

December 23, 1987 DOCKETED  
USNRCUNITED STATES NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'87 DEC 28 AM 1:39

In the Matter of )

Public Service Company of )  
New Hampshire, et al. )

(Seabrook Station, Units 1 &amp; 2) )

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Docket No. 50-443 OL-1

ONSITE EMERGENCY  
PLANNING & TECHNICAL  
ISSUESNEW ENGLAND COALITION ON NUCLEAR POLLUTION'S  
SECOND SET OF INTERROGATORIES AND REQUEST FOR  
THE PRODUCTION OF DOCUMENTS TO APPLICANTS  
ON NECNP CONTENTION IVINSTRUCTIONS FOR USE

The following interrogatories are to be answered in writing and under oath by an employee, representative or agent of the Applicants with personal knowledge of the facts or information requested in each interrogatory. We remind you of your obligation to supplement answers to interrogatories, under 10 C.F.R. § 2.740(e).

The following definitions shall apply to these interrogatories:

1) "Document" shall mean any written or graphic matter or communication, however produced or reproduced, and is intended to be comprehensive and include without limitation any and all correspondence, letters, telegrams, agreements, notes, contracts, instructions, reports, demands, memoranda, data, schedules, notices, work papers, recordings, whether electronic or by other means, computer data, computer printouts, photographs, microfilm,

microfiche, videotapes, charts, analyses, intra-corporate or intra-office communications, notebooks, diaries, sketches, diagrams, forms, manuals, brochures, lists, publications, drafts, telephone minutes, minutes of meetings, statements, calendars, journals, orders, confirmations and all other written or graphic materials of any nature whatsoever.

2) "Identify" with respect to any document shall mean to state the following: the document's title, its date, the author of the document, the person to whom the document was sent, all persons who received or reviewed the document, the substance and nature of the document, and the present custodian of the document and of any and all copies of the document.

3) "Identify" with respect to any action or conduct shall mean state the following regarding any such action or conduct: the person or persons proposing and taking such action; the date such action was proposed and/or taken; all persons with knowledge or information about such action; the purpose or proposed effect of such action; and any document recording or documenting such action.

4) "Identify" with respect to an individual shall mean state the individual's name, address, employer, occupation, and title.

5) "Describe" with respect to any action, event or matter shall mean state the following regarding such action, event or matter: the date of such action, event, or matter; the substance

or nature of such action, event or matter; the persons participating in or having knowledge of such action, event or matter; the current and past business positions and addresses of such persons; and the existence and location of any and all documents relating to such action or matter.

6) "Describe" with respect to any piece of equipment shall mean the type, manufacturer, equipment tag number and model number of the equipment.

7) "Biofouling" shall mean any degree of sedimentation and/or corrosion of nuclear power plant cooling systems by aquatic debris, macro- or micro-biological organisms, silt, and mud, or by any other organic or inorganic material.

8) "Microbiologically induced corrosion" shall mean corrosion or degradation that is generally caused by sulfate-reducing bacteria, or any sedimentation caused by that process.

#### GENERAL INTERROGATORIES

1) Please identify all persons who participated in the preparation of answers to these interrogatories, and identify the portions of your response to which each person contributed.

#### CORROSION AND BLOCKAGE OF COOLANT FLOW RESULTING FROM BIOFOULING

2) In NRC Inspection Report No. 50-443/87-23, at page 10, the inspector observed the repair of a pinhole leak on valve CC-V-298, the "D" primary component cooling water (PCCW) pump discharge check valve. Please answer the following questions regarding this problem:



a) Identify and produce any documents, inspection reports, work requests, station information reports or photographs that in any way discuss, investigate, or evaluate this leak, or that identify or describe the extent and nature of the leak.

b) Produce the most current version of piping and instrumentation diagrams for this system. This question may be answered by reference to the appropriate diagram in the F.S.A.R.

c) Produce a system or line isometric drawing, and a construction drawing of this valve.

d) Produce any vendor diagrams or drawings of this valve, and indicate on this diagram or drawing where on the valve this leak occurred.

e) Describe when, and the circumstances under which, this leak discovered.

f) Describe where on the valve this leak occurred, including whether this leak occurred on a weld, through the body of a valve, through any internal part of a valve, or through a mechanical joint on or in the valve.

g) Describe the metallurgical composition or other material used for each of the various parts comprising this valve.

h) Describe the cause or causes of this leak, and all efforts you have made to determine the cause(s) of this leak, including whether microbiologically induced corrosion played a role in this leak.

