

January 7, 2005

Mr. Michael J. Meisner, Chief Nuclear Officer  
Maine Yankee Atomic Power Company  
321 Old Ferry Road  
Wiscasset, Maine 04578-4922

SUBJECT: RECEIPT OF MAINE YANKEE'S RESPONSE TO REQUEST FOR  
INFORMATION ON FINAL STATUS SURVEY REPORT SUPPLEMENTS 1  
AND 3

Dear Mr. Meisner:

On December 7, 2004, Maine Yankee Atomic Power Company (Maine Yankee) submitted its response to the U.S. Nuclear Regulatory Commission's (NRC's ) request for additional information (RAI) on Final Status Survey Report (FSSR) Supplements 1 and 3. The staff finds Maine Yankee's response to the Supplement 3 RAIs to be acceptable. The staff now considers FSSR Supplement 3 to be acceptable, conditioned upon acceptable re-survey results of the surface following removal of the sacrificial covering.

The staff finds Maine Yankee's response to NRC comments 1, 3, and 4 of the Supplement 1 RAI to be acceptable, and the response to comment 2 to be unacceptable. The technical basis for the staff's finding is attached. The general comment provided by Maine Yankee on page 5 of your response, and comments made by Maine Yankee on the December 21, 2004, bi-weekly management call appear to indicate that Maine Yankee considers gamma survey results in excess of the acceptance criteria to be a trivial issue. NRC believes this is an important public safety, confidence, and compliance issue which must be resolved.

NRC is making every effort to work with Maine Yankee to complete review and acceptance of all FSSRs by the end of April 2005. However, NRC's schedule for the review and acceptance of Maine Yankee FSSRs is dependent on successful resolution of the gamma survey issue.

M. Meisner

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Should the gamma survey issue remain unresolved, it may jeopardize Maine Yankee's goal to complete decommissioning activities in April 2005.

If you have any questions regarding this letter please contact me at 301-415-7295.

Sincerely,

**/RA/**

Daniel M. Gillen, Deputy Director  
Decommissioning Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Nuclear Material Safety  
and Safeguards

Attachment: As stated

Docket No.: 50-309

License No.: DPR-36

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-2-

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## Staff Finding on Maine Yankee's Response to Supplement 1 RAI

### 1. Surveys of Wrap-Arounds and Penetrations

The staff finds Maine Yankee's response to the U.S. Nuclear Regulatory Commission (NRC) RAI 1, Supplement 1, to be acceptable.

### 2. Gamma Survey Results

LTP Section 5.5.1 (a) and (d) requires surveys and/or sampling of structures, and the cracks and wall/floor interfaces. Gamma surveys and /or sampling of concrete cracks and wall/floor interfaces are critical measurements for ensuring that these are not pathways for the movement of residual radioactivity under foundations and in structures buried onsite which may become a future source term contributing to the groundwater dose. The gamma survey results provide the pre-requisite information justifying the License Termination Plan (LTP) Final Status Survey Report (FSSR) requirement to provide surface measurements to demonstrate compliance with the dose criteria.

At the September 9, 2004, meeting, NRC and Maine Yankee agreed that the gamma surveys provided critical information for determining the contamination at depth in cracks and wall/ floor interfaces, and for ensuring that there is no significant residual radioactivity under remaining foundations that would be a source term for groundwater contamination. Maine Yankee agreed, that since gamma surveys were performed during the remediation phase, and were performed prior to turnover of the areas for final surveys, FSSRs would include a statement indicating that the below grade and underground foundations, and structures were surveyed for gamma radiation and were found to be less than 30K cpm (1.5X Background).

On page 8 of 16 of the second re-submittal of Supplement 1 Final Status Surveys - Release Records, "Release of Non-ISFSI Site Land - Addendum to FSS Report No. 1," dated October 14, 2004, it states that, "All basement surfaces were remediated to the 30,000 cpm gross gamma activity criterion value to detect and remove contamination at depth..." NRC staff attempted to verify Maine Yankee's statement during an October 24 -28, 2004, site visit by reviewing gamma survey information supporting the FSSRs for survey units included in Supplements 1 and 2. Maine Yankee did not provide the gamma surveys as requested, citing the difficulty in retrieving the records. Instead, Maine Yankee provided the surveys referenced in NRC's letter to Maine Yankee dated November 4, 2004. These Supplement 1 gamma survey records document that only one of the nine Survey Units examined met the 30K cpm criteria. The remaining eight Supplement 1 survey units had numerous areas exceeding the 30K cpm gross gamma criterion, or no survey information was provided.

Maine Yankee's response to NRC RAI's on Supplement 1 states that half of areas with survey results exceeding the 30K cpm gamma criteria no longer exist, and 25% of the areas were re-surveyed after further remediation and found to be below the limit. However, this means that approximately 25% of the areas exceed the 30K cpm gamma criteria. Maine Yankee's response states that most of these areas "reflect minor (and non-significant)

deviations from the 30K CPM criteria." It is not clear from Maine Yankee's response which of the areas are significant. In addition, the response does not include a discussion about why many areas above 30K cpm were left, and what the potential dose impact from these areas is. The staff does not agree that Maine Yankee's apparent failure to meet the 30K cpm gamma criteria is trivial.

In addition, Maine Yankee's response provides a technical justification based on surface beta measurements performed with gas flow proportional detectors which are sensitive primarily to beta radiation and ineffective for gamma radiation. The technical justification addresses the detection of contamination at depth based on surface measurements, which is inconsistent with the rationale for performing gamma surveys to determine contamination in cracks and crevices. In Maine Yankee's analysis, gamma measurements are compared to surface measurements and are treated as "trivial" based on the size of the elevated contaminated area. The analysis fails to address that the principal reason for performing the gamma surveys is to determine the depth of the contamination. It is industry practice to decontaminate all surface areas exceeding the 1.5X background radiation criteria. Any areas exceeding 1.5X background are decontaminated and re-surveyed until the area meets the release criterion. By performing the additional decontamination, cracks and crevices can be eliminated as a pathway for under building contamination and a potential source for groundwater contamination.

As previously discussed with Maine Yankee, it is the NRC staff's position that each of the gamma survey areas exceeding the 1.5X background criteria, despite its size, has the potential for providing a pathway for undetected residual radioactivity under the foundations and structures. The contaminated soil could impact the State imposed groundwater dose limit of 4 mrem/year. The potential for under-building contamination cannot be technically justified or modeled until the extent of the residual activity is determined by actual measurement.

In summary, gamma surveys documenting that survey units do not exceed 1.5X background radiation levels (30K cpm) are one of the bases for Maine Yankee's FSS surface release criteria. The staff understands that gamma survey results are not required to be reported in the FSSRs. However, the staff intends to verify, through the review of gamma survey results, Maine Yankee's statement that, "All basement surfaces were remediated to the 30,000 cpm gross gamma activity criterion value to detect and remove contamination at depth..." Without this verification, or an acceptable justification as to why Maine Yankee does not need to meet the 30K cpm gamma criteria, the staff will not approve Supplement 1 of Maine Yankee's FSSR.

3. Condition Report 03-285

The staff finds Maine Yankee's response to NRC RAI 3, Supplement 1, to be acceptable.

4. Instrument Response for the SSPA-3

The staff finds that the 30K cpm gamma criteria is acceptable for identifying locations with contamination at depth, requiring further remediation. The staff accepts Maine Yankee's clarification that the 30K cpm gamma criteria was not based on the Maine Yankee, Anchor Bolt Survey and Volumetric Analysis, as previously communicated.

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