

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
PUBLIC SERVICE COMPANY OF)
NEW HAMPSHIRE, et al.)
(Seabrook Station, Units 1 and 2))

Docket Nos. 50-443 OL
50-444 OL

NRC STAFF RESPONSE TO FIRST SET OF
INTERROGATORIES AND REQUEST FOR PRODUCTION
OF DOCUMENTS OF THE STATE OF NEW HAMPSHIRE

I. GENERAL INTERROGATORIES

A. Contention NH 9

1. The principal Staff reviewer for radioactive monitoring is John J. Hayes, a Nuclear Engineer in the Meteorology and Effluent Treatment Branch.
2. The Staff disagrees with Contention NH 9, except as will be stated in Section 11.5 of the SER.
3. No dissenters.
4. This subject is covered in Sections 11.5 and 12.4 of the FSAR and will be covered in Section 11.5 of the SER.
5. The principal document relied upon by the Staff in formulating its position on NH 9 is the Standard Review Plan, Section 11.5.

B. Contention NH 10

1. The principal Staff reviewer is Richard J. Eckenrode, a Human Factors Engineer in the Human Factors Engineering Branch.

2-5. The Staff review in this area is not completed. Upon completion of its review, the Staff will respond to Interrogatories 2-5.

C. Contention NH 13

1. The principal Staff reviewer in this area is James Wiggins, a Nuclear Engineer with the NRC's Region I office.

2-5. The Staff has not completed its review in this area. When the Staff review is completed, these interrogatories will be answered.

D. Contention NH 20

1. The principal Staff reviewer in this area is John Sears, a Senior Reactor Safety Engineer in the Emergency Preparedness Licensing Branch.

2-5. The Staff review of this matter is not completed. When the review is completed, the Staff will respond to Interrogatories 2-5.

E. Contention NH 21

1. The principal Staff reviewer in this area is John Sears, a Senior Reactor Safety Engineer in the Emergency Preparedness Licensing Branch.

2-5. The Staff review of this matter is not completed. When the review is completed, the Staff will respond to Interrogatories 2-5.

F-I. NECNP Contentions

The Staff reviewers are currently responding to NECNP's First Set of Interrogatories. The answers to New Hampshire's General Interrogatories will be covered in the Staff's Response to NECNP, a copy of which will be provided to New Hampshire in the near future.

J. Contention SAPL Supplement 3

1. The principal Staff reviewer was Mohan C. Thadani, formerly a Nuclear Engineer in the Accident Evaluation Branch.
2. The Staff disagrees with the contention.
3. No dissenters.
4. Chapter 7 of the Environmental Report and Section 5.9.4 of the FES.
5. See Staff References to Section 5 of the FES.

II. INTERROGATORIES RELATED TO SPECIFIC CONTENTIONS

CONTENTION NH 9

NH 9.1

Identify with specificity each aspect of Reg. Guide 1.97 which the PSNH Seabrook Radioactivity Monitoring System is not in strict compliance with. Explain with which of these aspects the Staff will insist on strict compliance and the reasons for not requiring strict compliance in the areas where it is not required.

RESPONSE

Public Service of New Hampshire has indicated, in response to an NRC Staff question, that the Seabrook radiation monitoring system conforms to

the guidelines of Position C and Table 2 of Regulatory Guide 1.97. Complete information addressing the monitoring system has not been provided to the Staff as of this date. However, this information is required prior to issuance of an operating license. When this information is provided to the Staff, it will be evaluated and this response supplemented.

NH 9.2

Explain the Staff's position on whether PSNH has complied with the requirements of NUREG-0737, Section II(B)(2). Indicate with specificity the requirements of this section with which PSNH has not achieved strict compliance.

RESPONSE

PSNH has made no formal submission to the Staff addressing NUREG-0737, Section II(B)(2). Accordingly, the Staff has no position at this time on whether PSNH has complied with the requirements of II(B)(2). This response may be updated when additional information on this subject is submitted by PSNH and evaluated by the Staff.

NH 9.3

Explain the Staff's position on whether PSNH has complied with the requirements of NUREG-0737, Section II(B)(3). Indicate with specificity the requirements of this section with which PSNH has not achieved strict compliance.

RESPONSE

PSNH has made no formal submission to the Staff addressing NUREG-0737, Section II(B)(3). The Staff accordingly has taken no position on this subject at this time. When additional information is

submitted by PSNH and evaluated by the Staff, this response may be updated.

NH 9.4

Explain the Staff's position on whether PSNH has complied with the requirements of NUREG-0737, Section II(F)(1). Indicate with specificity the requirements of this section with which PSNH has not achieved strict compliance.

