

FEDERAL REGISTER NOTICE (FRN) SOLICITING PUBLIC COMMENTS

7590-01

NUCLEAR REGULATORY COMMISSION

Proposed Generic Communication

PROPOSED TITLE: Guidance for Modification of Technical Specifications to Reflect (A) Revisions to 10 CFR Part 20, "Standards For Protection Against Radiation" and 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors", (B) Related Current Industry Initiatives, and (C) Miscellaneous Related Editorial Clarifications.

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of opportunity for public comment.

SUMMARY: The Nuclear Regulatory Commission is proposing to issue a generic letter. A generic letter is an NRC document that 1) requests licensees to submit analyses or descriptions of proposed corrective actions, or both, regarding matters of safety, safeguards, or environmental significance, or 2) requests licensees to submit information to the NRC on other technical or administrative matters, or 3) transmits information to licensees regarding approved changes to rules or regulation, the issuance of reports or evaluations of interest to the industry, or changes to NRC administrative procedures.

This draft generic letter provides guidance, in the form of model technical specifications (TS), for preparing a license amendment request to modify TS in order to reflect changes to Title 10 of the Code of Federal Regulations (10 CFR) Part 20, "Standards for Protection Against Radiation," and 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors," that became effective on June 20, 1991 and October 1, 1992, respectively. The staff has taken this opportunity to update and improve the quality of selected TS by making editorial changes for clarification. Additionally, changes were made to the high radiation area TS to reflect current industry technology in controlling access to high radiation areas. Licensees are required to implement the revision to 10 CFR Part 20 beginning January 1, 1994, but, in implementing the new 10 CFR Part 20, licensees are not required to amend their existing TS. However, to take advantage of the revised reporting requirements of 10 CFR 50.36a, an amendment to the TS will be necessary. The proposed TS changes in this draft generic letter will not be finalized until public comment is received and analyzed; therefore, final model TS will not be available prior to the January 1, 1994, implementation date of the revised 10 CFR Part 20. However, because the changes are voluntary, there is no conflict with the January 1, 1994, implementation date for the revised 10 CFR Part 20 or for the previously effective change to 10 CFR 50.36a. Licensees may defer modifying their TS until the NRC completes the review of public comments and develops the final model TS or licensees may propose their own TS changes.

Comments relative to implementation of the rule changes and clarifications are requested. Comments are requested on the Commission's policy for continued use of Appendix B to 10 CFR 20.1 - 20.602 as a valid reference for gaseous and

liquid effluent TS until licensees elect to implement guidance proposed in this draft generic letter. Specifically, comments are requested on whether there should be a time limit on the use of Appendix B to 10 CFR 20.1 - 20.602 and, if a time limit is set, what is an appropriate time period to allow licensees to switch to Appendix B to 10 CFR 20.1001 - 20.2402.

The proposed generic letter is presented under the Supplementary Information section with the exception of Enclosure 4. Enclosure 4 is Appendix B to 10 CFR Part 20.1 - 20.602 which is available for review in the public document rooms. The proposed generic letter and supporting documentation were discussed in meeting number 249 of the Committee to Review Generic Requirements (CRGR) on September 14, 1993. The relevant information reflecting CRGR review of the proposed generic letter is available in the Public Document Room under accession number 9309160194. The NRC will consider comments received from interested parties in the final evaluation of the proposed generic letter. The NRC's final evaluation will include a review of the technical position and, when appropriate, an analysis of the value/impact on licensees. Should this generic letter be issued by the NRC, it will become available for public inspection in the Public Document Rooms.

DATES: Comment period expires [45 days]. Comments submitted after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except for comments received on or before this date.

ADDRESSES: Submit written comments to Chief, Rules Review and Directives Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Written comments may also be delivered to room P-223, Phillips Building, 7920 Norfolk

Avenue, Bethesda, Maryland, from 7:30 am to 4:15 pm, federal workdays. Copies of written comments received may be examined at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Stephen P. Klementowicz, (301) 504-1084.

SUPPLEMENTARY INFORMATION: Draft generic letter.

