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TERRY,C.D. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION
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SUBJECT: Forwards response to NRC review of rev 8 to ODCM,as disposition re Category A comments provided in TER EGG-PHY-10286,encl in NRC ltr dtd 920713.

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NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

January 15, 1993
NMP1L 0727

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63
TAC No. M82734

Gentlemen:

SUBJECT: RESPONSE TO NRC REVIEW OF REVISION 8 OF THE NINE MILE POINT UNIT 1 OFFSITE DOSE CALCULATION MANUAL (ODCM)

The attachment to this letter provides Niagara Mohawk's disposition of Category A comments provided in Technical Evaluation Report EGG-PHY-10286, enclosed in NRC letter dated July 13, 1992. Niagara Mohawk has evaluated each of the Category A items and will make changes to the ODCM where deemed appropriate. All other recommended changes are being evaluated for inclusion in future ODCM revisions. Changes to the ODCM and their implementing procedures will be completed on or before June 30, 1993.

If you have any questions regarding the attached responses, please contact Ms. Elizabeth D. Thomas at 315-428-7188.

Very truly yours,

C. D. Terry
Vice President
Nuclear Engineering

NAS/sek
003355LL
Attachment

xc: Regional Administrator, Region I
Mr. W. L. Schmidt, Senior Resident Inspector
Mr. R. A. Capra, Director, Project Directorate I-1, NRR
Mr. D. S. Brinkman, Senior Project Manager, NRR
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NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT UNIT 1
DOCKET NO. 50-220
DPR-63

# RESPONSE TO THE NRC TECHNICAL EVALUATION REPORT OF THE NINE MILE POINT UNIT 1 ODCM, REVISION 8

**ITEM 1.** Section 2.1.4.2 should contain methodology to account for, or prevent, simultaneous releases from the liquid radwaste batch release tanks. (4.1)

**RESPONSE 1.** In accordance with chemistry procedure N1-CSP-V201, "Radioactive Liquid Release Analysis," controls are in place to preclude simultaneous release of liquid radwaste batch tanks. In addition, an independent verification of the discharge valve line-up is performed according to site radwaste procedure N1-LWPP-03, "Liquid Waste Discharge," to ensure that simultaneous discharges are prevented. A sentence will be added to the ODCM on or before June 30, 1993 to state that simultaneous batch releases are prohibited per procedure.

**ITEM 2.** To be consistent with the recommendations of NUREG-0473, Technical Specification 3.6.14.a and the ODCM should require the Liquid Radwaste Effluent Line monitor to provide automatic termination of release. (4.1) .

**RESPONSE 2.** Although Unit 1's Liquid Radwaste Effluent Line Monitor was not designed to provide automatic termination of a release, the actions specified in the Unit 1 Technical Specifications and in radwaste procedure N1-LWPP-03, "Liquid Waste Discharge," ensure that the liquid effluent concentrations are below 10CFR20, Appendix B, Table 2 limits.

According to the Unit 1 Technical Specifications, section 3.6.14.a:

> "With a radioactive liquid effluent monitoring instrumentation channel alarm setpoint less conservative than a value which will ensure that the limits of 3.6.15.a.1 are met, immediately suspend the release of radioactive liquid effluents monitored by the affected channel, or declare the channel inoperable, or change the setpoint so it is acceptably conservative."

Section 7.1 of radwaste procedure N1-LWPP-03 states that following a Hi-Hi radiation discharge monitor alarm, the corrective actions to be taken are:

1.) Immediately stop batch pump out.

2.) Notify the CSO (Control Room) that batch pump out is stopped.

3.) Chemistry will re-analyze this batch and determine appropriate action.

4.) Ensure discharge monitor detectors are flushed with demineralized water.

These radwaste procedure actions satisfy the Unit 1 Technical Specifications, and the ODCM reflects the Unit 1 Technical Specification requirements.

In addition, note (a) to the Unit 1 Technical Specifications' Table 3.6.14-1, "Radioactive Liquid Effluent Monitoring Instrumentation," states that the Liquid Radwaste Effluent Line provides an alarm, but does not provide automatic termination of release. The following evaluation was provided in Technical Evaluation Report (TER-C5506-100) enclosed with the Safety Evaluation for Technical Specification Amendment No. 66, dated November 2, 1984:

> "The licensee has not provided automatic isolation function for the liquid radwaste effluent line. The licensee's alternative is to assign an operator in the radwaste control room at all times during a release of liquid radwaste. This commitment would ensure termination of the radwaste effluent release should the monitor alarm setpoints be exceeded during the release."

The NRC stated that this alternative is deemed to meet the intent of NUREG-0473.

In summary, the Unit 1 ODCM, Technical Specifications, and radwaste procedure N1-LWPP-03 ensure compliance with NRC regulations, meet the intent of NUREG-0473 and NUREG-0133, and ensure that 10CFR20 concentration limits for liquid effluents are not exceeded. Thus, automatic termination of release by the Liquid Radwaste Effluent Line Monitor is not required, at Nine Mile Point Unit 1.

**ITEM 3.** A study should be performed to determine the validity of the X/Q's, $V_i$'s, and $B_i$'s in Tables 3-1 and 3-2, and appropriate corrections should be made in the ODCM. (4.2)

**RESPONSE 3.** The methodology used in the ODCM for calculating ground-level gamma radiation doses from elevated noble gas releases is taken from Appendix F of Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I." The equation from this Regulatory Guide found in Appendix B of the ODCM, is used to calculate gamma air dose factors, $B_i$ and gamma whole body dose factors, $V_i$. The $I_1$ and $I_2$ values were conservatively interpolated from Figures 7.21 and 7.22, found in "Meteorology and Atomic Energy," 1968. The values that were presented in Table 3-2 of the Unit 1 ODCM, Rev. 8, were manually calculated and verified.

A computer code developed by Mr. Charles Willis, Woodson Associates, will be used to verify the manual calculations. Appropriate corrections will be made in the June 30, 1993 revision to the ODCM.

The X/Q for Unit 1 elevated releases uses a combined elevated and ground-level release methodology from Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light - Water-Cooled Reactors." The use of the combined release mode versus elevated release mode is being evaluated. Due to favorable meteorology in the vicinity of the plant, the offsite dose factors, as well as X/Q's, result in doses that are well below the 10CFR20 limits. An evaluation of past releases during 1990, 1991 and 1992 (1st and 2nd quarter) has been completed which determined the effect the addition of immersion dose (from an elevated release) would have on the percent of dose and dose rate limits. Based on this evaluation, no dose or dose rate limits were exceeded during 1990, 1991 and 1992 (1st and 2nd quarter). However, the immersion contribution for elevated releases will be included in the procedure to determine offsite dose and dose rate calculations until the evaluation concerning the stack combined release mode is resolved. The methodology in the ODCM already provides the equation for including both the plume shine and immersion contributions. Therefore, no revision to the equation is necessary. The subscripts for the stack and emergency condenser vent will be deleted to be applicable for both elevated and ground level releases. This will provide consistency with the revised site implementing procedure.

The immersion dose from an elevated release will be added to site implementing procedures on or before March 31, 1993. The Unit 1 ODCM will be revised on or before June 30, 1993. These changes will remain in effect until the combined release mode issue is resolved.

**ITEM 4.** To account for releases from NMP-2 and JAF, Section 3.1.2 should require stack noble gas monitor setpoints that do not permit release rates to exceed the site limit if all three units are releasing noble gases at the rates permitted by their monitor setpoints. (4.2)

**RESPONSE 4.** Nine Mile Point Unit 1, Unit 2 and the James A. Fitzpatrick (JAF) Nuclear Stations intend to work toward a realistic and equitable allocation of the site whole body dose rate limit. Presently, the Unit 1 dose rates are less than 10% of the 10CFR20 limits. In addition, the noble gas dose procedure, N1-CSP-M350 "Noble Gas Dose Calculations" provides direction to contact the Unit 2 and JAF plants if dose rates exceed 10% of the limit, in order to determine offsite doses. This is outlined in Response to Item 7. In addition, the Unit 1 alarm setpoint is set at an alert level of 50% of the dose rate limits. Both Nine Mile Point Unit 1 and 2 use a fraction of the limit for alarm setpoints. An evaluation will be completed to determine if an allocation factor for Unit 1, Unit 2 and JAF is necessary.

**ITEM 5.** To be consistent with the recommendations of NUREG-0473, Technical Specification 3.6.14.b and the ODCM should require the Condenser Air Ejector monitor to provide automatic termination of release. (4.2)

**RESPONSE 5.** The Unit 1 Technical Specifications (Note (c) to Table 4.6.14-2) state that the channel functional test of the condenser air ejector radioactivity monitor shall demonstrate that automatic isolation of this pathway occurs if either of the following conditions exist:

1.) Instruments indicate two channels above the Hi-Hi alarm setpoint.

2.) Instruments indicate one channel above the Hi-Hi alarm setpoint and one channel downscale.

This automatic isolation is tested once per operating cycle in accordance with N1-ST-C8, "Offgas Radiation Monitor Channel Function Test." A sentence will be added to the Unit 1 ODCM to reflect the above requirements on or before June 30, 1993.

**ITEM 6.** Section 3.2 should require determination of dose rates at the shortest intervals for which sampling and analyses are specified in Technical Specification Table 4.6.15-2. (4.4.1)

**RESPONSE 6.** The major problem with a shorter interval (e.g., weekly) for dose rate calculation frequency is the H-3, Fe-55, Sr-89 and Sr-90 analyses. Currently, a monthly composite sample is sent to Teledyne for analyses. If the dose rate calculations were completed weekly instead of monthly, then we would still have to estimate the four nuclides. Teledyne typically requires six to eight weeks for analyses. A weekly frequency will not provide any more accurate or instantaneous dose rate determination. The update would still be monthly. If the Teledyne samples were increased to weekly, the increased cost would not be warranted because a weekly dose rate calculation is not instantaneous. To ensure the instantaneous dose rate limit of 1500 mrem/yr is not exceeded, a limit on release rate is specified in the ODCM of 0.34 $\mu$Ci/sec which is based on a Sr-90 release to the child bone. This is a conservative release limit, thus, no revisions to calculation frequency are deemed required.

**ITEM 7.** Section 3.2.1.1 should include methodology to ensure that the dose rates due to noble gases released by NMP-1 plus the corresponding dose rates due to NMP-2 and JAF releases do not exceed the limits of Technical Specification 3.6.15.b.(1)(a). (4.4.2)

**RESPONSE 7.** The Unit 1 procedure N1-CSP-M350, "Noble Gas Dose Calculations," for calculating the offsite dose rates states that if the dose rates exceed 10% of the limits, then the following actions must be taken:

1.) Notify the Unit 1 SSS (Station Shift Supervisor) and Unit 1 Supervisor Chemistry.

2.) Notify the Unit 2 SSS and Unit 2 Supervisor Chemistry and request the Unit 2 contribution to offsite dose.

3.) Notify the SSS of the James A. Fitzpatrick Nuclear Plant and request the Fitzpatrick contribution to offsite dose.

4.) Increase the frequency of performing noble gas dose calculations, if necessary, to ensure site (Nine Mile Point Units 1 and 2 and Fitzpatrick) limits are not exceeded.

This criteria is sufficient to ensure that the site dose rate limit is not exceeded. A sentence will be added to the Unit 1 ODCM, Section 3.2.1.1 to reflect the above procedural requirements on or before June 30, 1993.

**ITEM 8.** The methodology in Section 3.2.1.2, that in theory permits the offsite organ dose rate to equal the site limit before releases from NMP-2 and JAF are considered, should be made much more conservative. (4.4.3)

**RESPONSE 8.** The release rate limit of 0.34 $\mu$Ci/sec uses the 1500 mrem/yr because it is also conservatively based on a maximum curie-to-dose conversion factor for Sr-90 to the child bone, with the receptor location at the critical residence beyond the site boundary. This is a very conservative assumption because Unit 1 typically releases between 1-10 $\mu$Ci of Sr-90 per quarter. Therefore, an equivalent release rate based solely on the Sr-90 dose factor results in a conservative release rate limit.

In addition, the chemistry procedure N1-CSP-M351, "Particulate, Iodine and Tritium Dose Calculations," for calculating organ dose rate states that if the organ dose rate exceeds 5% of the 1500 mrem/yr limit, then the following actions must be taken:

1.) Notify the Unit 1 SSS (Station Shift Supervisor) and Unit 1 Supervisor Chemistry.

2.) Notify the Unit 2 SSS and Unit 2 Supervisor Chemistry and request the Unit 2 contribution to offsite dose.

3.) Notify the SSS of the James A. Fitzpatrick Nuclear Plant and request the Fitzpatrick contribution to offsite dose.

4.) Increase the frequency of performing dose calculations, if necessary, to ensure site (Nine Mile Point Units 1 and 2 and Fitzpatrick) limits are not exceeded.

A sentence will be added to the Unit 1 ODCM, Section 3.2.1.2, to reflect the above procedural requirements on or before June 30, 1993. The reason the 0.34 $\mu$Ci/sec appears to be too high is due to a favorable meteorology producing low X/Q and D/Q values.

The methodology for the dispersion parameters is based on Regulatory Guide 1.111 methodology and was completed by C. T. Main.

**ITEM 9.** Section 4 should specify that the required reports will include all significant details of the dose determination if radiological sampling and analyses are used to determine if the dose limits of 40CFR190 are exceeded. (4.9) (Response combined with responses to items 10 and 11.)

**ITEM 10.** Section 4 should state how doses due to NMP-2 and JAF operation are to be determined if Uranium Fuel Cycle dose calculations are required by Technical Specification 3.6.15.d. (4.9) (Response combined with responses to items 9 and 11.)

**ITEM 11.** Technical Specification 3.6.15.d should be revised to require Uranium Fuel Cycle dose calculations if <u>any</u> of the limits of Technical Specifications 3.6.15.a.(2), 3.6.15.b.(2), or 3.6.15.b.(3) are exceeded. (4.9) (Response combined with responses to items 9 and 10.)

**RESPONSE 9,10,11.** Section 4 of the Unit 1 ODCM provides a detailed description of all dose calculations for members of the public, both inside the site boundary and outside the site boundary. The environmental program complies with all requirements of the reports required by Technical Specification 3.6.15.d. In addition, the dose contributions due to the NMP-2 and JAF operation are determined based on methodology provided in their respective Offsite Dose Calculation Manuals. The Unit 1 Technical Specifications require dose calculations only if twice the annual limits are exceeded. This requirement was reviewed and approved by the NRC in Table 1 of the Technical Evaluation Report (TER-C5506-100) enclosed in the NRC Safety Evaluation for Technical Specification Amendment No. 66. Based on this TER, no Technical Specification changes are deemed required.

The ODCM will be revised on or before June 30, 1993 to add clarification statements to state that Technical Specification 3.6.15.d required reports will include all significant details of the dose determination if radiological sampling and analyses are used to determine if the dose limits of 40CFR190 are exceeded (Items 9 and 10). It is important to note that all significant details are included in all reports to the NRC that are prepared by the licensee.

## CONCLUSION

In conclusion, the Category A items identified in the Technical Evaluation Report, provided by EG&G Idaho, are addressed in this response. Those items requiring text additions to the Unit 1 ODCM will be completed on or before June 30, 1993. The Category B and C items were reviewed and are being addressed and considered in future revisions to the ODCM.