RESPONSE

The Staff is awaiting further information from Applicants addressing NUREG-0737, Section II(F)(1). Accordingly, the Staff has not taken a position on this subject. When additional information is submitted by PSNH and evaluated by the Staff, this response may be updated.

NH 9.5

Explain the Staff's position on whether PSNH has complied with the requirements of NUREG-0737, Section III(D)(3.3). Indicate with specificity the requirements of this section with which PSNH has not achieved strict compliance.

RESPONSE

PSNH has made no formal submission to the Staff addressing NUREG-0737, Section III(D)(3.3). Accordingly, the Staff has not taken a position on this subject at this time. When additional information is submitted by PSNH and evaluated by the Staff, this response may be updated.

NH 9.6

Explain the Staff's position on whether PSNH has complied with the requirements of NUREG-0737, Section III(D)(3.4). Indicate with specificity the requirements of this section with which PSNH has not achieved strict compliance.

RESPONSE

The Staff's position is that PSNH has complied with the requirements of NUREG-0737, Section III(D)(3.4). [This response is made by Harry Krug, who is currently assigned to the MRC's Region II office in Atlanta, Georgia. Mr. Krug's affidavit affirming this response will be provided to New Hampshire in the near future].

CONTENTION NH 10

NH 10.1

Indicate the Staff's position on whether PSNH has complied with the requirements of NUREG-0737, I(D)(1).

RESPONSE

PSNH has submitted a Program Plan for Staff review. This is an early step in the process toward meeting the requirements of I.D.1. Staff has not yet completed its review of the plan. Upon completion of its review, this response will be updated.

NH 10.2

Identify all documents which have been developed by the Staff for the purpose of studying, reviewing or critiquing the control room design, including but not limited to the documents resulting from the Detailed Control Room Design Review (DCRDR) required by NUREG-0737, Section I(D)(1). Please produce such documents pursuant to 10 CFR Section 2.741.

RESPONSE

Documents which have been developed by the Staff for the purpose of studying and reviewing or critiquing the Seabrook Station control room design are:

NUREG-0700, "Guidelines for Control Room Design Reviews" NUREG-0801, "Evaluation Criteria for Control Room Design Reviews" NUREG-0835, "Human Factors Acceptance Criteria for SPDS" NUREG-0696, "Functional Criteria for Emergency Response Facilities", REG Guide 1.97 Rev. 2, "Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident"

The above documents should be in the LPDR.

NH 10.3

Identify the persons responsible for the Staff's review of the human engineering aspects of the detailed control room design review.

RESPONSE

The responsible person is Richard Eckenrode of the Human Factors Engineering Branch, the team leader.

NH 10.4

NUREG-0737(I)(D)(2) requires that a safety parameter display system be installed. Indicate the Staff's position on whether PSNH has complied with the requirements of (I)(D)(2).

RESPONSE

The PSNH Program Plan addressed the SPDS. Based on this, Staff believes that PSNH will install a SPDS, per NUREG-0737. This response may be updated in the future pending that installation.

NH 10.5

NUREG-0737(II)(B)(1) requires that reactor coolant system vents be remotely operated from the control room. Indicate the Staff's position on whether PSNH will comply with II(B)(1) and identify all documents which relate to the Staff's review of the displays and controls which will be added to the control room as a result of II(B)(1). Please produce such documents pursuant to 10 CFR 2.741.

RESPONSE

Staff has not as yet conducted a human factors review of task action item II.B.1. The human factors review will be a part of task action item I.D.1. This response will be updated subsequent to that review.

NH 10.6

NUREG-0737(II)(D)(3) requires that reactor coolant system relief and safety valves be provided with positive indication in the control room. Identify all documents which relate to the Staff's review of the displays and controls added to the control room as a result of II(D)(3) and produce such documents pursuant to 10 CFR 2.741.

RESPONSE

See RESPONSE to NH 10.8.

NH 10.7

NUREG-0737(II)(F)(1) requires additional accident monitoring instrumentation and associated displays and controls to be added to the control room. Identify all documents which relate to the Staff's review of the location of displays and controls in the control room as a result

of this requirement. Please produce such documents pursuant to 10 CFR 2.741.

RESPONSE

See RESPONSE to NH 10.8.

NH 10.8

NUREG-0737(II)(F)(2) relates to additional instrumentation for detection of inadequate core cooling. Identify all documents which relate to the Staff's review of the types and locations of displays and alarms to be added to the control room as a result of this instrumentation. Please produce such documents pursuant to the 10 CFR 2.741.

RESPONSE

In response to Contentions NH 10.6, 10.7 and 10.8, Staff has not yet reviewed items II.D.3, II.F.1 or II.F.2. The Staff plans to review these items as part of I.D.1. These response will then be updated.

