

# Maine Yankee

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July 14, 1998  
MN-98-44

GAZ-98-36  
Proposed Change No. 209

UNITED STATES NUCLEAR REGULATORY COMMISSION  
Attention: Document Control Desk  
Washington, DC 20555

References: (a) License No. DPR-36 (Docket No. 50-309)  
(b) Letter: M. J. Meisner to USNRC; Proposed Technical Specification Change No. 207 - Permanently Defueled Technical Specifications; MN-97-116, dated October 20, 1997  
(c) Letter: USNRC to M. J. Meisner; Issuance of Amendment No. 161 to Facility Operating License No. DPR-36, Maine Yankee Atomic Power Company (TAC No. M99862)

Subject: Proposed Technical Specification Change No. 209 - Liquid and Gaseous Release Rate Limits

Gentlemen:

Maine Yankee hereby submits, pursuant to 10 CFR 50.90, an application to amend the Technical Specifications to revise the liquid and gaseous release rate limits to reflect the replacement of the former 10 CFR 20.106 requirements with the existing 10 CFR 20.1302 requirements. On May 21, 1991, the NRC issued a final rule revising its standards for protection against radiation as codified in 10 CFR Part 20. This final rule was required to be implemented by January 1, 1994. Maine Yankee implemented this final rule on April 1, 1993. Corresponding changes to the Technical Specifications were drafted but were not submitted pending the final issuance of NRC draft generic guidance. In Reference (b), Maine Yankee submitted a proposed change to the Technical Specifications to reflect the permanently defueled status of the plant. That proposed change cited the updated references to 10 CFR Part 20 to include the existing requirements. In Reference (c), NRC approved Reference (b) as supplemented. The application, herewith submitted, is modeled after a number of license applications which have been approved by the NRC including those for McGuire, Oconee, Catawba and more recently for Summer Unit 1. These Technical Specification changes may be authorized by the Commission without an exemption from 10 CFR Part 20 because the regulation, 10CFR20.1302, prescribes annual average concentrations rather than the "maximum instantaneous release concentrations" as specified herein.

Attachment I to this letter provides a description of the changes, a technical discussion and the Significant Hazards Evaluation. Attachment II to this letter provides a copy of the proposed Technical Specification changes.

This change does not involve a significant increase in the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in the margin of safety. Based on our evaluation, we conclude there is reasonable assurance that the Maine Yankee plant activities, consistent with the proposed Technical Specifications, will not impact the health and safety of the public.

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This proposed change has been reviewed and approved by an Independent Safety Reviewer. The Independent Review and Audit Committee has also reviewed this submittal. A representative of the State of Maine is being informed of this request by a copy of this letter.

If you have any questions, please contact us.

Very truly yours,




George A. Zinke, Director  
Nuclear Safety & Regulatory Affairs

## Attachments

c: Mr. Hubert Miller  
Mr. Michael Webb  
Mr. Singh Bajwa  
Mr. Ron Bellamy  
Mr. R. A. Rasmussen  
Mr. Clough Toppan  
Mr. Patrick J. Dostie  
Mr. Uldis Vanags

## STATE OF MAINE

Then personally appeared before me, George A. Zinke, who being duly sworn did state that he is the Director, Nuclear Safety & Regulatory Affairs of Maine Yankee Atomic Power Company, that he is duly authorized to execute and file the foregoing request in the name and on the behalf of Maine Yankee Atomic Power Company, and that the statements therein are true to the best of his knowledge and belief.

  
Notary Public

**Donna L. Pelletier, Notary Public**  
**State of Maine**  
**My Commission Expires 12/12/99**

US Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

ATTACHMENT I  
DESCRIPTION OF CHANGES AND SIGNIFICANT HAZARDS CONSIDERATIONS  
PROPOSED CHANGE NO. 209

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BACKGROUND

On May 21, 1991, the NRC issued a final rule revising its standards for protection against radiation as codified in 10 CFR Part 20. This final rule was required to be implemented by January 1, 1994. Maine Yankee implemented this final rule on April 1, 1993. Corresponding changes to the Technical Specifications were drafted but were not submitted pending the final issuance of NRC draft generic guidance. On October 20, 1997, Maine Yankee submitted Proposed Change No. 207 (Reference b). The purpose of that submittal was to propose revised technical specifications appropriate for the permanently shutdown and defueled status of the facility. The NRC approved that proposed change in Reference (c). That proposed change cited the updated references to 10 CFR Part 20 to include the existing requirements. This proposed change (209) provides a transitional link between the historically acceptable release limits and the updated references to 10 CFR Part 20.