TO: ALL HOLDERS OF OPERATING LICENSES FOR NUCLEAR POWER REACTORS

SUBJECT: GUIDANCE FOR MODIFICATION OF TECHNICAL SPECIFICATIONS TO REFLECT
(A) REVISIONS TO 10 CFR PART 20, "STANDARDS FOR PROTECTION AGAINST RADIATION" AND 10 CFR 50.36a, "TECHNICAL SPECIFICATIONS ON EFFLUENTS FROM NUCLEAR POWER REACTORS", (B) RELATED CURRENT INDUSTRY INITIATIVES, AND (C) MISCELLANEOUS RELATED EDITORIAL CLARIFICATIONS
(GENERIC LETTER 93-)

Introduction

Revised Title 10 of the Code of Federal Regulations (10 CFR) Part 20, "Standards for Protection Against Radiation," and 10 CFR 50.36a, "Technical specifications on effluents from nuclear power reactors," became effective on June 20, 1991 and October 1, 1992, respectively. Licensees must implement the revised 10 CFR Part 20 (by January 1, 1994). In implementing the new Part 20, licensees are not required to amend their existing technical specifications (TS); but, for the sake of clarity in correlating specific TS provisions to the new Part 20 requirements, the staff encourages licensees to request TS changes as indicated in the enclosed guidance. Licensees need to be aware that, in order to implement the revised reporting requirements in 10 CFR 50.36a, an amendment to the technical specifications will be necessary. This generic letter provides guidance, in the form of model TS, to assist licensees who voluntarily request license amendments for modification of existing TS (or portions of TS) in connection with their implementation of revised Part 20 and/or revised 10 CFR 50.36a.

Additionally, this letter also provides guidance (model TS) for voluntary adoption by licensees, that (a) supplements the guidance provided in Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants," issued in June 1993 on acceptable alternate methods for controlling access to high radiation areas, and (b) updates and improves the quality of certain other selected existing TS by making editorial changes for clarification.

Existing TS affected by this generic letter include: definitions, liquid and gaseous effluents, limitations on radioactive material stored in outside storage tanks, site identifications, administrative reporting requirements, high-radiation area requirements, and administrative controls. Appropriate guidance is provided both for licensees who have, and have not chosen to implement Generic Letter (GL) 89-01, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program," and for licensees who have adopted the improved standard technical specifications (STS) as well. Although licensees are not required to do so, they are encouraged to revise their TS as presented in this generic letter. The NRC will evaluate TS amendment proposals to implement any or all of the guidance in this generic letter, or alternate TS amendment proposals that include adequate justification.

Discussion

The revision of 10 CFR Part 20 and 10 CFR 50.36a has affected related

information in TS and other regulations, thereby prompting NRC issuance of this guidance for recommended conforming amendments to selected existing TS. The recent changes to 10 CFR Part 20 would allow licensees to implement the rule without having to make any changes to their existing TS. However, the NRC crafted the enclosed model TS to provide licensees with acceptable language that correlates with the wording in the revised 10 CFR Part 20 and 10 CFR 50.36a, GL 89-01, and the improved STS. In accordance with 10 CFR 20.1601(c), the proposed model TS for high radiation areas contain updated acceptable alternate controls to those given in 10 CFR 20.1601. Licensees may propose other alternate high radiation area controls based on their plant-specific needs.

In the case of gaseous and liquid effluent release rates, the model TS were crafted to allow licensees to maintain their same overall level of effluent control while retaining the operational flexibility that exists with current TS under the previous 10 CFR Part 20. The model TS continue to require that radiation doses to members of the public from gaseous and liquid effluent releases from nuclear power plants be within the values given in Appendix I to 10 CFR Part 50.

In a letter dated April 28, 1993, NUMARC requested clarification of NRC intent with regard to implementation of Appendix B to 10 CFR Part 20. With regard to the basic implementation issue raised by NUMARC, NRC acknowledges in accordance with the provisions of 10 CFR 20.1008(c), that Appendix B to 10 CFR 20.1 - 20.602 (see Enclosure 4) remains a valid reference for gaseous and liquid effluent TS. Therefore, licensees could choose to maintain their existing level of effluent control as adequate implementation of the ALARA

requirement, and not submit individual requests for TS amendments to comply with 10 CFR 20.1101(b). Licensees may find this approach useful as a temporary expedient to allow more time and attention to be devoted to ensuring adequate preparations for implementation of the revised 10 CFR Part 20 requirements on January 1, 1994. As a practical matter, however, because many sections of the current TS (particularly the Bases sections) contain wording that could cause confusion in relation to the revised 10 CFR Part 20, the staff encourages licensees to adopt the model TS provided in this letter for implementation of the revised 10 CFR Part 20 in the long term. The model TS provided in this generic letter are specifically intended to eliminate possible confusion or improper implementation of the revised 10 CFR Part 20 requirements.