NH 10.9

Has PSNH defined or put into effect a plan of action that applies human-factor principles to improve control room design and enhance operator effectiveness? Explain the Staff's position on the adequacy of such plan.

RESPONSE

PSNH has submitted a Program Plan which sets forth its intent to apply human factors principles to improve its control room design. The plan is now under review by Staff. The Staff's position on the adequacy of the plan cannot be given until the review is completed. The interrogatory response can then be updated.

NH 10.10

Has a task analysis been performed for determining the basis for the systems review of the control room design, determining operator training and staffing needs, determining the kind of information the safety parameters display system (SPDS) will present, and developing emergency operating procedures? If so, identify the Staff person responsible for such analysis and identify documents which set forth the analysis and the Staff's position based on the analysis.

RESPONSE

The PSNH program plan states its intent to perform a task analysis. R. Eckenrode of the NRC Staff will be the lead person responsible for reviewing the PSNH task analysis. Staff has not received the results of the task analysis for review and therefore cannot state a position at this time.

SAPL Supp. 3.1

The Commission's Interim Policy Statement on Nuclear Power Plant Accident Considerations under NEPA, 45 Fed. Reg. 40101 requires a reasoned consideration of the risks of release of radiation to the groundwater. Identify all documents which relate to the Staff's consideration of the risk and impact of the release of radioactivity to the groundwater under accident conditions.

RESPONSE

The Staff has met its obligation to address the Commission's Interim Policy Statement by its analysis presented in Section 5.9 of the Seabrook Environmental Impact Statement. Furthermore, there is consideration of other liquid pathway accidents presented in Section 2.4 of the SER.

The Staff relied only on the "Liquid Pathway Generic Study," NUREG-0440, in its appraisal of risk and impact from core melt accidental

releases to groundwater. Basic data on the site were taken from the FSAR, the ER, or RAI 240.25.

SAPL Supp. 3.2

Identify all persons on the Staff or acting on behalf of the Staff who were and are responsible for the consideration of groundwater and the potential impact to the Seabrook area by a release of radioactivity to groundwater under accident conditions.

RESPONSE

The responsible person for the review of liquid pathway consequences has been Dr. Richard B. Codell, a Senior Hydraulic Engineer in the Hydrologic and Geotechnical Branch.

SAPL Supp. 3.3

Explain the Staff's position on the question of whether the impact on the Seabrook area of a significant release of radioactivity to the groundwater, and the measures needed to mitigate such impact have been adequately reviewed.

RESPONSE

The Staff's position on this matter is already presented in the Environmental Statement Section 5.9, but will be reiterated here. The Staff concluded after performing a conservative analysis of the highly-unlikely core melt accident and subsequent release of radionuclides to the ground, that the Seabrook plant was not unique in its liquid pathway contribution to risk in comparison to the risks presented for the generic sites in NUREG-0440. Those risks in NUREG-0440, in turn, were considered to be only a fraction to a very small fraction of risks from airborne contamination following severe accidents. Furthermore there would be

measures available following such a groundwater release to intercept the contamination, or to deny access of people to dangerous levels of radiation in water or seafood, if necessary.

SAPL Supp. 3.5

Identify the location and distance from the plant site of the five (5) nearest wells used for domestic water supplies.

RESPONSE

Enclosed is figure 2.4.29 from the Applicant's FSAR which shows wells near the site. It should be noted, however, that this question has no bearing on the groundwater contamination problem, because as is clearly stated in Section 5.9 of the Environmental Statement, all groundwater flow would be toward the marsh and estuary and away from any wells. Therefore, in the Staff's view it is not related to the Contention SAPL Supp. 3.

SAPL Supp. 3.6

Explain the extent to which the Staff has considered bedrock fracturation as affecting the direction and rate of flow of radioactive contaminants in groundwater. Identify all documents which the Staff relies on for its response.

RESPONSE

The Staff realizes that the site bedrock is fractured, and used the "equivalent porous media" approach in its analysis, which is a well recognized approach for handling flow and transport in fractured media.

The Staff relied on data supplied by the Applicant in RAI 240.25, the FSAR and the ER.

SAPL Supp. 3.7

The Staff apparently accepts the estimate of 170 days as the travel time for groundwater to travel to the marsh from the plant site (DEIS 5-62). Identify all documents which are relied upon as the basis for this estimate. Please explain the conservatism which the Staff believes is built into this estimate.

RESPONSE

The 170 day travel time is the Staff's own conservative estimate, and not that of the Applicant. The Staff relied on its own engineering expertise, and data supplied from the FSAR or RAI 240.25 Applicant in its analysis.

