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RELATED CORRESPONDENCE

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
GPU Nuclear Corporation	)	Docket No. 50-320-OLA
	)	(Disposal of Accident-
(Three Mile Island Nuclear	)	Generated Water)
Station, Unit 2)	)	

LICENSEE'S INTERROGATORIES AND REQUEST  
FOR PRODUCTION OF DOCUMENTS TO THREE MILE  
ISLAND ALERT AND SUSQUEHANNA VALLEY ALLIANCE

Pursuant to 10 C.F.R. §§ 2.740b and 2.741 and the Atomic Safety and Licensing Board's "Memorandum and Order (Memorializing Special Prehearing Conference; Ruling on Contentions; Scheduling)" of January 5, 1988, GPU Nuclear Corporation hereby requests that Three Mile Island Alert and Susquehanna Valley Alliance ("Joint Intervenors") answer in writing, and under oath or affirmation, each of the following interrogatories separately and fully, and produce and permit inspection and copying of the original or best copy of all documents identified in the responses to interrogatories below. Under the Commission's Rules of Practice, responses to these interrogatories must be served within 14 days after service of the interrogatories.

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These interrogatories are intended to be continuing in nature, and the answers should promptly be supplemented or amended as appropriate, pursuant to 10 C.F.R. § 2.740(e), should Joint Intervenors or any individual acting on their behalf obtain any new or differing information responsive to these interrogatories. The request for production of documents is also continuing in nature, and Joint Intervenors must produce immediately any additional documents they, or any individual acting on their behalf, obtain which are responsive to the request, in accordance with the provisions of 10 C.F.R. § 2.740(e).

Where identification of a document is requested, briefly describe the document (e.g., book, letter, memorandum, transcript, report, handwritten notes, test data) and provide the following information as applicable: Document name, title, number, author, date of publication and publisher, addressee, date written or approved, and the name and address of the person or persons having possession of the document. Also state the portion or portions of the document (whether section(s), chapter(s), or page(s)) upon which Joint Intervenors rely.

#### GENERAL INTERROGATORIES

1(a). State the name, present or last known address, and present or last known employer of each person known to Joint Intervenors to have first-hand knowledge of the facts alleged, and upon which Joint Intervenors relied in formulating allegations, in each of the admitted contentions.

(b). Identify those facts concerning which each such person has first-hand knowledge.

(c). State the specific allegation in each contention which Joint Intervenors contend such facts support.

2(a). State the name, present or last known address, and present or last employer of each person, other than affiant, who provided information upon which Joint Intervenors relied in answering each interrogatory herein.

(b). Identify all such information which was provided by each such person and the specific interrogatory response in which such information is contained.

3(a). State the name, address, title, employer and educational and professional qualifications of each person Joint Intervenors intend to call as an expert witness or a witness relating to any admitted contention.

(b). Identify the contention(s) regarding which each such person is expected to testify.

(c). State the subject matter to which each such person is expected to testify.

4(a). Identify all documents in Joint Intervenors' possession, custody or control, including all relevant page citations, pertaining to the subject matter of, and upon which Joint Intervenors relied in formulating allegations in each admitted contention.

(b). Identify the contention(s) to which each such document relates.

(c). State the specific allegation in each contention which Joint Intervenors contend each document supports.

5(a). Identify all documents in Joint Intervenors' possession, custody or control, including all relevant page citations, upon which Joint Intervenors relied in answering each interrogatory herein.

(b). Identify the specific interrogatory response(s) to which each such document relates.

6(a). Identify any other source of information, not previously identified in response to Interrogatory 2 or 5, which was used in answering the interrogatories set forth herein.

(b). Identify the specific interrogatory response(s) to which each such source of information relates.

7(a). Identify all documents which Joint Intervenors intend to offer as exhibits during this proceeding to support the admitted contentions or which Joint Intervenors intend to use during cross-examination of witnesses presented by Licensee and/or the NRC Staff on each admitted contention.

