of the entire department, including the Vice President responsible for its operation, to Artificial Island. As a result of this mover we now have several hundred relocated people on site, and we are actively working to coordinate the activities of our Engineering and Administrative people with the operating people who were originally at the plant. This allows the Engineering people who are responsible for the design of the plant to be located at the work location and not 150 miles away; another aggressive action.

Prior to the Salem events, we had been talking to Management Analysis Company (MAC) about an overall assessment of our Quality Assurance (QA) Program, where we ourselves believed there were opportunities for improvement. Subsequent to the event, MAC was engaged to perform an independent assessment of PSE&G's Nuclear Department to make recommendations for improvements in organization structures, management systems and quality assurance programs. PSE&G created a "Plan for Improvement of Nuclear Department Operations" which incorporated responses to MAC assessments, and created Action Plans to meet identified objectives. A special PSE&G management task force developed 29 Action Plans with an integrated schedule for their implementation. These Action Plans are grouped into seven topical areas, which are as follows: Organization Management, Safety and Compliance Management, Configuration Management, Operations

III. MANAGEMENT COMPETENCE: INTERROGATORIES

40. (Continued)

and Operations Support, Quality Assurance, Maintenance and Plant Betterment, and Nuclear Department Services. This extensive effort by PSE&G reaffirms the Company's long-standing commitment to achieve excellence in the management and operation of the nuclear facilities at Artificial Island.

PSE&G has established an abnormal occurrence review program. All events, whether reportable to Regulatory Agencies or not, are reviewed by the Systems Analysis Group in the Nuclear Engineering Department. Each event is analyzed to determine reportability. In addition, the program has been beneficial in establishing better engineering involvement in plant operations. This program, which takes action on abnormal occurrences and not just events which are determined to be reportable, demonstrates PSE&G's agressiveness in solving immediate problems and preventing potential problems.

Additional significant actions that we consider to be self-initiated, positive, aggressive actions on the part of our Nuclear effort is the formation of the Nuclear Quality Assurance Department, the Nuclear Assurance and Regulation Department and the Nuclear Safety Review Department as well as input from the Institute of Nuclear Power Operations. Development of the Preventive Maintenance Program and implementation of the computerized safety tagging system will reduce operator errors, improve safety, compliance to tech specs and decreased operator drudgery. The combined efforts and benefits from these organizations and programs will improve the overall operations and reliability of our facility.

Other specific steps have been taken with respect to Hope Creek to identify potential problems and resolve them in an expeditious manner. Examples of this proactive approach are:

- Action plan item 2.2.1 (ref. 1), Improvement of Safety Review Activities.
- Implementation of a Feedback of Operating Experience Program which includes review of nine years of historical data.
- Conducted self-evaluation of operational readiness in INPO format.
- Implementation of the Safe Team Program which encourages the identification of alleged problems by all site personnel.
- Weekly station cleanliness walkdowns by plant management.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

41. Identify and describe all ways in which PSE&G's top corporate leaders have increased their involvement with the daily operation of PSE&G's nuclear plants, as stated by Harold Sonn on April 10, 1984. Identify all documents relating to any such steps.

RESPONSE

- At the briefing on the status of Salem, presented to the NRC Commissioners on April 10, 1984, Mr. Sonn stated the following:

  "In fulfilling my responsibility, I involve myself on a daily basis with plant activities through reports on our operations. I also have scheduled weekly meetings with Dick Eckert and Dick Uderitz to review activities as well as progress on our improvement program. A Weekly Report is discussed which assesses our accomplishments to date and addresses our concerns and their resolution.

  In addition, I receive Monthly Performance Reports which address all aspects of our nuclear operations. Details are included in the form of descriptions, assessments and graphic displays on subject such as operating events, safety system status, personnel radiation exposure, industrial safety, radioactive waste generation and disposal, staffing, and unit equipment performance.

  My overall efforts are in addition to multiple levels of more detailed review and are in place at several stages in our operations.

  By frequent visits to the plant site, I seek to communicate to Nuclear Department personnel, through meetings with employees at various levels, the importance the company places on their work and to familiarize myself with as many activities as possible.

  Our company Board of Directors is equally concerned with the safe operation of our nuclear facilities. At each Board meeting, nuclear operations are discussed. Formal presentations on various aspects of the operations are made periodically."

- Daily discussions occur between the Senior Vice President - Nuclear and Engineering (Sr. VP-N&E) and the Vice President - Nuclear (VPN) regarding plant status and operation for the Salem facility.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

41. (Continued)

- Periodic visits by the Sr. VP-N&E on at least a monthly basis provide an opportunity for discussion between the VPN and his staff regarding plant operation.

- The VPN meets on a weekly basis with the President and Sr. VP-N&E following Operating Committee meetings to discuss nuclear operation and pertinent activities.

- Special meetings, either in Newark at the Corporate Headquarters or at Artificial Island take place with any and all levels of management as the need dictates.

- Monthly meetings occur with the Sr. VP-N&E and General Manager - Nuclear Assurance & Regulation (GM-NA&R) along the VPN and his staff to review and discuss issues associated with the operation of the nuclear facilities.

- As a result of the recent reorganization of the Nuclear Department which initiated the Senior Management Team concept, daily meetings between the VPN, the Assistant Vice President - Operations Support (AVP-OS), General Manager - Nuclear Safety Review (GM-NSR), and General Manager - Nuclear Quality Assurance (GM-NQA), occur following a briefing on the status of nuclear operations.

- The development and implementation of numerous performance indicators in the Nuclear Department Monthly Report receives Corporate Management level attention.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

42. Identify and list each of the approximately thirty outside groups that have assessed PSE&G's nuclear operations, as stated by PSE&G officials on April 10, 1984. Summarize the conclusions and recommendations of each such assessment.

RESPONSE: Oversight, review and audit of PSE&G's Nuclear Operations is conducted by many internal and external organizations. The attached listing identifies many of these organizations and their primary functions or nature of oversight, review or audit.

These groups provide periodic reports dependent upon their charter and the nature or function which they perform. In 1984, more than 300 individual reports have been issued relative to Salem Operations. Some of these reports are provided directly to the State of New Jersey by the originating organization. Summary reports are not normally provided and time constraints prevent a summarization of all of the detailed reports. Report summaries or the individual report indicated below will be made available in response to Management Competence Request for Documents.

NRC Inspection Reports - Provided directly to the State of N.J.

