

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY
AND
PENNSYLVANIA ELECTRIC COMPANY
THREE MILE ISLAND NUCLEAR STATION, UNIT 1

Operating License No. DPR-50
Docket No. 50-289
Technical Specification Change Request No. 229

COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF DAUPHIN) SS:

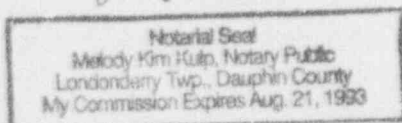
This Technical Specification Change Request is submitted in support of Licensee's request to change Appendix A to Operating License No. DPR-50 for Three Mile Island Nuclear Station, Unit 1. As part of this request, proposed replacement pages for Appendix A are also included.

GPU NUCLEAR CORPORATION

BY: J. H. Broughton
Vice President and Director, TMI-1

Sworn and Subscribed to before me
this 9th day of August, 1993.

Melody Kim Kulp
Notary Public



Member, Pennsylvania Association of Notaries

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF
GPU NUCLEAR CORPORATION

DOCKET NO. 50-289
LICENSE NO. DPR-50

CERTIFICATE OF SERVICE

This is to certify that a copy of Technical Specification Change Request No. 229 to Appendix A of the Operating License for Three Mile Island Nuclear Station Unit 1, has, on the date given below, been filed with executives of Londonderry Township, Dauphin County, Pennsylvania; Dauphin County, Pennsylvania; and the Pennsylvania Department of Environmental Resources, Bureau of Radiation Protection, by deposit in the United States mail, addressed as follows:

Mr. Darryl LeHew, Chairman
Board of Supervisors of
Londonderry Township
R. D. #1, Geyers Church Road
Middletown, PA 17057

Mr. Russell L. Sheaffer, Chairman
Board of County Commissioners
of Dauphin County
Dauphin County Courthouse
Harrisburg, PA 17120

Director, Bureau of Radiation Protection
PA. Department of Environmental Resources
Fifth Floor, Fulton Building
Third and Locust Streets
P. O. Box 2063
Harrisburg, PA 17120
Attn: Mr. Richard R. Janati

GPU NUCLEAR CORPORATION

BY:

J. Broughton
Vice President and Director, TMI-1

DATE:

August 9, 1993

I. TECHNICAL SPECIFICATION CHANGE REQUEST (TSCR) NO. 229

GPU Nuclear requests that the following changed replacement pages be inserted into existing Technical Specifications (T.S.):

Replace the existing pages 3-12, 3-14, 3-96, 3-100, 3-106, 3-110, 3-111, 3-119, 3-119a, 6-12a, 6-20, 6-21, and 6-22 with the attached revised pages 3-12, 3-14, 3-96, 3-100, 3-106, 3-110, 3-111, 3-119, 3-119a, 6-12a, 6-20, 6-21, and 6-22.

II. DESCRIPTION OF CHANGES

In accordance with 10 CFR 50.90, the following changes to the TMI-1 T.S. are being requested:

1. page 3-12 T.S. 3.1.6.6 is being revised to read as follows:

3.1.6.6 Action to evaluate the safety implication of reactor coolant leakage shall be initiated within four hours of determination. The nature, as well as the magnitude, of the leak shall be considered in this evaluation. The safety evaluation shall assure that the exposure of offsite personnel to radiation is within the limits of Specification 3.22.2.1.
2. page 3-14 The BASES for reactor coolant leakage T.S. 3.1.6 on this page is being revised to reflect the change to T.S. 3.1.6.6 (Change 1).
3. page 3-96 The BASES for T.S. 3.21.1 is being revised to state that the radioactive liquid effluent instrumentation will have setpoints to ensure that the trip/alarm will occur prior to exceeding 10 times the effluent concentrations of 10 CFR 20.
4. page 3-100 The BASES for T.S. 3.21.2 is being revised to state that the radioactive gaseous effluent instrumentation will have setpoints that support the release limits established by T.S. 3.22.2.1.
5. page 3-106 T.S. 3.22.1.1 is being revised to read as follows:
3.22.1.1 The concentration of radioactive material released at anytime from the unit to unrestricted areas (see Figure 5-3) shall be limited to 10 times the concentrations specified in 10 CFR Part 20.1001 - 20.2401, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained nobles gases, the concentration shall be limited to 3×10^{-3} uCi/cc total activity.
6. page 3-106 The BASES for T.S. 3.22.1.1 is being revised to reflect the "10 times" concentration levels specified in 10 CFR Part 20.1001 - 20.2401, Appendix B, Table 2 and also to reference 10 CFR Part 20.1301 as opposed to 10 CFR Part 20.106(e).

7. page 3-110 The BASES for T.S. 3.22.1.4 is being revised to reflect "the resulting concentrations would be less than the limits of 10 CFR Part 20.1001 - 20.2401, Appendix B, Table 2, Column 2, ..."
8. page 3-111 The BASES for T.S. 3.22.2.1 is being revised to reflect that T.S. 3.22.2.1 provides reasonable assurance that the annual dose at the site boundary from gaseous effluent from all units on the site will be within the annual dose limits of 10 CFR Part 20 for unrestricted areas while providing sufficient operational flexibility in establishing effluent monitor setpoints. Additionally, 10 CFR Part 20, Appendix B, Table II has been revised to 10 CFR Part 20, Appendix B, Table 2. Also, reference to 10 CFR Part 20.106(b) has been deleted.
9. page 3-119 The ACTION section for T.S. 3.22.4 is being revised to reference 10 CFR Part 20.2203(b) as opposed to 10 CFR Part 20.405c.
10. page 3-119 The BASES for T.S. 3.22.4 is being revised to reference 10 CFR 20.2203 as opposed to 10 CFR Part 20 by 46 FR 18525.
11. page 3-119a The BASES for T.S. 3.22.4 is being revised to reference 10 CFR 20.2203(b) as opposed to 10 CFR Part 20.405c.
12. page 6-12a T.S. 6.9.1.B.1 is being revised to indicate that the annual tabulation of station, utility, and other personnel (including contractors) receiving greater than 100 mrem/yr includes only those for whom monitoring was required.
13. page 6-12a T.S. 6.9.1.B.1 is being revised to reference Section 20.2206 of 10 CFR Part 20 as opposed to Section 20.407 of 10 CFR Part 20.
14. page 6-20 T.S. 6.10.1.g is being deleted and moved to 6.10.2.n.
15. page 6-21 T.S. 6.10.2.d is being revised to provide clarification consistent with the requirements in the revised 10 CFR 20. Specifically, the revision requires retention of dose records only for those individuals for whom monitoring is required as opposed to all individuals who enter radioactive material areas.
16. page 6-21 T.S. 6.10.2.n is being added by moving "Records of solid radioactive shipments" from T.S. section 6.10.1 to T.S. section 6.10.2.
17. page 6-21 T.S. section 6.10.3 is being deleted and 6.10.3.o becomes 6.10.2.o.
18. page 6-22 T.S. 6.12.1 is being revised to reference paragraph 20.1601 as opposed to 20.203(c)(2).

19. page 6-22 T.S. 6.12.1.a and 6.12.1.b are being revised to provide wording consistent with the definition of high radiation area as provided in section 20.1003.

III. REASON FOR CHANGE

On May 21, 1991, the Nuclear Regulatory Commission (NRC) issued a revision to its standards for protection against ionizing radiation, 10 CFR Part 20. The purpose of the revision to 10 CFR 20 was to modify the NRC's radiation protection standards to reflect developments in the principles and scientific knowledge underlying radiation protection and to reflect changes in the basic philosophy of radiation protection. In addition, the revision addresses international radiation protection standards in order to achieve a better level of uniformity with the requirements of other nations.

Revision Part 20 became effective on June 2, 1991, however, in accordance with more recent provisions, licensees may defer implementation of the revised rule until January 1, 1994. In accordance with section 20.1008(b), "[a]fter the time the licensee implements 20.1001-20.2401, the applicable section of 20.1001-20.2401 shall be used in lieu of any section in 20.1-20.601 of this part that is cited in license conditions or Technical Specifications, except as specified in paragraphs (c), (d) and (e) of this section." Notwithstanding, this request involved proposed changes to TMI-1 Technical Specifications to reflect implementation of the revised Part 20.

IV. SAFETY EVALUATION JUSTIFYING CHANGE

1. Change 3 - BASES for T.S. 3.21.1
Change 5 - T.S. 3.22.1.1
Change 6 - BASES for T.S. 3.22.1.1

The proposed change to the liquid release rate limit is being made in order to accommodate needed operational flexibility to facilitate implementation of the new 10 CFR 20 requirements.

The basic requirements for T.S. concerning effluents from nuclear power reactors are stated in 10 CFR 50.36a. These requirements indicate that compliance with effluent T.S. will keep average annual releases of radioactive material in effluents to small percentages of the limits specified in the old 10 CFR 20.106 (new 10 CFR 20.1301). 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 old 10 CFR 20.106 which references Appendix B, Table II concentrations (MPCs). These referenced concentrations are specific values which relate to an annual dose of up to 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.

As stated in the Introduction to Appendix B of the new 10 CFR 20, the continuous liquid effluent concentrations (EC) 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 has been acceptable as a T.S. 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 of 10.

Operational history at TMI-1 has demonstrated that the use of the concentration values associated with the old 10 CFR 20.106 as T.S. 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 concentration values which correspond to an annual dose of 500 mrem (ten times the concentration values stated in the new 10 CFR 20, Appendix B, Table 2, Column 2) 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.

Having sufficient operational flexibility is especially important in establishing a basis for effluent monitor setpoint calculations. As discussed above, the concentrations stated in the new 10 CFR 20, Appendix B, Table 2, Column 2, relate to a dose of 50 mrem in a year for a continuous release. This low value is impractical upon which to base effluent monitor setpoint calculations for many liquid effluent release situations when monitor background, monitor sensitivity, and monitor performance must be taken into account.

Therefore, to accommodate operational flexibility needed for effluent releases, the limits associated with the liquid release rate T.S. are based on ten times the concentrations stated in the new 10 CFR 20, Appendix B, Table 2, Column 2, to apply at all times. The multiplier of ten is proposed because the annual dose of 500 mrem, upon which the concentrations in the old 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 new 10 CFR 20, Appendix B, Table 2, Column 2, are based.

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

2. Change 1 - T.S. 3.1.6.6
Change 2 - Bases for T.S. 3.1.6
Change 4 - Bases for T.S. 3.21.2
Change 8 - Bases for T.S. 3.22.2.1

The proposed change to the reactor coolant leakage T.S. (3.1.6.6) and its corresponding Bases and the gaseous release rate limit Bases is being made in order to accommodate needed operational flexibility to facilitate implementation of the new 10 CFR 20 requirements. The basic requirements for T.S. concerning effluents from nuclear power reactors are stated in 10 CFR 50.36a. These requirements indicate that compliance with effluent T.S. will keep average annual releases

of radioactive material in effluents to small percentages of the limits specified in the old 10 CFR 20.106 (new 10 CFR 20.1301). 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 old 10 CFR 20.106 which references Appendix B, Table II concentrations (MPCs). These referenced concentrations are specific values which relate to an annual dose of up to 500 mrems. It is further indicated in 10 CFR 50.36a that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive material in effluents as low as is reasonably achievable (ALARA) as set forth in 10 CFR 50, Appendix I.

As stated in the Introduction to Appendix B of the new 10 CFR 20, the continuous gaseous effluent concentrations (EC) 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. Since instantaneous 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 has been acceptable as a T.S. limit for gaseous effluents to assure that the limits of 10 CFR 50, Appendix I and 40 CFR 190 are not likely to be exceeded, 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 new 10 CFR 20, Appendix B, Table 2, Column 1, 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 impractical upon which to base effluent monitor setpoint calculations for many gaseous effluent release situations when monitor background, monitor sensitivity, and monitor performance must be taken into account.

Therefore, to accommodate operational flexibility needed for effluent releases, the limits associated with gaseous release rate T.S. will be maintained at the current instantaneous dose rate limits 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 all radionuclides in particulate form with half-lives greater than 8 days, an instantaneous dose rate limit of 1500 mrems/year to any organ.

Compliance with the limits of the new 10 CFR 20.1302 will be demonstrated by operating within the limits of 10 CFR 50, Appendix I and 40 CFR 190. Operational history at TMI-1 has demonstrated that the use of the dose rate values listed above (i.e., 500 mrem/year, 3000 mrem/year, and 1500 mrem/year) as T.S. limits has resulted in calculated maximum individual doses to members of the public that are small percentages of the limits of 10 CFR 50, Appendix I and 40 CFR 190.

- 3. Change 7 - BASES for T.S. 3.22.1.4
Change 9 - ACTION for T.S. 3.22.4
Change 10 - BASES for T.S. 3.22.4
Change 11 - BASES for T.S. 3.22.4
Change 13 - T.S. 6.9.1.B.1
Change 18 - T.S. 6.12.1

These changes are administrative in nature to reference the corresponding paragraphs in the "new" 10 CFR 20 that are currently referenced in the "old" 10 CFR 20.

- 4. Change 12 - T.S. 6.9.1.B.1

Technical Specification 6.9.1.B.1 requires a report to be submitted annually which includes a tabulation of individuals receiving exposures greater than 100 mrem/year and their associated man-rem exposure according to work and job functions. Since the revised 10 CFR 20 only requires monitoring for certain individuals as defined in 10 CFR 20.1502, T.S. 6.9.1.B.1 is being revised to clearly identify the individuals who are tabulated in the annual report. This is an administrative change which provides clarification and consistency between all reporting requirements. This change will not alter any of TMI-1's requirements or responsibilities for protection of the public and employees against radiation hazards.

- 5. Change 14 - T.S. 6.10.1.g
Change 16 - T.S. 6.10.2.n
Change 17 - T.S. 6.10.3

Technical Specification 6.10.1.g is being deleted and moved to 6.10.2.n. This change is administrative and is consistent with the revised 10 CFR 20 requirement to maintain records of solid radioactive shipments for the duration of the unit Operating License. An additional administrative change is being proposed to delete paragraph 6.10.3 and incorporate 6.10.3.0 into 6.10.2.0.

- 6. Change 15 - T.S. 6.10.2.d

Technical Specification 6.10.2.d is being revised to provide clarification consistent with the requirements in the revised 10 CFR Part 20. Specifically, the revision requires retention of dose records only for those individuals for whom monitoring is required as opposed to all individuals who enter radiation control areas.

7. Change 19 - T.S. 6.12.1.a and T.S. 6.12.1.b

These changes are administrative in nature, consistent with the requirements of the revised 10 CFR Part 20. T.S. 6.12.1.a and 6.12.1.b are being revised to provide wording and measurement distances consistent with the definition of high radiation area in 20.1003 and to identify the maximum dose associated with a high radiation area.

The revised 10 CFR Part 20 provides a new definition of a high radiation area which provides controls for areas accessible to individuals based on a radiation level measurement made at 30 cm.

The revised 10 CFR Part 20 also requires that additional controls be in place to prevent unauthorized or inadvertent access to very high radiation areas. Very high radiation area are those areas where radiation levels are 500 rads or more in one hour at one meter from a radiation source. This change to the T.S. is proposed to acknowledge the new upper limit (<500 rads) on the determination of a high radiation area. This will ensure that the measures which are in place for controlling access to high radiation areas are not solely used for very high radiation areas which require additional controls.

V. NO SIGNIFICANT HAZARDS CONSIDERATIONS

GPU Nuclear has determined that this TSCR involves no significant hazards consideration as defined by NRC in 10 CFR 50.92.

1. Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability of occurrence or the consequences of an accident previously evaluated.

The proposed revisions to the liquid release rate limits and bases and gaseous effluent bases will not result in a change in the types or amounts of effluents released nor will there be an increase in individual or cumulative radiation exposures. In addition, these changes do not impact the operation or design of any plant structures, systems or components. These changes ensure compliance with 10 CFR 50.36a and 10 CFR 50 Appendix I and result in levels of radioactive materials in effluents being maintained ALARA. The revision to the high radiation area controls and dose measurement distance will ensure areas are conservatively posted as high radiation areas in compliance with 10 CFR 20.1601(a)(1) and provide controls to ensure individuals are not overexposed. Other proposed changes consist of revisions to 10 CFR 20 references to recognize the new section numbers, and administrative controls for record keeping to maintain compliance with the new Part 20.

These changes will not result in a change to plant design or operation. Therefore, it can be concluded that the proposed changes do not involve an increase in the probability or consequences of an accident previously evaluated.

2. Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes do not affect the plant design or operation nor do they result in a change to the configuration of any equipment. There will be no change in types or increase in the amount of effluents released offsite.

Therefore, this proposed change cannot create the possibility of a new or different kind of accident from any previously evaluated.

3. Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

The proposed revisions do not involve any change in the types or increase in the amount of effluents released offsite. The proposed changes do not involve any actual change in the methodology used in the control of radioactive wastes or radiological environmental monitoring. The methodology that will be used in the control of radioactive effluents and calculation of effluent monitor setpoints will result in the same effluent release rate as the current methodology now being used. The operational flexibility needed for effluent releases allows the use of limits as proposed. In addition, the changes in measurement distances for determination of high radiation areas will not result in an increase in individual or cumulative occupational radiation exposures since it will result in a more conservative identification of high radiation areas. Compliance with the limits of the new 10 CFR 20.1301 will be demonstrated by operating within the limits of 10 CFR 50 Appendix I and 40 CFR 190. Thus, operation of the facility in accordance with the proposed amendment does not involve a significant reduction in a margin of safety.

VI. IMPLEMENTATION

It is requested that the amendment authorizing this TSCR become effective on January 1, 1994.