Summary of Recommended TS Changes

- 1.0 DEFINITIONS - Selected 10 CFR Part 20 definitions that are contained in the TS are referenced back to 10 CFR Part 20. A definition in the TS was revised to incorporate the change to 10 CFR 50.36a.
- TABLE 4.3-8 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS - Changes were made to update the current name of the referenced organization, and clarify that calibration or reference standards can be used for subsequent channel calibrations after the initial calibration.
- 3/4.11 RADIOACTIVE EFFLUENTS - The concentration values for liquid effluents that reference Appendix B to 10 CFR Part 20 values were

increased by a factor of 10 to maintain the level of effluent control and operational flexibility that existed with the current TS under the previous 10 CFR Part 20. 10 CFR Part 20 section numbers and table number style were updated. The term "MPC" was replaced with "effluent concentration." Editorial changes were made to clarify that the intent of the gaseous dose rate and liquid effluent concentration limits is to maintain radioactive effluent releases as low as is reasonably achievable (ALARA).

5.0 DESIGN FEATURES - Editorial changes were made for clarification and to update 10 CFR Part 20 section numbers.

6.0 ADMINISTRATIVE CONTROLS - Editorial changes were made for clarification, referenced 10 CFR Part 20 section numbers were updated, reporting requirements were changed to an annual basis in accordance with the revised 10 CFR 50.75a, and a reference was added. The time period for submitting the Radioactive Effluent Release Report was increased from 60 days to May 1 (120 days). STS 6.11, which provides high radiation area (HRA) access control alternatives pursuant to 10 CFR Part 20.1601(c), has been significantly revised. The changes include a capping dose rate to differentiate a HRA from a very high radiation area, additional requirements for groups entering HRAs, and clarification of the need for communication and control of workers in HRAs.

Generic Letter 89-01 based Administrative Controls TS - The concentration values for liquid effluents that reference Appendix B to

10 CFR Part 20 values were increased by a factor of 10 to maintain the level of effluent control and operational flexibility that existed with the current TS under the previous 10 CFR Part 20. 10 CFR Part 20 section numbers and table number style were updated. The term "MPC" was replaced with "effluent concentration." Reporting requirements for submittal of the Radioactive Effluent Release Report were changed to an annual basis in accordance with the revised 10 CFR 50.36a. The time period for submitting the Radioactive Effluent Release Report was increased from 60 days to May 1 (120 days). The gaseous effluent dose rate TS has been changed to delete the reference to Appendix B to 10 CFR Part 20 and instead cite the explicit instantaneous dose rate values, as given in STS 3.11.2.1.

Enclosures 1 through 3 are marked copies of STS. Separate enclosures are included for licensees who have and have not implemented GL 89-01, on programmatic controls and relocation of radiological effluent TS (Enclosures 1 and 2), and for licensees who have adopted the improved STS (Enclosure 3).

Licensee action to propose TS changes under the guidance of this generic letter is voluntary. Therefore, such action is not a backfit under the provisions of 10 CFR 50.109. Therefore, the staff did not perform a backfit analysis.

Enclosures:

1. Model Standard Technical Specifications
2. Model Technical Specifications (with GL 89-01 implemented)

3. Model Improved Standard Technical Specifications
4. Appendix B to 10 CFR 20.1 - 20.602, "Concentrations in Air and Water Above Natural Background," (Not attached)

ENCLOSURE 1

MODEL STANDARD TECHNICAL SPECIFICATIONS

1.0 DEFINITIONS

MEMBER(S) OF THE PUBLIC

1.16 MEMBER(S) OF THE PUBLIC [See 10 CFR 20.1003 DEFINITIONS]

OFFSITE DOSE CALCULATION MANUAL

1.17 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Radiological Environmental Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Radioactive Effluent Release Reports required by TS 6.9.1.3 and 6.9.1.4.

SITE BOUNDARY

1.30 The SITE BOUNDARY [See 10 CFR 20.10003 DEFINITIONS]

UNRESTRICTED AREA

1.38 An UNRESTRICTED AREA shall be any area at or beyond the SITE BOUNDARY to which access is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, or any area within the SITE BOUNDARY used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes.

