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**RELATED CORRESPONDENCE**

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
before the  
ATOMIC SAFETY AND LICENSING BOARD**

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In the Matter of	)	
	)	
VERMONT YANKEE NUCLEAR	)	Docket No. 50-271-OLA-4
POWER CORPORATION	)	(Operating License
	)	Extension)
(Vermont Yankee Nuclear	)	
Power Station)	)	

**RESPONSES TO INTERROGATORIES BY STATE OF VERMONT  
TO THE  
VERMONT YANKEE NUCLEAR POWER CORPORATION  
(Set No. 2)**

To the extent that a given interrogatory appears to seek a legal conclusion, it is objected to, and to the extent that such interrogatories are answered, it is not to be considered a legal answer.

Q.1 Please define what SOV contends is included within the scope of the term "maintenance program" as used by it in its Contention 7.

A.1 Vermont uses the term "maintenance program" to include any policy, procedure, guideline, method, practice or standard which accomplishes, controls, or relates to "maintenance" as it is defined in NRC Policy Statement on Maintenance of Nuclear Power Plants (53 FR 9430).

The definition in the Policy Statement is consistent with the definition in NUREG-1212, Volume 1, "Status of

Maintenance in the U.S. Nuclear Power Industry, 1985,"

Section 1.1.

Q.2 Does SOV contend that NRC imposes any requirements upon the content, substance or form of the VYNPS "maintenance program" as that term is used by SOV in its Contention 7? If so, please identify, by citation to or identification of a document, each and every such requirement.

A.2 Because of the reliance in the application on the maintenance program for protection of public health and safety in the extended period, the basic requirement is the reasonable assurance requirement of 10 CFR 50.57 (a)(3). In addition the following contain NRC requirements for maintenance:

- a. 10 CFR 50.55(a)(g)
- b. 10 CFR 50.49
- c. 10 CFR 50.59
- d. Regulatory Guide 1.33 (QA Program Operations)
- e. Regulatory Guide 1.58 (ANSI 45.2.6)
- f. Regulatory Guide 1.88 (ANSI 45.2.9)
- g. Regulatory Guide 1.129 (IEEE STD 450)
- h. 10 CFR 50.34 (Paragraphs 5 and 6)

Also, because of the NRC's concern regarding nuclear plant maintenance, and its policy,

"In view of the progress made to date, as well as the industry's express commitment to improve maintenance, the Commission has decided to hold rulemaking in abeyance for an 18 month period to monitor industry initiatives and progress (54 FR 50611),"



and because of the timing and content of this proceeding, the "industry initiatives" become NRC requirements for the licensee's maintenance program.

In addition, we recognize the process of making voluntary commitments as a source of NRC maintenance requirements for the licensee's program. Through pressure from the NRC, licensees often voluntarily commit to changes rather than incur regulatory forced shutdowns or forced backfits. Such an example is the Uninterruptible Power Supply system at Vermont Yankee. The licensee has committed to replace this system in the 1990 refuelling outage because of poor reliability of the present system. This is an example of an NRC maintenance program requirement.

Q.3 Please define what SOV contends is included within the scope of the term "surveillance program" as used by it in its Contention 7.

A.3 The term "surveillance" is used in the broadest sense as expressed in applicable NRC and industry sources, including the application. We note that 10 CFR 50.36 (c)(3) defines "surveillance requirements" as requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within the safety limits, and the limiting conditions of operation will be met. Draft Regulatory Guide DG-1001

defines "maintenance surveillance" as consisting of collecting data at specific frequency that supports the predictive and corrective maintenance programs.

A "surveillance program" includes any policy, procedure, guideline, method, practice or standard which accomplishes, controls, or relates to surveillance. The surveillance program is one aspect of the maintenance program (refer to the response to question 1).

Q.4 Does SOV contend that NRC imposes any requirements upon the content, substance or form of the VYNPS "surveillance program" as that term is used by SOV in its Contention 7? If so, please identify, by citation to or identification of a document, each and every such requirement.

A.4 The following are surveillance program requirements established by NRC:

- a. NRC requires surveillance as indicated in the technical specifications.
- b. NRC requires surveillance as provided in the inservice testing and inservice inspection program.
- c. NRC requires special surveillance when circumstances dictate. For example, NRC intends to require special surveillance requirements on flawed feedwater check valves if licensee does not replace them during the next refueling outage.

Q.5 Does SOV contend that NRC imposes any requirements upon the content, substance or form of the VYNPS "program to maintain and/or determine and replace all components found to have aged to a point where they no longer meet



the safety standards applicable to this plant" as that term is used by SOV in its Contention 7? If so, please identify, by citation to or identification of a document, each and every such requirement.

A.5 Vermont contends that the VYNPS maintenance program does not meet the NRC requirement of 10 CFR 50.57(a)(3), that reasonable assurance has not been demonstrated that the maintenance program will function to the degree relied upon in the application, to maintain the plant within its current licensing basis in the extended period. To the extent that this question requests a legal opinion of what this reasonable assurance is, or should be, Vermont objects, since this will be determined by the Board at the end of the hearing.

Notwithstanding and without waiving our objection, Vermont states that we are not aware of each and every requested requirement. However, Vermont is aware that NRC, as its policy, expects industry initiatives to improve maintenance (54 FR 50611), and as stated in response to question 2, these initiatives become requirements in this proceeding. Some of these industry initiatives are described in an NRC Memorandum of December 28, 1989 (Roe to Murley), "Meeting with NUMARC on Maintenance." Also, Draft Regulatory Guide DG-1001 sets requirements applicable to the licensee's program.

Q.6 Please list and describe in as much detail as is available to SOV each of the changes to the VYNPC maintenance program, surveillance program, or other

program that, if made to the programs, would render SOV's Contention 7 satisfied.

A.6 Vermont objects to this question to the extent that it requests a legal opinion of reasonable assurance that the maintenance and surveillance programs will provide adequate protection. This matter will be determined at the end of the hearing by the Board. Notwithstanding and without waiving the objection, Vermont states that it would not be responsible at this stage to identify all changes which would render Contention VII satisfied (if this were possible) without fully reviewing with our technical consultant all the information we seek in discovery. Nevertheless, program inadequacies are identified in response to question 44. Program modifications to correct these inadequacies are necessary. For example, the program needs to be proceduralized rather than relying on individual worker skills. Vendor manual updates need to be controlled and used. Post maintenance test requirements need to be included in procedures. Adequate staffing resources need to be provided to accomplish review of completed maintenance requests. The program needs to be computerized to track and account for each component in the plant and to track surveillance activities so that surveillance and maintenance activities are not missed. Management needs to take an active role in trend evaluation. The trend evaluation process needs to be



formalized to establish criteria for action with degrading trends. Industry initiatives, such as reliability-centered maintenance, which shift the emphasis from corrective to preventive maintenance, need to be considered. Performance monitors for maintenance need to be established, along with criteria for actions based on such monitors.

Finally, once these, and other changes identified as a result of our discovery, are made, they must be monitored, as stated in response to question 100.

- Q.7 Please define the failure mechanisms that SOV contends are within the scope of the phrase "found to have aged to a point where they no longer meet the safety standards applicable to this plant" as this phrase is used by it in its Contention 7.
- A.7 Refer to the response to licensee's set no. 1, question 1. Vermont, and probably the industry, is unaware of all the applicable and operable failure mechanisms which affect the structures, systems and components, and which will cause degradation and failures in the extended period. However, we have provided as complete a list as possible at this time in the sub-parts to Contention VI.
- Q.8 Please identify the components or classes of components that SOV contends are potentially subject to each of the failure mechanisms that SOV contends is within the scope of the phrase "found to have aged to a point where they no longer meet the safety standards applicable to this plant" as phrase is used by it in its Contention 7.

- A.8            Again, with the qualification noted in the prior response that many age failure mechanisms are not understood, we state that the sub-parts of Contention VI identify classes of components that are subject to the various failure mechanisms.
- Q.9            Please define the measure of "sufficiently effective" as the term is used by SOV in its Contention 7.
- A.9            To the extent that this question requests a legal definition for "sufficiently effective", Vermont objects. This is a matter which will be determined by the Board at the end of the hearing. Notwithstanding and without waiving the objection, we state that "effective" refers to the implementation of the maintenance program. Facts 3, 6, 7, 8, 9, 11 and 12, identified in response to question 44, relate to aspects of the maintenance program which are not "sufficiently effective."
- Q.10           Please identify or describe all of the bases for the definition supplied in response to the foregoing interrogatory.
- A.10           The ultimate basis for the measure of "sufficiently effective" is the decision of the Board.
- Q.11           Please define the measure of "sufficiently... comprehensive" as the term is used by SOV in its Contention 7.
- A.11           To the extent that this question requests a legal definition for "sufficiently ... comprehensive", Vermont



objects. This is a matter which will be determined by the Board at the end of the hearing. Notwithstanding and without waiving the objection, we offer that "comprehensive" refers to the completeness of the program. Facts 1, 2, 3, 4, 5, 10, and 13 identified in response 44 relate to aspects of the program which are not sufficiently comprehensive.

Q.12 Please identify or describe all of the bases for the definition supplied in response to the foregoing interrogatory.

A.12 The ultimate basis for the measure of "sufficiently ... comprehensive" is the decision of the Board.

Q.13 Does SOV contend that the VYNPS maintenance program is not in compliance with all applicable NRC requirement?

A.13 Yes.

Q.14 If your response to the foregoing interrogatory is anything other than an unqualified negative, please identify, by citation to or identification of a document, each and every such requirement with which SOV contends the VYNPS maintenance program is not in compliance, and, for each such requirement, each and every reason why SOV contends that the VYNPS maintenance program is not in compliance with it.

A.14 Vermont contends that the VYNPS maintenance program does not meet the NRC requirement of 10 CFR 50.57(a)(3), that reasonable assurance has not been demonstrated that the maintenance program will function to the degree and in the manner relied upon in the application to maintain the plant within its current licensing basis in the extended period. To the extent that this question

requests a legal opinion of what constitutes this reasonable assurance, Vermont objects, since this will be determined by the Board at the end of the hearing.

Notwithstanding and without waiving the objection, Vermont states that facts indicating maintenance program aspects which do not demonstrate reasonable assurance, are provided in response to question 44.