i) If you determined that microbiologically induced corrosion did not play a role in this leak, explain how you reached this conclusion.

j) Identify the water flow velocity in the piping connected to this valve at or near the time the leakage was discovered, and describe how and when this measurement was taken.

k) Describe your program or techniques for monitoring this system to detect potential leakages prior to their occurrence, including when such program was initiated, and explain why this procedure failed to detect the problem in time to prevent the leak in this instance.

l) Describe your program or techniques for preventing biofouling or microbiologically induced corrosion, including when such program was initiated. If biofouling or microbiologically induced corrosion played a role in this leak, explain why this program or techniques failed to prevent biofouling or microbiologically induced corrosion in this instance.

m) Describe what you have done, or intend to do, to repair this leak and prevent leaks from occurring in this system in the future.

n) If chlorination treatment is used as part of your program to prevent biofouling or microbiologically induced corrosion in this system, identify the distance, in feet and inches of piping lengths, between the point where the chlorine is injected into this system and the valve where the leak was discovered,

If this question can be answered with reference to the system or line isometric drawings requested in Interrogatory 2(c), you may answer this question by indicating on this drawing the point where the chlorine is injected into this system.

o) If chlorination treatment is used as part of your program to prevent biofouling or microbiologically induced corrosion in this system, identify the amount of time it takes for the chlorine to travel to the valve where the leak was discovered. If flow rates in this system change at different operational phases, identify the various flow rates for different plant operational phases.

p) Describe all surveillance and control techniques you have implemented or intend in the future to implement to prevent similar leaks from occurring.

q) Describe any program you have to monitor oxygen level and chlorine concentration in this system.

r) Produce any data you have measuring the oxygen levels and chlorine concentrations in this system, including the time such samples or measurements were taken, and the location of the sampling or measurement points.

s) Describe what the consequences of this leak would have been if it had occurred during low power operation of the plant.

t) Have you identified similar leaks in other circulating water systems in the plant? If the answer is yes,



identify the system(s) where the leak(s) occurred, the time when the leak(s) were discovered, describe the equipment on which the leak(s) occurred, and describe the extent and nature of the leaks-

3) In NRC Inspection Report No. 50-443/87-23, at page 10, the inspector observed tube degradation in the "B" train PCCW heat exchanger CC-E-17B. Please answer the following questions regarding this observation:

a) Identify and produce any documents, inspection reports, work requests, or station information reports that in any way discuss or evaluate this problem, or that identify or describe the extent and nature of the degradation.

b) Identify all sources of water serving this PCCW system.

c) Identify the source of water having contact with the side of the tube on which the degradation was observed.

d) Produce the most current version of piping and instrumentation diagrams for this system. This question may be answered by reference to the appropriate diagram in the F.S.A.R.

e) Produce a system or line isometric drawing of this PCCW system.

g) Produce any vendor diagrams or drawings of this valve.

h) Describe exactly where on the heat exchanger this degradation occurred, including whether the degradation occur on

the tube or the shell side of this heat exchanger. If this question can be answered with reference to the system or line isometric drawings or vendor drawings requested in Interrogatories 2(e) and (f), you may answer this question by indicating on this drawing where the degradation occurred.

i) Describe when, and the circumstances under which this degradation discovered.

j) Describe the extent and nature of this degradation.

k) Describe the metallurgical composition or other material for the piping connected with this heat exchanger.

l) Identify the water flow velocity in the piping connected to this heat exchanger at or near the time the degradation was discovered, and describe how and when this measurement was taken.

m) Describe the cause of this degradation, and all efforts you have made to determine the cause of this degradation, including whether biofouling or microbiologically induced corrosion played a role in this problem.

n) Describe your program or techniques for preventing the occurrence of biofouling or microbiologically induced corrosion in this system, including when such program was initiated. If biofouling or microbiologically induced corrosion played a role in this degradation, explain why this program or techniques failed to prevent the degradation in this instance.



o) Describe your program or techniques for monitoring this system to detect the presence or occurrence of biofouling or microbiologically induced corrosion, including when such program was initiated. If biofouling or microbiologically induced corrosion played a role in this degradation, explain why this program or techniques failed to detect the presence or occurrence of biofouling or microbiologically induced corrosion in time to prevent the degradation in this instance.

p) Describe what you have done, or intend to do, to repair this tube and prevent such degradation from occurring in the future.

q) If chlorination treatment is used as part of your program to prevent biofouling or microbiologically induced corrosion in this system, identify the distance, in feet and inches of piping lengths, between the point where the chlorine is injected into this system and the place where the degradation was discovered. If this question can be answered with reference to the line or isometric drawings requested in Interrogatory Question 3(e), you may answer this question by indicating on this drawing the point where the chlorine is injected into this system.

r) If chlorination treatment is used as part of your program to prevent biofouling or microbiologically induced corrosion in this system, identify the amount of time it takes for the chlorine to travel to the point where the degradation occurred.