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE
REQUIREMENTS

TABLE NOTATIONS

(3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Institute of Standards and Technology (NIST) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards shall permit calibrating the system over its intended energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used in lieu of the reference standards associated with the initial calibration.

TABLE 4.3-8

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE
REQUIREMENTS

TABLE NOTATIONS

(3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Institute of Standards and

Technology (NIST) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards shall permit calibrating the system over its intended energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used in lieu of the reference standards associated with the initial calibration.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (see Figure 5.1-3) shall be limited to 10 times the concentration values specified in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-6} microcurie/ml total activity.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, immediately restore the concentration to within the above limits.

3/4 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID EFFLUENTS

3/4.11.1.1 CONCENTRATION

This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents to UNRESTRICTED AREAS will be less than 10 times the concentration values specified in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402. The specification provides operational flexibility for releasing liquid effluents in concentrations to follow the Section II.A and II.C design objectives of Appendix I to 10 CFR Part 50. This limitation provides reasonable assurance that the levels of radioactive materials in bodies of water in UNRESTRICTED AREAS will result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to a MEMBER OF THE PUBLIC and (2) restrictions authorized by 10 CFR 20.1301(e). The concentration limit for the dissolved or entrained noble gases is based upon the assumption that Xe-135 is the controlling radionuclide and its effluent concentration in air (submersion) was converted to an equivalent concentration in water. This specification does not affect the requirement to comply with the annual limitations of 10 CFR 20.1301(a).

This specification applies to the release of radioactive materials in liquid effluents from all units at the site.

The required detection capabilities for radioactive materials in liquid waste samples are tabulated in terms of the lower limits of detection (LLDs). Detailed discussion of the LLD and other detection limits can be found in

Currie, L.A., "Lower Limit of Detection: Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements," NUREG/CR-4007 (September 1984), and in the HASL Procedures Manual, HASL-300.

3/4.11 RADIOACTIVE EFFLUENTS

LIQUID HOLDUP TANKS*

LIMITING CONDITION FOR OPERATION

3.11.1.4 The quantity of radioactive material contained in each of the following unprotected outdoor tanks shall be limited to less than or equal to [10] curies, excluding tritium and dissolved or entrained noble gases:

- a. _____
- b. _____
- c. _____
- d. Outside temporary tank

APPLICABILITY: At all times.

ACTION:

- .. With the quantity of radioactive material in any of the above tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank. Within 48 hours, reduce the tank contents to within the limit, and describe the events leading to this condition in the next Radioactive Effluent Release Report, pursuant to Specification 6.9.1.7.

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

*Tanks included in this specification are those outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the contents of the tank and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1.4 LIQUID HOLDUP TANKS

The tanks listed in this specification include all those outdoor radwaste tanks that are not surrounded by liners, dikes, or walls capable of holding the contents of the tank and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System.

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tank contents, the resulting concentrations would be less than the values given in Appendix B, Table 2, Column 2, to 10 CFR 20.1001-20.2402 at the nearest potable water supply and the nearest surface water supply in an UNRESTRICTED AREA.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to areas at or beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. For noble gases: Less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and
- b. For iodine-131, iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrems/yr to any organ.

APPLICABILITY: At all times.

ACTION:

- a. With the dose rate(s) exceeding the above limits, immediately restore the release rate to within the above limit(s).

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE

This specification provides reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of a MEMBER OF THE PUBLIC in an UNRESTRICTED AREA, either at or beyond the SITE BOUNDARY in

excess of the design objectives of Appendix I to 10 CFR Part 50. This specification is provided to ensure that gaseous effluents from all units on the site will be appropriately controlled. It provides operational flexibility for releasing gaseous effluents to satisfy the Section II.A and II.C design objectives of Appendix I to 10 CFR Part 50. For MEMBERS OF THE PUBLIC who may at times be within the SITE BOUNDARY, the occupancy of that MEMBER OF THE PUBLIC will usually be sufficiently low to compensate for the reduced atmospheric dispersion of gaseous effluents relative to that for the SITE BOUNDARY. Examples of calculations for such MEMBERS OF THE PUBLIC, with the appropriate occupancy factors, shall be given in the ODCM. The specified release rate limits restrict, at all times, the corresponding dose rates above background to a MEMBER OF THE PUBLIC at or beyond the SITE BOUNDARY to less than or equal to 500 mrem/year to the total body or to less than or equal to 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via the inhalation pathway to less than or equal to 1500 mrem/year. This specification does not affect the requirement to comply with the annual limitations of 10 CFR 20.1301(a).