NRC SALP Reports - Section IV Item 21

Nuclear Review Board - Section IV Item 24

Safety Review Group - Section IV Item 37

Nuclear Oversight Committee - Section IV Item 3

Training Reports - Section IV Item 8, 28, and 33

Pre-Operational Review Committee - Section IV Item 16

Institute of Nuclear Power Operations - Section IV Item 22

Nuclear Mutual Limited - Section IV Item 30 and 32

Basic Energy Technology Associates - Section IV Item 38

QA Audit Reports

INTERROGATORIES

SECTION III, ITEM 43

DESCRIPTION:

Identify and describe all steps taken by PSE&G to become more aggressive in solving its own problems before being pushed by the NRC, as suggested by Region I Administrator Thomas Murley on April 10, 1984. Identify all documents relating to any such steps.

RESPONSE:

See response to Interrogatory III/40.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

44. Identify the oversight committee formed in October 1983 to advise PSE&G. List each of the dates this committee has met and provide copies of the summaries or minutes of these meetings.

RESPONSE

Meetings were held October 27, 1983, December 13, 1983, March 12 and 13, 1984, June 11 and 12, 1984, September 6 and 7, 1984, and December 6 and 7, 1984. Summaries of these meeetings are in the form of the NOC Quarterly Report. The report for the last quarter of 1984 has not yet been issued.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

Section III

Question 45: Identify the dates of each observation of an operating BWR or PWR which took place pursuant to your structured PWR/BWR observation program referred to at p. 13-10 of the SER. For each such observation, identify the names of all personnel participating in the observation and the license for which they were being trained, the name and location of the reactor observed, the specific systems and procedures observed, and whether the reactor observed was a BWR or PWR.

Name	Lic	Dates	Name/Location	Plant Type
Lou Aversa	SRO	02/13/84 - 08/06/84 (1048 hours)	Susquehanna Berwick, PA	BWR*2
Frank Hughes	SRO	02/13/84 - 08/21/84 (1060 hours)	Susquehanna Berwick, PA	BWR*2
Tom Russell	SRO	04/04/84 - 09/06/84 (1092 hours)	Susquehanna Berwick, PA	BWR*2
Bob Stamato	SRO	05/16/84 - 01/29/85	Susquehanna Berwick, PA	BWR*2
Marty Trum	SRO	02/13/84 - 07/31/84 (1078 hours)	Susquehanna Berwick, PA	BWR*2
Mark Azzaro	SRO	10/21/83 - 11/22/83 (60 hours)	Salem Salem, NJ	PWR*1
		06/30/84 - 08/26/84 (248 hours)	Peach Bottom Delta, PA	BWR*3
Jeff Johnson	SRO	05/14/84 - 05/25/84 (80 hours)	Salem Salem, NJ	PWR*1
		07/08/84 - 08/25/84 (272 hours)	Peach Bottom Delta, PA	BWR*3
Gary Nayler	SRO	01/02/84 - 01/27/84 (160 hours)	Salem Salem, NJ	PWR*1
		06/28/84 - 08/20/84 (248 hours)	Peach Bottom Delta, PA	BWR*3
Jim O'Brien	SRO	06/26/84 - 08/29/84 (280 hours)	Peach Bottom Delta, PA	BWR*3
Bill O'Malley	SRO	10/24/83 - 11/18/83 (160 hours)	Salem Salem, NJ	PWR*1
		06/25/84 - 08/08/84 (256 hours)	Peach Bottom Delta, PA	BWR*3

Section III

Question 45

Name	Lic	Dates	Name/Location	Plant Type
Randy Ebright	SRO	01/03/84 - 01/13/84 (80 hours)	Salem Salem, NJ	PWR*1
		09/01/84 - 11/12/84	Peach Bottom Delta, PA	BWR*3
Frank Higgins	SRO	03/12/84 - 03/23/84 (80 hours)	Salem Salem, NJ	PWR*1
		10/05/84 - 12/22/84	Peach Bottom Delta, PA	BWR*3
Larry Newman	SRO	03/12/84 - 03/23/84 (80 hours)	Salem Salem, NJ	PWR*1
		08/26/84 - 11/01/84	Peach Bottom Delta, PA	BWR*3
Dave Powell	SRO	01/03/84 - 01/13/84 (80 hours)	Salem Salem, NJ	PWR*1
		10/01/84 - 12/22/84	Peach Bottom Delta, PA	BWR*3
Steve Saunders	SRO	02/13/84 - 05/03/84 (452 hours)	Susquehanna Berwick, PA	BWR*2
Randy Thorson	SRO	09/01/84 - 12/22/84	Peach Bottom Delta, PA	BWR*3

*1 Procedures observed include Tagging Request Information System (TRIS), Station Safety Tagging, Security, Fire Protection, Emergency Response, Shift Relief and Turnover. Other procedures and systems observed or participated in were consistent with the day-to-day operation of the plant.

A minimum of 80 hours was spent on-shift. Numbers in parentheses indicate actual hours worked.

*2 The systems and procedures that were observed or that were actively participated in were consistent with the day-to-day operation of the plant. This time included participation in the daily operation of the Unit 1 reactor at power and the initial fuel loading, pre-operational testing, initial criticality and power accession testing of the Unit 2 reactor plant.

A minimum of 1040 hours was spent on-shift. Numbers in parentheses indicate actual hours worked.

*3 The systems and procedures observed or that were actively participat in were consistent with the day-to-day operation of the plant.

A minimum of 240 hours were spent on-shift. Number in parentheses indicate actual hours worked.

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Question 45:

Name	Lic	Dates	Name/Location	Plant Type
Paul Bonnett	RO	07/11/83 - 07/21/83	Salem Salem, NJ	PWR*1
	*4	01/21/85 - 02/02/85	Susquehanna Berwick, PA	BWR*2
Bill Chausse	RO	07/11/83 - 07/22/83	Salem Salem, NJ	PWR*1
	*4	02/04/85 - 02/16/85	Susquehanna Berwick, PA	BWR*2
John DeDominico	RO	07/05/83 - 07/22/83	Salem Salem, NJ	PWR*1
	*4	01/21/85 - 02/02/85	Susquehanna Berwick, PA	BWR*2
Ted Easlick	RO	07/11/83 - 07/22/83	Salem Salem, NJ	PWR*1
	*4	02/18/85 - 03/02/85	Susquehanna Berwick, PA	BWR*2
Joe Edwards	RO	07/25/83 - 08/12/83	Salem Salem, NJ	PWR*1
	*4	02/18/85 - 03/02/85	Susquehanna Berwick, PA	BWR*2
Archie Faulkner	RO	07/05/83 - 07/22/83	Salem Salem, NJ	PWR*1
	*4	02/18/85 - 03/02/85	Susquehanna Berwick, PA	BWR*2
Steve Geary	RO	07/25/83 - 08/05/83	Salem Salem, NJ	PWR*1
	*4	01/07/85 - 01/19/85	Susquehanna Berwick, PA	BWR*2

