November 27, 1996

Mr. Stephen M. Quennoz
Portland General Electric Company
Trojan Nuclear Plant
71760 Columbia River Highway
Rainier, Oregon 97048

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - DEBRIS PROCESSING IN THE FUEL BUILDING-TAC 96936

Dear Mr. Quennoz:

This refers to your application, dated October 23, 1996, for an amendment to the Trojan Nuclear Plant license (License Change Application 239) to allow processing and handling of spent fuel pool debris in the Trojan Fuel Building. During the Nuclear Regulatory Commission (NRC) staff review of the your October 23, 1996, submittal, questions have arisen which require additional information and clarification. Please provide responses to the enclosed Request for Additional Information within 30 days of the date of this letter. We may be sending a second request for information within the next couple of weeks. In order to allow your staff to begin to prepare responses to our request as soon as possible we decided to forward these initial questions to you at this time.

In accordance with 10 CFR 50.30(b), your response to the enclosed Request for Additional Information must be executed in a signed original under oath or affirmation.

This requirement affects nine or fewer respondents and, therefore, is not subject to Office of Management and Budget review under P.L. 96-511.

Sincerely,

Original signed by Michael T. Masnik for:
Lee H. Thonus, Project Manager
Non-Power Reactors and Decommissioning
Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Docket No. 50-344

cc: See next page

DISTRIBUTION:

Docket File 50-344		SWeiss	OGC (O15-B-18)
PUBLIC		RDudley	MWebber
PDND r/f		EHylton	Region IV
TMartin		LThunus	MMasnik

PDND:PM	PDND:LA	PDND:SC(A)	PDND:D
LThonus	EHylton	RDudley	SWeiss
27/Nov/96 for	11/27/96 for	11/27/96 for	/27/96

OFFICIAL RECORD COPY DOCUMENT NAME: G:\SECY\THONUS\TRODP.QIS

9611290391 961127
PDR ADOCK 05000344
P PDR

NRC FILE CENTER COPY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 27, 1996

Mr. Stephen M. Quennoz
Portland General Electric Company
Trojan Nuclear Plant
71760 Columbia River Highway
Rainier, Oregon 97048

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - DEBRIS PROCESSING IN THE FUEL BUILDING-TAC 96936

Dear Mr. Quennoz:

This refers to your application, dated October 23, 1996, for an amendment to the Trojan Nuclear Plant license (License Change Application 239) to allow processing and handling of spent fuel pool debris in the Trojan Fuel Building. During the Nuclear Regulatory Commission (NRC) staff review of the your October 23, 1996, submittal, questions have arisen which require additional information and clarification. Please provide responses to the enclosed Request for Additional Information within 30 days of the date of this letter. We may be sending a second request for information within the next couple of weeks. In order to allow your staff to begin to prepare responses to our request as soon as possible we decided to forward these initial questions to you at this time.

In accordance with 10 CFR 50.30(b), your response to the enclosed Request for Additional Information must be executed in a signed original under oath or affirmation.

This requirement affects nine or fewer respondents and, therefore, is not subject to Office of Management and Budget review under P.L. 96-511.

Sincerely,

Michael P. Masnik for

Lee H. Thonus, Project Manager
Non-Power Reactors and Decommissioning
Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Docket No. 50-344

cc: See next page

cc:

Mr. William MacDonald, Chairman
Board of County Commissioners
Columbia County
St. Helens, Oregon 97501

Mr. David Stewart-Smith
Oregon Department of Energy
Salem, Oregon 97310

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower and Pavilion
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Mr. C. Paul Yundt
General Manager Plant Support
and Technical Functions
Portland General Electric Company
Trojan Nuclear Plant
71760 Columbia River Highway
Rainier, Oregon 97048

Mr. Lloyd K. Marbet
19142 S.E. Bakers Ferry Road
Boring, Oregon 97009

Mr. Jerry Wilson
Do It Yourself Committee
570 N.E. 53rd
Hillsboro, Oregon 97124

Mr. Eugene Rosolie
Northwest Environmental Advocates
302 Haseltine Building
133 S.W. 2nd Avenue
Portland, Oregon 97204

REQUEST FOR ADDITIONAL INFORMATION

TROJAN LICENSE CHANGE APPLICATION 239

DEBRIS PROCESSING IN THE FUEL BUILDING

1. What fraction of a fuel bundle can be placed into a process canister? (i.e., what fraction of the fuel?)

2. With the lower burn-up on the damaged fuel and no encapsulated gaseous activity, does the fuel handling accident analysis performed in 1993 bound the possible release from dropping a loaded bell/canister?