Darcy's equation for flow in porous media was used to estimate the speed at which the groundwater moved toward the marsh.

The conservatisms employed in the Staff's analysis are clearly and explicitly stated in the Environmental Statement, Section 5.9. They are, however, reiterated here:

1. A conservatively short pathway distance between the reactors and the surface water of 360 feet was chosen based on the expected water level in the marsh during a flood which has a recurrence interval of two years (6 ft. Mean Sea Level). Under non-flood conditions, the distance between the reactors and high tide be closer to 450 feet. The closest distance to any clearly-defined surface water is about 600 feet.

2. Transport and sorption in the low permeability marsh soils are neglected, even though they are likely to measurably retard the movement of dissolved radionuclides.

3. Interdiction of the contamination following the accident is neglected. The conservatively calculated 170-day minimum travel time would apply only to those radioactive constituents released from the core that would not be sorbed by the rock and soil of the aquifer. The Staff has determined that in the event of a core-melt accident, virtually all of the dose from the liquid pathway would be caused by Sr-90 and Cs-137, both of which would be sorbed and thereby retarded to a considerable extent in the aquifer. For this reason, the Staff estimates that several years would be available before the peak in the release of the most hazardous radionuclides to the marsh would occur. In the case of basemat penetration without sump water release, an additional delay would result,

because debris leaching would not begin until the debris had cooled sufficiently to allow contact with groundwater, a time estimated to be at least several months to a year.

SAPL Supp. 3.8

In the Draft EIS, the Staff indicates that the interaction between groundwater and surface water in the marsh is indistinct (DEIS at 5-61). Explain why the Staff feels that the relationship between the groundwater and the marsh is sufficiently understood at this time to not warrant further study before licensing. Identify all documents relied on by the Staff in its answer.

RESPONSE

In stating that the relationship between the groundwater and the marsh was indistinct, the Staff was merely giving a reason for conservatively neglecting any transport or retardation of radionuclides in the marsh soils. Including the marsh soils in the analyses would further diminish the computed consequences of the postulated accident. See the response to SAPL Supp.-3.7.

SAPL Supp. 3.9

Explain why the Staff believes that there is sufficient time to develop groundwater interdictive measures after an accident when the travel time of contaminants to the marsh is difficult to estimate and the access to the area after an accident is uncertain.

RESPONSE

The reasons the Staff believes that sufficient time would be available are described in the response to SAPL 3.7. In particular, the Staff concludes that the travel time estimates are conservatively short, and that references 1 through 4 (response to SAPL Supp. 3.11) give

reasonable assurances that mitigative measures to restrict contaminated groundwater flow could be emplaced.

SAPL Supp. 3.10

Explain the extent to which the Staff considered the limitation of access to the area of interdiction because of weather conditions and radiological conditions in reaching its apparent conclusion that interdictive measures can be designed and installed within 170 days following a release to groundwater.

RESPONSE

The Staff does not imply that groundwater interdiction would be necessary after a core-melt accident. Monitoring of groundwater movement following a severe meltdown accident would be prudent. The decision to take interdictive action to prevent or slow the migration of contaminated groundwater to the biosphere could be made on the basis of post-accident monitoring.

Furthermore, the question of site accessibility would present itself at all nuclear power plant sites following an accident. Since the goal of the Staff's liquid pathway analysis was to determine whether or not the Seabrook site was unique in its liquid pathway contribution to risk, the question of post-accident site access is not germane.

SAPL Supp. 3.11

Identify all documents which relate to the design or implementation of interdictive measures at Seabrook.

RESPONSE

There are no documents which specifically relate to interdiction at Seabrook. Documents about interdiction in general are:

1. NUREG/CR-1596
2. NUREG-0440
3. V. Harris, "Accident Mitigation: Slurry Wall Barriers", Argonne National Laboratory, Division of Environmental Impact Studies, May 1982
4. V. Harris, "Accident Mitigation: Alternative Methods for Isolating Contaminated Groundwater", Argonne National Laboratory, Division of Environmental Impact Studies, Sept 1982

SAPL Supp. 3.12

Identify any independent contractor or consultant or Staff member who has indicated disagreement with the Staff position that the liquid pathway need not be studied further and indicate the reasons upon which that person based his/her disagreement.

RESPONSE

The Staff does not take such a position and has actively supported research into mitigation methods for liquid pathways. See references 3 and 4 in SAPL Supp. 3.11.

SAPL Supp. 3.13

Identify the Staff persons who, in relation to Seabrook, have been assigned the responsibility of performing the analysis of transients in accidents which postulates multiple failures including operator errors.