Q.15 Does SOV contend that the VYNPS surveillance program is not in compliance with any applicable NRC requirement?

A.15 To the extent that the surveillance program is one aspect of the maintenance program which we contend does not meet NRC requirement(s) (refer to the responses to questions 13 and 14), we respond yes.

Q.16 If your response to the foregoing interrogatory is anything other than an unqualified negative, please identify, by citation to or identification of a document, each and every such requirement with which SOV contends the VYNPS surveillance program is not in compliance, and, for each such requirement, each and every reason why SOV contends that the VYNPS surveillance program is not in compliance with it.

A.16 Refer to the response to question 14. Fact 7, in response to question 44, specifically relates to surveillance.

Q.17 Please describe what SOV means by the phrase "no closure showing improvement" as used by it in sub-paragraph "b." of its Contention 7.

A.17 By "no closure showing improvement", we meant that at the time of the filing of the contention, the NRC



Maintenance Team had not reinspected and issued a followup inspection report indicating that corrective action had been taken for all of the listed weakness. In addition, as noted in response 18, once weaknesses are identified, two distinct meanings of "closure" come into being: closure by the NRC Maintenance Team, and closure by Vermont.

Q.18 Please describe the set of items, events or circumstances that would constitute "closure showing improvement" within the meaning of sub-paragraph "b." of Contention 7 such that, were any such item, event or circumstance to occur or exist, sub-paragraph "b." would no longer be true.

A.18 To the extent this question calls for a legal opinion of what would constitute reasonable assurance that the listed weaknesses were corrected, it is objected to, and is a matter which will be decided by the Board at the end of the hearing. Notwithstanding and without waiving the objection, Vermont states, that once weaknesses are identified, two distinct meanings of "closure" come into being. In the one sense, closure will occur when the NRC Maintenance Team reinspects, and issues an inspection report indicating the weaknesses have been corrected. However, once the weakness is identified, attention is focused on it. Vermont reviews the circumstances surrounding the weakness and independently determines the extent and nature of the

weakness and its solution. Closure by Vermont is, therefore, independently evaluated and determined.

Q.19 If the NRC Staff were to publish a document or make a finding to the effect that any item described by it in an Inspection Report ("IR") is now closed, would SOV acknowledge that such publication or finding constitutes "closure" as that term is used by SOV in sub-paragraph "b." of its Contention 7 of the item in respect of which the publication or finding were made?

A.19 Refer to the previous response.

Q.20 If your response to the foregoing interrogatory is anything other than an unqualified affirmative, please describe all of the reasons why such a publication or finding would not constitute "closure."

A.20 Refer to the response to question 18.

Q.21 Please identify each of the issues adverted to in Contention 7, including sub-paragraphs "b.", "c.", "d.", "e.", "g.", "h.(1)", "h.(2)", "j.", "k.", "m.", and "n." thereof and sub-paragraphs "l.", "n." and "o." of Contention 8, that SOV acknowledges have been "closed" as of the date on which your answers to these interrogatories are filed.

A.21 Vermont is not aware, and does not consider, that any of the items have been "closed" as of the date of these answers.

Q.22 Does SOV contend that all vendor-recommended preventative maintenance must be performed in order for the VYNPS maintenance program to be adequate to prevent aging failures? Please give all the reasons for your answer and, if your answer is qualified, all of the qualifications applicable to VYNPS and the reasons for them.

A.22 No. It is possible to adjust a vendor recommendation through technical analysis, testing,



and/or concurrence by the vendor. The types of analyses and testing required vary according to the type of component, the environment, the operating mode, the current licensing basis, and the specific vendor-recommended preventive maintenance item.

Q.23 Please describe exactly how SOV contends that post maintenance testing must be incorporated into the maintenance procedures in order for the procedures to be adequate.

A.23 To the extent that this question calls for a legal definition of what would constitute reasonable assurance that the lack of post maintenance testing requirements in maintenance procedures was corrected, it is objected to, and is a matter which will be decided by the Board at the end of the hearing. Notwithstanding and without waiving this objection, Vermont states that proceduralization of these requirements is necessary to assure consistent application of post maintenance testing, rather than depending of the random skills of the individual preparer or reviewer in the maintenance or operations department. Vermont notes, from section 4.7 of Draft Regulatory Guide DG-1001, that:

"The work control process should be based on procedures that provide for ... post maintenance testing, return-to-service procedures..."

Such procedures should provide systematic guidance to the craftsman, should be technically correct, complete and up-to-date; and should be presented using sound human factors principles.

Q.24 If SOV contends that post maintenance testing must be proceduralized in order for the maintenance program to be adequate, please describe the steps that SOV contends must be included in the procedures for insuring that post maintenance testing is comprehensive enough for a given maintenance task.

A.24 To the extent that "comprehensive enough" in this question calls for a legal definition of what would constitute reasonable assurance that the lack of post maintenance testing requirements in maintenance procedures was corrected, it is objected to, and is a matter which will be decided by the board at the end of the hearing. Notwithstanding and without waiving this objection, Vermont states that we are unable to identify specific procedural steps without access to the maintenance procedures, which we have not been granted.

Q.25 Please describe what SOV means by its assertion that "PRA concept not incorporated into Vermont Yankee maintenance program" at page 43 of its contentions.

A.25 By the use of this statement, "PRA concept not incorporated into Vermont Yankee maintenance program," which is quoted from IR 89-80, Vermont means that the PRA concepts of reliability-centered maintenance, along with other industry initiatives, should be employed to provide



assurance in the areas identified by Facts 2 and 13 in response to question 44.

Q.26 Please describe in detail exactly how SOV contends that "PRA concept" should be "incorporated" into the VYNPS maintenance program.

A.26 To the extent that this question calls for a legal definition of what would constitute reasonable assurance that the lack of incorporation of PRA concepts into the maintenance program was corrected, it is objected to, and is a matter which will be decided by the Board at the end of the hearing. Notwithstanding and without waiving this objection, Vermont states that practices which contribute to an effective maintenance program are proactive as opposed to reactive, that preventive maintenance is emphasized over corrective maintenance. Vermont Yankee's maintenance program has been characterized as a program with weak preventive maintenance, needing a more proactive posture, and with maintenance activities heavily oriented to corrective maintenance. In a proactive program, PRA concepts are used to provide a systematic consideration of system functions and the ways in which functions can fail, leading to the identification of applicable and effective preventive maintenance tasks with consideration of safety and economics.

Q.27 Please state your basis for, and each authority on which you rely in support of, your response to the foregoing interrogatory.

A.27 Characterization of Vermont Yankee's maintenance program is drawn from the safety system functional inspection (SSFI) conclusions presented at the NRC Region I meeting of January 26, 1989. PRA concepts are employed by reliability-centered maintenance techniques, which are discussed in EPRI NP-6152, Volume 1, January 1989, "Demonstration of Reliability-Centered Maintenance, Volume 1: Project Description."

Q.28 Please identify each and every benefit that SOV contends would result from the "incorporation" of "PRA concept" into the VYNPS maintenance program, and please state each and every reason why SOV contends that such benefit would result.

A.28 EPRI NP-6152 identifies "realignment of maintenance resources to improve overall plant availability and safety," and "producing a more favorable preventive maintenance to corrective maintenance ratio," as objectives of reliability-centered maintenance.

Q.29 Does SOV contend that its asserted non-incorporation of "PRA concept" renders the VYNPS maintenance program, or the operation of VYNPS, in any respect not in compliance with any regulatory requirement of the Commission?

A.29 Vermont objects to this question to the extent that it asks for a legal opinion of whether non-incorporation of "PRA concept" defeats a demonstration of reasonable assurance. This will be decided by the Board as a result of the hearing. Notwithstanding and without waiving this



objection, Vermont states that in response to question 44 we have identified facts relating to a failure to demonstrate reasonable assurance. Facts 2 and 13 relate to non-incorporation of "PRA concepts." Incorporation of "PRA concepts" would assist toward demonstrating reasonable assurance that the maintenance program would function as claimed in the application.

Q.30 If your answer to Interrogatory No. 29 is anything other than an unqualified negative, please state each and every regulatory requirement of the Commission with which SOV contends VYNPS is not in compliance on account of the non-incorporation of "PRA concept" into the VYNPS maintenance program.

A.30 Refer to the previous response.

Q.31 What significance, if any, to the question of whether the "incorporation" of "PRA concept" into a maintenance program is necessary to the permissibility of plant operation does SOV attribute to the fact that the Commission has declined to impose such a requirement through the promulgation of a regulation? Please state in detail the bases for your response.

A.31 Vermont objects to this question on the basis that it asks for a legal opinion, and that the Commission's decision not to promulgate a regulation, assuming the activity is not prohibited, is not a matter of substance in this proceeding.

Q.32 How, if at all, does SOV contend that the "incorporation" of "PRA concept" into the VYNPS maintenance program would modify the safety margins established by the existing VYNPS Technical Specifications?

A.32           Refer to the response to question 28. "Improving overall plant availability" means decreasing the amount of time the plant will be in a "limiting condition for operation." This improves the safety of the plant and is consistent with the concern of Three Mile Island item II.K.3.17 (NUREG-0737) regarding cumulative outage time requirements in the technical specifications.

Q.33           Please define what is meant by SOV by the term "qualified replacement personnel" as it is used by SOV in sub-paragraph "c" of its Contention 7.

A.33           By "qualified replacement personnel," we mean maintenance personnel with a level of skill, stability, knowledge of the plant, long-term experience, and expertise, necessary to perform maintenance, as defined in response to question 1.

Q.34           Please define what is meant by SOV by the term "clearly established management control" as it is used by SOV in sub-paragraph "c" of its Contention 7.

A.34           The quoting the statement, "clearly established management control," we mean policies and procedures controlling maintenance, which are approved by management, and which provide clear and detailed information so that the individual worker skills are not relied upon so heavily. Refer to the response to Set No. 1, question 8, for further elaboration of Vermont's meaning for the phrase.



Q.35 Please identify the author (or authors) of the work dated October 9, 1989, to which SOV refers in sub-paragraph "c." of its Contention 7.