This specification applies to the release of radioactive materials in gaseous effluents from all units at the site.

The required detection capabilities for radioactive material in gaseous waste samples are tabulated in terms of the lower limits of detection (LLD). Detailed discussion of the LLD, and other detection limits can be found in Currie, L.A., "Lower Limit of Detection: Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements,"

NUREG/CR-4007 (September 1984), and in the HASL Procedures Manual, HASL-300 (revised annually).

3/4.11 RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS*

LIMITING CONDITION FOR OPERATION

3.11.2.6 The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to $[2 \times 10^5]$ Curies of noble gases (considered as Xe-133 equivalent).

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in any gas decay tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank. Within 48 hours, reduce the contents of the tank to within the above limits, and describe the events leading to this condition in the next Radioactive Effluent Release Report, pursuant to Specification 6.9.1.4.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.2.6 GAS STORAGE TANKS*

The tanks included in this specification are those tanks for which the

quantity of radioactivity contained is not limited directly or indirectly by another technical specification. Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank contents, the resulting whole body exposure to a MEMBER OF THE PUBLIC at the nearest SITE BOUNDARY will not exceed 0.5 rem.

*FOR PWRs ONLY

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.4 TOTAL DOSE

LIMITING CONDITION FOR OPERATION

3.11.4 The annual (calendar year) dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to direct radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrems to the total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

APPLICABILITY: At all times.

ACTION:

- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2a., 3.11.1.2b., 3.11.2.2a., 3.11.2.2b., 3.11.2.3a., or 3.11.2.3b., calculations shall be made including direct radiation contributions from the units (including outside

storage tanks, etc.) to determine whether the above limits of Specification 3.11.4 have been exceeded. If such is the case, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the above limits and includes the schedule for achieving conformance with the above limits. This Special Report, as defined in 10 CFR 20.2203(a)(4), shall include an analysis that estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources, including all effluent pathways and direct radiation, for the calendar year that includes the release(s) covered by this report. It shall also describe levels of radiation and concentrations of radioactive material involved, and the cause of the exposure levels or concentrations. If the estimated dose(s) exceed(s) the above limits, and if the release condition resulting in violation of 40 CFR Part 190 has not already been corrected, the Special Report shall include a request for a variance in accordance with the provisions of 40 CFR Part 190. Submittal of the report within 30 days is considered a timely request, and a variance is granted until staff action on the request is complete.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.4 TOTAL DOSE

This specification is provided to meet the dose limitations of 40 CFR Part 190 that have been incorporated into 10 CFR 20.1301(d). The specification requires the preparation and submittal of a Special Report whenever the calculated doses due to releases of radioactivity and to radiation from uranium fuel cycle sources exceed 25 mrems to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems. Even if a site was to contain up to 4 reactors, it is highly unlikely that the resultant dose to a MEMBER OF THE PUBLIC will exceed the dose limits of 40 CFR Part 190 if the individual reactors remain within twice the dose design objectives of Appendix I, and if direct radiation doses from the units (including outside storage tanks, etc.) are kept small. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the MEMBER OF THE PUBLIC from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 8 km must be considered. If the dose to any MEMBER OF THE PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, submittal of the the Special Report within 30 days with a request for a variance (provided the release conditions resulting in violation of 40 CFR 190 have not already been corrected), in accordance with the provisions of 40 CFR 190.11 and 10 CFR 20.2203(a)(4), is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to other requirements for dose limitation of 10 CFR Part 20, as addressed in Specifications 3.11.1.1 and 3.11.2.1. An individual is not considered a MEMBER OF THE PUBLIC during

any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle. Demonstration of compliance with the limits of 40 CFR Part 190 or with the design objectives of Appendix I to 10 CFR Part 50 will be considered to demonstrate compliance with the 0.1 rem limit of 10 CFR 20.1301.

5.0 DESIGN FEATURES

5.1 SITE

MAP DEFINING UNRESTRICTED AREAS AND SITE BOUNDARY FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

5.1.3 Information regarding radioactive gaseous and liquid effluents, which will allow identification of structures and release points as well as definition of UNRESTRICTED AREAS within the SITE BOUNDARY that are accessible to MEMBERS OF THE PUBLIC, shall be as shown in Figures [5.1-3 and 5.1-4].