RESPONSE

Millard Wohl, a Nuclear Engineer who is currently the technical reviewer for the Accident Evaluation Branch.

SAPL Supp. 3.14

Identify all documents prepared by the Staff which relate to an analysis of transients in accidents which postulate multiple failures including operating errors. Please produce such documents pursuant to 10 C.F.R. 2.74.

RESPONSE

The category of requested documents which encompasses "all documents prepared by the Staff" presumably not only for Seabrook but for any plant "which relate to an analysis of transients in accidents which postulate multiple failures" is much too broad to be reasonable. A literal response to such a document request may well include virtually all documents, not privileged, prepared by the reviewing branch(es).

The governing Commission precedent has been clearly set forth in Pennsylvania Power and Light Company (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC 317, 323. (footnote omitted):

Discovery against the Staff is on a different footing. With limited exceptions, Commission regulations make staff documents that are relevant to licensing proceedings routinely available in the NRC Public Document Room. 10 CFR 2.790(a). The contemplation is that these "should reasonably disclose the basis for the Staff's position," thereby reducing any need for formal discovery. Reflective of that policy, the Rules of Practice limit documentary discovery against the Staff to items not reasonably obtainable from other sources, 10 CFR 2.744; require a showing of "exceptional circumstances" to depose Staff personnel, 10 CFR 2.720(h) and 2.740a(j); and allow interrogatories addressed to the Staff only "where the information is necessary to a proper decision in the case and not obtainable elsewhere." See 10 CFR 2.720(h)(2)(ii). In addition, the licensing board's advance permission is needed to depose Staff members or to require the Staff to answer written interrogatories. Ibid.

Moreover, the Commission has stated, regarding discovery requests directed towards the Staff, that "It shall be an adequate response to any discovery request to state that the information or document requested is available in the public compilation and to provide sufficient information to locate the document or information." Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), CLI-79-8, 10 NRC 141, 147-148 (1979). Thus, the Staff objects to this document request (SAPL Supp. 3.14) on the grounds: (1) that the information sought appears to be available in the Public Docket Room; (2) that New Hampshire has failed to demonstrate that the requested documents are not available from other sources in violation of 10 C.F.R. § 2.744 and 2.720; (3) that New Hampshire has failed to demonstrate that the requested documents are necessary to a proper decision in this proceeding in violation of 10 C.F.R. § 2.720(h)(2)(ii) and (4) that the document request is unreasonably vague, burdensome, and irrelevant in requesting such broad a category of documents necessitating a massive search. The Staff suggests that New Hampshire refine and delimit the scope of this request by first examining relevant documents in the public document room as is required by the Commission's rules of practice and decisional authority and/or seriously refining and delimiting the document request.

SAPL Supp. 3.15

Identify all communications between PSNH and the NRC Staff which relate to the analysis of Class 9 accidents including a release of radioactivity to the groundwater.

RESPONSE

RAI (Request for additional information) 240.25 requested that the Applicant provide a liquid pathway analysis at the Seabrook site. The Applicant responded to this request by letter on January 4, 1982, from John DeVincentis to Louis Wheeler. The Staff, however, rejected the Applicant's analysis in favor of its own more conservative analysis, which is presented in the final Environmental Statement. The Staff has also held several informal discussions by telephone and discussed the subject with the Applicant during the site visit on December 1, 1981.

SAPL Supp. 3.16

Explain the extent to which the Staff has considered the economic impact on the Seacoast area in particular and on the State generally in the event of a significant release of radioactivity to groundwater following a serious accident.

RESPONSE

The Staff did not expressly consider such impacts relative to a liquid pathway release at the site. However, the economic impacts of Class 9 accidents are considered for non-liquid pathway releases.

SAPL Supp. 3.17

Identify the Staff members responsible for considering whether additional features or other actions should be added to Seabrook which would prevent or mitigate the consequences of serious accidents.

SAPL Supp. 3.18

Identify all documents which have been developed by the Staff for the purpose of studying, reviewing, or critiquing the question of whether

additional features or other accidents should be added to Seabrook which would prevent or mitigate the consequences of serious accidents.

SAPL Supp. 3.19

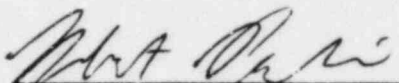
Explain what additional features which would prevent or mitigate the consequences of serious accidents have been considered by the Staff and explain the reasons that such features were not required by the Staff to be included in the present design.