3. What is the rational for applying the FDA Protective Action Guidelines (PAGs) of 500 mrem as your acceptance criteria?

4. Describe the dose model(s) used in the off-site consequence evaluation, include; modeled pathways (ingestion, inhalation, direct shine?), all release assumptions and parameters (duration of exposure, D/Q-X/Q, etc.), and the resulting doses calculated.

5. What is the maximum source term (with isotopic spectrum) expected in a batch process?

6. During the reforming process, what radioactive species are expected to be volatilized by the super-heated steam and what chemical/physical forms are expected in the process off-gas?

7. Besides the Cesium trap, what other effluent processing will be provided for the process effluent before it is released from the plant? What total removal efficiency was assumed in the consequence analysis?

8. What is the maximum loading of radioactive species allowed for the Cesium trap? How is this controlled (e.g., administratively with periodic/continuous monitoring)?

9. Describe the principle of operation of the Cesium trap including;
   a. time required for Cesium migration/breakthrough of trap.
   b. possible failure modes that could release the trap's inventory of radionuclides.
   c. current industry operating experience with similar traps.

10. Evaluate the offsite consequences of a Cesium trap failure resulting in the maximum radioactivity release. Describe models, parameters and assumptions used.

11. Will manual positioning of the transfer bell be required to mate it with the removal station, feed station, or loading station? Estimate the occupational dose to the operator(s) during all stages of the process.

12. What mechanism(s) assures that the process can capsule will remain free of water for long storage periods since the capsules will be stored under water? How would you detect water intrusion into the capsules should it occur?

13. Describe how the spent fuel pool vacuum system will control radiation levels as highly activated material and/or fuel accumulates on the filters.

14. How will the spent fuel pool vacuum system be monitored to assure that an inadvertent criticality is not a concern?

15. Provide a diagram of the following systems or components: cofferdam, work platform, process can, can removal station, can feed evaporator, process can capsule, capsule loading station, steam reformer.

16. Provide a diagram of the transfer bell and a description of any interlocks or protective devises.

17. Describe the training program that the fuel handlers will receive prior to processing activities.

18. If the plant is not using a single failure proof crane for the fuel debris processing operations then an analysis demonstrating that potential load drops are acceptable should be provided. Specific attention should be given to section 5.1 of NUREG 0612 where a discussion of a safe load path, procedures, lifting devices, crane maintenance and inspection, operator training etc. is discussed.

19. Provide a description of the weights of the loads to be moved during fuel debris processing and provide the definition of heavy load for the Trojan Plant.

21. Describe the procedural limitations that provide confidence that the transfer bell will not be moved over areas where spent fuel is stored. Are there electrical or mechanical interlocks which preclude heavy load (e.g. transfer bell) travel over stored spent fuel assemblies? Are there markers or alarms to alert the crane operator?

22. How are you protected from load hang ups?

23. On page 10, reference is made to critical mass evaluations performed at Savannah River. Are these based on critical experiments or calculations? If calculations, what computer codes were used?

24. How was total debris (whole or part pellets, spent fuel fragments, etc.) converted into 375 equivalent fuel pellets? Was this based solely on a maximum UO2 pellet weight of 5.6 grams?

25. How can you be assured that the debris remaining after the steam reforming process will be chemically stable? Do you plan to conduct any chemical analysis after steam reforming to be certain that all organic materials have been destroyed and that free, interstitial and hydrated water has been driven off? If not what is the basis for your conclusion. Particular concern is remaining water that may be a source of hydrogen and oxygen due to radiolytic decomposition.