The definition of UNRESTRICTED AREA used in implementing these Technical Specifications has been expanded over that in 10 CFR 20.1003. The UNRESTRICTED AREA boundary may coincide with the Exclusion (fenced) Area boundary, as defined in 10 CFR 100.3(a), but the UNRESTRICTED AREA does not include areas over water bodies. For calculations performed pursuant to 10 CFR 50.36a, the concept of UNRESTRICTED AREAS, established at or beyond the SITE BOUNDARY, is utilized in the Limiting Conditions for Operation* to keep levels of radioactive materials in liquid and gaseous effluents as low as is reasonably achievable.

*For licensees who have implemented Generic Letter 89-01, substitute "Controls" for "Limiting Conditions for Operation."

6.0 ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ANNUAL REPORTS*

6.9.1.2 Annual Reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 31 of each year. The initial report shall be submitted prior to March 31 of the year following initial criticality.

Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors), for whom monitoring was performed, receiving an annual deep dose equivalent greater than 100 mrem and the associated collective deep dose equivalent (reported in person-rem) according to work and job functions ** (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). The dose assignments to various duty functions may be estimated based on pocket dosimeter, thermoluminescence dosimeter (TLD), or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the

total deep dose equivalent received from external sources should be assigned to specific major functions;

*A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

**This tabulation supplements the requirements of 20.2206 of 10 CFR Part 20.

6.0 ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT*

6.9.1.4 A Radioactive Effluent Release Report covering the operation of the unit during the previous year shall be submitted prior to May 1 of each year. The period of the first report shall begin with the date of initial criticality.

The Radioactive Effluent Release Report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the units as outlined in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof. For solid wastes, the format for Table 3 and Appendix B shall be supplemented with three

additional categories: class of solid wastes (as defined by 10 CFR Part 61), type of container (e.g., LSA, Type A, Type B, Large Quantity) and SOLIDIFICATION agent or absorbent (e.g., cement, urea formaldehyde).

The Radioactive Effluent Release Report shall include an annual summary of hourly meteorological data collected over the previous year. This annual summary may be either in the form of an hour-by-hour listing on magnetic tape of wind speed, wind direction, atmospheric stability, and precipitation (if measured), or in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability.** This same report shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. This same report shall also include an assessment of the radiation doses from radioactive liquid and gaseous effluents to MEMBERS OF THE PUBLIC due to their activities inside the SITE BOUNDARY (Figure [5.1-3]) during the reporting period. All assumptions used in making these assessments, i.e., specific activity, exposure time, and location, shall be included in these reports. The meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents, as determined by sampling frequency and measurement, shall be used for determining the gaseous pathway doses. The assessment of radiation doses shall be performed in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

The Radioactive Effluent Release Report shall also include an assessment of radiation doses to the likely most exposed MEMBER OF THE PUBLIC from reactor releases and other nearby uranium fuel cycle sources, including doses from

primary effluent pathways and direct radiation, for the previous calendar year to show conformance with 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operation." Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1, October 1977 and NUREG - 0133.

The Radioactive Effluent Release Report shall include a list and description of unplanned releases from the site to UNRESTRICTED AREAS of radioactive materials in gaseous and liquid effluents made during the reporting period.

The Radioactive Effluent Release Report shall include any changes made during the reporting period to the PROCESS CONTROL PROGRAM (PCP) and to the OFFSITE DOSE CALCULATION MANUAL (ODCM), pursuant to Specifications 6.13 and 6.14, respectively, as well as any major change to Liquid, Gaseous, or Solid Radwaste Treatment Systems pursuant to Specification 6.15. It shall also include a listing of new locations for dose calculations and/or environmental monitoring identified by the Land Use Census pursuant to Specification 3.12.2.

The Radioactive Effluent Release Report shall also include the following: an explanation as to why the inoperability of liquid or gaseous effluent monitoring instrumentation was not corrected within the time specified in Specification 3.3.3.10 or 3.3.3.11, respectively; and description of the events leading to liquid holdup tanks or gas storage tanks exceeding the limits of Specification 3.11.1.4 or 3.11.2.6, respectively.

*A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station;

however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

**In lieu of submission with the Radioactive Effluent Release Report, the licensee has the option of retaining this summary of required meteorological data on site in a file that shall be provided to the NRC upon request.