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Question 45:

Name	Lic	Dates	Name/Location	Plant Type
Sam Hansell	RO	07/11/83 - 07/22/83	Salem Salem, NJ	PWR*1
	*4	02/04/85 - 02/16/85	Susquehanna Berwick, PA	BWR*2
Sam Jones	RO	07/25/83 - 08/05/83	Salem Salem, NJ	PWR*1
	*4	02/18/85 - 03/02/85	Susquehanna Berwick, PA	BWR*2
Brad Lewis	RO	07/25/83 - 08/05/83	Salem Salem, NJ	PWR*1
	*4	02/04/85 - 02/16/85	Susquehanna Berwick, PA	BWR*2
Robert Rudy	RO	07/05/83 - 07/22/83	Salem Salem, NJ	PWR*1
	*4	01/07/85 - 01/19/85	Susquehanna Berwick, PA	BWR*2
Jim Wicks	RO	07/25/83 - 08/12/83	Salem Salem, NJ	PWR*1
	*4	01/07/85 - 01/19/85	Susquehanna Berwick, PA	BWR*2
Tom Williams	RO	08/01/83 - 08/12/83	Salem Salem, NJ	PWR*1
	*4	01/21/85 - 02/02/85	Susquehanna Berwick, PA	BWR*2
Paul Wilson	RO	07/05/83 - 08/12/83	Salem Salem, NJ	PWR*1
	*4	01/21/85 - 02/02/85	Susquehanna Berwick, PA	BWR*2
Rich Myers	RO	01/07/85 - 01/19/85	Susquehanna Berwick, PA	BWR*2,3
Tom Kirwin	RO	02/04/85 - 02/16/85	Susquehanna Berwick, PA	BWR*2,3

Section III

Question 45:

*1 Procedures observed include the Tagging Request & Information System (TRIS), Station Safety Tagging, Security, Fire Protection, Emergency Response, Shift Relief and Turnover. Other procedures and systems observed or participated in were consistent with the day-to-day operation of the plant.

A minimum of 80 hours were spent on shift.

*2 The procedures and systems that are to be observed are to be consistent with the day-to-day operation of the plant

A minimum of 80 hours is to be spent on shift.

*3 RO Licensed at Salem Generating Station.

*4 Scheduled

III. MANAGEMENT COMPETENCE: INTERROGATORIES

Section III

Question 46: Describe in detail how you will meet the requirements of Generic Letter 84-10 in response to the concerns of the NRC staff as indicated in p. 13-11 of the SER.

Appendix 13K of the FSAR describes the observation/experience training program developed to satisfy the requirements of Generic Letter 84-10. This observation/experience training includes a minimum of six weeks (240 hours) of on-shift observation/participation at a comparable BWR plan for all Senior Reactor Operator candidates who are not previously BWR licensed or do not have actual operating experience at a comparable BWR plant.

The observation/experience training program also provides for a minimum of two weeks (80 hours) on-shift observation at the Salem Generating Station, a 1000 MWe PWR, and two weeks (80 hours) on-shift observation at a comparable operating BWR facility for all Reactor Operator candidates who are not previously BWR licensed or do not have actual operating experience at a comparable BWR plant.

Each license operator candidate (RO, SRO) will also participate in the Operator In-plant Training described in Appendix 13I of the FSAR. This training provides for a structured and documented program of plant specific system checkouts, preoperational work assignments and testing to give each operator a thorough knowledge of Hope Creek plant equipment and operating procedures. This training is documented by individual In-plant Training Guidelines for the RO and SRO candidates.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

Section 3 Item 47

Identify and describe all specific TSSP and other training courses for each Hope Creek management and staff position identified in the PSAR, as suggested by the NRC staff at P. 13-17 of the SER.

RESPONSE

Appropriate technical courses are provided to several positions in addition to the management training identified below. Those eligible for the Executive Development and Advanced Management Programs also attend periodic Management Dialogue Sessions.

Position	Program Eligibility
Vice President - Nuclear:	Executive Development Programs
Assistant Vice President - Nuclear Operations:	Executive Development Programs
Assistant Vice President - Nuclear Operations Support:	Executive Development Programs
General Manager - Nuclear Quality Assurance:	Executive Development Programs
General Manager - Nuclear Safety Review:	Executive Development Programs
General Manager - Nuclear Engineering:	Executive Development Programs
Manager - Nuclear Licensing and Reliability:	PSE&G Advanced Management Program
General Manager - Hope Creek Operations:	Executive Development Programs
General Manager - Nuclear Services:	Executive Development Program
Manager - Methods and Systems:	PSE&G Advanced Management Program
Public Affairs Manager - Nuclear:	PSE&G Advanced Management Program
Personnel Affairs Manager - Nuclear:	PSE&G Advanced Management Program
Manager - Outage Services:	PSE&G Advanced Management Program
Nuclear Industrial Relations Manager:	PSE&G Advanced Management Program
Assistant General Manager - Joint Owners and Regulatory Affairs:	Executive Development Programs
Special Projects Administrator:	PSE&G Advanced Management Program
Manager - Nuclear Maintenance Services:	PSE&G Advanced Management Program
Manager - Nuclear Site Protection:	PSE&G Advanced Management Program
Manager - Nuclear Training:	PSE&G Advanced Management Program
Manager - Radiation Protection Services:	PSE&G Advanced Management Program
Manager - Nuclear Licensing and Regulation:	PSE&G Advanced Management Program
Manager - Nuclear Fuel:	PSE&G Advanced Management Program
Manager - Reliability and Assessment:	PSE&G Advanced Management Program
Assistant General Manager - Nuclear Engineering:	PSE&G Advanced Management Program
Manager - Hope Creek Systems Engineering:	PSE&G Advanced Management Program
Manager - Mechanical/Civil (I&C/Electrical) - Engineering:	PSE&G Advanced Management Program
Manager - Nuclear Engineering Design:	PSE&G Advanced Management Program
Manager - Nuclear Engineering Control:	PSE&G Advanced Management Program
Shift Supervisor:	Technical Supervisory Skills Program - 1
Senior Nuclear Shift Supervisor:	Technical Supervisory Skills Program - 2; Management Training Program
Chemistry Engineer:	Management Training Program
I&C Engineer:	Management Training Program
Technical Engineer:	Management Training Program
Principal Startup Engineer:	Management Training Program

III. MANAGEMENT COMPETENCE: INTERROGATORIES

48. List and identify each and every person who provided information for use in "An Overview of PSE&G Technical Qualifications and Management Capability in Support of the Operation of Hope Creek Generating Station" dated July 1984 (Management Overview Report).