A.35 Margaret L. Ryan, Chief Editor, Nucleonics Week, Suite 1200, 1120 Vermont Ave. N.W., Washington, D.C, 202-463-1651.

Q.36 Please describe the qualifications of the author (or authors) of the work, dated October 9, 1989, to which SOV refers in sub-paragraph "c." of its Contention 7.

A.36 Ms. Ryan is a journalist.

Q.37 Please describe the data, investigations and analytical or investigative processes upon which the conclusions of the author (or authors) of the work dated October 9, 1989, to which SOV refers in sub-paragraph "c." of its Contention 7 were based.

A.37 Vermont objects to this question as requesting information which is outside the scope of what can by or should be known to Vermont. Notwithstanding and without waiving this objection, Vermont states that the work was partially based on the references identified in response to Set No. 1, question 8.

Q.38 Has SOV taken any step to verify independently any of the opinions or conclusions of the author (or authors) of the work dated October 9, 1989, to which SOV refers in sub-paragraph "c." of its Contention 7?

A.38 Yes.

Q.39 Does SOV contend that a maintenance program "based on the stability of maintenance staff, their skill in their professions, and their knowledge of plant system characteristics that come with long-term experience" will always be incapable of achieving the purposes of a maintenance program?

A.39

No.

Q.40

If your answer to the foregoing interrogatory is anything other than an unqualified affirmative, please state the conditions under which SOV acknowledges that a maintenance program "based on the stability of maintenance staff, their skill in their professions, and their knowledge of plant system characteristics that come with long-term experience" can be capable of achieving the purposes of a maintenance program?

A.40

The above question is similar to Set No. 1, question 9, and we respond on a similar basis. We respond, no, based on the word "always" in the question. Within the time continuum, a maintenance program "based on the stability of maintenance staff, their skill in their professions, and their knowledge of plant system characteristics that come with long-term experience" will at some time be capable of achieving the purposes of a maintenance program. For example, the NRC Maintenance Team believes these attributes of the present maintenance program compensate for many weaknesses. However, refer to our response to Set No. 1, question 4, for our position regarding the NRC Maintenance Team conclusions.

Q.41

Does SOV agree without qualification with the following statement:

"The standard for the quality of maintenance work at VYNPC is high and this standard is reflected in a relatively low rework rate for maintenance and repairs on plant systems."

If your answer is anything other than an unqualified affirmative, then please:



- a. State each and every qualification you have with respect to the quoted assertion.
- b. State each and every fact on which your qualification is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each qualification, either provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), or any person on whose expertise SOV relies for the qualification or state that SOV does not rely upon the expertise of any person for the qualification.

If SOV agrees with the substance of the foregoing assessment, then please:

- e. State each and every reason why SOV believes that the situation described therein has come to exist.
- f. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the existing VYNPS license term.
- g. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the extended VYNPS license term.

A.41 Vermont recognizes this statement as a finding of the NRC Maintenance Team, from page 8 of IR 89-80. We state facts and evidence in response to question 44 which

show that vendor manuals have not been controlled, surveillances and maintenance activities have been missed, trend data showing degrading trends have not had management involvement and action, and maintenance errors have caused failures and safety system challenges. These facts do not lead Vermont to the conclusion that the standard for quality of maintenance work is high. Refer to the response to question 44 for facts, evidence and expertise relied upon.

Q.42 Does SOV agree without qualification with the following statement:

"The overall Vermont Yankee management support at the corporate and plant levels for maintenance is strong and effective."

If your answer is anything other than an unqualified affirmative, then please:

- a. State each and every qualification you have with respect to the quoted assertion.
- b. State each and every fact on which your qualification is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each qualification, either provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the qualification or state that SOV does not rely upon the expertise of any person for the qualification.



If SOV agrees with the substance of the foregoing assessment, then please:

- e. State each and every reason why SOV believes that the situation described therein has come to exist.
- f. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the existing VYNPS license term.
- g. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the extended VYNPS license term.

A.42 Vermont recognizes this statement as a finding of the NRC Maintenance Team, from page 10 of IR 89-80. We state facts and evidence in response to question 44 which show that management has not established clear policies and procedures but rather relies on individual worker skills, management has not periodically reviewed overall program requirements, management is reluctant to incorporate industry changes, management has not established effective policy to control vendor manuals, management has allowed surveillances and maintenance activities to be skipped, management has not been actively involved in managing trend data, management has not allocated sufficient resources to allow completed maintenance request reviews, and management has

established a program which has relied more upon corrective maintenance rather than preventive maintenance. These facts do not lead Vermont to the conclusion that management support is strong and effective. Refer to the response to question 44 for facts, evidence and expertise relied upon.

Q.43 Does SOV agree without qualification with the following statement"

"VYNPS's informal management oversight and feedback system works well to assure safe and reliable plant operations."

If your answer is anything other than an unqualified affirmative, then please:

- a. State each and every qualification you have with respect to the quoted assertion.
- b. State each and every fact on which your qualification is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each qualification, either provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the qualification or state that SOV does not rely upon the expertise of any person for the qualification.

If SOV agrees with the substance of the foregoing assessment, then please:



- e. State each and every reason why SOV believes that the situation described therein has come to exist.
- f. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the existing VYNPS license term.
- g. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the extended VYNPS license term.

A.43 Vermont recognizes this statement as a finding of the NRC Maintenance Team, from page 10 of IR 89-80. We state facts and evidence in response to question 44 which show that equipment information showing degrading trends has not had management involvement and the equipment has been allowed to continue to degrade, degraded components have not been detected for long periods of time, maintenance errors have caused equipment failures and safety system challenges, equipment with reliability problems has not been promptly replaced, and aging equipment has failed prematurely before detection and replacement by the maintenance program. These facts do not lead Vermont to the conclusion that informal management oversight and feedback work well to assure safe and reliable plant operation. Refer to the response

to question 44 for facts, evidence and expertise relied upon.

Q.44 Does SOV agree without qualification with the following statement"

"VYNPC has implemented a maintenance program adequate to provide reasonable assurance that VYNPC can and will be operated without endangering the health and safety of the public."

If your answer is anything other than an unqualified affirmative, then please:

- a. State each and every qualification you have with respect to the quoted assertion.
- b. State each and every fact on which your qualification is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each qualification, either provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the qualification or state that SOV does not rely upon the expertise of any person for the qualification.

If SOV agrees with the substance of the foregoing assessment, then please:

- e. State each and every reason why SOV believes that the situation described therein has come to exist.
- f. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not



be expected to continue through the balance of the existing VYNPS license term.

- g. State each and every reason why, assuming the rejection of this contention, the SOV contends (if it does) that the same condition might not be expected to continue through the balance of the extended VYNPS license term.

A.44 No. Rather than agree with this statement, Vermont asserts Contention VII. Vermont has not been granted access to much of licensee's maintenance information, and, therefore, feels it is not able to identify each and every fact in disagreement with this statement until it fully reviews with its technical consultant material which is sought from discovery. Nevertheless, at this point we have determined the following facts, with their stated bases:

1. Implementation of the maintenance program has relied too much on worker skills rather than on consistent, well developed procedures. This is based on evidence from the report of the NRC Maintenance Team review (IR 89-80), "NRC Maintenance Team Report," and the summary of Westec Incorporated safety system functional inspection (SSFI) provided at the NRC Region I meeting of January 26, 1989, "Westec SSFI Summary."

2. The program has relied on program elements which were established at startup rather than on

requirements which have been comprehensively reviewed and updated to latest methods. There has been a reluctance to modify the maintenance program to meet industry standards. This is based on evidence from the NRC Maintenance Team Report, the Westec SSFI Summary, and LRS Incorporated, Reports #3-88 and #2-89.

3. Updated recommendations from vendors have not been controlled. This is based on evidence from the NRC Maintenance Team Report, the Westec SSFI Summary, and LRS Incorporated, Report #2-89.

4. The program has not included a requirement for management review and evaluation of trends. This is based on evidence from the NRC Maintenance Team Report.

5. The program has not included a long term plan to reverse degrading trends. This is based on evidence from the NRC Maintenance Team Report.

6. Sufficient engineering resources have not been allocated to complete the review of maintenance requests promptly. This is based on evidence from the NRC Maintenance Team Report, the Westec SSFI Summary, and LRS Report #3-88.

7. The maintenance program has not provided the control to avoid missed surveillances and preventive maintenance. This is based on evidence from the Westec SSFI Summary and LERS 88-03, 88-13, 88-14, 89-10, 89-23, and 89-24.



8. The maintenance program has not detected, or has left undetected for long periods, degraded components. This is based on evidence related to flaws in the feedwater check valves, incorrect wiring and post modification testing of the "squib" valves, and inoperability of service water check valves (LER 89-17).

9. The maintenance program has had maintenance errors or omissions which have caused failures, or has allowed actions which could have led to failures or the inability of components to perform their safety function. This is based on evidence from LER 89-14, LER 88-09, and the Westec SSFI Summary.

10. Control and evaluation of equipment has relied on worker skills rather than on a comprehensive and all-inclusive master equipment list. This is based on evidence from the NRC Maintenance Team Report and LRS Report #2-89.

11. The maintenance program has failed to identify reliability problems and/or obsolete equipment and take prompt action. This is based on evidence from the NRC Maintenance Team Report, LRS Report #3-88.

12. Instances have occurred in which the maintenance program has been unable to determine and replace aging components. This is based on evidence from the NRC Maintenance Team Report and LERs 89-07, 87-07, 85-07, 84-11, 89-03, 89-04, 89-19, and 89-21.

13. The maintenance program has been characterized by weak preventive maintenance, with activities heavily oriented to corrective maintenance. This is based on evidence from the Westec SSFI Summary.

The evidence described above is supplemented by the expertise of Mr. H. Shannon Phillips, whose qualifications have been provided in response to licensee's interrogatories, Set No. 1.

Q.45 Please define the term "age-related problem" as it is used by SOV in sub-paragraph "d." of Contention 7.

A.45 By "age-related problem," we mean any action or lack of action which causes or allows structures, systems and components to age to a point where they no longer meet the safety standards applicable to the plant.

Q.46 Please define the term "timely fashion" as it is used by SOV in sub-paragraph "d." of Contention 7.