DESCRIPTION OF CHANGES

**TS 5.6.3 Radioactive Effluent Controls Program** - Maine Yankee is proposing to change paragraphs (b) and (g) of this Technical Specification to set the specified limitations at historically acceptable levels.

**Current wording:**

- b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to 10 CFR 20, Appendix B; Table 2, Column 2;
- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary conforming to the dose associated with 10 CFR 20, Appendix B, Table 2, Column 1;

**Proposed wording:**

- b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to *10 times the concentration values in* 10 CFR 20, Appendix B; Table 2, Column 2;
- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary *shall be limited to the following:*
  - (1) *For noble gases: Less than or equal to a dose rate of 500 mrem/yr to the total body and less than or equal to a dose rate of 3000 mrem/yr to the skin, and*
  - (2) *For Iodine-131, Iodine-133, tritium and all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/yr to any organ.*



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JUSTIFICATION

The requirement to include within the Technical Specifications compliance with applicable provisions of 10CFR20.1301 concerning effluents from nuclear power reactors are stated in 10CFR50.36a. These requirements indicate that compliance with effluent Technical Specifications will keep average annual release of radioactive effluents to small percentages of the limits specified in 10 CFR Part 20; formerly 10CFR20.106, currently 10CFR20.1302. These requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than such small percentages, but still within the limits specified in the previous 10CFR20.106 which references Appendix B, Table II maximum permissible concentrations (MPC's). These referenced concentrations are specific values which relate to an annual dose of 500 mrem. It is further indicated in 10 CFR 50.36a that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials in effluents as low as is reasonably achievable (ALARA) as set forth in 10 CFR 50 Appendix I.

The Introduction to Appendix B of 10 CFR 20 states that the liquid effluent concentration (EC) values given in Appendix B, Table 2, Column 2, are based on an annual dose of 50 mrem. Since a release concentration corresponding to a limiting dose rate of 500 mrem/year was previously acceptable as a Technical Specification limit for liquid effluents, which applies at all times as an assurance that the limits of 10 CFR 50, Appendix I are not likely to be exceeded, it should not be necessary to reduce this limit by a factor 10.

The Introduction to Appendix B of 10 CFR 20 states that the gaseous effluent concentration (EC) values given in Appendix B, Table 2, Column 1, are based on an annual dose of 50 mrems for isotopes for which inhalation or ingestion is limiting or 100 mrems for isotopes for which submersion (noble gases) is limiting. Historically, release concentrations corresponding to limiting dose rates less than or equal to 500 mrems/year to the whole body, 3000 mrems/year to the skin from noble gases, and 1500 mrems/year to any organ from Iodine-131, Iodine-133, tritium and all radionuclides in particulate form with half-lives greater than eight days at the site boundary were previously acceptable as Technical Specification limits. These Technical Specification limits for gaseous effluents gave assurance that the limits of 10 CFR 50, Appendix I and 40CFR190 would not likely be exceeded. Therefore, it should not be necessary to restrict the operational flexibility by incorporating the dose rate associated with the EC value for isotopes based on inhalation/ingestion (50 mrems/year) or the dose rate associated with the EC value for isotopes based on submersion (100 mrems/year).

Having sufficient operational flexibility is especially important in establishing a basis for effluent monitor setpoint calculations. As discussed above, the concentrations stated in the existing 10 CFR Part 20, Appendix B, Table 2, Columns 1 and 2 relate to a dose of 50 or 100 mrems in a year. When applied on an instantaneous basis, this corresponds to a dose rate of 50 or 100 mrems/year. These low values are an impractical basis upon which to set effluent monitor setpoint calculations for many liquid and gaseous release situations when monitor background, monitor sensitivity, and monitor performance must be taken into account.

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10 CFR Part 20, Appendix B, Table 2, Column 2 values assume continuous discharge at those concentrations for 8760 hrs./yr. In the permanently shutdown condition, Maine Yankee primarily performs batch discharge and has a Radiological Environmental Monitoring Program to insure doses to members of the public remain a small fraction of the 50 mrem/yr limit of 10CFR20.

Therefore, to accommodate operational flexibility needed for effluent releases, the limits associated with liquid and gaseous release Technical Specifications will be based on the following:

The liquid release rate will be based on ten times the instantaneous dose rate value of 50 mrem/year to apply at all times. The multiplier of ten is proposed because the annual dose of 500 mrem, upon which the concentrations in the previous 10 CFR 20, Appendix B, Table II, Column 2, were based, is a factor of 10 higher than the annual dose of 50 mrem, upon which the concentrations in the existing 10 CFR 20, Appendix B Table 2, Column 2, are based.