RESPONSE

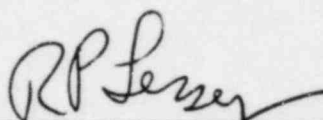
The Staff objects to these interrogatories as being vague and ambiguous. All of these interrogatories turn on, or include the phrase "additional features or other actions" to "prevent or mitigate the consequences of serious accidents." In order to attempt to respond, the Staff needs to be advised of what is meant by "serious accidents," what is meant by "other actions," and whether the phrase "additional features" refers, for example, to planning, analytical, or physical features of the Seabrook facility. If it is the latter, the Staff will need specific examples of equipment or systems. In addition to objecting on the grounds of vagueness, the Staff also objects on the basis of 10 C.F.R. (h)(2)(ii) which requires, inter alia, a prior showing that the interrogatories "are necessary to a proper decision in the proceeding." Finally, the Staff objects to these interrogatories on the ground that they have not been

shown to be relevant to matters in controversy as identified by the presiding officer, i.e., admitted contentions. See 10 C.F.R. § 2.740(b)(1).

Attorneys Filing Objection,

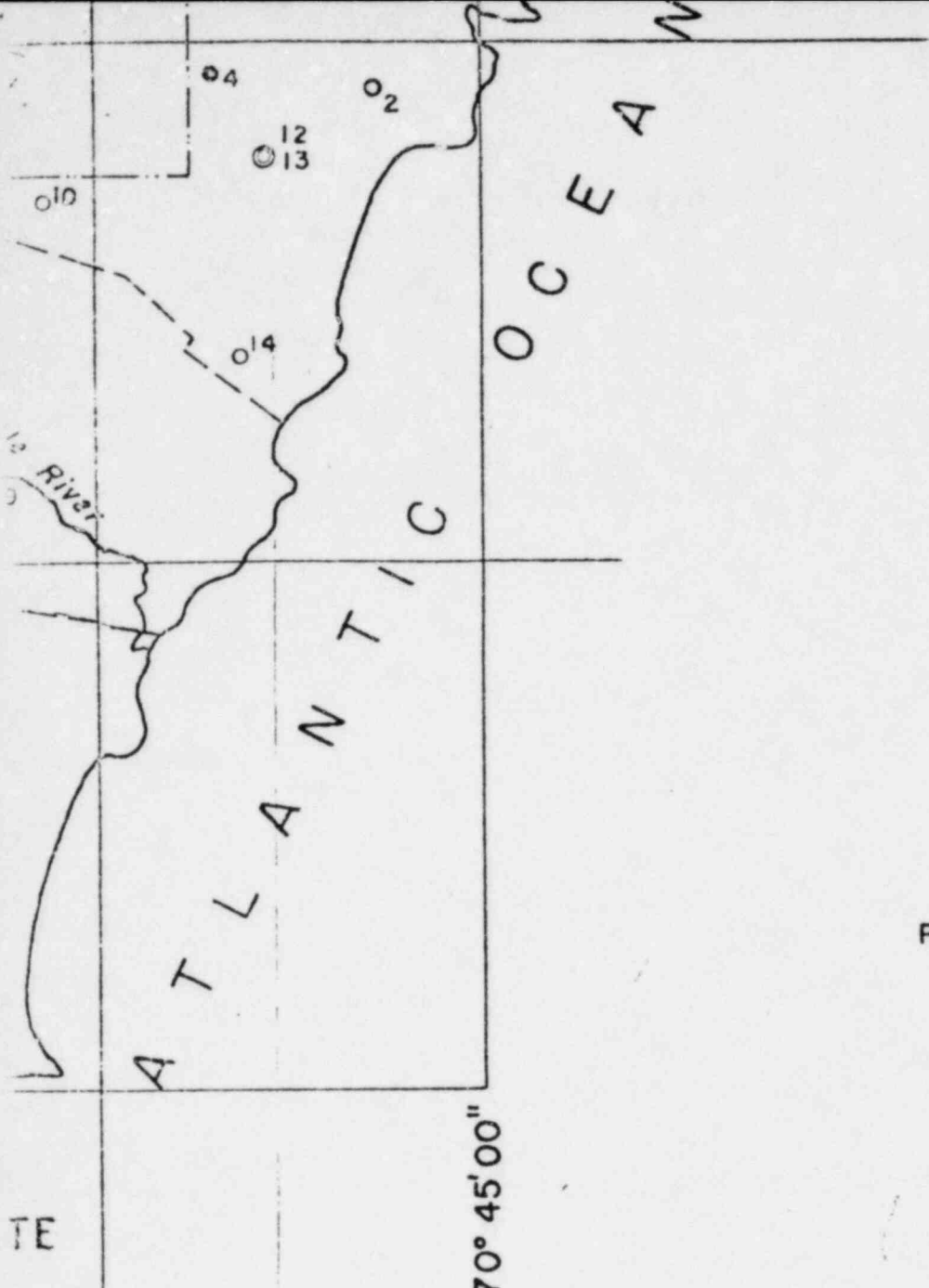


Robert G. Perlis
Counsel for NRC Staff



Roy P. Lessy
Deputy Assistant Chief
Hearing Counsel

Dated at Bethesda, Maryland
this 30th day of November, 1982



- Well
- Bedrock well
- ◎ Public supply well
- ⊖ Test hole
- ⊙ Spring

TOWN	LOCATION OF PUBLIC SUPPLY WELLS
HAMPTON	3, 7
WENSINGTON	7
SEABROOK	1, 2, 21, 26, 27, 28
SALISBURY	5, 6, 7

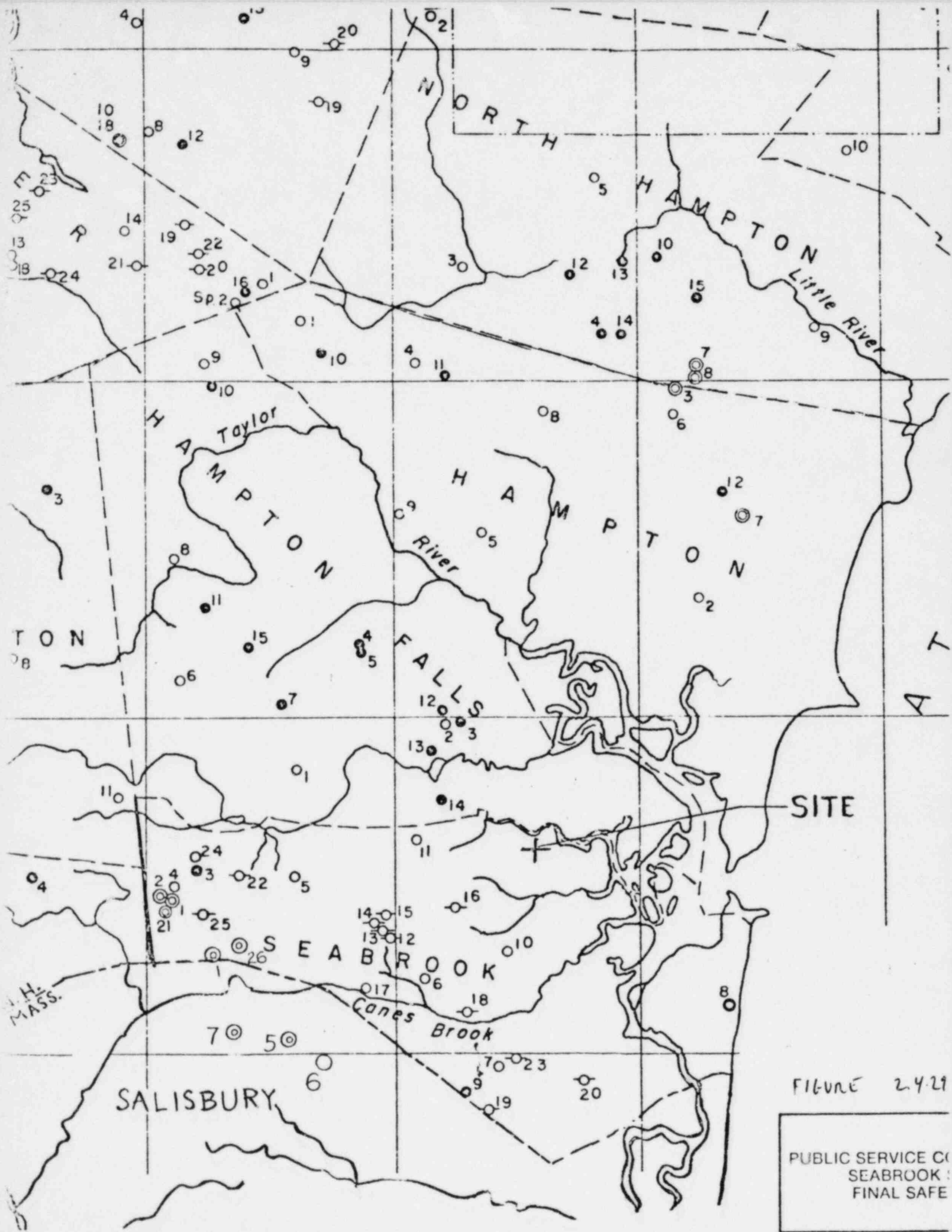


FIGURE 2.4.29

PUBLIC SERVICE CO
SEABROOK:
FINAL SAFE



FIGURE 2.4-29

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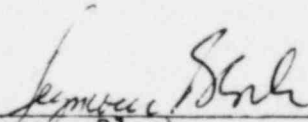
AFFIDAVIT OF SEYMOUR BLOCK

I, Seymour Block, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Senior Health Physicist in the Radiological Assessment Branch, Division of Systems Integration, Office of Nuclear Reactor Regulation (NRR).