A.46 The term, "timely fashion," is quoted from IR 89-80. To the extent this question asks what the author meant by this statement, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the term is that it is an aspect of a weakness in the Vermont Yankee program identified by a respectable author.

Q.47 Does SOV contend that there is an applicable NRC requirement specifying the maximum amount of time within which VYNPC must perform a "review [of] the



appropriateness and technical adequacy of completed maintenance activities?" If so, please identify, by citation to or identification of a document, each and every such requirement.

A.47 Vermont is unaware of each and every NRC requirement for maintenance programs. However, licensee claims, as a basis for the proposed life extension, that mechanical components are periodically inspected and maintained, and that age-related degradation will be identified and corrected, and component functional capability maintained. Yet, IR 89-80 reports weakness with regard to the review of maintenance activities for appropriateness and technical adequacy. Thus, the applicable requirement is the reasonable assurance requirement of 10 CFR 50.57(a)(3), which Vermont contends has not been demonstrated.

Q.48 Does SOV contend that, without regard to any applicable NRC requirement, there is a maximum amount of time within which VYNPC must perform a "review [of] the appropriateness and technical adequacy of completed maintenance activities?"

A.48 Yes.

Q.49 Unless your answer to the foregoing interrogatory is an unqualified negative, please identify what SOV contends is such a maximum amount of time and provide each and every reason why SOV contends that its time is the maximum allowable.

A.49 To the extent that this question requests the maximum time which would provide reasonable assurance that the procedural step was effective, it calls for a

legal conclusion and is objected to, and is a determination which will be made by the Board at the end of the hearing. Notwithstanding and without waiving this objection, we offer that we are not able, at this time, to supply quantitative values for these attributes which demonstrate any effective program. Measurable attributes upon which to judge the effectiveness of the procedural step, "review [of] the appropriateness and technical adequacy of completed maintenance activities," are backlog and maximum amount of time elapsed since completion of the activities. Additionally, an effective program will set priorities in the review of the appropriateness and technical adequacy of completed maintenance activities, such that activities involving critical structures, systems, and components will be given a higher priority for review than will non-critical structures, systems, and components. Vermont Yankee has not demonstrated that it has set such priorities for its process of reviewing completed maintenance activities.

Q.50 Please identify each and every instance of which SOV is aware in which, after the maintenance or repair of a component, the lack or untimeliness of a "review [of] the appropriateness and technical adequacy of completed maintenance activities" subsequently led to "a failure before correction."

A.50 Vermont is aware of the failure of the RCIC-21 valve as a result of maintenance activities (LER 89-14), and the maintenance related failure in the turbine pressure



control system (for example, LER 88-09). While it is possible that untimeliness of the "review [of] the appropriateness and technical adequacy of completed maintenance activities" played a part in these failures, Vermont has not been granted access to the review records of maintenance activities for these, or any other events, upon which to base a response to this question.

Q.51 For each instance identified in response to the foregoing interrogatory, please provide each and every reason why SOV believes (if it does) that the event in question was related to aging.

A.51 LER 89-14 states, "the root cause of this event is believed to be premature end of life [sic] failure." LER 88-09 states, "the suspected root cause of this event is the malfunction of the MHC control oil system...it is suspected that the MHC control oil system may have operated improperly due to dirt/grit lodging in the oil pressure control valves." The buildup of dirt and grit is an aging phenomenon.

Q.52 Please define the term "timely updating" as it is used by SOV in sub-paragraph "e." of Contention 7.

A.52 "Lack of timely updating" refers to, and is considered equivalent to, the NRC Maintenance Team statement of program weakness in that same sub-part e.

Q.53 Please describe the types of circumstances under which SOV understand VYNPC vendor manuals to be updated. For each such type of circumstance, please explain the mechanisms by which, as SOV contends is the case,

"information on aging equipment from the vendors will be critical to prevent failure of safety equipment."

A.53 Vermont has not been granted access to vendor manuals or vendor manual updates, nor has it reviewed this material. It is conceivable that a vendor manual update could incorporate safety-significant changes to recommendations as a result of operating experience, which, if not incorporated into the vendor manual, would be ignored by the maintenance program, and thus result in failure of the equipment.

Q.54 Please identify each and every instance of which SOV is aware in which an "update" of a vendor manual contained information not previously available that was "critical to prevent failure of safety equipment" in which the criticality was directly related to aging.

A.54 Vermont has not been granted access to vendor manuals and vendor manual updates, and has not completed its evaluations in this area. However, Vermont offers, for example, that 1) vendor or EPRI/NMAC information may have been available to prevent the burn out of the RCIC-21 motor (LER 89-14), and 2) that the safety evaluation may be incomplete in that it neither proved nor considered whether the valve would have performed its function in the accident environment, nor did it evaluate the consequences of being unable to close the RCIC-21 valve once it was opened. The RCIC-21 valve is safety equipment, and LER 89-14 identifies the root cause as premature end of life failure.



Q.55 Does SOV contend that there is an applicable NRC requirement specifying the nature and content of trend analysis programs applicable to the VYNPS maintenance program? If so, please identify, by citation to or identification of a document, each and every such requirement.

A.55 Vermont is unaware of each and every NRC requirement for maintenance programs. However, as stated in sub-part g. to Contention VII, licensee relies on trend analysis to indicate decreased equipment reliability and expected life in the extended period. Yet, IR 89-80 reports weakness in the evaluation of adverse trends. Thus, the applicable requirement is the reasonable assurance requirement of 10 CFR 50.57(a)(3), which Vermont contends has not been demonstrated.

Q.56 Please define the term "Reliability-Centered Maintenance (RCM) program" as used by SOV in sub-paragraph "h.(1)" (hereinafter used to refer to the first of the two sub-paragraphs labelled by SOV "h.") of its Contention 7.

A.56 A reliability-centered maintenance program is a systematic consideration of system functions and the ways in which functions can fail, leading to the identification of applicable and effective preventive maintenance tasks with consideration of safety and economics.

Q.57 Please define the term "life-extension" as used by SOV in sub-paragraph "h.(1)" of its Contention 7.

A.57 Vermont uses the word, extension, as used on page 1 of Attachment 1 to the application:

"This extension is within the range  
permissible ...."

In the context above, "extension," refers to "a change to the expiration date of the current license." Vermont equates "a change to the expiration date of the current license" to "plant life," or simply to "life."

Therefore, the proposed amendment constitutes "life extension." Vermont further uses the term "life extension" to refer to the extended service lives of the structures, systems and components of the plant which result from "plant life extension."

Q.58 Would SOV acknowledge that, if what the authors of EPRI NP-6152, (January, 1989) meant by the term "life-extension" does not include the authorization sought by this operating license amendment, then sub-paragraph "h.(1)" of Contention 7 is without basis?

A.58 Vermont objects on the basis that this question is a hypothetical question with no foundation in facts which are of record.

Q.59 If your response to the foregoing interrogatory is other than an unqualified affirmative, please state each and every fact or circumstance that SOV contends provides a basis for sub-paragraph "h.(1)" of Contention 7.

A.59 The concepts of reliability-centered maintenance apply to the life extension proposed by this amendment, whether or not the authors of EPRI NP-6152 had the life extension of this proposed amendment in mind.



Q.60 Please describe what SOV understands to be the special effectiveness of RCM for "life-extension."

A.60 Reliability-centered maintenance can result in realignment of maintenance resources to improve overall plant availability and safety, and a more favorable preventive maintenance to corrective maintenance ratio. As part of the reliability-centered maintenance program, controlling degradation mechanisms can be identified, important predictive and preventive maintenance program features can be determined, and plant data and record-keeping requirements to minimize the potential for unanticipated failures can be established. Data can be collected and evaluated to determine specific evaluation documentation requirements for aging mechanisms that have been identified as potentially limiting to the life of critical components. Recommendations can be developed to modify data and records requirements to support component reliability assessments. One task of the reliability-centered maintenance program can be to reduce the rate of life-limiting degradation mechanisms and to monitor the rate of degradation in order to avoid failure or expiration of qualified design life.

Vermont notes that all of the above is essentially the expectation that the licensee places on the maintenance program in its application for the operating license extension.

Q.61 Does SOV contend that there is an applicable NRC requirement VYNPS have in place, or have made a commitment to, an RCM maintenance program? If so, please identify, by citation to or identification of a document, each and every such requirement.

A.61 Vermont is unaware of each and every NRC requirement for maintenance programs. However, as stated in responses to the previous question, the licensee relies on its maintenance program to serve the functions, in the extended period, which could be provided by a reliability-centered maintenance program. Yet licensee has not described the use of reliability-centered maintenance techniques and the NRC Maintenance Team has identified the lack of the use of PRA concepts as a weakness. Thus, the applicable requirement is the reasonable assurance requirement of 10 CFR 50.57(a)(3), which Vermont contends has not been demonstrated.

Q.62 Does SOV contend that, without regard to any NRC requirement, RCM is the only way that a maintenance program can be effective to combat the effects of aging?

A.62 Vermont objects to this question to the extent that it requests a legal opinion of whether a reliability-centered maintenance program is the only way to provide reasonable assurance in the context of 10 CFR 50.57(a)(3). This is a matter which will be decided by the Board at the end of the hearing. Notwithstanding and without waiving our objection, we respond, no.



Q.63 If your response to the foregoing interrogatory is anything other than an unqualified negative, please state each and every reason why SOV contends that RCM is the only way that a maintenance program can be effective to combat the effects of aging.

A.63 Refer to the previous response.

Q.64 Please state each and every alternative method to RCM that SOV is aware of and, for each such alternative, state whether SOV contends that the alternative is superior to, equal to, or substantially inferior to RCM for correcting the deficiencies alleged by SOV in its Contention 7, and state each and every reason why SOV so contends.

A.64 Vermont objects to this question to the extent that it requests a legal opinion concerning reasonable assurance. This is a matter which will be determined by the board at the end of the hearing. Notwithstanding and without waiving this objection, we offer that we have not performed any evaluation to determine, and therefore are unaware of, alternate methods to reliability-centered maintenance which would accomplish the same function.

Q.65 Does SOV agree without qualification with the following statement"

"RCM is primarily a means of decreasing maintenance costs and increasing plant economics, accomplished by eliminating unnecessary preventative maintenance and prioritizing the rest toward those systems and components with the greatest impact on megawatt-hours produced?"