Response

Identified below are each and every person who provided information or in any way participated in the drafting, editing or review of the Management Overview Report.

PSE&G EMPLOYEES

R. Bast
J. Boettger
R. Burricelli
T. Busch
L. Codey
C. Connor
R. Cowles
F. Delany
R. Eckert
R. Edmonds
S. Funston
A. Garrison
W. Gott
D. Hanson
C. Johnson
S. Ketcham
S. Kosierowski
P. Krishna
P. Kudless
S. LaBruna
P. Landrieu
R. Leach
E. Liden
R. Lovell
T. Martin
J. Meredith
H. Midura
J. Nichols
W. Nieczpiel
D. Parks
L. Reiter
R. Rippe
D. Ruyter
R. Salvesen
R. Schaffer
E. Selover
R. Silverio
R. Uderitz
P. Walzer
E. Yochhiem
M. Zapolski
J. Zupko

MANAGEMENT ANALYSIS COMPANY EMPLOYEES

W. Bibb
H. Lamb
S. Lamb
A. J. Tudury

ENERGY CONSULTING SERVICES EMPLOYEES

C. Allen
E. Miles

III. MANAGEMENT COMPETENCE: INTERROGATORIES

49. List and identify each and every person who in any way participated in the drafting, editing or review of the Management Overview Report.

Response

See response to Interrogatory 48.

III. MANAGEMENT COMPETENCE: INTERROGATORIES

50. Describe all procedures that will be used to "coordinate on a routine basis concerning 'lessons learned' and to address operating problems from a shared experience data base for all three units" as referred to at p. 2-1 of the Management Overview Report. Also identify all personnel that will participate in such procedures.

RESPONSE

The procedures that will be employed to "coordinate on a routine basis concerning 'lessons learned' and to address operating problems from a shared experience data base for all three units", are those associated with the conduct of operations and the organization of the Nuclear Department at Artificial Island. These procedures have been described in the FSAR in the sections describing conduct of operations and organization for the Nuclear Department. The execution of these procedures will involve all personnel within the Nuclear Department.

The process, philosophy, and structure to achieve this corrdination on a routine basis is that associated with consolidating the responsibilities and authority to support, operate and administer the activities of the three nuclear facilities under one organization in one location.

It is the day to day management activities brought about by the organizational structure, the close physical accessibility of personnel and the consolidation of responsibilities and authority which leads to routine communication and coordination of "lessons learned" and operating problem solutions. The functional organizational structure facilitates the application of the shared experience data base since the department with the technical expertise in a particular area is charged with supporting each of the three facilities in that functional area.

Close coordination and communication of lessons learned and operating problems is accomplished through formal periodic and informal meetings conducted throughout the management chain. In addition, the Licensing and Reliability organization is structured to provide a coordinated review, evaluation, and communication of outside lessons learned to the appropriate personnel within each of the nuclear facilities.

QUESTION V-1.

"List and identify all safety-related electrical and mechanical equipment, components and subcomponents that you intend to include in your environmental qualification program. For each such item of safety-related electrical and mechanical equipment, component or subcomponent, list and identify any and all documentation establishing its qualification, and identify whether it has been or will be qualified in accordance with the criteria and guidelines delineated in IEEE-323-1971, IEEE-323-1974, NUREG 0588 category II or NUREG 0588 category I. Also identify whether qualification for each such item of equipment has been established by test, analysis, a combination of test and analysis or by other specified methods."

Response:

The safety-related electrical equipment in the harsh environment that is included in the HCGS environmental qualification program is listed in Table 3.11-5 of the Hope Creek FSAR. This table is also included in Section VII of the Hope Creek Generating Station Environmental Qualification Summary Report.

Table 1A (Document Package V-1) lists the completed documentation that establishes the environmental qualification of the electrical equipment described above. The list is for components having completed the qualification process. Equipment that is missing from the list is still in the qualification process and documentation is not complete.

The safety-related mechanical equipment in the harsh environment that is included in the HCGS environmental qualification program is listed in Table 3.11-4 of the HCGS FSAR. This table is also included in Section VII of the Hope Creek Generating Station Environmental Qualification Summary Report.

PSE&G has not included any list of documentation of mechanical equipment in this response since all of the equipment is currently in the qualification review process and final documentation is not complete. Mechanical equipment qualification is accomplished by a combination of test and/or analyses.

Response (Cont'd)

All of the electrical equipment in the harsh environment in the equipment qualification program is qualified to the criteria and guidelines of IEEE-323-1974 and NUREG 0588, category I. The qualification of the electrical components has been established by test and analysis.

QUESTION V-2.

"List and describe all testing, analysis or review that has been done on safety-related equipment at the Hope Creek generating station in response to each of the following:

(a) The 1983 Sandia National Laboratories report of a number of anomalies in its testing program;

Response:

This item refers to industry tests conducted by Sandia National Labs as outlined in "Inside NRC," of 10/31/83, and reflected in Information Notice 84-47, of 6/15/84. The deficiencies/anomalies reported have been addressed for Hope Creek. Our position is that:

(a) No terminal blocks have been purchased for inside containment (drywell) use at Hope Creek.

(b) For outside containment applications, Buchanan terminal blocks models NQB 104, NQB 108, and NQB 112 are being used. These terminal blocks are qualified for their application as supported by FRC qualification report number F-C5143, dated 7/17/80.

QUESTION V-2.

(b) The August 31, 1983, and October 6, 1983, Board Notifications (83-128 and 83-128A) transmitting a summary of a staff investigation into Franklin Research Center tests on ASCO solenoid valves;

Response:

The Board Notifications in question (83-128, 83-128A) concern an NRC letter dated 9/28/83, from R. Vollmer to D. G. Eisenhut. The issue is ability of ASCO solenoid valves model nos. NP8344 and NP8346 to sustain LOCA temperatures in excess of 340°F. PSE&G has reviewed the applications of these solenoid valves at Hope Creek and has concluded that these models are used in areas where maximum temperatures reach only 148°F. Our review is documented and attached as Document Package #V-2b & V-2c.

QUESTION V-2.

(c) The NRC Information Notices of September 24, 1981 and December 21, 1982 (IN 81-29 and 82-52) revealing that Viton Elastomer Seals in NP 8300 series Solenoid Valves broke down when exposed to gamma radiation exposures in excess of 20 megarads;

Response:

PSE&G has responded to this problem by reviewing all ASCO solenoids at Hope Creek. To correct the problem identified in the Information Notices, PSE&G is refurbishing any affected solenoids with Ethyhene Propolene Document Package V-2b & V-2c delineates our review and action plan.

QUESTION V-2.