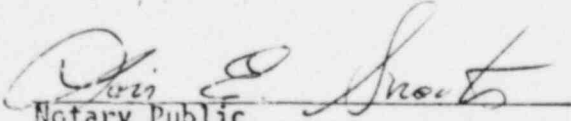
2. I am duly authorized to respond to the State of New Hampshire Interrogatories NH 9.2, NH 9.4, NH 9.5.

I hereby certify that the statements and opinions given are true and correct to the best of my personal knowledge and belief.



Seymour Block

Subscribed and sworn to before me
this 30TH day of NOVEMBER 1982.



Notary Public

My commission expires: 7-1-86

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(Seabrook Station, Units 1 and 2)

}
} Docket Nos. 50-443 OL
} 50-444 OL
}

AFFIDAVIT OF RICHARD B. CODELL

I, Richard B. Codell, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Senior Hydraulic Engineer in the Hydrologic and Geotechnical Engineering Branch, Division of Engineering, Office of Nuclear Reactor Regulation (NRR).

2. I am duly authorized to respond to the State of New Hampshire Interrogatories SAPL 3.1 through SAPL 3.12, SAPL 3.15, and SAPL 3.16.

I hereby certify that the statements and opinions given are true and correct to the best of my personal knowledge and belief.

Richard B Codell
Richard B. Codell

Subscribed and sworn to before me
this 30th day of November 1982.

[Signature]
Notary Public

My commission expires: 7-1-86

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AFFIDAVIT OF LOUIS L. WHEELER

I, Louis L. Wheeler, being duly sworn, state as follows:


1. I am employed by the U.S. Nuclear Regulatory Commission as a Project Manager in the Division of Licensing, Office of Nuclear Reactor Regulation (NRR), with responsibility for the review of the Seabrook OL Application.

2. I am duly authorized to respond to the State of New Hampshire General Interrogatories and Interrogatory SAPL 3.13.

I hereby certify that the statements and opinions given are true and correct to the best of my personal knowledge and belief.


Louis L. Wheeler

Subscribed and sworn to before me
this 30th day of NOVEMBER 1982.


Notary Public

My commission expires: 7-1-86

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NEW HAMPSHIRE, et al.) 50-444 OL
(Seabrook Station, Units 1 and 2))

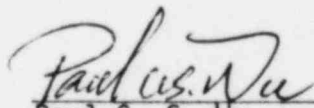
AFFIDAVIT OF PAUL C. S. WU

I, Paul C. S. Wu, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Chemical Engineer in the Chemical Engineering Branch, Chemical Technology Section, Division of Engineering, Office of Nuclear Reactor Regulation (NRR).

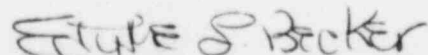
2. I am duly authorized to respond to the State of New Hampshire Interrogatory NH 9.3.

I hereby certify that the statements and opinions given are true and correct to the best of my personal knowledge and belief.



Paul C. S. Wu

Subscribed and sworn to before me
this 30th day of November 1982.



Notary Public

My commission expires: 7/1/86

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
PUBLIC SERVICE COMPANY OF)
NEW HAMPSHIRE, et al.)
(Seabrook Station, Units 1 and 2))

Docket Nos. 50-443 OL
50-444 OL

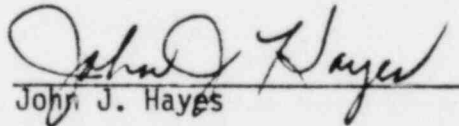
AFFIDAVIT OF JOHN J. HAYES

I, John J. Hayes, being duly sworn, state as follows:

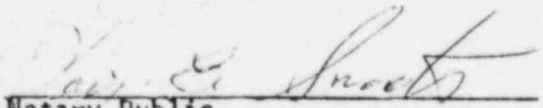
1. I am employed by the U.S. Nuclear Regulatory Commission as a Nuclear Engineer in the Meteorology and Effluent Treatment Branch, Division of Systems Integration, Office of Nuclear Reactor Regulation (NRR).

2. I am duly authorized to respond to State of New Hampshire Interrogatory NH 9.1.

I hereby certify that the statements and opinions given are true and correct to the best of my personal knowledge and belief.


John J. Hayes

Subscribed and sworn to before me
this 30th day of Nov. 1982.


Notary Public

My commission expires: 7-1-86