If your answer is anything other than an unqualified affirmative, then please:

- a. State each and every qualification you have with respect to the quoted assertion.
- b. State each and every fact on which your qualification is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each qualification, either provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the qualification or state that SOV does not rely upon the expertise of any person for the qualification.

A.65           No. The definition of reliability-centered maintenance is provided in response to question 56. The aspect missing from the statement in this question is the identification, by reliability-center maintenance methods, of additional and different preventive and predictive maintenance techniques which improve plant availability and safety. Vermont bases this upon the facts regarding reliability-centered maintenance presented in EPRI NP-6152, which constitutes all the evidence we have knowledge of at the present time. Vermont relies on the expertise of Mr. H. Shannon Phillips, whose qualifications were provided with the response to licensee's Set No. 1.

Q.66           Please explain in detail what connection (if any) SOV contends exists between IR 89-80 and the NRC Draft



Analysis for Proposed Rule-making on Maintenance of  
Nuclear Power Plants, November 1988.

- A.66 Both documents are NRC documents related to maintenance. Both relate to NRC's concern regarding maintenance at nuclear plants. The "Draft Analysis" states, "NRC has identified a number of maintenance-related safety concerns that form the basis for its view that improvements in maintenance are necessary." IR 89-80 states, "This inspection was performed as part of NRC's industry wide effort to evaluate the effectiveness of maintenance activities at licensed power reactors."
- Q.67 Please define what is meant by SOV by the term "weakness in the maintenance programs" as it is used by SOV in sub-paragraph "h.(2)" (hereafter used to refer to the second of the two sub-paragraphs labelled by SOV "h") of its Contention 7.
- A.67 Refer to the response to Set No. 1, question 6.
- Q.68 Please state each and every reason SOV contends that "weakness in the maintenance programs" is "of specific risk," and, for each reason, please:
- a. State each and every fact on which your reason is based.
  - b. Describe all the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
  - c. For each reason, either provide the technical qualification (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the reason or state that SOV does not rely upon the expertise of any person for the reason.

A.68 Vermont objects to this question to the extent that a legal definition of reasonable assurance is requested, since this will be determined at the end of the hearing by the Board. Notwithstanding and without waiving this objection, Vermont states that "Weakness in the maintenance programs" is "of specific risk" when it negates the demonstration of reasonable assurance that protection of public health and safety is or will be provided. Facts, along with evidence and expertise relied upon, have been provided in response to question 44 which illustrate aspects of the maintenance program which do not provide this assurance.

Q.69 Please identify, including but not limited to a specific citation, all "aspects of maintenance problems relevant to the proposed action" for which SOV contends the "Draft Regulatory Analysis" "provides a summary and identification."

A.69 Vermont identifies items 1 through 4 listed in Section 1.1.1 of the "Draft Regulatory Analysis," which are listed in response to the following question.

Q.70 For each and every "aspect[] of maintenance problems" identified in response to the foregoing interrogatory, please state each and every reason why SOV contends it is "relevant to the proposed action."

A.70 Vermont has not completed a review to determine each and every reason why these aspects are relevant to the proposed action. However, we are aware of the following:



"1. There is indication that needed maintenance is not being accomplished or is not performed effectively."

The NRC Maintenance Team identified a large backlog of completed Maintenance Requests awaiting review for appropriateness and technical adequacy. LRS Incorporated identified that the backlog of maintenance requests is large and there is no visible push to rectify the situation. SSFI Observation VY-WCS-7 recorded that more than half the environmentally qualified limitorque motor operator valves have not had grease changeout or spring pack inspection since the original installation. SSFI Observation VY-WCS-3 records non-performance of vendor recommended preventive maintenance. SSFI Observation VY-WRB-4 records lack of testing of check valves in the diesel generator air start system. SSFI Observation VY-WRB-5 records lack of adequate logic testing of the HPCI system. LERs 88-03, 88-13, 88-14, 89-10, 89-23, and 89-24 identify missed surveillances.

"2. Many failures result from improper performance of maintenance."

LER 89-14 identifies an instance of improper maintenance. LER 88-09 identifies a suspected case of improper maintenance. SSFI Observation VY-SMK-6 records that

heating lamps installed by maintenance request to keep HPCI turbine bearing housing warm may not be seismically anchored or qualified to withstand a seismic disturbance. SSFI Observation VY-WCS-5 records that diesel generator minimum lube oil pressure requirement of 20 psig is set below manufacturer's recommended minimum pressure of 26 psig. SSFI Observation VY-WCS-4 records the current HPCI lube oil filter high dp setpoint is set above the filter internal bypass fully open position. SSFI Observation VY-WRB-6 records that motor operated valve RHR-V10-65A and 65B valve actuation time (and surveillance test acceptance criteria) may not be adequate to assure its full stroke open position can be reached. SSFI Observation VY-WRB-7 records that acceptance criteria for the stroke time of safety related valves exceeds times specified in the FSAR and exceeds the time required for the system to perform its function. SSFI Observation VY-WGD-3 records that circuit breaker and relay setpoint selection and control has not been established

"3. The interface between maintenance and operations is presently inadequate."

LRS Incorporated identifies that better utilization of the Assistant to the Operations Supervisor in handling corrective MR's ... could significantly reduce the administrative burden. LRS Incorporated



identifies that operators do not feel Vermont Yankee pays sufficient heed to their desires for hardware repair and replacement.

"4. The number of maintenance-related challenges to safety systems is excessive."

LER 89-14 and LER 88-09 identify maintenance-related challenges to safety systems.

Q.71 Does SOV contend that VYNPS "plant management" has not adequately "review[ed] the industry practice in maintenance planning to determine if the industry trend in establishing formal maintenance planning groups would aid in increasing productivity in the maintenance area." If your answer is anything other than an unqualified negative, then please:

- a. State each and every qualification you have with respect to the quoted assertion.
- b. State each and every fact on which your qualification is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each qualification, either provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the qualification or state that SOV does not rely upon the expertise of any person for the qualification.

A.71 Vermont contends that was true in October 1988, at the time of the LRS Incorporated Report. Vermont is not

aware of the extent to which the licensee has acted on this LRS recommendation. But Vermont further contends that management has been reluctant to meet new industry standards and had not established a policy for reviewing the maintenance policy and program for current trends. These are shown by facts, along with evidence and expertise relied upon, provided in response to question 44.

Q.72 Please state each and every reason SOV contends (if it does) that a "review [of] the industry practice in maintenance planning to determine if the industry trend in establishing formal maintenance planning groups would aid in increasing productivity in the maintenance area" would materially impact safety through the balance of the extended VYNPS license term.

A.72 Formal maintenance planning groups can take the form of planning groups for such areas as maintenance policy, program specifics, professionalism, outage management assistance, and human performance evaluation. While we are aware that licensee has taken some initiatives in the area of maintenance planning, we are similarly aware of the Westec Incorporated SSFI general conclusion that licensee is reluctant to modify maintenance programs to meet industry standards. We are also aware of the NRC Maintenance Team identified weakness of the lack of comprehensive and structured review for adequacy and applicability of the plant's maintenance requirements. In sum, we believe the lack of "review [of] the industry



practice in maintenance planning [which] would aid in increasing productivity in the maintenance area" can contribute to the lack of demonstration of reasonable assurance that the proposed action will protect the public health and safety.

Q.73 Please define what is meant by SOV by the term "better computerization of the MR system" as it is used by SOV in sub-paragraph "j" of its Contention 7.

A.73 Vermont quotes the phrase, "better computerization of the MR system" from LRS Report, #3-88, because we agree that better computerization is needed. The Vermont Yankee "Visicard" system is a manual system which was established before the development of personal computer technology, and is outdated. Computerization would allow the creation and use of a master equipment list, and will allow tracking of maintenance activities.

Q.74 Please state each and every reason SOV contends (if it does) that "better computerization of the MR system" would materially impact safety through the balance of the extended VYNPS license term.

A.74 Better computerization of the MR system would allow better tracking of maintenance activities. This could lead to reducing the number of missed surveillance and maintenance activities which could have safety significance. Better computerization would also provide a master equipment list which would assist in tracking

safety requirements and classifications for each component.

Q.75 Please define what is meant by SOV by the term "better utilization of the Assistant to the Operations Supervisor" as it is used by SOV in sub-paragraph "j" of its Contention 7.

A.75 Vermont quotes the phrase, "better utilization of the Assistant to the Operations Supervisor" from LRS Report, #3-88, because we agree that it would be desirable to reduce or eliminate shift supervisor review time.

Q.76 Please state each and every reason SOV contends (if it does) that "better utilization of the Assistant to the Operations Supervisor" would materially impact safety through the balance of the extended VYNPS license term.

A.76 The LRS Report gives the impression that review of maintenance requests place a significant burden on the shift supervisor. Safety is impacted by either 1) diverting shift supervisor from other shift monitoring duties, or 2) delaying completion of maintenance requests.

Q.77 Please define what is meant by SOV by the term "sufficient heed to their desires" as it is used by SOV in sub-paragraph "j" of its Contention 7.

A.77 The phrase "sufficient heed to their desires" is quoted from LRS Report, #3-88. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to



Vermont. Vermont's meaning in quoting the phrase is that it is an apparent weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.78 With respect to the matter referred to on page 47 of its "Supplement to Petition to Intervene" as the second excerpt from "LRS Report, 83-88, p.7," does SOV possess any information regarding the matter beyond that contained in the LRS Report? If so, please set forth all the information known or believed by SOV to be known by it relating to that matter.

A.78 No.

Q.79 Please state each and every reason why SOV contends (if it does) that "pay[ing] sufficient heed to [the operators] desires for hardware repair and replacement" would materially impact safety through the balance of the extended VYNPS license term.

A.79 The policy, practice or occurrence of not "pay[ing] sufficient heed to [the operators] desires for hardware repair and replacement" is an apparent weakness in the maintenance program. The maintenance program is offered as a basis for the assurance that the proposed amendment will protect public health and safety. This identified weakness contributes to the lack of assurance that the maintenance program will perform as claimed in the application. To the extent that this question requests a legal opinion of this assurance, Vermont objects since this will be determined by the board at the end of the hearing.