(b). Identify the contention(s) to which each document relates and the particular page citations applicable to each contention.

### SPECIFIC INTERROGATORIES

0-1. Is cost a relevant factor to consider in determining the appropriate method for disposal of the accident-generated water?

0-2. Is there a safe level of exposure to radiation?

0-3. Do the radiological release limitations adopted by the NRC and EPA provide adequate protection for the public?

0-4. If the answer to Interrogatory 0-3 is negative, have Joint Intervenors filed with the NRC and/or EPA petitions for rulemaking, seeking revisions to the release limits?

0-5. In a statement on August 13, 1986, to the NRC's Advisory Panel for the Decontamination of TMI-2 (Tr. 77), Ms. Frances Skolnick stated that she rejected the radiological dose limits set by the NRC and any other agency because there is no permissible dose which is not detrimental to human health and the environment. Is this Joint Intervenors' position in this proceeding?

0-6. Contentions 2 and 8 together propose that the NRC consider or consider further three options: the "no action" alternative which supposes interim storage of the AGW in tanks on the TMI site and eventual disposal of the water (Tr. 65, prehearing conference of December 8, 1987); evaporation in a closed cycle with the bottoms and condensate being solidified and shipped to a low level waste site; and permanent storage inside containment.

(a). Which, if any, of these three options do Joint Intervenors propose be adopted?

(b). If there is one option you advocate, why do you want the NRC to evaluate the other two?

(c). If there is not an option you advocate, is it because you lack sufficient information to make a decision? State any other reason.

(d). If you do not have sufficient information to arrive at a preference, why do you believe you have an adequate basis upon which to suggest that the NRC evaluate these options?

(e). Do you contend that the NRC should expend resources assessing alternatives which you have not even concluded to be potentially superior?

1-1. List the evaporation proposal and the "other methods of water disposal" to which Contention 1 refers, in order of Joint Intervenors' preference when evaluated against the ALARA principle.

1-2. Identify and describe the bases for the ranking provided in response to Interrogatory 1-1.

1-3. Is river disposal more in keeping with the ALARA principle than the proposed disposal by evaporation?

1-4. If the answer to Interrogatory 1-3 is affirmative, would Joint Intervenors prefer river disposal of the accident-generated water over disposal by evaporation?

1-5. If the answer to Interrogatory 1-4 is negative, explain the reasons for the answer, any supporting bases, and any factors considered other than radiological releases.

1-6. Should societal considerations be assessed in making an ALARA determination?

1-7. Do societal considerations include local public and political preferences?

1-8. Do Joint Intervenors contend that ALARA requires selection of the disposal alternative with the lowest radiological consequences?

1-9. If the answer to Interrogatory 1-8 is affirmative, identify and describe any bases for the response. Address in particular how the NRC may comply with NEPA and ignore non-radiological impacts in its decision.

1-10. If the answer to Interrogatory 1-8 is negative, explain how Joint Intervenors contend the ALARA principle should be used in comparing the alternatives.

1-11. Do Joint Intervenors contend that the proposed evaporation method does not comply with the ALARA principle?

1-12. If the answer to Interrogatory 1-11 is affirmative, describe in detail the manner(s) in which evaporation does not comply with the ALARA principle, and set forth in detail the bases for the answer.

1-13. Does Appendix I to 10 C.F.R. Part 50 apply to the disposal of the accident-generated water? Set forth in detail the bases for your answer.

1-14. Identify each of the "other methods of water disposal" to which Contention 1 refers, which "would not release a quantity



of radionuclides into the environment." Identify and describe the bases for the answer for each method.

1-15. Identify each of the "other methods of water disposal" to which Contention 1 refers, which "would not release all the tritium into the environment." For each method identified, quantify the amount of tritium released, describe where the remainder (not released) is, and set forth the bases for the answer.

1-16. Do Joint Intervenors contend that modifications to the evaporator are necessary and/or appropriate to meet ALARA?

1-17. If the answer to Interrogatory 1-16 is affirmative, identify the modifications and, for each, estimate the cost and dose reduction. Describe the bases for each estimate.

2-1(a). Do you contend the no-action alternative involves fewer costs and risks to the public than the proposed evaporation method?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your allegation that the no action alternative involves fewer costs and risks to the public than the proposed evaporation method.

2-2. In light of your contention (Tr. 65) that the "no-action" alternative supposes interim storage of the AGW in tanks on the TMI site and eventual disposal of the water, please identify

(a) the estimated length of storage (years) encompassed in the no action alternative;



(b) the estimated length of tank life encompassed in the no action alternative;

(c) the estimated size of storage tanks encompassed in the no action alternative;

(d) the location on the TMI site where storage tanks would be placed;

(e) the program and system for monitoring and preventive maintenance you propose to ensure storage tank integrity;

(f) the eventual disposal method encompassed in the no action alternative.

2-3. In complying with NEPA, should the NRC limit its consideration to environmental impacts which occur in the near-term, ignoring those which would occur in 25 to 40 years?

2-4(a). In light of your contention that the "no-action" alternative supposes interim storage of the AGW on the TMI site and eventual disposal of the AGW, is it also your contention that the "no-action" alternative has no radiological impact?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your allegation that the "no-action" alternative has no radiological impact.

2-5(a). In light of your contention that the "no-action" alternative supposes interim storage of the AGW on the TMI site and eventual disposal of the AGW, is it also your contention that the "no-action" alternative will cost almost zero dollars?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your allegation that the "no-action" alternative will cost almost zero dollars, considering as well your answer to Interrogatory 2-2.

(c). If your answer to Interrogatory 2-5(a) is negative, state your estimate of the cost and your bases for the estimate.

2-6. What are the benefits of postponing disposal of the accident-generated water?

2-7. Have you estimated the risks of accidental release of the water (e.g., tank failure) during the storage period? If so, state the estimate and the basis for it.

2-8(a). Do you contend the Staff's conclusion that the environmental impacts from ultimate disposal would not be significantly different from near-term disposal is incorrect?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your allegation that the environmental impacts from ultimate disposal would be significantly different from near-term disposal.

2-9. Is it Joint Intervenors' position in this proceeding that Three Mile Island is a suitable site for long-term storage of the AGW?

3-1(a). Do you contend that the Staff's evaluation in the PEIS of the radiological effects of evaporation of the AGW is inadequate?

(b). If your answer to the preceding interrogatory is affirmative, state in detail each alleged inadequacy in the Staff's evaluation and all of the facts which support each alleged inadequacy.

3-2. State in detail all of the environmental impacts you contend are associated with the release of radioactive material from the evaporation process into the food chain, water, humans and ecosystem.

3-3(a). Do you contend that the release of radioactive material from the evaporation process into the food chain, water, humans, and ecosystem will have any impact on human health in the 50 mile area surrounding the TMI site?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your contention.

3-4. Assuming the NRC Staff's estimate, in the PEIS, of the radiological releases from evaporation, identify each and every NRC regulation, EPA regulation, applicable permit and license condition which you contend would be violated by the releases. For each violation, state the requirement and describe the manner in which the release violates it.

3-5(a). Do you contend that the Staff's evaluation of the risks and costs associated with the trucking of solidified waste from the evaporation of the AGW to a low-level waste disposal site is inadequate?

(b). If your answer to the preceding interrogatory is affirmative, state in detail each alleged inadequacy in the Staff's evaluation and all of the facts which support each alleged inadequacy.

4-1. The NRC Staff, discussing the environmental impacts of the proposal, states: "Releases of 0.1% or less of the total particulate are routinely achieved, and this release fraction has been assumed for the evaporator effluent." NUREG-0683, Supp. No. 2 at 3.6. Describe in detail any basis you have for challenging that assumption.

4-2. Describe the experience Joint Intervenors have with evaporator system design, operation and performance.