The gaseous release rate will be maintained at the current instantaneous dose rate limit for noble gases of 500 mrems/year to the whole body and 3000 mrems/year to the skin; and for Iodine-131, for Iodine-133, for tritium, and for radionuclides in particulate form with half-lives greater than 8 days, an instantaneous dose rate limit of 1500 mrems/year to any organ. These values were previously contained in the Maine Yankee Technical Specifications prior to Amendment No. 125.

The operational history at Maine Yankee has demonstrated that the use of the concentration values associated with 10 CFR 20.106 as Technical Specification limits has resulted in calculated maximum individual doses to a member of the public that are small percentages of the limits of 10 CFR 50, Appendix I. Therefore, the use of liquid effluent concentration values which correspond to an annual dose of 500 mrem and the use of dose rate values listed above for gaseous effluents should not have a negative impact on the ability to continue to operate within the limits of 10 CFR 50, Appendix I and 40 CFR 190.

Compliance with the limits of 10 CFR 20.1301 will be demonstrated by operating within the limits of 10 CFR 50, Appendix I and 40 CFR 190.

SIGNIFICANT HAZARDS EVALUATION

The proposed change to the Technical Specifications, has been evaluated against the standards of 10 CFR 50.92 and has been determined not to involve a significant hazards consideration. An evaluation against these standards is provided below:

The proposed change does not:

1. Involve a significant increase in the probability or consequence of an accident previously evaluated.

The likelihood that an accident will occur is neither increased nor decreased by these Technical Specification changes. These Technical Specification changes will not impact the function or method of operation of plant equipment. No systems, equipment or components are affected by the proposed changes. The proposed revisions to the liquid and gaseous release rate limits will not result in any change or increase in the types or amounts of effluents other than that which has historically been deemed acceptable for release, nor will there be an increase in individual or cumulative occupational radiation exposures other than that which has historically been deemed acceptable. Therefore, the proposed changes to the Technical Specifications do not involve any increase in the probability or consequences of any accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes do not involve changes to the physical plant or operations. The proposed changes are administrative in nature and will not change the types and amounts of effluents from that which has historically been deemed acceptable. Since these administrative changes do not contribute to accident initiation, they do not produce a new accident scenario nor do they alter any existing accident scenarios. Therefore, the proposed changes to the Technical Specifications would not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in a margin of safety.

The proposed changes will not reduce a margin of safety because compliance with the limits of the existing 10 CFR 20.1301 will be demonstrated by operating within the limits of 10 CFR 50, Appendix I and 40 CFR 190. The liquid effluent releases the annual dose of 500 mrem, upon which the concentrations in the previous 10 CFR 20, Appendix B, Table II, Column 2, are based, is a factor of 10 higher than the annual dose of 50 mrem, upon which the concentrations in the existing 10CFR20, Appendix B, Table 2, Column 2, are based. Also, for gaseous effluent releases, the limits associated with the gaseous release rate Technical Specifications will be revised to the previously acceptable instantaneous dose rate limits.

Conclusion



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Maine Yankee has concluded that the proposed change to the Technical Specifications does not involve a significant hazards consideration as defined by 10 CFR 50.92.

ENVIRONMENTAL IMPACT DETERMINATION

This amendment request meets the criteria specified in 10 CFR 51.22 (c)(9) for categorical exclusion or otherwise not requiring environmental review. Specific criteria contained in this section are discussed below:

1. The amendment involves no significant hazards consideration. As demonstrated above, this requested amendment does not involve any significant hazards considerations.
2. There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The proposed effluent concentration (EC) multiplier of ten requested in this submittal for the current 10 CFR 20 requirements will allow the liquid effluent release rates to correspond to 500 mrem/yr as is the case in the former 10 CFR 20. The proposed limits associated with the gaseous release rate will be changed to be consistent with the previous acceptable instantaneous dose rate limits. Administrative controls on plant effluents remain in place to ensure applicable regulatory guidelines on plant effluents that may be released offsite are met. Thus, no anticipated plant activities as a result of issuance of this requested amendment should result in a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite.
3. There is no significant increase in individual or cumulative occupational radiation worker exposure. The proposed revisions to the liquid and gaseous release rate limits will not result in any change or increase in the types or amounts of effluents other than that which has historically been deemed acceptable for release, nor will there be an increase in individual or cumulative occupational radiation exposures other than that which has historically been deemed acceptable. In addition, administrative controls shall remain in place to ensure that individual occupational radiation exposure is maintained below applicable regulatory requirements.

On the basis of the preceding discussion, it has been concluded that the proposed amendment is acceptable and meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c)(9), and thus no environmental impact statement or environmental assessment need to be prepared in connection with the issuance of this amendment.

ATTACHMENT II  
PROPOSED CHANGE NO. 208

Maine Yankee  
Proposed Technical Specification  
Pages 5-11 and 5-12