Q.80 Please describe in detail exactly what "more work" SOV contends (if it does) needs to be done in the "certification area," as these terms are used in sub-paragraph "j" of its Contention 7, and state each and every reason SOV contends (if it does) that such work would materially impact safety for the balance of the extended VYNPS license term.

A.80 Vermont has not made a determination of exactly what "more work" needs to be done in the "certification area." The area of certification of training skills is an identified weakness in the maintenance program. The maintenance program is offered as a basis for the assurance that the proposed amendment will protect public health and safety. This identified weakness contributes to the lack of assurance that the maintenance program will perform as claimed in the application. To the extent that this question requests a legal opinion of this assurance, Vermont objects since this will be determined by the board at the end of the hearing.

Q.81 Please define the term "formality" as it is used by SOV in sub-paragraph "j" of its Contention 7.

A.81 The term "formality" is quoted from LRS Report, #1-89. To the extent this question asks what the author meant by this term, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the term is that it is an apparent weakness in the Vermont Yankee maintenance program,



identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.82 Please state each and every reason SOV contends (if it does) that "formality" would materially impact safety for the balance of the extended VYNPS license term.

A.82 The lack of maintenance program formality is an identified weakness in the maintenance program. The maintenance program is offered as a basis for the assurance that the proposed amendment will protect public health and safety. This identified weakness contributes to the lack of assurance that the maintenance program will perform as claimed in the application. To the extent that this question requests a legal opinion of this assurance, Vermont objects since this will be determined by the board at the end of the hearing.

Q.83 Please define what is meant by SOV by the term "program informality" as it is used by SOV in sub-paragraph "k." of its Contention 7.

A.83 The phrase "program informality" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the phrase is that it is part of a statement of an identified weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.84 Please define what is meant by SOV by the term "vulnerable" as it is used by SOV in sub-paragraph "k." of its Contention 7.

A.84 The term "vulnerable" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this term, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the term is that it is part of a statement of an identified weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.85 Please define what is meant by SOV by the term "attrition in the experienced maintenance organization" as it is used by SOV in sub-paragraph "k." of its Contention 7.

A.85 The phrase "attrition in the experienced maintenance organization" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the phrase is that it is part of a statement of an identified weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.86 Please describe how SOV contends that "program informality" (as SOV uses the term) leaves VYNPS "vulnerable" (as SOV defines the term) to "attrition in the experienced maintenance organization" (as SOV uses the term).

A.86 As stated above, Vermont's use of the LRS quotation is to document the identification of a weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion. Vermont has not specifically evaluated the meaning of this quotation further. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont. Notwithstanding the above, Vermont offers that this question is answered by the responses to Set No. 1, questions 8, 9 and 10.

Q.87 Please describe each and every enhancement to "program formality" that SOV contends is required to obviate VYNPS's "vulnerability" to "attrition in the experienced maintenance organization," and, for each such enhancement, set forth all of the reasons why SOV contends that, if implemented, the enhancement would obviate the vulnerability.

A.87 To the extent the request to identify "enhancement[s which] would obviate the vulnerability" represents a request for Vermont to demonstrate reasonable assurance that the maintenance program would protect public health and safety in the extended period, Vermont objects, since this demonstration must be made by licensee. Further, Vermont objects to the extent that this requests a legal opinion of what would constitute reasonable assurance, which will be determined by the board at the end of the hearing. Notwithstanding and without waiving these



objections, Vermont offers that we are unable to answer this question without access to and review of licensee's maintenance documents.

Q.88 Please define what is meant by SOV by the term "communications problems" as it is used by SOV in subparagraph "k." of its Contention 7.

A.88 The term "communications problems" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this term, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the term is that it is part of a statement of an identified weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.89 Please describe how SOV contends that "program informality" (as SO(V uses the term) leaves VYNPS "vulnerable" (as SOV defines the term) to "communications problems" (as SOV uses the term).

A.89 As stated above, Vermont's use of the LRS quotation is to document the identification of a weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion. Vermont has not specifically evaluated the meaning of this quotation further. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont.

Q.90 Please describe each and every enhancement to "program formality" that SOV contends is required to obviate VYNPS's "vulnerability" to "communications problems" and, for each such enhancement, set forth all of the reasons why SOV contends that, if implemented, the enhancement would obviate the vulnerability.

A.90 To the extent the request to identify "enhancement[s which] would obviate the vulnerability" represents a request for Vermont to demonstrate reasonable assurance that the maintenance program would protect public health and safety in the extended period, Vermont objects, since this demonstration must be made by licensee. Further, Vermont objects to the extent that this requests a legal opinion of what would constitute reasonable assurance, which will be determined by the board at the end of the hearing. Notwithstanding and without waiving these objections, Vermont offers that we are unable to answer this question without access to and review of licensee's maintenance documents.

Q.91 Please define what is meant by SOV by the term "incidents involving vendor data shortcomings" as it is used by SOV in sub-paragraph "k." of its Contention 7.

A.91 The phrase "incidents involving vendor data shortcomings" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the phrase is that it is part of a statement of an identified



weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion. Notwithstanding the above, Vermont believes this phrase refers to the lack of effective policy and procedures for controlling and updating manufacturer technical manuals, identified as a weakness in IR 89-80.

Q.92 Please describe how SOV contends that "program informality" (as SOV uses the term) leaves VYNFS "vulnerable" (as SOV defines the term) to "incidents involving vendor data shortcomings" (as SOV uses the term).

A.92 As stated above, Vermont's use of the LRS quotation is to document the identification of a weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion. Vermont has not specifically evaluated the meaning of this quotation further. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont. Notwithstanding the above, Vermont offers that further response to this question is provided in response to questions 53 and 54.

Q.93 Please describe each and every enhancement to "program formality" that SOV contends is required to obviate VYNPS's "vulnerability" to "incidents involving vendor data shortcomings" and, for each such enhancement, set forth all of the reasons why SOV contends that, if implemented, the enhancement would obviate the vulnerability.



A.93           To the extent the request to identify "enhancement[s which] would obviate the vulnerability" represents a request for Vermont to demonstrate reasonable assurance that the maintenance program would protect public health and safety in the extended period, Vermont objects, since this demonstration must be made by licensee. Further, Vermont objects to the extent that this requests a legal opinion of what would constitute reasonable assurance, which will be determined by the board at the end of the hearing. Notwithstanding and without waiving these objections, Vermont offers that we are unable to answer this question without access to and review of licensee's maintenance documents.

Q.94           Please define what is meant by SOV by the term "procedural inadequacies" as it is used by SOV in subparagraph "k." of its Contention 7.

A.94           The term "procedural inadequacies" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this term, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the term is that it is part of a statement of an identified weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.95 Please describe how SOV contends that "program informality" (as SOV uses the term) leaves VYNPS "vulnerable" (as SOV defines the term) to "procedural inadequacies" (as SOV uses the term).

A.95 As stated above, Vermont's use of the LRS quotation is to document the identification of a weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion. Vermont has not specifically evaluated the meaning of this quotation further. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to Vermont.

Q.96 Please describe each and every enhancement to "program formality" that SOV contends is required to obviate VYNPS's "vulnerability" to "procedural inadequacies" and, for each such enhancement, set forth all of the reasons why SOV contends that, if implemented, the enhancement would obviate the vulnerability.

A.96 To the extent the request to identify "enhancement[s] which] would obviate the vulnerability" represents a request for Vermont to demonstrate reasonable assurance that the maintenance program would protect public health and safety in the extended period, Vermont objects, since this demonstration must be made by licensee. Further, Vermont objects to the extent that this requests a legal opinion of what would constitute reasonable assurance, which will be determined by the board at the end of the



hearing. Notwithstanding and without waiving these objections, Vermont offers that we are unable to answer this question without access to and review of licensee's maintenance documents.

Q.97 Please define what is meant by SOV by the term "human error" as it is used by SOV in sub-paragraph "k." of its Contention 7.

A.97 The term "human error" is quoted from LRS Report, #2-89. To the extent this question asks what the author meant by this term, it is unanswerable, since the author's meaning is unknown to Vermont. Vermont's meaning in quoting the term is that it is part of a statement of an identified weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion.

Q.98 Please describe how SOV contends that "program informality" (as SOV uses the term) leaves VYNPS "vulnerable" (as SOV defines the term) to "human error" (as SOV uses the term).

A.98 As stated above, Vermont's use of the LRS quotation is to document the identification of a weakness in the Vermont Yankee maintenance program, identified by LRS Incorporated, on its face a credible and respected expert opinion. Vermont has not specifically evaluated the meaning of this quotation further. To the extent this question asks what the author meant by this phrase, it is unanswerable, since the author's meaning is unknown to

Vermont. Notwithstanding the above, Vermont offers that this refers to the weakness identified by IR 89-80:

"The licensee's failure to develop a comprehensive set of documents to formalize and upgrade existing practices; thereby, providing an infrastructure capable of sustaining future good performance in light of the certainty of staff turnover, is considered the licensee's greatest weakness."

Q.99 Please describe each and every enhancement to "program formality" that SOV contends is required to obviate VYNPS's "vulnerability" to "human error" and, for each such enhancement, set forth all of the reasons why SOV contends that, if implemented, the enhancement would obviate the vulnerability.

A.99 To the extent the request to identify "enhancement[s which] would obviate the vulnerability" represents a request for Vermont to demonstrate reasonable assurance that the maintenance program would protect public health and safety in the extended period, Vermont objects, since this demonstration must be made by licensee. Further, Vermont objects to the extent that this requests a legal opinion of what would constitute reasonable assurance, which will be determined by the board at the end of the hearing. Notwithstanding and without waiving these objections, Vermont offers that we are unable to answer this question without access to and review of licensee's maintenance documents.



Q.100 Please define what is meant by SOV by the term "tested with satisfactory performance" as it is used by SOV in sub-paragraph "k." of its Contention 7, including the testing interval requirement and the acceptance criteria implied thereby.