(d) The NRC Information Notice of October 28, 1983 (IN 83-72) revealing that during tests simulating LOCA conditions at Sandia National Laboratories, Barksdale pressure switches experienced "blown" seals that allowed water to accumulate in the switch housing, resulting in the equipment exhibiting electrical shorts across the micro-switches;

Response:

This notice reports that during high temperature steam environmental testing Barksdale pressure switches, Models B2T and D2H, failed. We have determined that there are no cases where these switches are installed in HCGS safety-related systems subject to the environmental conditions described in this notice.

QUESTION V-2.

(e) The NRC Information Notice of October 28, 1983 (IN 83-72) revealing that during LOCA simulation tests at Sandia, Static-O-Ring pressure switches failed at 2 to 5 minutes into the LOCA transient;

Response:

This notice reports that during high temperature steam environmental testing Static-O-Ring pressure switches, Model 5N and 12N, failed. We have determined that there are no cases where these switches are installed in HCGS safety-related systems subject to the environmental conditions described in this notice.

QUESTION V-2.

(f) NRC Information Notice 83-72, revealing that during environmental qualification testing, an ITT-Barton suppressed zero model 763 transmitter demonstrated a negative shift in output during initial exposure to operating pressure;

Response:

We have determined that none of these particular instruments are installed in safety-related systems at HCGS.

QUESTION V-2.

(g) The NRC Information Notice of October 28, 1983 (IN 83-72) revealing that under performance tests by ITT on ITT-Barton electronic transmitters Models M-763 and M-764, ITT detected a leakage current path through the shafts of the zero and span potentiometers to the mounting bracket, resulting in non-repeatability at 320°F;

Response:

We have determined that these pressure transmitters are not used in safety-related systems at HCGS.

QUESTION V-2.

(h) The NRC Information Notice of October 28, 1983 (IN 83-72) revealing that Bechtel had found numerous defects in Limitorque valve operators at Midland;

Response:

This notice discusses problems with environmental qualification of Limitorque motor actuators found by Bechtel at the Midland plants. We have determined that no problems exist other than verification of terminal blocks used in the operators. This verification is being pursued. See Package V-2h.

QUESTION V-2.

(i) The NRC Information Notice of October 28, 1983 (IN 83-72) revealing that Anaconda flexible conduits, which provide protection for cables, failed environmental qualification testing by Wyle Laboratories.

Response:

This notice reports that the polyethlene copolymer jacket of Anaconda flexible conduit failed when exposed to LOCA conditions. HCGS does not use the type of conduit described in this notice.

QUESTION V-3.

If testing, analysis or review was not performed on safety-related equipment at the Hope Creek generating station in response to the items listed in 2(a)-(i), state the reasons with respect to each item why testing, analysis or review was not performed.

Response:

PSE&G actively reviews and responds to NRC or industry data which becomes available and has a potential for affecting the safe operation of the Hope Creek Generating Station. With respect to the cases specifically identified in 2(a-i), our position has been provided as part of the response to that item.

QUESTION V-4.

List and describe any and all testing, review or analysis that has been performed on safety-related equipment at the Hope Creek generating station to establish that such equipment is qualified to withstand such fire conditions as high humidity, burning, corrosive gases and smoke. Identify all safety-related equipment not so tested.

Response:

Safety-Related equipment in the harsh environment is qualified for humidity and/or steam environment. Safety-Related cables are qualified for steam environment and also flame tested per requirements of IEEE 383-1974.

Use of combustible material in the plant is minimized so that the corrosive gases and smoke produced by the material will not adversely impact the qualification of the safety-related equipment. Also the redundant safety-related equipment is physically separated.

Following is the list of Safety-Related Equipment with its qualifications status on this topic:

SAFETY RELATED EQUIPMENT	HIGH HUMIDITY	BURNING	CORROSIVE GASES	SMOKE	REMARKS
4.16 kV Switchgear	-	-	-	-	Mild Environment
SACS Motors	Yes	-	-	-	
SVC Water Pump Motor	-	-	-	-	Mild Environment
480V Switchgear	-	-	-	-	Mild Environment
480V M.C.C.	Yes	-	-	-	
125Vdc Panels	-	-	-	-	Mild Environment
125Vdc Switchgear	-	-	-	-	Mild Environment
250 Vdc M.C.C.	Yes	-	-	-	
Elec. Aux. Cab.	-	-	-	-	Mild Environment
Penetrations	Yes	-	-	-	
Battery & Battery Chargers	-	-	-	-	Mild Environment
Distribution Panels	-	-	-	-	Mild Environment
UPS System	-	-	-	-	Mild Environment
Power, Cntrl, Instr. Cables	Yes	Yes	-	-	Flame Tested Per IEEE-383-1974.
Control Room Devices	-	-	-	-	Mild Environment
SACS Remote Control Panel	Yes	-	-	-	
Remote Shutdown Panels	-	-	-	-	Mild Environment
Transmitters	Yes	-	-	-	
Radiation Monitoring System	Yes	-	-	-	
Control Switches	Yes	-	-	-	

SAFETY RELATED EQUIPMENT	HIGH HUMIDITY	BURNING	CORROSIVE GASES	SMOKE	REMARKS
RTD & Thermocouples	Yes	-	-	-	
Solenoid Valves	Yes	-	-	-	
Butterfly Valves	Yes	-	-	-	
Pressure Regulator	-	-	-	-	Seismic only
Excess Flow Check Valve	-	-	-	-	Seismic only
Nuclear Serv. Inst. Valve	-	-	-	-	Seismic only
Emergency Load Sequencer	-	-	-	-	Mild Environment
ERFDA System	-	-	-	-	Mild Environment
Diesel Generator	-	-	-	-	Mild Environment
TRVLG Water Screen	-	-	-	-	Mild Environment
Hydrogen Recombiner	Yes	-	-	-	
Inst. Gas Compressor	Yes	-	-	-	
Polar Crane	-	-	-	-	Seismic only
SACS Heat Exchanger	-	-	-	-	Seismic only
Safety Aux. Cool Pump	Yes	-	-	-	
Fuel Pool Heat Exch.	-	-	-	-	Seismic only
Self-Cleaning Strm.	-	-	-	-	Seismic only
SVC Water Pumps	-	-	-	-	Mild Environment
Horiz. Centrifugal Pump	Yes	-	-	-	
Nuclear SVC Ref. Valves	Yes	-	-	-	
Y Strainer	-	-	-	-	Seismic only
R.B. Vac. Breaker	-	-	-	-	Seismic only
Pump Room Blowout Panel	-	-	-	-	Seismic only
Accumulator Tanks	-	-	-	-	Mild Environment
Air Handling Units	-	-	-	-	Mild Environment
Centrifugal Fans	Yes	-	-	-	
Dampers	-	-	-	-	Seismic only
Vane Axial Fans	-	-	-	-	Mild Environment
Water Chillers	-	-	-	-	Mild Environment
HVAC Instrumentations	Yes	-	-	-	
Air Filtration System	-	-	-	-	Seismic only
Nuc. Grade Valves	Yes	-	-	-	
Globe Valves	Yes	-	-	-	
Butterfly Valves	Yes	-	-	-	
Snubbers	-	-	-	-	No non-metal parts
Terminal Block	Yes	-	-	-	
Flexible Conduit	Yes	-	-	-	
Raychem Splice Kits	Yes	-	-	-	

QUESTION V-5.