5.11 HIGH RADIATION AREAS

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

6.11.1 High Radiation Areas with Dose Rates not Exceeding 1.0 rem/hour*:

- A. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be breached only during periods of personnel entry or exit.
- B. Access to, and activities in, each such area shall be controlled by means of a Radiation Work Permit (RWP) or equivalent that includes specification of maximum dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- C. Individuals qualified in radiation protection procedures (e.g., health physics technicians) and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or

equivalent while performing their assigned duties provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.

D. Each individual (whether alone or in a group) entering such an area shall possess:

- (i) A radiation monitoring device that continuously displays radiation dose rates in the area ("radiation monitoring and indicating device"); or
- (ii) A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached ("alarming dosimeter"), with an appropriate alarm setpoint, or
- (iii) A radiation monitoring device that continuously transmits dose rate and cumulative dose to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or
- (iv) A self-reading dosimeter and,
 - (a) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual at the work site, qualified in radiation protection procedures, equipped with a radiation monitoring and

indicating device who is responsible for controlling personnel radiation exposure within the area, or

- (b) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area.

E. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

6.11.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour*, but less than 500 rads/hour**:

- A. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked door or gate that prevents unauthorized entry, and in addition:
 - (i) All such door and gate keys shall be maintained under the administrative control of the shift foreman or the health physics supervisor on duty.
 - (ii) Doors and gates shall remain locked except during periods of personnel entry or exit.

- B. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- C. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.
- D. Each individual (whether alone or in a group) entering such an area shall possess:
- (i) An alarming dosimeter with an appropriate alarm setpoint, or
 - (ii) A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
 - (iii) A self-reading dosimeter and,
 - (a) Be under the surveillance, as specified in the RWP or equivalent, of an individual qualified in radiation

protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel exposure within the area, or

- (b) Be under the surveillance, as specified in the RWP or equivalent, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.
- E. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.
- F. Such individual areas that are within a larger area that is controlled as a high radiation area, where no enclosure exists for purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, but shall be barricaded and conspicuously posted as a high radiation area, and a conspicuous, clearly visible flashing light shall be activated at the area as a warning device.

*At 30 centimeters from the radiation source or from any surface penetrated by the radiation.

**At 1 meter from the radiation source or from any surface penetrated by the radiation.

ENCLOSURE 2

MODEL TECHNICAL SPECIFICATIONS (With GL 89-01 implementation)

For those licensees who have implemented Generic Letter 89-01, the following model technical specifications should be used to supplement or replace existing specifications.

OFFSITE DOSE CALCULATION MANUAL

1.17 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Radiological Environmental Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4, and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Radioactive Effluent Release Reports required by Specifications 6.9.1.3 and 6.9.1.4.

6.0 ADMINISTRATIVE CONTROLS

6.8 PROCEDURES AND PROGRAMS

6.8.4 The following programs shall be established, implemented, and maintained:

g. Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to MEMBERS OF THE PUBLIC from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents pursuant to 10 CFR 20.1302 and with the methodology and parameters in the ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive

materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,

- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,
- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the SITE BOUNDARY shall be limited to the following:
 - a. For noble gases: Less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and
 - b. For iodine-131, iodine-133, tritium, and for all

radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrems/yr to any organ.

- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 10) Limitations on venting and purging of the Mark II containment through the Standby Gas Treatment System to maintain releases as low as reasonably achievable (BWRs with Mark II containments), and
- 11) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

6.9 REPORTING REQUIREMENTS

RADIOACTIVE EFFLUENT RELEASE REPORT**

6.9.1.4 The Radioactive Effluent Release Report covering the operation of the unit during the previous year shall be submitted prior to May 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP, and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

**A single submittal may be made for a multi-unit station. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.3.o. This documentation shall contain:
 - 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s), and

- 2) A determination that the change will maintain the level of radioactive effluent control required pursuant to 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after review and acceptance by the [URG] and the approval of the Plant Manager,
 - c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

ENCLOSURE 3

MODEL IMPROVED STANDARD TECHNICAL SPECIFICATIONS

(affected sections only)

5.7.2 Programs and Manuals

5.7.2.3 Offsite Dose Calculation Manual (ODCM)

- a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the Radiological Environmental Monitoring Program; and
- b. The ODCM shall also contain the Radioactive Effluent Controls and Radiological Environmental Monitoring programs required by Specification 5.7.2, and descriptions of the information that should be included in the Annual Radiological Environmental Operating and Radioactive Effluent Release Reports required by Specification [5.9.1.3] and Specification [5.9.1.4].