4-3. The NRC Staff also states: "Based on the expected radionuclide concentration in the influent to the evaporator, the release rate for non-tritium radioactive material, principally cesium-137, strontium-90, and carbon-14, is expected to be 0.00028uCi/sec." NUREG-0683, Supp. No. 2 at 3.6-7. Describe in detail any basis you have for challenging that estimate.

4-4. Define the term "filter out" as used in Contention 4b. In particular, are you speaking of a physical piece of equipment called a "filter," or are you speaking of any removal mechanism?

4-5. Identify each and every air quality regulation of EPA and Pennsylvania, permit, license or other air quality requirement which you contend would be violated by the proposed evaporator effluent. For each violation, state the requirement and describe the manner in which the release violates it.

4-6. If the tritium level in the evaporator influent is sampled and it is known that the tritium will be released to the atmosphere, why do you contend that the evaporator effluent should be monitored for tritium?

4-7. Identify any instrumentation of which you are aware that is capable of measuring strontium-90 at the levels predicted for the evaporator effluent.

4-8. Joint Intervenors stated at the special prehearing conference that the rate at which influent is fed to the evaporator "is particularly relevant because the particulate release rate is dependent on the particulate concentration in the water, and the feed rate to the evaporator, and the carry-over action for the evaporator." Tr. 35. Given that the rate of release is affected by the feed rate, nevertheless how is the population dose from the disposal of the AGW affected by the feed rate?

4-9. In what ways do you contend that the public health and safety is jeopardized by a variation in the feed rate? State the bases for the answer.

4-10. Is there any radiological impact (leaving aside the population dose, addressed in Interrogatory 4-8) which you contend would be affected by the feed rate?

4-11. If the answer to Interrogatory 4-10 is affirmative, identify each impact and describe how it would be affected by the feed rate. State in detail the bases for your answer.

4-12. Do you contend that a feed rate of 5 gallons per minute is unsafe or harmful? If so, state the ways in which such a rate is unsafe or harmful, and the bases for your answer.

5-1. What harmful properties do you contend are associated with tritium?

5-2. What are the types of health effects from tritium that you claim could occur or should be evaluated?

5-3. For each property and health effect identified in response to Interrogatories 5-1 and 5-2, describe in detail any bases for supposing that such properties exist and that such effects would occur. Identify any supporting studies or references, as required by General Interrogatory 5.

5-4. Do you dispute the dose estimates in the NRC Staff's PEIS (NUREG-0683, Supp. No. 2)?

5-5. If the answer to Interrogatory 5-4 is affirmative, state which estimates you dispute, describe your basis for disputing each, state your own dose estimates and the basis for each.

5-6. Quantify the health effects from tritium you contend would occur from the proposed disposal by evaporation, and describe the bases for your answer.

5-7. At page 43 of the transcript of the December 8, 1987 special prehearing conference, Ms. Skolnick referred to Dr. Michio Kaku. Please identify his studies or papers on which you rely.



5-8. At the same page, Ms. Skolnick refers to tritium as being detrimental to fetuses. Please identify precisely the studies, papers or reports on which you are basing your claim.

5-9. Identify each alpha emitter and transuranic that you contend has been ignored by the NRC in its PEIS.

5-10. With respect to each radionuclide identified in response to Interrogatory 5-9, provide your estimate of the level present in the evaporator effluent and your basis for each estimate.

5-11. For each radionuclide identified in response to Interrogatory 5-9, identify the specific harmful properties present and the health effects which should be evaluated, and describe in detail your bases for claiming that each such effect would occur.

5-12. How do the health effects identified in response to Interrogatory 5-11 vary with dose?

5-13. Quantify the health effects from alpha emitters and transuranics you contend would occur from the proposed disposal by evaporation, and describe the bases for your answer.

5-14. At prehearing conference transcript page 44, Ms. Skolnick referred to EPA standards in picocuries per liter. Identify specifically the standards to which she referred.

6-1. Why should the effects of chemicals on EPICOR be evaluated?

6-2. Why should the effects of chemicals on SDS be evaluated?