A.100 The phrase, "tested with satisfactory performance," means that simply altering procedures and implementing enhancements can not be considered remedy to demonstrate reasonable assurance that the proposed amendment will protect health and safety until these procedural changes and enhancements are proven effective over a period of time. Should the board decide that a set of procedural changes and enhancements would provide reasonable assurance if demonstrated effective, Vermont provisionally believes a monitoring period of five years would represent a reasonable testing interval, with agreed upon acceptance criteria and access to monitor.

Q.101 Please state each and every reason why SOV contends that "the proposed action cannot be considered" until "such maintenance improvements are made and tested with satisfactory performance," and, for each such reason, please:

- a. State each and every fact on which your reason is based.
- b. Describe all the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- c. For each reason, either provide the technical qualification (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the reason or state

that SOV does not rely upon the expertise of any person for the reason.

A.101           The reason "the proposed action cannot be considered" until "such maintenance improvements are made and tested with satisfactory performance," is that reasonable assurance can not be demonstrated until procedural changes and program enhancements which purport to make such a demonstration are proven effective. Vermont relies on the expertise of Mr. H. Shannon Phillips to establish this reason and fact.

Q.102           Please describe in as much detail as is available to SOV what is referred to by SOV in sub-paragraph "m." of its Contention 7 as "the failure to maintain the Uninterruptible Power Supply."

A.102           "Failure to maintain the Uninterruptible Power Supply (UPS) ... to meet reliability standards" refers to the fact that the existing UPS is a reliability outlier, which licensee has committed to replace during the next refueling outage.<sup>1</sup>

Q.103           Please set forth each and every reason why SOV contends that what is referred to by SOV in sub-paragraph "m." of its Contention 7 as "the failure to maintain the Uninterruptible Power Supply" demonstrates "a history of maintenance induced problems and incorrectly executed maintenance and surveillance programs."

A.103           While recognizing that UPS design and the environmental conditions of its location contribute to its unreliability, Vermont nevertheless contends that numerous corrective maintenance efforts have been unable



to prevent recurrence of reliability problems, and predictive and preventive maintenance have not stopped unavailabilities from occurring.

Q.104 Please set forth each and every reason why SOV contends that what is referred to by SOV in sub-paragraph "m." of its Contention 7 as "the failure to maintain...the toxic gas monitors" demonstrates "a history of maintenance induced problems and incorrectly executed maintenance and surveillance programs."

A.104 While recognizing that the toxic gas monitor design contributes to its unreliability, Vermont nevertheless contends that numerous corrective maintenance efforts have been unable to prevent recurrence of reliability problems, and predictive and preventive maintenance have not stopped unavailabilities from occurring.

Q.105 Please define what is meant by SOV by the term "reliability standards" as it is used by SOV in sub-paragraph "m" of its Contention 7.

A.105 Vermont is aware that INPO uses the Nuclear Plant Reliability Data System (NPRDS) and the Component Failure Analysis Report (CFAR) to identify and report significant component failure rate problems. This reporting system amounts to and results in a "reliability standard" for components, and it is in this context that the term is used.<sup>1</sup>

Q.106 Does SOV contend that NRC imposes any requirements as to "reliability standards" as that term is used by SOV in sub-paragraph "m" of its Contention 7. If so, please identify, by citation to or identification of a specific provision of a document, each and every such requirement.

A.106           NRC imposed requirements on reliability have worked to elicit a commitment from the licensee to replace the UPS. In addition Draft NRC Regulatory Guide DG-1001 states:

"Maintenance effectiveness indicators based on component failure data should be monitored to provide indication of the effectiveness of the overall maintenance program. One acceptable method is to establish indicators based on the number of failures experienced or discovered per unit time."

Vermont contends that this is an appropriate requirement for the licensee's proposed life extension.

Q.107       With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-89-24," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.107           At this time we have no information beyond that in the LER.

Q.108       Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.

A.108           This LER has yet not been evaluated by Vermont with regard to the requested information.1



- Q.109 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-89-23," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.109 At this time we have no information beyond that in the LER.
- Q.110 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.
- A.110 This LER has not been evaluated by Vermont with regard to the requested information.
- Q.111 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-89-17," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.111 At this time we have no information beyond that in the LER.
- Q.112 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.
- A.112 This LER has not been evaluated by Vermont with regard to the requested information.

Q.113 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-89-14," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.113 At this time we have no information beyond that in the LER.

Q.114 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.

A.114 This LER has not been completely evaluated by Vermont with regard to the requested information. However, refer to the response to question 54.

Q.115 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-89-10," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.115 At this time we have no information beyond that in the LER.

Q.116 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.

A.116 This LER has not been evaluated by Vermont with regard to the requested information.



- Q.117 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-88-14," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.117 At this time we have no information beyond that in the LER.
- Q.118 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.
- A.118 This LER has not been evaluated by Vermont with regard to the requested information.
- Q.119 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-88-13," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.119 At this time we have no information beyond that in the LER.
- Q.120 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.
- A.120 This LER has not been evaluated by Vermont with regard to the requested information.
- Q.121 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-88-09,"

does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.121           We believe the reactor trip on March 21, 1990, is an event related to the event of LER 88-09. Vermont was provided with verbal explanations and descriptions of the March 21, 1990 trip from the licensee. This information consisted of a description of the reactor trip and an explanation of the function of the turbine pressure control system.

Q.122           Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.

A.122           This LER has not been completely evaluated by Vermont with regard to the requested information. Provisionally, we believe the maintenance procedure for the turbine pressure control system (if one exists) did not provide for proper cleaning and setpoint determination of the oil system pressure control valves. Additionally, relevant vendor manual updates may not have been incorporated which would have prevented the reactor trips. Finally, the turbine pressure control system may be approaching obsolescence. Such changes cannot be confirmed or dismissed until access is gained to licensee's maintenance program documentation.



- Q.123 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-88-09," please:
- Explain what is meant by the term "(inadequate non-safety related maintenance cuased[sic] reactor trip)".
  - Identify the author of the phrase quoted in subpart a of this interrogatory.
  - Explain all of the reasons why SOV so classifies the event in question.
- A.123 The phase was authored by Mr. William Sherman, based on the suspected root cause from the LER, "it is suspected that the MHC control oil system may have operated improperly due to dirt/grit lodging in the oil system pressure control valves." The presence of dirt/grit lodging in the oil system pressure control valves is an age-related occurrence of the type which licensee purports the maintenance program will detect and correct before failure in the extended period.
- Q.124 With respect to the matter referred to on page 49 of its "Supplement to Petition to Intervene" as "LER-88-05," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.124 At this time we have no information beyond that in the LER.
- Q.125 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in

the Licensee Event Report described in the foregoing interrogatory.

A.125           This LER has not been evaluated by Vermont with regard to the requested information.

Q.126           With respect to the matter referred to on page 50 of its "Supplement to Petition to Intervene" as "LER-88-04," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.126           At this time we have no information beyond that in the LER.

Q.127           Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.

A.127           This LER has not been evaluated by Vermont with regard to the requested information.

Q.128           With respect to the matter referred to on page 50 of its "Supplement to Petition to Intervene" as "LER-88-03," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.128           At this time we have no information beyond that in the LER.

Q.129           Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.



- A.129            This LER has not been evaluated by Vermont with regard to the requested information.
- Q.130           With respect to the matter referred to on page 50 of its "Supplement to Petition to Intervene" as "LER-89-07," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.130           Vermont has in its possession BVY 89-64, "Primary Containment Leak Rate Test Report," July 7, 1989. With the exception of the quoted, related LERs, and NRC requirements, such as 10 CFR 50, Appendix J, we are not aware that we possess additional related information.
- Q.131           Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.
- A.131           This LER has not been evaluated by Vermont with regard to the requested information.
- Q.132           With respect to the matter referred to on page 50 of its "Supplement to Petition to Intervene" as "LER-87-07," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.132           With the exception of the quoted, related LERs, we are not aware that we possess additional related information.

- Q.133 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.
- A.133 This LER has not been evaluated by Vermont with regard to the requested information.
- Q.134 With respect to the matter referred to on page 50 of its "Supplement to Petition to Intervene" as "LER-85-07," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.134 With the exception of the quoted, related LERs, we are not aware that we possess additional related information.
- Q.135 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event report described in the foregoing interrogatory.
- A.135 This LER has not been evaluated by Vermont with regard to the requested information.
- Q.136 With respect to the matter referred to on page 50 of its "Supplement to Petition to Intervene" as "LER-84-11," does SOV possess any information regarding the matter beyond that contained in the Licensee Event Report? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.
- A.136 With the exception of the quoted, related LERs, we are not aware that we possess additional related information.



Q.137 Please describe each and every change to the VYNPS maintenance program or surveillance program that SOV contends, had such change been implemented earlier, would have precluded the occurrence of the matters described in the Licensee Event Report described in the foregoing interrogatory.

A.137 This LER has not been evaluated by Vermont with regard to the requested information.

Q.138 Please define "weakness" as that term is used by SOV in sub-paragraph "1" of its Contention 8.

A.138 Refer to the response to Set No. 1, question 6.

Q.139 Please define "future inadequacies in the maintenance program" as that term is used by SOV in sub-paragraph "1" of its Contention 8.

A.139 "Future inadequacies in the maintenance program" refers to the fact that reasonable assurance has not been demonstrated that the maintenance program will perform as claimed in the extended period to protect public health and safety.

Q.140 Please state each and every reason SOV contends that VYNPS will have "future inadequacies in [its] maintenance program", and, for each such reason, please:

- a. State each and every fact on which your reason is based.
- b. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- c. For each reason, either provide the technical qualification (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the reason or state

that SOV does not rely upon the expertise of any person for the reason.

A.140 Refer to response to question 14.

Q.141 Please define "adequacy of the containment" as that term is used by SOV in sub-paragraph "1" of its Contention 8.

A.141 "Adequacy of containment" refers to the ability of the containment to meet all of its current licensing bases.

Q.142 Please state each and every reason SOV contends that "past and future inadequacies of the maintenance program" "put in doubt" the "adequacy of the containment for the extended period," and, for each reason, please:

- a. Please list each of the "inadequacies" that SOV contends put the matter in doubt.
- b. State each and every fact on which your reason is based.
- c. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- d. For each reason, either provide the technical qualification (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the reason or state that SOV does not rely upon the expertise of any person for the reason.

A.142 See sub-part m. of Contention VIII. Vermont contents that "past and future inadequacies of the maintenance program" "put in doubt" the "adequacy of the containment for the extended period," because four successive past failed containment leakage tests show



that licensee has not demonstrated reasonable assurance that an effective and comprehensive program will maintain and/or determine and replace aging containment components to meet its current licensing basis for the extended period.

1. It is a fact that the containment has failed four successive tests.
2. It is a fact that the ability to meet the requirements of 10 CFR 50, Appendix J, is part of the current licensing basis for the containment.
3. It is a fact that age-related mechanisms were partially responsible for the previous failures.
4. It is a fact that licensee's programmatic efforts have not been successful to allow the containment to meet its current licensing basis in the as-found condition.
5. It is a fact that, if licensee was unable to demonstrate that maintenance functioned as claimed in the past, it has not so demonstrated for the future.

Refer to the responses to questions 130, 132, 134 and 136 for evidence in our possession. The expertise of Mr. H. Shannon Phillips is relied upon.

Q.143 Please define what is meant by SOV by the term "the reliance claimed" as it is used by SOV in sub-paragraph "n" of its Contention 7.

A.143 "Reliance claimed" refers to each and every claim by the licensee that it has a program to maintain and/or determine and replace all components found to have aged to a point where they no longer meet the safety standards applicable to this plant.

Q.144 Please define the term "gross age failure of the drywell paint system" as it is used by SOV in sub-paragraph "n" of its Contention 8.

A.144 "Gross age failure of the drywell paint system" refers to the drywell paint failure discovered by the NRC Maintenance Team, and described in letter, BVY 89-69.

Q.145 With respect to the matter of "gross age failure of the drywell paint system" referred to by SOV in sub-paragraph "n" of its Contention 8, does SOV possess any information regarding the matter beyond that contained in "letter, BVY 89-69, Pelletier to NRC"? If so, please set forth all of the information known or believed by SOV to be known by it relating to that matter.

A.145 At this time, we have no additional documents regarding the containment paint failure. We are aware of information related to paint failures in NRC Information Notice 85-24 and INPO SER 68-83. In addition we possess Regulatory Guide 1.54, Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants, June 1973, and the document, "Analytical Evaluation of Station Service Water System," Comanche Peak Nuclear Power Station, Case Consultant Jack Dole,



December 31, 1989. This document evaluates painting failure modes.

Q.146 Please define the term "adequacy of the coating system in the extended period" as it is used by SOV in subparagraph "n" of its Contention 8.

A.146 "Adequacy of the coating system in the extended period" means the ability of the coating system to meet its current licensing basis in the extended period.

Q.147 Please state each and every reason SOV contends (if it does) that the "adequacy of the coating system" would differ for the extended period from its "adequacy" for the balance of the present VYNPS license term, and, for each reason, please:

- a. State each and every fact on which your reason is based.
- b. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- c. For each reason, either provide the technical qualification (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the reason or state that SOV does not rely upon the expertise of any person for the reason.

A.147 Vermont objects to such a comparison with "adequacy" in the present licensing term, since this is not at issue in the present proceeding. Notwithstanding and without waiving this objection, Vermont states that we contend simply that reasonable assurance has not been demonstrated that the containment coating system will meet its current licensing basis in the extended period.

Q.148 Please set forth all of the information known or believed by SOV to be known by it relating to "torus wall thinning experienced at Nine Mile Point."

A.148 We are aware, through following industry activities, that a torus wall thinning problem exists at Nine Mile Point. An investigation provided verbal information that the Nine Mile Point torus is uncoated, while the Vermont Yankee torus is coated. At this time, we have no additional information.1

Q.149 Please set forth each and every respect, and reason therefor, why SOV contends that the "torus wall thinning experienced at Nine Mile Point" applies to VYNPS.

A.149 BVY 89-69 identifies degradation of the coating system in the Vermont Yankee torus. We contend that, once the coating system degrades, the corrosion mechanism active at Nine Mile Point may become active at Vermont Yankee.

Q.150 Please define what is meant by SOV by the term "ECCS criteria is not met" as it is used by SOV in subparagraph "o" of its Contention 8.

A.150 "ECCS criteria" refers to the requirements of 10 CFR 50.46; 10 CFR 50, Appendix K; 10 CFR 50, Appendix A, Criteria 35; NRC Regulatory Guide 1.1 (Safety Guide 1), "Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps," and all aspects of the Vermont Yankee ECCS current licensing basis.



Q.151 Please define what is meant by SOV by the term "misoperation of a proposed hardened containment vent" as it is used by SOV in sub-paragraph "o" of its Contention 8, including for each mode of "misoperation" that SOV contends might occur, the resulting plant condition and safety impact.

A.151 Were venting to occur in accident sequences with high core power and high steaming rates, flashing in the suppression pool could cause ECCS pumps to fail on loss of suction. Misoperation refers to any venting scenario which would allow this to occur. An example is a passive venting system which would not allow sufficient time for manual operator action to terminate venting.

Q.152 Please state each and every reason SOV contends that "ECCS pump suction must. . . be evaluated with regard to the effects of operation and misoperation of a proposed hardened containment vent," and, for each reason, please:

- a. State each and every fact on which your reason is based.
- b. Describe all of the evidence in SOV's possession or of which SOV has knowledge that SOV contends establishes each such fact.
- c. For each reason, either provide the technical qualification (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), of any person on whose expertise SOV relies for the reason or state that SOV does not rely upon the expertise of any person for the reason.

A.152 Refer to the previous response. The question cannot be answered until the final design for the containment vent is submitted by Vermont Yankee.

Q.153 Please identify each person assisting SOV in the preparation of its answers to these interrogatories.

A.153 Mr. William Sherman and Mr. H. Shannon Phillips assisted in the preparation of the answers to these interrogatories. Counsel assisted in the preparation of objections.

Q.154 For each person required to be identified in response to the foregoing interrogatory, please:

- a. Identify the interrogatory answers prepared by that person or, if such person prepared only a portion of an answer, the portions of the answer provided by such person.
- b. Provide the technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the person), if any, of such person in each area in which SOV contends such person to be technically qualified.
- c. Identify each and every report, paper or other document prepared by such person (whether or not in conjunction with other persons) and made available to SOV.

A.154 Mr. William Sherman assisted in the answers to all questions. Mr. Sherman's qualifications have been provided in response to question 17 of the first set of interrogatories.

Mr. H. Shannon Phillips assisted in the answers to questions 41, 42, 43, 44, 65, 68, 71, 100, 101, 140, 142, 145, 147 and 152. Mr. Phillips' qualifications have been provided in response to question 17 of the first set of interrogatories.



A.154.c Vermont objects to the request to identify each and every report, paper or other document as overbroad and burdensome. Further, Vermont objects to the production of such reports unless and until such person is identified as an expert witness in this case. Notwithstanding and without waiving these objections, Vermont answers, none.

Q.155 If, in response to any of the foregoing interrogatories, SOV has responded that it cannot answer or that it cannot answer completely without the acquisition by it of additional information, for each such response:

- a. Describe the additional information that SOV contends is required in order for it to answer or to answer completely the interrogatory.
- b. State each and every reason why SOV contends that the acquisition of such information is necessary in order for it to answer or to answer completely the interrogatory.
- c. State the steps that SOV is taking to acquire the information, and, for each step, the anticipated date on which it will be completed.
- d. State the intentions, if any, of SOV concerning supplementation of its answer to the interrogatory, including (if supplementation is intended), the date on which it is anticipated that SOV will serve its supplemental response.

A.155 Vermont objects to this question on the grounds that it is burdensome, that it seeks disclosure of the thought processes of counsel, and that it seeks disclosure of case strategy.

- Q.156 Does SOV intend to offer into evidence the testimony of any expert witness or witnesses? If so, then for each such witness, provide:
- a. An identification of the witness.
  - b. The technical qualifications (education, employment history, licenses and certificates, experience, or other information which SOV contends establishes the qualifications of the witness), if any, of the witness in each area in which SOV contends the witness to be technically qualified.
  - c. A summary of the facts and opinions to which SOV expects the witness to testify.
  - d. For each such opinion, a summary of the basis therefor.
- A.156 Vermont has not yet made any final determination on this matter.




AFFIDAVIT


STATE OF VERMONT  
COUNTY OF WASHINGTON, SS.

WILLIAM K. SHERMAN, being duly sworn, states that  
the foregoing answers are true and correct to the best  
of my knowledge.

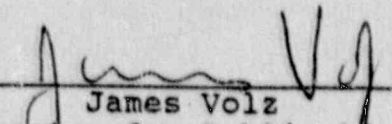
Dated at Montpelier, Vermont, this 24th day of April, 1990.

  
\_\_\_\_\_  
WILLIAM K. SHERMAN

Subscribed and sworn to before me this 24th day of April,  
1990.

  
\_\_\_\_\_  
Notary Public  
My Commission Expires: 2/10/91

As to Objections:

  
\_\_\_\_\_  
James Volz  
Director for Public Advocacy

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
before the

DOCKETED  
USNRC

ATOMIC SAFETY AND LICENSING BOARD '90 APR 27 AM 1:39

In the Matter of  
VERMONT YANKEE NUCLEAR  
POWER CORPORATION

(Vermont Yankee Nuclear  
Power Station)

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
Docket No. 50-271-OLA-4  
(Operating License  
Extension)

CERTIFICATE OF SERVICE

I hereby certify that on April 24, 1990, I made service of the within document in accordance with rules of the Commission by mailing a copy thereof postage prepaid to the following:

Administrative Judge  
Robert M. Lazo, Chairman  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Administrative Judge  
Jerry Harbour  
Atomic Safety and Licensing  
Board  
U.S. Nuclear Regulatory  
Commission  
Washington, DC 20555

Administrative Judge  
Frederick J. Shon  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

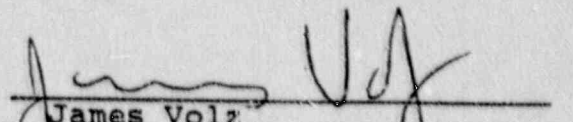
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Board Panel  
U.S.N.R.C.  
Washington, DC 20555

Dated: 4-24-90

  
James Volz  
Director of Public Advocacy