If flow rates in this system change at different operational phases, identify the various flow rates for different plant operational phases.

s) Describe all surveillance and control techniques you have implemented or intend in the future to implement to prevent similar problems from occurring.

t) Describe any program you have to monitor oxygen level and chlorine concentration in this system.

u) Produce any data you have measuring the oxygen levels and chlorine concentrations in this system, including the time such samples or measurements were taken, and the location of the sampling or measurement points.

v) Describe what the consequences of this leak would have been if it had occurred during low power operation of the plant.

w) Have you identified similar tube degradation in other circulating water systems in the plant? If the answer is yes, identify the system(s) where the tube degradation occurred, the time(s) when the tube degradation was discovered, identify the exact location in the system(s) where the tube degradation occurred, and describe the extent and nature of the tube degradation.

4) In NRC Inspection Report No. 50-443/87-07, at page 16, the inspector discussed the Applicants' disassembly, cleaning and reassembly of fire protection piping inside the fire pump

house (part of the Fire Protection System) which contained micro-biologically induced corrosion. Please answer the following questions regarding this problem:

a) Identify and produce any documents, inspection reports, work requests, or station information reports that in any way discuss or evaluate this problem.

b) What was the date construction of this Fire Protection System was completed and the system became operational for purposes of testing?

c) What was the date when water was first added to the pipes of this system?

d) Identify all sources of water serving this system.

e) Produce the most current version of piping and instrumentation diagrams for this system. This question may be answered by reference to the appropriate diagram in the F.S.A.R.

f) Produce a system or line isometric drawing of this fire protection piping in the fire pump house.

g) Describe when, and the circumstances under which this problem was discovered.

h) Describe the metallurgical composition or other material used in the piping in this Fire Protection System.

i) Describe any program in place for monitoring this Fire Protection System to detect the presence of microbiologically induced corrosion, including when such program was initiated, and explain why this procedure failed to detect the problem in time to prevent this problem.



j) Describe any program in place for preventing the build-up of microbiologically induced corrosion in this Fire Protection System, including when such program was initiated, and explain why this procedure failed to prevent this problem.

k) Describe all surveillance and control techniques you have implemented or intend in the future to implement to prevent similar problems from occurring.

5) Please describe all occasions on which evidence of microbiologically induced corrosion has been discovered for each water circulating system at the Seabrook plant.

6) For each incidence of microbiologically induced corrosion described in answer to Interrogatory 5, how and when was it treated?

a) If chlorination or alternative treatments are used to control the microbiologically induced corrosion, identify the chemical and describe the amount and frequency of treatment, in parts per million.

b) If chlorination or alternative treatments are used to control microbiologically induced corrosion, describe your techniques or procedures for monitoring the use of these chemicals to insure compliance with your NPDES Permit No. NH0020338, as modified, for the discharge of non-contact cooling water and process wastewater.

c) If chlorination or alternative treatments are used to control microbiologically induced corrosion, describe any cor-

rosion, pitting or leakage in piping or valves attributable to the use of these chemicals.

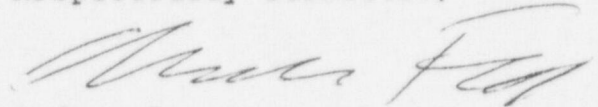
7) Produce copies of all Discharge Monitoring Reports submitted to applicable state and/or federal environmental protection agencies after August, 1985 as required by your NPDES Permit No. NH0020338, as modified, for the discharge of non-contact cooling water and process wastewater.

8) For each system at the Seabrook plant filled with circulating water, either fresh water or salt water, including but not limited to the Fire Protection, PCCW, ECCS, Secondary Component Cooling Water, Residual Heat Removal, and Feedwater systems, please answer the following questions:

(a) Describe Applicants' program for detecting the conditions conducive to microbiologically induced corrosion prior to its occurrence, including techniques for determining the extent of sedimentation or corrosion.

(b) Describe Applicants' program for detecting the presence of microbiologically induced corrosion after to its occurrence, including techniques for determining the extent of such corrosion.