6-3. Why should the effects of chemicals on the evaporator be evaluated?

6-4. What chemicals are of concern in Contention 6?

6-5. What adverse consequences would these chemicals have?

6-6. How is the public health and safety and/or the environment affected by these chemicals?

6-7. If the influent to the evaporator system is monitored and influent criteria are adhered to, what is the relevance of the effects of chemicals on EPICOR and SDS?

6-8. Identify chemicals permitted by the evaporator influent criteria which would adversely affect system operation. Explain each adverse effect and the bases for supposing that each would occur.

8-1. In light of your contention that closed cycle evaporation would withhold the contaminants (Tr. 64-65), identify each contaminant which would be withheld.

8-2(a). Do you contend the use of closed-cycle evaporation and subsequent solidification of the recovered water results in no release of tritium to the environment?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your contention.

(c). If your answer to (a) above is affirmative, do you consider the area beyond the 50 mile radius surrounding TMI-2 part of the environment?

8-3(a). Do you contend that the use of closed cycle evaporation and subsequent solidification of the recovered water is preferable to the no-action alternative?

(b). State in detail all of the facts which support your preference.

8-4(a). Do you contend that the alternative of closed cycle evaporation with bottoms and condensate being solidified and shipped to a low level waste site does not increase the amount of waste shipped to a low-level burial site above the amount assumed in any single alternative considered in the PEIS?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your contention.

8-5(a). Do you contend that the alternative of closed cycle evaporation with bottoms and condensate being solidified and shipped to a low level waste site does not increase the amount of waste to be shipped and thus increase the risk of a transportation accident above the present estimates used for the evaporation proposal?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your contention.

8-6(a). Do you contend that the alternative of closed cycle evaporation with bottoms and condensate being solidified and shipped to a low level waste site does not increase the

amount of occupational exposure above the amount assumed in any single alternative considered in the PEIS?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your contention.

8-7. Under your proposal for inside-containment storage of the AGW, where do you propose that the storage tanks be placed?

8-8. Under your proposal for inside-containment storage of the AGW, how much tankage space do you estimate would be required?

8-9. Under your proposal for inside-containment storage of the AGW, what type of floor loading would be required?

8-10(a). Under your proposal for inside-containment storage of the AGW, do you contend that decommissioning of TMI-2 would not be necessary?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your contention.

8-11(a). Do you contend that the inside-containment storage proposal could be implemented without compliance with 10 C.F.R. Part 61?

(b). If your answer to the preceding interrogatory is affirmative, state in detail all of the facts which support your allegation.

8-12. State your estimate of the costs of inside-containment storage of the AGW, and describe in detail the bases for your estimate.

8-13. Do you contend that the AGW must be retained on site until it meets EPA drinking water standards? If so, state that period of time and describe the bases for your estimate.

8-14. At a January 21, 1987 TMI Advisory Panel Meeting, Ms. Frances Skolnick stated that tritium "will be toxic for 120 years." PEIS Supp. No. 2 at A.64. Is this Joint Intervenors' position in this proceeding? If not, state why Ms. Skolnick was in error.

#### REQUEST FOR PRODUCTION OF DOCUMENTS

Licensee requests that Joint Intervenors respond in writing to this request for production of documents and produce the original or best copy of each of the documents identified or

described in the answers to each of the above interrogatories, at a place mutually convenient to the parties.

Respectfully submitted,

SHAW, PITTMAN, POTTS & TROWBRIDGE

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Dated: January 29, 1988

January 29, 1988

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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	)	(Disposal of Accident-
(Three Mile Island Nuclear	)	Generated Water)
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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "Licensee's Interrogatories and Request for Production of Documents to Three Mile Island Alert and Susquehanna Alliance" were served this 29th day of January, 1988, by Federal Express upon the parties identified with one asterisk and by U.S. mail, first class, postage prepaid, upon the other parties identified on the attached Service List.

Thomas A. Baxter  
Thomas A. Baxter, P.C.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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