Licensee-initiated changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained by Specification 5.10.3[n/o]. This documentation shall contain:

1. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and
 2. A determination that the change(s) maintain the levels of radioactive effluent control required pursuant to 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and do not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;
- b. Shall become effective after review and acceptance by the [review method of Specification 5.5.1] and the approval of the [Plant Superintendent]; and
- c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.7.2.7 Radioactive Effluent Controls Program

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program

shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM;
- b. Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS, conforming to 10 times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2401;
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents pursuant to 10 CFR 20.1302 and with the methodology and parameters in the ODCM;
- d. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR Part 50, Appendix I;
- e. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;

- f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2 percent of the guidelines for the annual dose or dose commitment, conforming to 10 CFR Part 50, Appendix I;

- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the SITE BOUNDARY shall be limited to the following:
 - 1. For noble gases: Less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and

 - 2. For iodine-131, iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrems/yr to any organ;

- h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR Part 50, Appendix I;

- i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous

effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR Part 50, Appendix I; and

- j. Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

5.9.1 Routine Reports

5.9.1.2 Annual Reports

-----NOTE-----

A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station.

Annual Reports covering the activities of the unit as described below for the previous calendar year shall be submitted by March 31 of each year. The initial report shall be submitted by March 31 of the year following initial criticality.

Reports required on an annual basis include:

- a. Occupational Radiation Exposure Report

A tabulation on an annual basis of the number of station, utility,

and other personnel (including contractors), for whom monitoring was required, receiving an annual deep dose equivalent > 100 mrem and the associated collective deep dose equivalent (reported in person-rem) according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignments to various duty functions may be estimated based on pocket dosimeter, thermoluminescence dosimeter (TLD), or film badge measurements. Small exposures totalling < 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total deep dose equivalent received from external sources should be assigned to specific major work functions; and

5.9.1 Routine Reports

5.9.1.4 Radioactive Effluent Release Report

-----NOTE-----

A single submittal may be made for a multiple-unit station. The submittal shall combine sections common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

The Radioactive Effluent Release Report covering the operation of the

unit during the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.11 HIGH RADIATION AREAS

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

5.11.1 High Radiation Areas with Dose Rates not Exceeding 1.0 rem/hour^{*}:

- A. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be breached only during periods of entry or exit.
- B. Access to, and activities in, each such area shall be controlled by means of a Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- C. Individuals qualified in radiation protection procedures (e.g., health physics technicians) and personnel continuously escorted by

such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.

D. Each individual (whether alone or in a group) entering such an area shall possess:

(i) A radiation monitoring device that continuously displays radiation dose rates in the area ("radiation monitoring and indicating device"), or

(ii) A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached ("alarming dosimeter"), with an appropriate alarm setpoint, or

(iii) A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or

(iv) A self-reading dosimeter and,

(a) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual at the

work site, qualified in radiation protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel radiation exposure within the area, or

- (b) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area.

- E. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

5.11.2 High Radiation Areas with Dose Rates Greater than 1.0 rem/hour*, but less than 500 rads/hour**:

- A. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked door or gate that prevents unauthorized entry, and in addition:
 - (i) All such door and gate keys shall be maintained under the administrative control of the shift foreman or the health physics supervisor on duty.
 - (ii) Doors and gates shall remain locked except during periods of

personnel entry or exit.

- B. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- C. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.
- D. Each individual entering such an area shall possess:
 - (i) An alarming dosimeter with an appropriate alarm setpoint, or
 - (ii) A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
 - (iii) A self-reading dosimeter and,
 - (a) Be under the surveillance, as specified in the RWP or

equivalent, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel exposure within the area, or

(b) Be under the surveillance, as specified in the RWP or equivalent, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.

E. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

F. Such individual areas that are within a larger area that is controlled as a high radiation area, where no enclosure exists for purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, but shall be barricaded and conspicuously posted as a high radiation area, and a conspicuous, clearly visible flashing light shall be activated at the area as a warning device.

*At 30 centimeters (12 inches) from the radiation source or from any surface

penetrated by the radiation.

**At 1 meter (from the radiation source or from any surface penetrated by the radiation.

Dated at Rockville, Maryland, this 16th day of December 1993

FOR THE NUCLEAR REGULATORY COMMISSION

Gail H. Marcus

Gail H. Marcus, Chief
Generic Communications Branch
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation