

DEC 16 1982

Docket No.: 50-443

APPLICANT: Public Service Company of New Hampshire

FACILITY: Seabrook Station, Unit 1

SUBJECT: MEETING SUMMARY

On November 16-17, 1982 NRC staff representatives visited the Seabrook facility to obtain information and make observations that will provide the staff with a basis for making a judgement of the reasonableness of the applicant's projected fuel load date when it becomes available. A copy of the meeting notice, a related letter to the applicant and an attendance roster are enclosed (Enclosures 1, 2 and 3 respectively).

The meeting proceeded according to the agenda with the exception of item 6 in the enclosure to the meeting notice. This item addresses the applicant's schedules for project completion, but the information was not made available because it is presently under review by the applicant. To support the discussions on the first day, the applicant provided a handout containing information related to the agenda items (Enclosure 4).

The discussions of project status and the plant tour were each completed within one day and the visit was over with the end of the tour. The staff did not have any preliminary conclusions to discuss with the applicant. There was no need to make use of the contingency time provided for in the initial schedule (e.g., November 18, 1982).

LS

L. L. Wheeler, Project Manager
Licensing Branch No. 3
Division of Licensing

Enclosures:
As stated

cc: See next page

8301030322 821216
PDR ADOCK 05000443
A PDR

RR for GWK

OFFICE	DL:LB#3	DL:LB#3					
SURNAME	LWheeler/yt	GWknighton					
DATE	12/15/82	12/16/82					

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ATTENDANCE ROSTER

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R. Gramm

Yankee Atomic Electric Company

John DeVincentis
H. T. Tracy, Jr.
James Mayer
Stephen Page
Gregory A. Kann

United Engineers & Constructors

A. M. Ebner

Public Service of New Hampshire

Paul Bohan
John Herrin
John P. Cady, Jr.
Bruce Beckley
Tammy Gilbert
Ron Sliver

UE&C

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G. Aggarwal

SAPL

Geoffrey A. Brown
Michael Daigneault
Jane Doughty

Harmon & Weiss

Joseph Egan

State of New Hampshire

Dana Bisbee

Costal Chamber of Commerce

Beverly Hollingworth

SEABROCK STATION
UNIT 1 AND COMMON FACILITIES

NUCLEAR REGULATORY COMMISSION
CASELOAD FORECAST PANEL

NOVEMBER 16, 1982

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES

AGENDA

- I INTRODUCTION
- II OVERVIEW OF PROJECT
- III DESIGN AND ENGINEERING STATUS
- IV PROCUREMENT STATUS
- V CRAFT LABOR
- VI STATUS OF PIPE HANGERS, RESTRAINTS AND SNUBBERS
- VII STATUS OF MATERIAL QUANTITIES
- VIII STARTUP
- IX LICENSING
- X 10CFR50.55(E) DEFICIENCIES
- XI SITE TOUR



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

RECEIVED

OCT 29 1982

NOV - 1 1982

Docket Nos.: 50-443
and 50-444

SEABROOK PROJECT

MEMORANDUM FOR: George W. Knighton, Chief, Licensing Branch No. 3, DL
FROM: L. L. Wheeler, Project Manager, Licensing Branch No. 3, DL
SUBJECT: CASELOAD FORECAST PANEL MEETING AND TOUR OF SEABROOK
STATION

DATE & TIME: November 16-17, 1982: 9:00 AM - 4:00 PM
November 18, 1982: 9:00 AM - 10:00 AM (if required)

LOCATION: Seabrook Station
Seabrook, New Hampshire

PURPOSE: Review construction progress to obtain information for
use as input to the OL review scheduling process.

AGENDA: See enclosed Meeting Agenda for details:

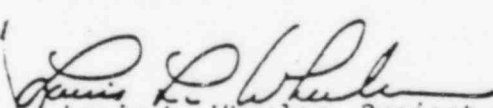
- November 16: Discuss recent construction progress and present status of the project.
- November 17: Tour the project and observe construction activities.
- November 18: Meeting (if required) to discuss any questions that are developed during the past two days.

PARTICIPANTS: Public Service Company of New Hampshire

J. Devinentis et. al.

NRC Staff

R. Gramm, W. Lovelace, L. Wheeler


Louis L. Wheeler, Project Manager
Licensing Branch No. 3
Division of Licensing

772
~~50443-45~~

Enclosure: As stated

cc: See next page

NOTE: NRC meetings are open to interested members of the public to attend as observers. Members of the public who wish to attend this meeting must contact L. Wheeler (301/492-7792) no later than 3:45 PM November 12, 1982. (The proper safeguarding of security and proprietary information requires the station tour portion of the meeting to be closed to the public).

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1. Overview of project construction schedule including progress and major milestones completed, current problems and any anticipated problem areas that may impact the current projected fuel load date.
2. Detailed review and current status of design and engineering effort (by major discipline) including any potential problems that may arise from necessary rework.
3. Detailed review and current status of procurement activities including valves, pipe, instruments, cable, major components, etc.
4. Actual and proposed craft work force (by major craft), craft availability, productivity, potential labor negotiations and problems.
5. Detailed review and current status of all large and small bore pipe hangers, restraints, snubbers, etc., including design, rework, procurement, fabrication, delivery and installation.
6. Detailed review of project schedule identifying critical path items, near critical items, amount of float for various activities, the current critical path to fuel loading, methods of implementation of corrective action for any activities with negative float, and provisions for contingencies. The estimated project percent complete as of October 29, 1982.
7. Detailed review and current status of bulk quantities including current estimated quantities, quantities installed to date, quantities scheduled to date, current percent complete for each, actual versus forecast installation rates, in cubic yards/mo., linear feet/mo., or number/mo., and basis for figures.
 - (a) Concrete (CY)
 - (b) Process Pipe (LF)
 - Large Bore Pipe (2 1/2" and larger)
 - Small Bore Pipe (2" and smaller)
 - (c) Yard Pipe (LF)
 - (d) Large Bore Pipe Hangers, Restraints, Snubbers (ea)

(e) Small Bore Pipe Hangers, Restraints (ea)

(f) Cable Tray (LF)

(g) Total Conduit (LF)

(h) Total Exposed Metal Conduit (LF)

(i) Cable (LF)

- Power
- Control
- Security
- Instrumentation
- Plant Lighting

(j) Terminations (ea)

- Power
- Control
- Security
- Instrumentation
- Plant Lighting

(k) Electrical Circuits (ea)

- Power
- Control
- Security

(l) Instrumentation (ea)

3. Detailed review and current status of preparation of preop and acceptance test procedures, integration of preop and acceptance test activities with construction schedule, system turnover schedule, preop and acceptance tests schedule, current and proposed preop and acceptance tests program manpower.

- (a) Total number of procedures required for fuel load.
- (b) Number of draft procedures not started.
- (c) Number of draft procedures being written.
- (d) Number of procedures approved.
- (e) Number of procedures in review.
- (f) Total number of preop and acceptance tests required for fuel load.
- (g) Number of preop and acceptance tests completed.
- (h) Number of preop and acceptance tests currently in progress.
- (i) Number of systems turned over to start-up.

9. Detailed discussion of potential schedular influence due to changes attributed to NUREG-0737 and other recent licensing requirements.
10. Discussion of schedular impact, if any, regarding potential deficiencies reported in accordance with 10 CFR 50.55(e).
11. Overview of current construction and startup management organization showing interfaces between the two.
12. Site tour and observation of construction activities.

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES

<u>STRUCTURE</u>	<u>PERCENT COMPLETE*</u>
UNIT 1 AND COMMON	78%
CONTAINMENT BUILDING	75%
TURBINE BUILDING	85%
CONTROL BUILDING	93%
DIESEL GENERATOR BUILDING	79%
PRIMARY AUXILIARY BUILDING	63%
FUEL STORAGE BUILDING	67%
WASTE PROCESS/TANK FARM	65%
CIRCULATING WATER PUMP HOUSE	75%
TUNNELS	92%
COOLING TOWER	91%
SWITCH YARD	98%
ADMINISTRATION BUILDING	99%
ENCLOSURE MS/FW	69%

*PERCENT COMPLETE BASED UPON 1981 ESTIMATE AS OF 10/25/82.

OCTOBER 25, 1982

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SEABROOK STATION
ORGANIZATION

OWNER
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
AND OTHER JOINT OWNERS

ENGINEERING/CONSTRUCTION SUPERVISOR
YANKEE ATOMIC ELECTRIC COMPANY

ENGINEER/CONSTRUCTION MANAGER
UNITED ENGINEERS AND CONSTRUCTORS

CIVIL CONTRACTS
SITE PREPARATION
TUNNEL
GENERAL CONCRETE
LINER
STRUCTURAL STEEL

MECHANICAL CONTRACTS
YARD PIPING
PIPING
TURBINE GENERATOR
CONDENSERS
HVAC

ELECTRICAL CONTRACTS
TEMPORARY ELECTRICAL
ELECTRICAL
SUBSTATION

OTHER CONTRACTS
INSTRUMENTATION
INSULATION
SECURITY BUILDING
KV INSULATION
PAINTING

SEABROOK STATION
 UNIT 1 AND COMMON FACILITIES
MAJOR CONTRACTORS CURRENTLY WORKING

<u>CONTRACT PACKAGE</u>	<u>CONTRACTOR</u>
GENERAL CONCRETE AND CIVIL WORK	PERINI CORPORATION
PIPING AND MECHANICAL WORK	PULLMAN-HIGGINS
ELECTRICAL WORK	FISCHBACH-BOULOS-MANZI
INSTRUMENTATION	JOHNSON CONTROLS INCORPORATED
PAINTING	NORTHEAST SURFCO-LEONARD
CIRCULATING WATER TUNNELS	MORRISON-KNUDSEN COMPANY, INC.
TURBINE GENERATOR ERECTION	GENERAL ELECTRIC COMPANY
CONTAINMENT LINER AND FIELD ERECTED TANKS	PITTSBURGH-DES MOINES CORPORATION
STRUCTURAL STEEL	DANIEL MARR COMPANY
CONDENSER	UNION BOILER
SUBSTATION	MASSACHUSETTS ELECTRIC COMPANY
STANDARD INSULATION	TO BE ANNOUNCED
ELEVATORS	OTIS ELEVATOR CO.
STAINLESS POOL LINERS	NOOTER CORPORATION
HEATING AND VENTILATING	HIRSCH ARKIN HERSHMAN
FIRE PROTECTION	GRINNELL FIRE PROTECTION SYSTEM
FIELD TESTING	PITTSBURGH TESTING LABORATORY
SERVICE WATER COOLING TOWER	CERAMIC COOLING TOWER
INTERNALS INSTALLATION AND REACTOR COOLANT PUMP ASSEMBLY	NISCO NUCLEAR INSTALLATION SERVICES COMPANY
GUARDHOUSE INSTALLATION	MAXAM

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
MILESTONES COMPLETED

<u>STRUCTURE</u>	<u>COMPLETION DATE</u>
<u>CONTAINMENT</u>	
MAIN STEAM PIPE WHIPS COMPLETED	4/82
RC LOOP PIPING COMPLETED	5/82
SS LINER PLATE, PIT AND CANAL INSTALLATION COMMENCED	5/82
WIND GIRDERS REMOVED	10/82
SET CONTAINMENT AIR COMPRESSORS	10/82
 <u>CONTAINMENT EXTERIOR</u>	
COMPLETE PLACEMENT EXTERIOR DOME	10/82
 <u>EMERGENCY FEEDWATER PUMP HOUSE</u>	
COMPLETED ROOF SLAB AT EL. 47.0	10/82
SET EMERGENCY FEEDWATER PUMPS AND LOADED IN MAIN STEAM AND FEEDWATER PIPE	10/82
 <u>TURBINE BUILDING</u>	
CABLE TRAY INSTALLATION COMPLETED	6/82
CONDENSER TUBES INSTALLED	7/82
INSULATION INSTALLATION FOR GENERATOR STEEL AND PIPING COMMENCED	8/82
TURBINE ASSOCIATED LARGE BORE PIPING INSTALLATION COMPLETED	9/82
HVAC COMPLETED	10/82
 <u>PRIMARY AUXILIARY BUILDING</u>	
SET STEAM GENERATOR BLOWDOWN TANKS AND HEAT EXCHANGERS	11/81
SET CHEMICAL VOLUME CONTROL TANK	2/82
SET COMPONENT COOLING WATER HEAD TANKS AND HEAT EXCHANGERS	4/82
SET ALL MAJOR HVAC EQUIPMENT	6/82
PLACED ALL ELEVATED AND ROOF SLABS	7/82

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES

MILESTONES COMPLETED
(CONTINUED)

<u>STRUCTURE</u>	<u>COMPLETION DATE</u>
<u>FUEL STORAGE BUILDING</u>	
SET ALL MAJOR HVAC EQUIPMENT	12/81
SET SPENT FUEL POOL PUMPS AND SKIMMERS	5/82
SET CASK HANDLING CRANE	7/82
PLACED ALL ELEVATED AND ROOF SLABS	8/82
 <u>CONTROL BUILDING</u>	
PLACED ROOF SLAB AT EL. 98	9/81
COMPLETED HVAC SYSTEM FOR COMPUTER ROOM	10/82
INSTALLED COMPUTER	10/82
 <u>DIESEL GENERATOR BUILDING</u>	
PLACED ROOF SLAB AT EL. 78'-6"	9/81
ROUGH SET ALL MECHANICAL EQUIPMENT	10/82
 <u>WASTE PROCESSING BUILDING</u>	
PLACED SLAB AT EL. 86	10/82
 <u>TANK FARM</u>	
INSTALLED REACTOR MAKEUP WATER STORAGE TANK	12/81
INSTALLED BORON RECOVERY TEST TANKS	1/82
INSTALLED SERVICE WATER PIPING NORTH TANK FARM TO EL. 53	9/82
PLACED SLAB AT ELEVATION 86	10/82
 <u>CIRCULATING AND SERVICE WATER SYSTEM</u>	
COMPLETED SLAB AND EQUIPMENT FOUNDATION EL. 21 SERVICE WATER AND CIRC. WATER PUMPHOUSE	9/82

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES

MILESTONES COMPLETED
(CONTINUED)

<u>STRUCTURE</u>	<u>COMPLETION DATE</u>
<u>INTAKE/DISCHARGE/TUNNEL</u>	
COMPLETE INTAKE AND DISCHARGE INVERT AND ARCH CONCRETE	8/82
CONCRETE OF INTAKE OCEAN SHAFT CONNECTIONS	8/82
<u>COOLING TOWER</u>	
COMPLETE ROOF SLAB	1/82
INSTALLED DRIVE SYSTEM, GEAR BOXES AND FANS	10/82
<u>GUARDHOUSE</u>	
COMPLETE MAJOR STRUCTURAL WORK	10/82
<u>ADMINISTRATIVE BUILDING</u>	
OWNER OCCUPY ADMINISTRATION BUILDING	8/82
<u>SWITCHYARD</u>	
SET GENERATOR STEP-UP TRANSFORMERS	9/81
ENERGIZED RESERVE AUXILIARY TRANSFORMERS	2/82
SET UNIT AUXILIARY TRANSFORMERS	7/82
COMPLETED ERECTION OF BUS SUPPORT STEEL	7/82

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
AVERAGE CRAFT WORK FORCE

<u>YEAR</u>	<u>AVERAGE * MANPOWER</u>
1976	460
1977	620
1978	1,350
1979	2,250
1980	2,000
1981	2,250
1982	4,700 ---
1983	4,000**
1984	---**

* INCLUDES ALL CRAFTS.

** UNDER EVALUATION.

SEABROOK PROJECT
WORK FORCE
UNIT 1 AND COMMON FACILITIES

	<u>10/82</u>	<u>PEAK 1983**</u>
MANUAL	4,839	4,850
NON-MANUAL	1,514	2,340
TOTAL	6,353	7,190
<u>WORKING 3 SHIFTS</u>	<u>10/82</u>	
1ST	4,610	
2ND	1,587	
3RD	156	
TOTAL	6,353	

**UNDER EVALUATION.

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
STATUS OF PROBLEMS PRESENTED IN 1981

PIPEFITTER AVAILABILITY

PIPEFITTER MANPOWER REQUIREMENTS

PRESENT LEVEL

FUTURE REQUIREMENTS

CORRECTIVE ACTIONS

OVERTIME WORK

WELDING SCHOOL

UA/NCA ASSISTANCE

SEABROOK STATION
 UNIT 1 AND COMMON FACILITIES
ENGINEERING AND DESIGN STATUS

SPECIFICATIONS

<u>DISCIPLINE</u>	<u>TOTAL REQUIRED</u>	<u>TOTAL ISSUED</u>	<u>PERCENT ISSUED</u>
STRUCTURAL	86	83	97%
MECHANICAL	51	51	100%
ELECTRICAL	46	46	100%
I & C	80	78	98%
MECHANICAL SERVICES	40	39	98%
NUCLEAR	67	64	96%
SUBSTATION	12	12	100%
ARCHITECTURAL	39	39	100%
PIPING	29	29	100%
CONSTRUCTION	18	18	100%
PROJ. STANDARD DOCUMENTS	<u>31</u>	<u>31</u>	<u>100%</u>
TOTAL	499	490	98%

OCTOBER 25, 1982

III-1

SEABROOK STATION
 UNIT 1 AND COMMON FACILITIES
ENGINEERING AND DESIGN STATUS

DRAWINGS

<u>DISCIPLINE</u>	<u>TOTAL REQUIRED</u>	<u>TOTAL ISSUED</u>	<u>PERCENT ISSUED</u>
STRUCTURAL	968	921	95%
SUPPORTS	56	50	89%
MECHANICAL	415	408	98%
SUPPORTS	121	117	97%
ELECTRICAL	742	716	96%
I & C	2,192	2,133	97%
MECHANICAL SERVICES	250	239	96%
SUPPORTS	47	44	94%
NUCLEAR	1,282	1,177	92%
SUPPORTS	759	652	86%
SUBSTATION	145	139	96%
ARCHITECTURAL	<u>235</u>	<u>235</u>	<u>100%</u>
TOTAL	7,212	6,831	95%

OCTOBER 25, 1982

III-2

SEABROOK STATION
 UNIT 1 AND COMMON FACILITIES
EQUIPMENT AND MATERIAL PROCUREMENT STATUS

<u>DISCIPLINE</u>	<u>TOTAL PURCHASES PLANNED</u>	<u>PURCHASE ORDERS PLACED</u>	<u>PURCHASE ORDERS CLOSED</u>
STRUCTURAL	47	43 (91%)	27 (57%)
MECHANICAL	50	49 (98%)	48 (96%)
ELECTRICAL	46	45 (97%)	34 (74%)
SUBSTATION	15	15 (100%)	15 (100%)
INSTRUMENTATION AND CONTROL	74	70 (94%)	52 (70%)
MECHANICAL SERVICES	29	27 (93%)	23 (79%)
NUCLEAR	59	52 (88%)	45 (76%)
PIPING	36	32 (88%)	9 (25%)
ARCHITECTURAL	<u>9</u>	<u>9 (100%)</u>	<u>4 (44%)</u>
TOTAL	365	342 (93%)	-- 257 (70%)

OCTOBER 25, 1982

IV-1

SEABROOK STATION
 UNIT 1 AND COMMON FACILITIES
PIPE SPOOL PROCUREMENT STATUS

<u>BUILDING</u>	<u>TOTAL QUANTITY REQUIRED</u>	<u>TOTAL QUANTITY RECEIVED</u>	<u>PERCENT RECEIVED</u>
1. TURBINE	3,039	2,969	98%
2. PAB	1,233	1,216	97%
3. RHR VAULT	258	251	97%
4. WPB	1,291	1,264	98%
5. PENET. AREA	230	222	97%
6. FUEL STOR.	110	104	95%
7. CONTAINMENT	1,205	1,177	98%
8. HYDROGEN RECOMB.	24	22	92%
9. DIESEL GEN.	238	237	100%
10. AUX. BOILER	135	134	99%
11. ADM	40	40	100%
12. COOLING TOWER	55	55	100%
13. RCA WALKWAY	12	11	92%
14. WATER TREAT.	67	67	100%
15. MS & FW CHASE	554	490	88%
16. TANK FARM	415	405	96%
17. EMERG. FWPH	13	12	92%
18. CW & SW PH	205	199	87%
19. CONTROL	55	55	100%
20. STM. GEN. BLWDN.	47	38	81%
21. PIPE TUNNEL	60	60	100%
22. FAN ENCLOSURE	51	48	84%
23. YARD	<u>920</u>	<u>915</u>	<u>99%</u>
TOTAL	10,257	9,991	97%

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
VALVE PROCUREMENT STATUS

<u>BUILDING</u>	<u>TOTAL QUANTITY REQUIRED</u>	<u>TOTAL QUANTITY RECEIVED</u>	<u>PERCENT RECEIVED</u>
1. TURBINE	2,358	2,273	96%
2. PAB	1,279	1,266	99%
3. RHR VAULT	203	201	99%
4. WPB	1,525	1,446	95%
5. PENET. AREA	131	127	97%
6. FUEL <u>STOR.</u>	171	165	96%
7. CONTAINMENT	1,099	1,047	95%
8. HYDROGEN RECOMB.	31	30	97%
9. DIESEL GEN.	206	192	93%
10. AUXILIARY BOILER	177	174	98%
11. ADMINISTRATION	30	27	90%
12. COOLING TOWER	23	23	100%
13. RCA WALKWAY	9	9	100%
14. WATER TREAT.	34	33	97%
15. MS C. FW CHASE	268	242	90%
16. TANK FARM	372	370	99%
<u>17.</u> EMERG. FWPH	97	78	80%
18. CW & SW PH	300	249	83%
19. CONTROL	83	82	99%
20. STM. GEN. BLWDN.	29	22	76%
21. AREAS NOT DESIGNATED	<u>476</u>	<u>416</u>	<u>87%</u>
TOTAL	8,900	8,472	95%

OCTOBER 25, 1982

IV-3

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
CABLE PROCUREMENT STATUS

POWER CABLE 100% RECEIVED

CONTROL CABLE 92% RECEIVED

INSTRUMENT CABLE 80% RECEIVED

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
MANPOWER REQUIREMENTS*

CRAFT LABOR	10/82 CURRENT LEVEL	1982		1983**		1984**	
		AVERAGE	PEAK/CRAFT	AVERAGE	PEAK/CRAFT	AVERAGE	PEAK/CRAFT
BOILERMAKERS	39	102	139	50	100		
CARPENTERS	634	826	1,073	400	550		
ELECTRICIANS	679	524	762	450	820		
IRONWORKERS (R)	108	144	202	95	180		
IRONWORKERS (S)	305	440	619	70	100		
LABORERS	885	911	1,118	500	550		
MILLRIGHTS	37	32	44	60	70		
PIPEFITTERS	1,274	1,120	1,407	1,760	2,000		
OPERATING ENGINEERS	270	320	444	170	240		
TEAMSTERS	84	88	115	50	50		
SHEETMETAL WORKERS	143	97	168	60	80		

*MAJOR CRAFT ONLY.

**UNDER EVALUATION.

OCTOBER 25, 1982

V-1

SEABROOK STATION

UNIT 1 AND COMMON FACILITIES

CRAFT LABOR AGREEMENTS EXPIRATION DATES

1983

CRAFT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ASBESTOS WORKER								X				
BOILERMAKERS									X			
CARPENTERS			X									
ELECTRICIANS					X							
IRONWORKERS						X						
LABORERS			X									
MILLWRIGHTS			X									
PIPEFITTERS					X							
OPERATING ENGINEERS				X								
TEAMSTERS				X								
SHEETMETAL WORKERS						X						
BRICK LAYERS & CEMENT MASONS				X								
PAINTERS					X							
SPRINKLER FITTERS			X									

OCTOBER 25, 1982

V-2

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
STATUS OF PIPE HANGERS, RESTRAINTS, AND SNUBBERS

	<u>QTY. REQ'D.</u>	<u>DESIGNED</u>	<u>ISSUED FOR FABRICATION</u>	<u>RECEIVED</u>
LARGE BORE PIPE HANGERS	9,338	7,855 84%	7,800 84%	7,009 75%
SMALL BORE PIPE HANGERS ¹	7,164	5,215 (73%)	5,215 (73%)	5,097 71%
RESTRAINTS	125	121 (97%)	121 (97%)	121 (97%)
SNUBBERS	220	210 95%	210 95%	158 (72%)

¹DOES NOT INCLUDE APPROXIMATELY 4,500 FIELD DESIGNED HANGERS OF WHICH APPROXIMATELY 2,000 HAVE BEEN DESIGNED TO DATE.

OCTOBER 25, 1982

VI-1

SEABROCK STATION
 UNIT 1 AND COMMON FACILITIES
PIPE HANGER STATUS

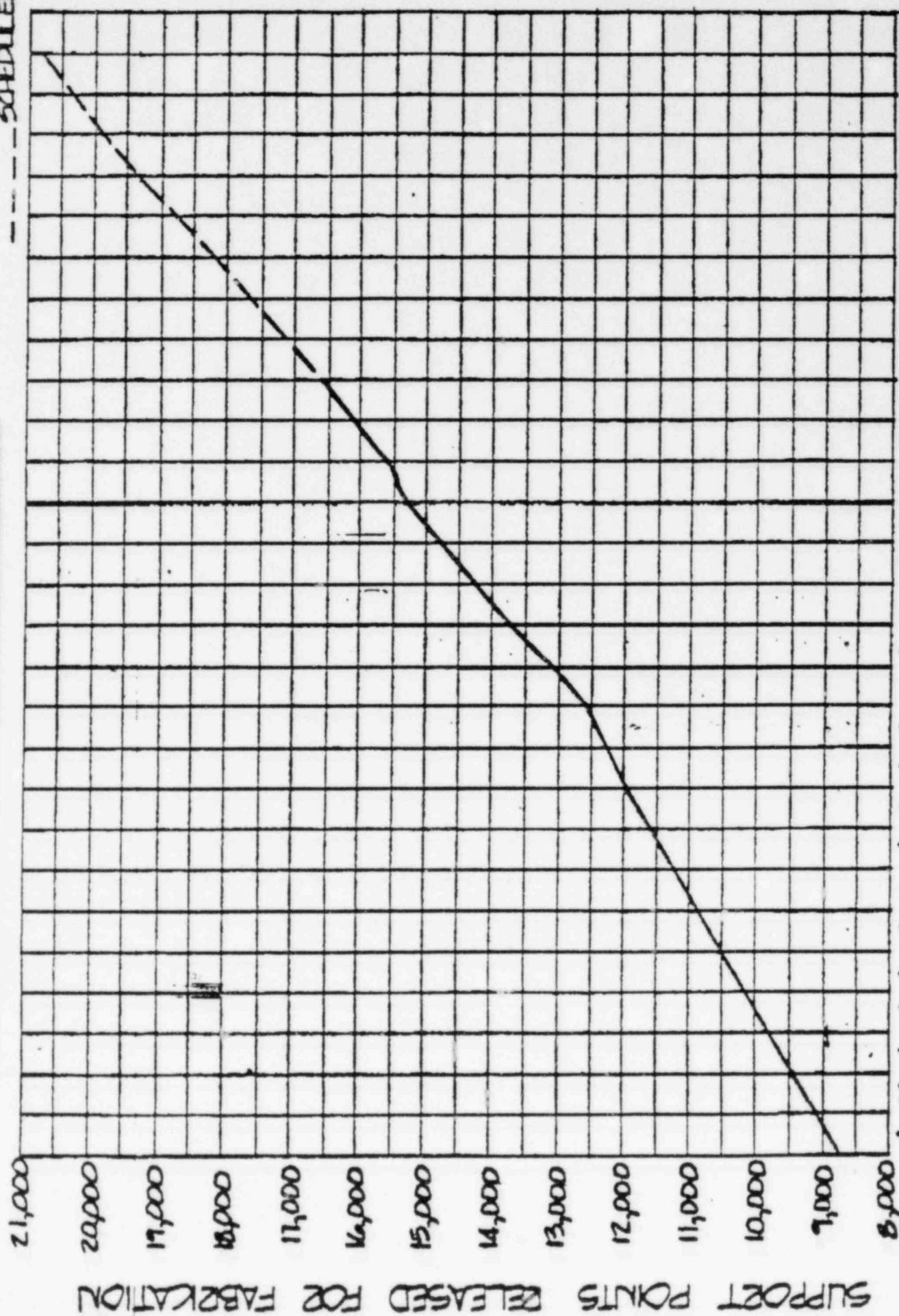
<u>BUILDING</u>	<u>TOTAL REQUIRED</u>	<u>TOTAL DESIGNED</u>	<u>TOTAL RECEIVED</u>
1. TURBINE	3,120	3,047	3,023
2. PAB	3,200	2,310	2,062
3. RHR VAULT	450	387	387
4. WPB	1,320	965	944
5. PENET. AREA	365	292	284
6. FUEL STORAGE	485	155	155
7. CONTAINMENT	3,545	2,516	2,292
8. HYDROGEN RECOMB.	80	67	67
9. DIESEL GENERATOR	790	703	576
10. AUXILIARY BOILER	138	138	138
11. ADMINISTRATION	86	86	86
12. COOLING TOWER	98	81	81
13. WATER TREATMENT	95	95	95
14. MS & FW CHASE	800	598	507
15. TANK FARM	550	478	425
16. EMERG. FEEDWATER PUMPHOUSE	180	113	101
17. CW & SW PUMPHOUSE	370	316	267
18. CONTROL BUILDING	330	312	255
19. OTHER AREAS	<u>500</u>	<u>411</u>	<u>361</u>
TOTAL	16,502	13,065	12,106

OCTOBER 25, 1982

VI-2

SEABROOK STATION UNIT 1 & COMMON FACILITIES
 PIPE SUPPORT DESIGN PRODUCTION

— ACTUAL
 - - - SCHEDULED



A M J J A S O N D J F M A M J J
 1981 1982 1983

SUPPORT POINTS RELEASED FOR FABRICATION

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES
CONCRETE (CYS)

<u>STRUCTURE</u>	<u>EST. QTY.</u>	<u>QUANTITY INSTALLED TO DATE</u>	<u>QUANTITY REMAINING</u>	<u>% COMPLETE</u>	<u>ESTIMATED INSTALLATION RATE (M/UNIT)</u>	<u>TO DATE INSTALLATION RATE (M/UNIT)</u>
CONTAINMENT BUILDING	33,932	33,932	0	100%	8.17	8.17
CONTAINMENT ENCLOSURE	10,180	7,082	3,098	70%	10.23**	10.63
TURBINE BUILDING	22,021	22,021	0	100%	4.34	4.34
PRIMARY AUXILIARY BLDG.	15,331	15,331	0	100%	8.59	8.59
FUEL STORAGE BUILDING	8,504	8,504	0	100%	5.60	5.60
ADMINISTRATION BUILDING	5,480	5,480	0	100%	6.55	6.55
CONTROL & DIESEL GENERATOR BUILDING	15,968	15,968	0	100%	5.66	5.66
WASTE PROCESS BUILDING	28,000	26,905	1,095	96%	6.75	5.65
CIRCULATING & SERVICE WATER PUMP HOUSE	26,355	24,642	1,713	94%	3.66	4.01
COOLING TOWER	14,716	14,716	0	100%	5.54	5.54
SWITCHYARD	4,327	4,170	157	96%	4.85	4.75
FILL CONCRETE	<u>171,967</u>	<u>163,300</u>	<u>8,667</u>	<u>95%</u>	<u>1.38</u>	<u>1.40</u>
TOTAL	356,821	342,051	14,730	96%	4.13	3.86
TUNNELS	147,141	134,126	13,015	91%	4.87	5.58
OTHERS	81,706	73,604	8,102	90%	4.10	3.40

**UNDER EVALUATION.

OCTOBER 25, 1982

VII-1

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES

PIPING

ITEM	EST. QTY.	QUANTITY INSTALLED TO DATE	QUANTITY REMAINING	% COMPLETE	ESTIMATED** INSTALLATION RATE (MH/UNIT)	TO DATE INSTALLATION RATE (MH/UNIT)
(1) LARGE BORE PIPE (LF)	224,953	143,937	81,016	64%	6.50	3.80
LARGE BORE PIPE HANGERS (EA)	9,338	3,439	5,899	37%	115.00	101.03
(2) SMALL BORE PIPE (LF)	133,289	19,506	113,783	15%	8.96	7.52
CIRCULATING WATER PIPE (LF)	6,967	4,987	1,980	72%	18.33	20.13

**UNDER EVALUATION.

(1) 2-1/2" AND OVER; INCLUDES YARD AND BUILDING PIPING.

(2) 2" AND UNDER; INCLUDES MANHOURS FOR: HANGERS, VALVES, WELDS, SPECIALTIES, ETC.

OCTOBER 25, 1982

VII-2

SEABROOK STATION
UNIT 1 & COMMON FACILITIES
ELECTRICAL

<u>ITEM</u>	<u>EST. QTY.</u>	<u>QUANTITY INSTALLED TO DATE</u>	<u>QUANTITY REMAINING</u>	<u>% COMPLETE</u>	<u>ESTIMATED** INSTALLATION RATE (MH/UNIT)</u>	<u>TO DATE INSTALLATION RATE (MH/UNIT)</u>
CABLE TRAY (LF)	85,800	67,236	18,564	78	1.23	1.19
CONDUIT EMBEDDED & DUCT (LF)	224,250	122,080	102,170	54	.64	.54
CONDUIT RIGID (LF)	268,350	153,799	114,551	57	1.05	.97
CABLE (LF)						
POWER	719,500	426,534	292,966	59	.12	.09
CONTROL	2,214,200	1,050,294	1,163,906	47	.07	.06
SPECIALTY	150,000	4,292	145,708	3	.10	.06
INSTRUMENTATION	1,370,000	476,887	893,113	35	.09	.05
PLANT LIGHTING	449,565	281,437	168,128	63	.21	.19
TERMINATIONS (EA)						
POWER	23,410	10,506	12,904	45	1.93	1.11
CONTROL	79,062	27,470	51,592	35	.82	.87
SPECIALTY	4,500	-	4,500	-	1.10	-
INSTRUMENTATION	75,400	8,822	66,578	12	1.10	.64
PLANT LIGHTING	-	-	-	-	-	-
ELECTRICAL CIRCUITS (EA)						
POWER	3,000	1,364	1,636	45	-	-
CONTROL	9,600	3,954	5,646	41	-	-
SPECIALTY	-	-	-	-	-	-
INSTRUMENTATION	6,600	2,115	4,485	32	-	-

**UNDER EVALUATION.

OCTOBER 25, 1982

VII-3

SEABROOK STATION
UNIT 1 & COMMON FACILITIES
INSTRUMENTATION

<u>ITEM</u>	<u>EST. QTY.</u>	<u>QUANTITY INSTALLED TO DATE</u>	<u>QUANTITY REMAINING</u>	<u>% COMPLETE</u>	<u>ESTIMATED** UNIT RATE (MH/UNIT)</u>	<u>TO DATE UNIT RATE (MH/UNIT)</u>
LOCAL INSTRUMENTS & SUPPORTS (EA)	1,575	631	944	40.1	31.09	24.96
LEVEL COLUMNS (EA)	70	32	38	45.7	208.6	210.0
TUBING (LF)	200,000	48,998	151,002	24.5	1.000	0.539
TUBING TERMINATE (EA)	8,300	1,267	7,003	15.3	4.000	2.265
TRAY SUPPORTS (EA)	8,000	4,307	3,693	53.8	13.45	9.76
TRAY (LF)	45,520	18,499	27,021	40.6	1.672	0.912
RACKS (EA)	73	34	39	46.6	55.56	45.21
RACK DRAINS (EA)	60	24	35	40.0	30.00	3.167
INSTRUMENT AIR PIPE SMALL BORE (LF)	20,000	9,976	10,024	49.9	2.000	0.866
INSTRUMENT AIR PIPE HANGERS-SMALL BORE (EA)	2,496	1,659	837	66.5	15.89	9.961
INSTRUMENT AIR PIPE LARGE BORE (LF)	12,000	9,822	2,178	81.9	3.583	1.966
INSTRUMENT AIR PIPE HANGERS-LARGE BORE (EA)	825	491	334	59.5	27.33	30.15
INCORE TUBING	5,000	200	4,800	4.0	4.600	19.32

**UNDER EVALUATION.

OCTOBER 25, 1982

VII-4

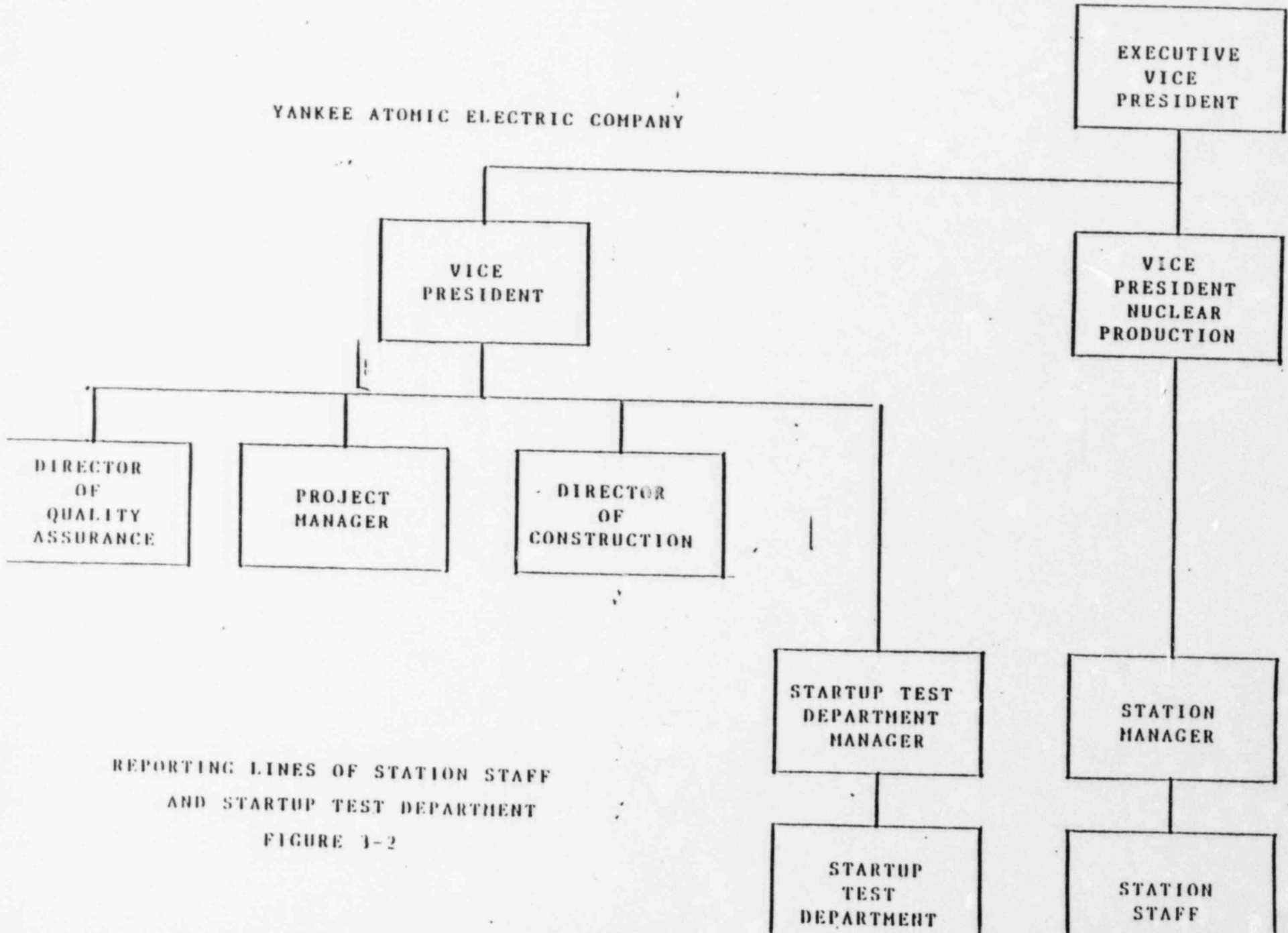
SEABROOK STATION

INITIAL TEST PROGRAM PHASES

- PHASE 1 - CONSTRUCTION VERIFICATION TESTS
- PHASE 2 - SYSTEM ACCEPTANCE/PREOPERATIONAL TESTS
- PHASE 3 - INTEGRATED SYSTEM PREOPERATIONAL TESTS
- PHASE 4 - INITIAL FUEL LOADING
- PHASE 5 - INITIAL CRITICALITY AND LOW POWER TESTS
- PHASE 6 - POWER ASCENSION

PUBLIC SERVICE COMPANY
OF NEW HAMPSHIRE

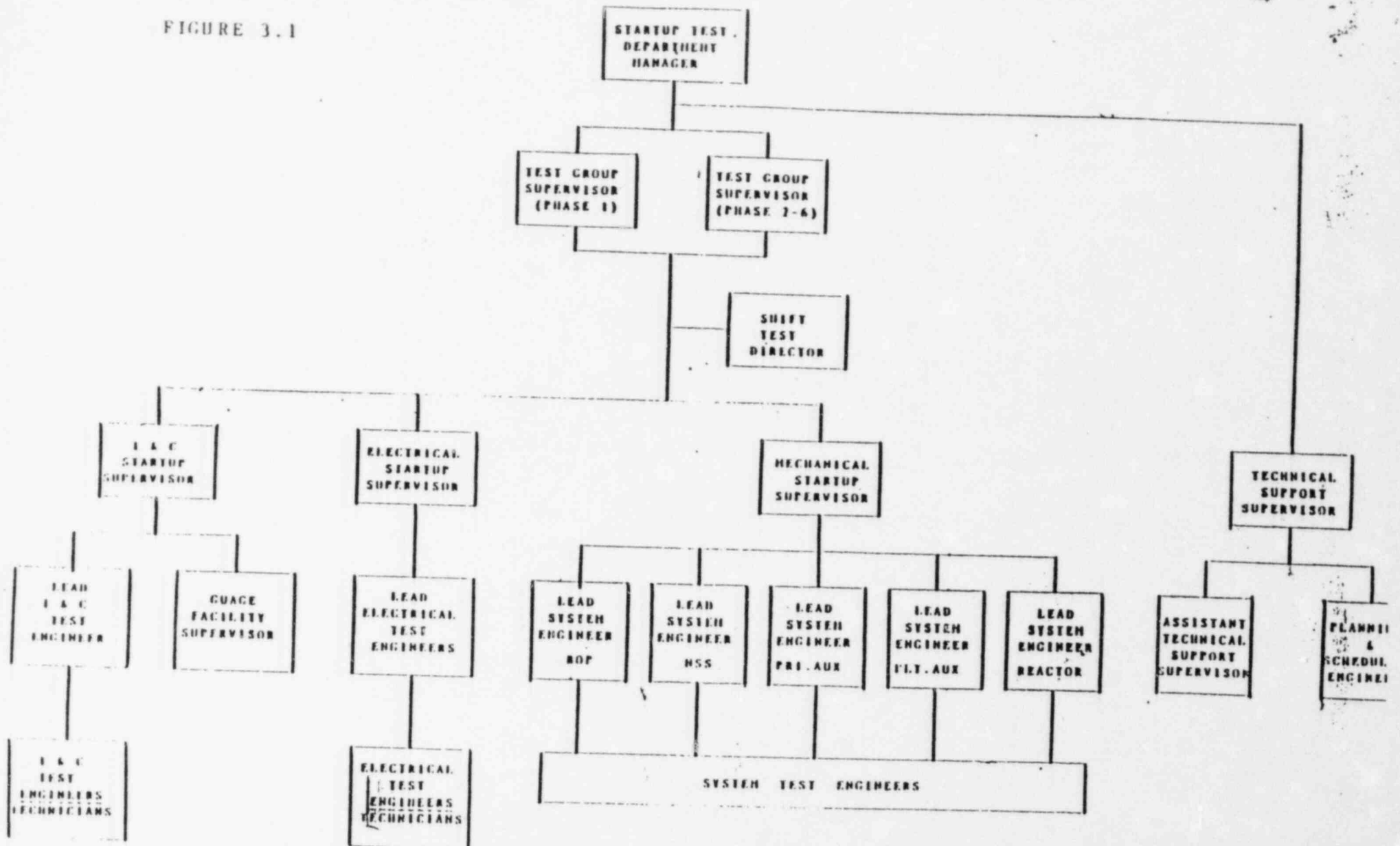
YANKEE ATOMIC ELECTRIC COMPANY



REPORTING LINES OF STATION STAFF
AND STARTUP TEST DEPARTMENT

FIGURE 3-2

FIGURE 3.1



SEABROOK STATION
BOUNDARY IDENTIFICATION PACKAGE STATUS

	<u>No. OF BIP'S</u>	<u>PARTIAL TURNOVERS</u>	<u>COMPLETE TURNOVERS</u>
MECHANICAL	259	6	30
ELECTRICAL	304	40	23
INSTRUMENT	<u>243</u>	<u>12</u>	<u>26</u>
TOTAL M.E.I	806	58	79
▪TOTAL SYSTEM BIP'S	<u>354</u>		<u>21</u>

▪(1 SYSTEM BIP = M BIP + E BIP + I BIP).

SEABROOK STATION

SUMMARY OF MAJOR EVOLUTIONS SINCE SEPTEMBER 1981

RECEIVED FROM CONSTRUCTION AND PLACED IN SERVICE THE FOLLOWING:

WATER TREATMENT PLANT	JAN - MAR 1982
ADMINISTRATION BUILDING HVAC, CHILLED WATER, HOT WATER SYSTEM	FEB - MAY 1982
AUXILIARY BOILER, FUEL OIL, SAMPLE SYSTEM	FEB - MAR 1982
FIRED AUXILIARY BOILER	LATE FEB 1982
ENERGIZED RAT'S	MARCH 1982
ENERGIZED BUS 1 THROUGH 6	APR - MAY 1982
FILL DEMINERALIZED TANK, REACTOR MAKEUP WATER, TURBINE BUILDING HEADER	MAY 1982
CONTROL BUILDING HVAC	MAY - OCT 1982
START TESTING TURBINE BUILDING VENTILATION AND NON-ESSENTIAL SWITCHGEAR HVAC	MAY 1982
START FIRE PROTECTION - YARD AND TURBINE BUILDING	MARCH 1982
START ENERGIZING SUBSTATIONS AND MCCS	MID-JUNE 1982
RUN-IN SERVICE AIR COMPRESSOR, TURBINE BUILDING AIR HEADER	LATER JULY 1982
START AUXILIARY STEAM, AUXILIARY BOILER ROOM AND TURBINE BUILDING	AUGUST 1982
INSTRUMENT AIR DRYER AND START TURBINE BUILDING HEADER	MID-AUGUST 1982
SET COMPUTER	LATE OCTOBER 1982

OCTOBER 25, 1982

VIII-4

SEABROCK STATION
CURRENT SYSTEM TESTING STATUS
 (PHASE 1)

<u>SYSTEM</u>	<u>% OF SYSTEM TURNED OVER</u>	<u>% OF SYSTEM TESTING COMPLETED</u>
ADMINISTRATION BUILDING HVAC	95	95
AUXILIARY BOILER	90	90
AUXILIARY STEAM	10	4
CONTROL BUILDING HVAC	35	10
ADMINISTRATION BUILDING CHILLED WATER	90	95
DRAINS	5	2
DEMINERALIZED WATER	5	5
ADMINISTRATION'S SERVICE BUILDING HOT WATER	15	25
INSTRUMENT AIR	20	10
SERVICE AIR	20	10
SECONDARY COMPONENT COOLING	5	1
WATER TREATMENT	90	75
ELECTRICAL DISTRIBUTION SYSTEM		
DC ELECTRICAL DISTRIBUTION	90	50
AC ELECTRICAL DISTRIBUTION	62.5	35
MCCs	55	25
15 KV	100	90 (10% IN SERVICE)
5 KV	100	90 (5% IN SERVICE)

OCTOBER 25, 1982

VIII-5

SEABROOK STATION
PREOPERATIONAL / STARTUP TEST PROCEDURE
CLASSIFICATIONS

1. GENERAL TESTS:

PHASE 1 CONSTRUCTION VERIFICATION TESTS VERIFY PROPER INSTALLATION OF EQUIPMENT AND SYSTEMS AND PLACE THE EQUIPMENT INTO NORMAL OPERATING SERVICE.

2. PREOPERATIONAL TESTS:

PHASE 2 TESTS PERFORMED TO VERIFY THE ABILITY OF SAFETY-RELATED PLANT SYSTEMS TO PERFORM THEIR FUNCTION PRIOR TO USE IN SUPPORT OF PHASE 3 TESTING OR INITIAL PLANT STARTUP. PHASE 3 TESTS PERFORMED PRIOR TO INITIAL FUEL LOADING WHICH INVOLVE THE INTEGRATED OPERATION OF A NUMBER OF PLANT SYSTEMS FOR THE PURPOSE OF TESTING CERTAIN PLANT FEATURES.

3. ACCEPTANCE TESTS:

PHASE 2 TESTS PERFORMED TO VERIFY THE ABILITY OF NON-SAFETY-RELATED PLANT SYSTEMS TO PERFORM THEIR FUNCTION.

4. STARTUP TESTS:

PHASE 4, 5 AND 6 TESTS PERFORMED TO VERIFY PROPER DESIGN AND INSTALLATION OF THE REACTOR CORE AND TO VERIFY PROPER OPERATION OF PLANT SYSTEMS DURING POWER ASCENSION.

SEABROOK STATION

PHASE 1 CONSTRUCTION VERIFICATION TEST STATUS

<u>GENERAL TEST</u>	<u>TOTAL NO.</u>	<u>APPROVED</u>	<u>IN REVIEW</u>	<u>IN PREPARATION</u>
MECHANICAL	8	8	0	0
ELECTRICAL	44	41	0	3
INSTRUMENTATION				
-- GENERAL	45	45	0	0
-- SPECIAL (RPS, ESF, ETC.)	22	0	8	10
-- TOTAL INST.	67	45	8	10

OCTOBER 25, 1982

VIII-7

SEABROOK STATION

STATUS OF TEST PROCEDURE PREPARATION
(PHASES 2 THROUGH 6)

<u>TEST TYPE</u>	<u>TOTAL NUMBER</u>	<u>APPROVED</u>	<u>DRAFT IN REVIEW</u>	<u>DRAFT IN PREPARATION</u>	<u>DRAFT NOT STARTED</u>
PREOPERATIONAL (PT)	78	2	37	8	31
ACCEPTANCE (AT)	75	3	44	12	16
STARTUP (ST)	50	0	13	3	34
TOTAL PT/AT	153	5	81	20	47
TOTAL TESTS	203	5	94	23	81

OCTOBER 25, 1982

VIII-8

SEABROOK STATION

MANPOWER

	<u>CURRENT LOADS</u>	<u>PROJECTED PEAKS</u>
STARTUP ENGINEERS	64	80
TECHNICIANS - ELECTRICAL	7	15
- INSTRUMENT	28	40
CRAFTS - ELECTRICIANS	11	40
- MECHANICAL	8	85

OCTOBER 25, 1982

VIII-9

SEABROOK STATION
UNIT 1 AND COMMON FACILITIES

SCHEDULAR IMPACT OF TMI REQUIREMENTS (NUREG-0737) AND
CURRENT LICENSING ISSUES

- I. CRITERIA FOR CONSIDERATION OF NUREG-0737
ITEM IN CFP
 - A. MAJOR CONSTRUCTION (DUE TO NATURE OF ITEM)
 - B. EQUIPMENT AVAILABILITY

- II. NUREG-0737 ITEMS CONSIDERED FOR CFP (SAME AS FOR 9/81 CFP)
 - A. TECHNICAL SUPPORT CENTER
 - B. EMERGENCY OPERATIONS FACILITY
 - C. SAFETY PARAMETER DISPLAY SYSTEM
 - D. POST-ACCIDENT SAMPLING SYSTEM
 - E. PLANT SHIELDING REVIEW
 - F. REACTOR VESSEL HEAD VENT

- III. SEABROOK ACTIVITY AND SCHEDULAR INFLUENCE OF NUREG-0737
ITEMS CONSIDERED (CURRENT STATUS OF ITEMS CONSIDERED AT 9/81 CFP)

- IV. OTHER LICENSING ACTIVITY CONSIDERED FOR CFP AND SEABROOK SCHEDULAR
INFLUENCE (SAME AS FOR 9/81 CFP)
 - A. ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED ELECTRICAL EQUIPMENT
 - 1. NSSS
 - 2. BOP
 - B. APPENDIX R (FIRE PROTECTION)
 - C. APPENDIX E (E-PLANNING)

SEABROOK STATION

UNIT 1 & COMMON FACILITIES

SCHEDULAR IMPACT OF 10 CRF 50.55 (E) DEFICIENCIES - NONE

MEETING SUMMARY

Document Control (50-443)

DEC 16 1962

NRC PDR
I. PDR
NSIC
TERA

LB#3 Reading
J. Lee
G. Knighton
Project Manager LWheeler
Attorney, OELD
E. L. Jordon
Regional Administrator, Region I
J. M. Taylor

PARTICIPANTS (NRC):

LWheeler
WHLoveface
RGramm



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

OCT 29 1982

Docket Nos.: 50-443
and 50-444

MEMORANDUM FOR: George W. Knighton, Chief, Licensing Branch No. 3, DL
FROM: L. L. Wheeler, Project Manager, Licensing Branch No. 3, DL
SUBJECT: CASELOAD FORECAST PANEL MEETING AND TOUR OF SEABROOK
STATION

DATE & TIME: November 16-17, 1982: 9:00 AM - 4:00 PM
November 18, 1982: 9:00 AM - 10:00 AM (if required)

LOCATION: Seabrook Station
Seabrook, New Hampshire

PURPOSE: Review construction progress to obtain information for
use as input to the OL review scheduling process.

AGENDA: See enclosed Meeting Agenda for details:

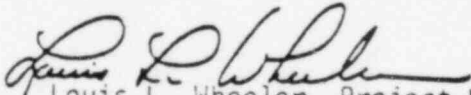
- November 16: Discuss recent construction progress and
present status of the project.
- November 17: Tour the project and observe construction
activities.
- November 18: Meeting (if required) to discuss any
questions that are developed during the
past two days.

PARTICIPANTS: Public Service Company of New Hampshire

J. Devinentis et. al.

NRC Staff

R. Gramm, W. Lovelace, L. Wheeler


Louis L. Wheeler, Project Manager
Licensing Branch No. 3
Division of Licensing

Enclosure: As stated

cc: See next page

NOTE: NRC meetings are open to interested members of the public to attend as
observers. Members of the public who wish to attend this meeting must
contact L. Wheeler (301/492-7792) no later than 3:45 PM November 12,
1982. (The proper safeguarding of security and proprietary information
requires the station tour portion of the meeting to be closed to the public).

8211100045

1. Overview of project construction schedule including progress and major milestones completed, current problems and any anticipated problem areas that may impact the current projected fuel load date.
2. Detailed review and current status of design and engineering effort (by major discipline) including any potential problems that may arise from necessary rework.
3. Detailed review and current status of procurement activities including valves, pipe, instruments, cable, major components, etc.
4. Actual and proposed craft work force (by major craft), craft availability, productivity, potential labor negotiations and problems.
5. Detailed review and current status of all large and small bore pipe hangers, restraints, snubbers, etc., including design, rework, procurement, fabrication, delivery and installation.
6. Detailed review of project schedule identifying critical path items, near critical items, amount of float for various activities, the current critical path to fuel loading, methods of implementation of corrective action for any activities with negative float, and provisions for contingencies. The estimated project percent complete as of October 29, 1982.
7. Detailed review and current status of bulk quantities including current estimated quantities, quantities installed to date, quantities scheduled to date, current percent complete for each, actual versus forecast installation rates, in cubic yards/mo., linear feet/mo., or number/mo., and basis for figures.
 - (a) Concrete (CY)
 - (b) Process Pipe (LF)
 - Large Bore Pipe (2 1/2" and larger)
 - Small Bore Pipe (2" and smaller)
 - (c) Yard Pipe (LF)
 - (d) Large Bore Pipe Hangers, Restraints, Snubbers (ea)

(e) Small Bore Pipe Hangers, Restraints (ea)

(f) Cable Tray (LF)

(g) Total Conduit (LF)

(h) Total Exposed Metal Conduit (LF)

(i) Cable (LF)

- Power
- Control
- Security
- Instrumentation
- Plant Lighting

(j) Terminations (ea)

- Power
- Control
- Security
- Instrumentation
- Plant Lighting

(k) Electrical Circuits (ea)

- Power
- Control
- Security

(l) Instrumentation (ea)

8. Detailed review and current status of preparation of preop and acceptance test procedures, integration of preop and acceptance test activities with construction schedule, system turnover schedule, preop and acceptance tests schedule, current and proposed preop and acceptance tests program manpower.

- (a) Total number of procedures required for fuel load.
- (b) Number of draft procedures not started.
- (c) Number of draft procedures being written.
- (d) Number of procedures approved.
- (e) Number of procedures in review.
- (f) Total number of preop and acceptance tests required for fuel load.
- (g) Number of preop and acceptance tests completed.
- (h) Number of preop and acceptance tests currently in progress.
- (i) Number of systems turned over to start-up.

9. Detailed discussion of potential schedular influence due to changes attributed to NUREG-0737 and other recent licensing requirements.
10. Discussion of schedular impact, if any, regarding potential deficiencies reported in accordance with 10 CFR 50.55(e).
11. Overview of current construction and startup management organization showing interfaces between the two.
12. Site tour and observation of construction activities.

OCT 20 1992

Mr. William C. Tallman
 Chairman and Chief Executive Officer
 Public Service Company of New Hampshire
 P. O. Box 300
 Manchester, New Hampshire 03105

Dear Mr. Tallman:

Subject: NRC Caseload Forecast Panel Visit to Seabrook Station

On November 16-18, 1992, the NRC Caseload Forecast Panel (CFP) will visit Seabrook Station to obtain information regarding the status of construction of Seabrook, Unit 1 and facilities common to both units. A list of information requested for this visit is enclosed.

The plan for the site visit provides for the first day being used for discussions of recent construction progress and the present status of the construction program. On the second day, there will be a tour of the project to allow the staff to observe construction activities. The third day is purposely unscheduled time to provide flexibility if the discussions and tour indicate that more time is required to pursue specific items of interest.

This is the second CFP visit to Seabrook Station (previous visit was September 15-17, 1991). The staff has two comments on the previous visit for your consideration in preparation for this visit. First, the tempo/rate of the tour was very good and the staff looks forward to a similar tour on this visit. Second, since the last tour, the staff has modified its normal CFP procedures to develop a description of staff activities of the visit load case prior to the end of the visit. The staff respects the option of sharing any preliminary observations with your representatives, but it is emphasized that this is at the discretion of the staff and will depend on how much time may be required to develop a staff schedule once the discussions and tour have been completed.

Questions regarding this visit should be directed to the NRC, Seabrook Project Manager, Mr. Louis L. Wheeler (301/492-7792).

Sincerely,

~~Original Signed By:~~

George W. Knighton, Chief
 Licensing Branch No. 3
 Division of Licensing

cc: See next page

82-11205-36