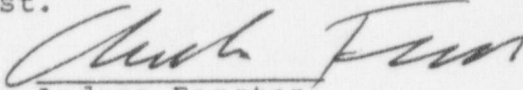
Respectfully submitted,



Andrea Ferster  
HARMON & WEISS  
2001 "S" Street N.W. Suite 430  
Washington, D.C. 20009  
(202) 328-3500

CERTIFICATE OF SERVICE

I certify that on December 23, 1987, copies of the foregoing interrogatories were served by first-class mail on all parties listed on the attached service list.

  
Andrea Ferster

DOCKETED  
USMRC

87 DEC 28 AM 1:39

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH



# SEABROOK SERVICE LIST -- ONSITE LICENSING BOARD

Sheldon J. Wolfe, Chairman  
Atomic Safety and Licensing  
Board  
U.S. NRC  
Washington, D.C. 20555

Dr. Jerry Harbour  
Atomic Safety and Licensing  
Board  
U.S. NRC  
Washington, D.C. 20555

Dr. Emmeth A. Luebke  
5500 Friendship Blvd.  
Apartment 1923N  
Chevy Chase, MD 20815

Atomic Safety and Licensing  
Board Panel  
U.S. NRC  
Washington, D.C. 20555

Atomic Safety and Licensing  
Appeal Board Panel  
U.S. NRC  
Washington, D.C. 20555

Docketing and Service  
U.S. NRC  
Washington, D.C. 20555

Mrs. Anne E. Goodman  
Board of Selectmen  
13-15 New Market Road  
Durham, NH 03842

William S. Lord, Selectman  
Town Hall -- Friend Street  
Amesbury, MA 01913

Jane Doughty  
SAPL  
5 Market Street  
Portsmouth, NH 03801

Carol S. Sneider, Esquire  
Assistant Attorney General  
1 Ashburton Place, 19th Floor  
Boston, MA 02108

Stanley W. Knowles  
Board of Selectmen  
P.O. Box 710

North Hampton, NH 03826

J.P. Nadeau  
Town of Rye  
155 Washington Road  
Rye, New Hampshire 03870

Richard E. Sullivan, Mayor  
City Hall  
Newburyport, MA 01950

Alfred V. Sargent, Chairman  
Board of Selectmen  
Town of Salisbury, MA 01950

Senator Gordon J. Humphrey  
U.S. Senate  
Washington, D.C. 20510  
(Attn. Tom Burack)

Selectmen of Northampton  
Northampton, New Hamp-  
shire 03826

Senator Gordon J. Humphrey  
1 Eagle Square, Ste 507  
Concord, NH 03301

Michael Santosuosso,  
Chairman  
Board of Selectmen  
Jewell Street, RFD # 2  
South Hampton, NH 03842

Judith H. Mizner, Esq.  
Silvergate, Gertner, et al.  
88 Broad Street  
Boston, MA 02110

Rep. Roberta C. Pevear  
Drinkwater Road  
Hampton, Falls, NH 03844

Phillip Ahrens, Esq.  
Assistant Attorney General  
State House, Station # 6  
Augusta, ME 04333

Thomas G. Dignan, Esq.  
R.K. Gad II, Esq.  
Ropes & Gray  
225 Franklin Street  
Boston, MA 02110

Robert A. Backus, Esq.  
Backus, Meyer & Solomon

111 Lowell Street  
Manchester, NH 03105

Sherwin E. Turk, Esq.  
Office of General Counsel  
U.S. NRC  
Washington, D.C. 20555

Mr. Angie Machiros,  
Chairman  
Town of Newbury  
Town Hall, 25 High Road  
Newbury, MA 01951

George Dana Bisbee, Esq.  
Geoffrey M. Huntington, Esq.  
Office of the Attorney General  
State House Annex  
Concord, NH 03301

Allen Lampert  
Civil Defense Director  
Town of Brentwood  
Exeter, NH 03833

Richard A. Hampe, Esq.  
Hampe and McNicholas  
35 Pleasant Street  
Concord, NH 03301

Gary W. Holmes, Esq.  
Holmes & Ellis  
47 Winnacunnent Road  
Hampton, NH 03842

William Armstrong  
Civil Defense Director  
10 Front Street  
Exeter, NH 03833

Calvin A. Canney  
City Manager  
City Hall  
126 Daniel Street  
Portsmouth, NH 03801

Matthew T. Brock, Esq.  
Shaines & McEachern  
P.O. Box 360  
Maplewood Ave.  
Portsmouth, NH 03801

Sandra Gavutis  
RFD 1 Box 1154  
East Kensington, NH 03827

Charles P. Graham, Esq.  
McKay, Murphy and Graham  
100 Main Street  
Amesbury, MA 01913