State whether any safety-related equipment at the Hope Creek Generating Station contains or relies on Viton parts. If so, identify each and every such item of safety-related equipment.

Response:

Viton is used for many applicances in safety-related equipment. A complete list showing each specific application is not available at this time, since final qualification documents are not complete.

However, a partial listing of documents which are known to purchase components containing Viton parts and a partial listing of specific applications is provided on the attached table.

TABLE V-5A

General Listing of Safety-Related Equipment Containing Viton (BOP-Partial)

1.	J-605(Q)	Valves
2.	P-301(Q)	"
3.	P-302(Q)	"
4.	P-303A(Q)	"
5.	P-305(Q)	"
6.	P-366(Q)	"
7.	M-047A(Q)	Hydrogen Recombiner (Blower Motor)
8.	M-780A(Q)	HVAC Instruments (RTD)
9.	C-152(Q)	Primary Containment (Personnel Access Airlock)
10.	M-711(Q)	ITT Series NH-90 Damper Actuator
11.	M-713(Q)	[New Replaement Recommendation Viton Parts to replace EPR Parts]
12.	M-717(Q)	" "

TABLE V-5B

Listing of Safety-Related Equipment That May Contain Viton
(NSSS-Partial)

COMPONENT		MPL-NUMBER
Gould Levl Xmtr.	PPD 163C1973 P002	(E41-N062)
Barksdale Pressure Switch	PPD 163C1090 P001	(C71-N005)
Magnetrol/Levl Switch	PPD 159C4361 P005	(C11-NO13)
	P003	(E41-N014)
	P006	(E51-N010)
*Rosemount Pressure Xmtrs.	PPD 163C1560	(E11-N013,NO26,NO28
	PPD 163C1563	NO53,NO57,NO60,
	PPD 163C1564	E21-N003,E41-NO13,
		NO52,E51-N007,NO52)
NAMCO Limit Switch	PPD 163C1303 P001	(C71-NOO6)
*Barton Level Switch	PPD 145C3156 P002	(E11-N008)
Valve Assembly	PPD 136B1302 G002	(C51-J004)
RCIC Turbine	SPEC 21A9526	(E51-C002)
HCU Pilot Solenoid	PPD 922D138 P001	(C11-D001)
*MSIV		(B21-F022/FO28)
*Testable Check Vlv	283X301ADG001, ACGF001	(E11-FO41,
		FO50,E21-F006)

*Definitely utilize Viton

The above is the NSSS safety-related electrical equipment in the Hope Creek EQ Program that may utilize Viton (asterisked items definitely use Viton; EQ scope items not listed definitely do not use Viton.

QUESTION V-6

List and identify all information relating to Environmental Qualification or the Equipment Qualification Program for Hope Creek that has yet to be submitted to the NRC staff but which you presently intend to submit in the future, as referred to by the NRC staff at page 3-50 of the Hope Creek SER. For each such item, identify the earliest date by which you estimate the information will be so submitted.

Response:

The information which PSE&G intends to submit, or has already submitted, to the USNRC staff as referred to in the staff SER is as follows:

1. Request for additional information in letter dated August 10, 1983. This information has been submitted as the response to Question 270.2 in FSAR Amendment 2.

2. Additional information to supplement the response to Question 270.2. The Hope Creek Environmental Qualification Summary Report was originally scheduled to be submitted in the first quarter of 1985. A first draft of this report was issued to the NRC Staff in August 1984. A revised report is currently scheduled for submittal during April 1985.

3. Request for additional information in letter dated November 21, 1984. This information is being submitted to the NRC Staff. The majority of NRC questions are answered. Those questions not answered at this time will be answered prior to February 1, 1985.

QUESTION V-7

List and identify all documentation upon which you relied in determining which particular pieces of electrical and mechanical equipment and which electrical and mechanical systems would be included in the Hope Creek Generating Station's environment qualification program.

RESPONSE

The significant documents used to determine the equipment which would be included in the Hope Creek environmental qualification program have been identified in Section VII of the Hope Creek Environmental Qualification Summary Report. Specifically, for the mechanical program, the scope was defined at a meeting with the NRC on Environmental Qualification of November 28, 1983.

QUESTION V-8.

List and identify all category I and II equipment items in Regulatory Guide 1.97, Revision 2 at the Hope Creek Generating Station, and all equipment to be installed at the Hope Creek Generating Station in response to those Regulatory Guide items. Also, identify the environmental qualification status of all such equipment items, and list each of the Regulatory Guide 1.97 equipment that you do not intend to install.

Response:

Category I and II equipment items in Regulatory Guide 1.97 which are installed or will be installed in the Hope Creek Generating Station are listed in Table 7.5-1 of the Hope Creek FSAR. Every category I and II item of Regulatory Guide 1.97 that is installed in the Hope Creek Generating Station is in the environmental qualification program. Exceptions and interpretations of the Regulatory Guide as it pertains to Hope Creek are identified and justified in Section 1.8.1.97 of the FSAR.

QUESTION V-9.

State whether you will seek to environmentally qualify any equipment after the fuel load. If so, identify each equipment item to be thus qualified and provide copies of all justifications for interim qualification (J10) that has or will be submitted to the NRC. If justifications have not yet been submitted, state the estimated date of such submissions.

Response:

PSE&G's Environmental Qualification Program is on a schedule which will support the fuel load date. At this time, we anticipate that all equipment identified in the program scope will be fully qualified prior to scheduled fuel load.

QUESTION V-10

State whether you have any information that any of the safety-related electrical or mechanical equipment to be used in the Hope Creek Generating Station has ever been identified by the NRC as having experienced a failure under normal or harsh operating conditions at any plant. If so, identify each such item or items of equipment and describe in detail the nature of the failure.

RESPONSE

PSE&G makes use of the established federal system of NRC I&E Bulletins, Information Notices, etc., which identify generic problems with specific components. Each of these documents is evaluated for applicability to the Hope Creek Generating Station requirements and action is taken as necessary to assure that the problem does not compromise reactor safety, eg., control rod drive scram solenoid.

QUESTION V-11

With respect to any equipment identified in response to Interrogatory No. 10, state the steps that have been taken or will be taken to prevent such a failure at Hope Creek and the dates or estimated dates of such steps. If applicable, state the reasons why no such steps have been taken regarding any of the equipment identified in response to Interrogatory No. 10.

RESPONSE

The example cited in V-10 resulted from the sticking of a urethane disc due to an air temperature of 140 degrees F. PSE&G has addressed this concern by refurbishing the valves' disc.

QUESTION V-12

Identify the dates of each and every audit by PSE&G, or any other auditor of the Hope Creek environmental qualification program. For each, also identify the personnel that took part in the audit, the portion or portions of the program audited, and any and all deficiencies observed or noted.

RESPONSE

A. NSSS Items

A PSE&G audit limited to the Environmental Qualification Program has not been conducted. General Electric standard design practices and procedures for conducting the GE EQ Program. PSE&G participated in a Bechtel Power Corporation audit on November 15, 1983 and November 13, 1984.

The NRC conducted audits of the GE EQ effort on February 7, April 18, and September 19, 1983 and on January 17, March 30 and August 27, 1984. Reports for these audits are available on Docket 9990091l.

B. BOP Items

Information regarding audits of Hope Creek Qualification Program by PSE&G are listed below. For further detailed information and deficiencies, if any, refer to respective audit reports.

No. and Date of Audit	Participants	Title
In the week of Nov. 13, 1984	W. R. Cole E. Bowlby G. E. Penfield W. F. Valeika	Audit Team Leader, Bechtel Auditor, Bechtel Auditor, Bechtel Auditor, PSE&G
In the week of Nov. 14, 1983	W. R. Cole W. Gobel R. A. Koschak S. Chawaga	Audit Team Leader Auditor, Bechtel Auditor, Bechtel Auditor, PSE&G

V-12 (Continued)

No. and Date of Audit	Participants	Title	E.Q. Item Audited
H-84-8 in the week of Oct. 29, 1984	A. Sternberg R. T. Griffith, Sr. R. E. Jackson R. D. Savage J. Jelinek	Audit Team Leader Lead Auditor Lead Auditor Lead Auditor Tech. Consultant	Verification of completion of the open items related to E. Q. from Audit No. H-84-1
H-84-1 in the week of March 26, 1984	A. Sternberg R. Jackson D. Whitmer T. K. Ram	Audit Team Leader Lead Auditor Lead Auditor Lead Auditor	o Dits 7.5 - Temperature Calc. o AKR-30 Ckt. Bk 1 o Control of E.Q. Pro.
H-82-3 in the week of Aug. 9, 1982	A. Sternberg W. R. Hunsinger W. J. Reuther W. B. Keeffe	Audit Team Leader Lead Auditor Lead Auditor Lead Auditor	H-82-3
H-82-1 in the week of April 19, 1982	M. Rosenzweig E. P. Gilewicz R. C. Robinson W. R. Schultz R. C. Kirk	Audit Team Leader Auditor Lead Auditor Lead Auditor Tech. Consultant	o Envi. Qual. of Safety Related Elec. Equipment o Follow up on Audit No. H-81-2
H-81-2 in the week of Sept. 28, 1981	W. F. Valeika P. A. Benini S. C. Misuraca M. Rosensweig	Audit Team Leader Lead Auditor Lead Auditor Lead Auditor	Environmental Qualification Program

QUESTION V-13.

Describe the "audit of the environmental design and accident analysis" referred to on page V-1 of the Hope Creek "Environmental Qualification Summary Report" (HCEQ Report). Identify who completed this audit and the date or dates it was undertaken. Also identify each and every person that has "independently verified" that the correct conditions and calculations were utilized, as stated on page V-1 of the HCEQ Report.

Response:

The pertinent information is listed below. For further details refer to respective audit reports.

Audit No. and Date	Auditor (Independent Verifier)	Item Audited
H-84-1 in the week of March 26, 1984	T. K. Ram	o Environmental Design Criteria o Environmental Design Calculation
H-84-8 in the week of October 29, 1984	J. J. Jelinek	o Followup- (Item 1 of H-84-1). Closed out

V. ENVIRONMENTAL QUALIFICATION: INTERROGATORIES

QUESTION V-14.

Identify each and every site visit to vendors or subcontractors "to review the in-house EQ QA/QC program and evaluate the objective evidence of the vendor's ability to meet his QA/QC commitments" referred to at p. V-1 of the HCEQ report. For each such site visit, also identify the date of the visit, the vendor or subcontractor visited, the personnel that participated in the visit, and any reports, evaluations, memoranda, or other documents prepared after the site visit.

Response:

A. NSSS Items

There have been no EQ or Hope Creek specific audits of GE vendors and subcontractors.

A generic QA audit program is in place to audit vendor QA/QC programs on a regular basis at vendor shops.

Audits of Hope Creek EQ equipment vendors conducted during 1982, 1983, and 1984 are as follows:

Vendor	Date	Auditor
Pyco	June 83	R.B. Ehle
Magnetrol	March 83	A.J. Rzeszotarski
Rosemount	Oct. 84	J.M. Bricken
GE Motor (SJ)	Aug. 82	G.A. Berry
Terry Turbine	Sept. 83	C. Lewis
Target Rock	May 82	M.A. Ball
Barksdale	April 84	A.J. Rzeszotarski
NAMCO	May 83	R.L. Bragg
Valcor	Feb. 83	J.M. Bricken
Yarway	July 84	C.B. Skov
Gould	July 82	C.B. Skov
Fisher Controls	Nov. 83	C. Hunter

General Electric considers audit reports to be proprietary. The reports will be provided for inspection upon completion of a mutually acceptable proprietary agreement between GE and the Public Advocate.

B. BOP Items

Vendor audits performed by Bechtel Project Quality Assurance are listed below:

Vendor	Date of Audit	Personnel that Participated		Reports - Date Issued
Creare, Inc. Hanover, New Hampshire	6/23-25/81 and 9/16-17/81	Creare J. Black S. Sellew F. Dolan P. Rothe	Bechtel L. Anderson G. Judd J. Goldsmith	Project Audit Report No. 30.12 Phase I and Phase II. 7/1/81 & 10/7/81
Nutech Engineering Inc. San Jose, CA	3/17-18/82	Nutech D. Gerber W. Booth J. Bonner R. Sanchez	Bechtel G. Penefield	Project Audit Report No. 30.12-2 April 1, 1982
Nutech Engineering Inc. San Jose, CA	5/19/83	Nutech P. Reeves R. Smith Y. Yiu R. Lehnert	Bechtel L. Whitson	Project Audit Report No. 30.12-3 5/20/83
GE San Jose, CA	5/31/83	GE M. Belich P. Kachel R. Valencia P. Novak	Bechtel E. Bowby	Project Audit Report No. 30.12-4 6/8/83

Question V-15.

Identify each and every site visit to "testing laboratories used to perform EQ analysis and/or testing" referred to at p. V-1 of the HCEQ report. For each such site visit, also identify the date of the visit, the laboratory visited, the personnel that participated in the visit, and any reports, evaluations, memoranda, or other documents prepared after the visit.

Response:

A. NSSS Items

Both GE and the NRC routinely audit the testing labs used for the GE EQ program. The GE audit dates during 1982, 1983, and 1984 are as follows:

Lab	GE Audit Date	Auditor
Viking Lab	Aug. 1984	C.B. Skov
Wyle (CA)	Nov. 1982	K.S. Manrao
Wyle (Huntsville)	Aug. 1982	W.E. Widener
NTS	Aug. 1982	K. Manrao
SWRI	May 1984	J.M. Bricken

NRC audit reports can be obtained through the Public Document Room. For example:

Lab	Date	NRC Docket #
Southwest Research Inst.	Sept. 82	99900909
Wyle Labs (Huntsville)	Aug. 82	99900902
National Technical Svcs.	Jan. 83	99900907

General Electric considers audit reports to be proprietary. The reports will be provided for inspection upon completion of a mutually acceptable proprietary agreement between GE and the Public Advocate.

V. ENVIRONMENTAL QUALIFICATION: INTERROGATORIES

QUESTION V-15. (Cont'd)

B. BOP Items

Following is a list of visits made to witness EQ test and analysis performed for the Hope Creek Project.

PERSONNEL VISITED	LABORATORY VISITED	DATE VISITED	REMARKS	REPORT
Ravi Goel Thakur Narang	Farwell & Hendricks	5/8/84	Witnessed 480V M.C.C. Humidity Test & Analysis	Bechtel V/P No. 10855-118(Q)-207-2
Ravi Goel Inna Ostrovsky	Farwell & Hendricks	6/13/84	Witnessed 480V M.C.C. Humidity Test & Analysis	Bechtel V/P No. 10855-E118(Q)-207-2
Ravi Goel	Actor Environmental Testing Corporation	7/19/84 & 7/20/84	Witnessed LOCA Test & Analysis of Control Panel Devices	Bechtel V/P No. 10855-M-780A(Q)-199- 10855-J-201(Q)-66-1

QUESTION V-16.

Identify all personnel that participated in the "verification of proper procedures and practices for the shipment, storage, and mounting of safety-related equipment" referred to at p. V-2 of the HCEQ report. For each such personnel, identify the dates of their participation and what each person did as part of the verification process described above.

Response:

The information is incorporated in the following standard reports:

- Quality Surveillance Reports for Shipment of Safey-Related Equipment.
- Quality Control Inspection Reports for Storage and Mounting of Safety-Related Equipment.

Quality Surveillance Reports and Quality Control Inspection Reports are available for review at the HCGS jobsite.

QUESTION V-17

Identify the date or dates of the audit of the EQ file referred to at page V-2 of the HCEQ report. Also identify the personnel that participated in the audit, any deficiencies noted, and any reports, memoranda or other documents relating to the audit.

RESPONSE:

Quality Assurance - Engineering and Construction will conduct an audit of the EQ files referred to on page V-2 of the HCEQ report prior to April 1985. QA-E&C will perform this audit assisted by Mr. T. K. Ram of the Hope Creek Site Engineering Department.

QUESTION V-18

Identify the date or dates of the audits "to ensure proper review and signoff of vendor qualification plans, test procedures, and analysis documentation" referred to at page V-2 of the HCEQ report. Also identify the personnel that participated in each such audit or audits and any reports, documents or memorandam relating to the audits.

RESPONSE:

Quality Assurance - Engineering and Construction will conduct an audit "to ensure proper review and signoff of vendor qualification plans, test procedures, and documentation" referred to on page V-2 of the HCEQ report. QA-E&C will perform this audit prior to to April 1985, assisted by Mr. T. K. Ram of the Hope Creek Site Engineering Department.

QUESTION V-19

Identify the date or dates of the audits "of plant surveillance and maintenance program procedures" referred to at page V-2 of the HCEQ report. Also, identify the personnel that participated in each such audit and any reports, docments or memoranda relating to the audits.

RESPONSE:

Quality Assurance Audits of "Plant Surveillance and Maintenance Program Procedures" are an integral part of the Operational QA Program which will be implemented on the Hope Creek Generating Station. Implementation of the Operational QA Program for Hope Creek is targeted for mid 1985, consistant with the schedule for loading fuel.

QUESTION V-20

State whether a "documented process for QA identified deficiency resolution" as referred to at page V-2 of the HCEQ report has been established. If so, describe all QA identified deficiencies which are part of this process and identify those that have not been resolved. If not, provide the estimated date when it will be established.

RESPONSE:

The Operational QA Program includes documented processes for identification and resolution of QA identified deficiencies. These processes are described in the Nuclear Quality Assurance Department Manual. Implementation of the Operational QA Program is targeted for mid 1985 at which time these documented processes will be implemented.

QUESTION V-21

Identify the date or dates on which the "program to procure qualified spare parts and/or replacement equipment from approved vendors" as referred to on page V-2 of the HCEQ report was verified. Also, idenfity all personnel who participated in this verification process. If not yet verified, provide the estimated date when this program will be verified.

RESPONSE:

Applicable procurement program procedures were reviewed and verified by Nuclear Quality Assurance to assure adequate processes were established to procure qualified spare parts and/or replacement equipment from approved vendors for the Hope Creek Generating Station. These processes were reviewed and implemented during September 1984, by the following Nuclear Quality Assurance personnel:

C. P. Johnson - General Manager - Nuclear QA
M. Rosenzweig - QA Engineering and Procurement Engineer
W. R. Schultz - Programs and Audits Engineer

QUESTION V-22.

Identify each person whom you expect to call as an expert witness with respect to contention 3 relating to environmental qualification. For each such person, state the subject matter on which he or she is expected to testify, the substance of the facts and opinions to which he or she is expected to testify, and a summary of the grounds for each such opinion. Also describe the educational and professional qualifications of each such person, the publications, if any, of each such person, and identify any previous proceeding in which that person has testified.

Response:

PSE&G Company
- J.J. Wroblewski
- W. Gailey
- R. D'Orazio

Bechtel Power Corp.
- G.N. Kapandritis
- D. Sullivan

G.E. Company
- N. Luria

Proto-Power
- M. Annon
- D. Hallahan