Niagara Mohawk®

John H. Mueller
Senior Vice President and
Chief Nuclear Officer

Phone: 315.349.7907
Fax: 315.349.1321
e-mail: muellerj@nimo.com

September 28, 2001
NMP1L 1612

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

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Subject: Request to Change Equipment Used for Implementation of TMI Action Plan Items II.F.1(1) and II.F.1(2) (TAC No. MB2443)

Gentlemen:

The NRC issued NUREG-0737, "Clarification of TMI Action Plan Requirements," in November 1980. Generic Letters (GL) 82-05 and 82-10, issued on March 17 and May 5, 1982, respectively, requested licensees of operating power reactors to furnish information pertaining to their implementation of specific Three Mile Island (TMI) Action Plan items described in NUREG-0737. Niagara Mohawk Power Corporation (NMPC) responded to the GLs for Nine Mile Point, Unit 1 (NMP1) by submittals dated April 16, 1982, June 7, 1982, August 20, 1982, September 30, 1982, October 1, 1982, and November 29, 1982. The NRC issued a Confirmatory Order for NMP1 on March 14, 1983, requiring NMPC to implement and maintain the various TMI Action Plan Items, including Items II.F.1(1) for noble gas monitoring and II.F.1(2) for effluent monitoring of iodine and particulates, in the manner described in NMPC's submittals.

In response to TMI Action Plan Items II.F.1(1) and II.F.1(2), NMPC committed to install and utilize the radioactive gaseous effluent monitoring system (RAGEMS) designed and supplied by Science Applications, Inc. In addition to meeting the TMI Action Plan requirements, RAGEMS was to provide a continuous on-line isotopic analysis of radioactive effluents including particulates, iodines, and noble gases. RAGEMS was to be installed to replace the existing offgas effluent stack monitoring system (OGESMS), which was then to be maintained as a backup system.

Section 6 of Supplement 1 to NUREG-0737 requested licensees to provide information regarding the application of Regulatory Guide (RG) 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Rev. 2. This supplement to NUREG-0737 was included as an enclosure to GL 82-33, which was issued on December 17, 1982. The GL requested licensees to provide a schedule for

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responding with the requested information by April 15, 1983, after the confirmatory Order was issued. NMPC provided the requested information by letters dated April 2, 1984, and October 18, 1985. The NRC Staff issued a safety evaluation for NMP1 regarding compliance with RG 1.97 on November 19, 1986. Subsequent submittals by NMPC on July 31,1989, May 25, 1990, October 29, 1990, and August 6, 1991, resulted in the issuance of a supplemental safety evaluation by the NRC Staff on November 14, 1991. Additional commitments, beyond those included in the 1983 Order, concerning operation of RAGEMS were included in NMP1's submittals to meet RG 1.97.

Since installation and despite significant station resources, RAGEMS has proven difficult to maintain. This difficulty has been discussed with the NRC Staff during various inspections and during a meeting held on November 17, 1987. Additionally, the difficulties were documented in several Semi-annual Radioactive Effluent Release Reports (SARERR). The SARERR for July-December 1987 provided a detailed discussion of past problems associated with RAGEMS reliability. Due to continuing concerns, NMPC informed the NRC Staff by letter dated August 27, 1992, that RAGEMS was intended for use as an emergency stack gas monitoring system. From that time, OGESMS has been used for normal effluent monitoring. Subsequent reliability problems with RAGEMS have now caused NMPC to investigate other options to comply with NUREG-0737.

NMPC proposes to utilize OGESMS, instead of RAGEMS, for both normal effluent monitoring and accident monitoring (in accordance with TMI Action Plan Items II.F.1(1) and II.F.1(2) and the associated RG 1.97 instrumentation guidance). OGESMS is monitored in the control room during normal operations and is familiar to operators. Use of OGESMS during emergencies would enable operators to utilize an effluent monitor at a location which is routinely used, as opposed to a different control room readout used only during accidents (RAGEMS). The technicians obtaining filter cartridges for iodine and particulate analysis during an emergency are also more familiar with OGESMS than RAGEMS due to use of OGESMS for normal effluent monitoring. OGESMS provides multiple channels and has been reliable since startup of plant operations. OGESMS meets the NUREG-0737 requirement of a lower limit of detection (LLD) which is as low as reasonably achievable (ALARA), as well as a range that encompasses the most limiting NMP1 design basis accident based on offsite dose consequences, a loss of coolant accident (LOCA).

Use of OGESMS, in lieu of RAGEMS, for both normal and emergency effluent monitoring requires modifications to the previous descriptions of equipment utilized to meet TMI Action Plan Items II.F.1(1) and II.F.1(2) and the associated RG 1.97 instrumentation guidance included in NMPC submittals. The changes are identified and discussed in Attachment 1.

NMPC requests NRC approval of the use of OGESMS, in lieu of RAGEMS, for compliance with the Staff positions set forth in the 1983 Order and as delineated in NUREG-0737 and RG 1.97, with the exceptions described in Attachment 1, for normal and accident effluent monitoring of noble gases, iodines and particulates. Additionally, the previous NRC acceptance of NMPC's instrumentation to monitor particulates and halogens per the recommendations of RG 1.97 based upon the use of dilution needs to be revised. NMPC has concluded that the changes described herein provide adequate capability for proper emergency response per the requirements of 10 CFR 50.47. Use of OGESMS will not affect NMPC's capability to implement emergency action levels and make protective action recommendations. NMPC requests prompt review of the requested changes. Ninety days are requested to implement this change after NRC approval.

Very truly yours,

John H. Mueller
Senior Vice President and
Chief Nuclear Officer

The information contained in this submittal is correct to the best of my knowledge, information and belief.

Subscribed and sworn before
me on this 28th day of September, 2001

Sandra A. Oswald
NOTARY PUBLIC

SANDRA A. OSWALD
Notary Public, State of New York
No. 01OS6032276
Qualified in Oswego County
Commission Expires 10/25/01

JHM/JJD/cld
Attachment

cc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR (2 copies)
Records Management

Attachment 1 to
NMP1L 1612

Supporting Information for the Use of OGESMS

RG 1.97 Information for OGESMS

Niagara Mohawk Power Corporation's (NMPC) submittal of July 31, 1989, provided Regulatory Guide (RG) 1.97 information for the radioactive gaseous effluent monitoring system (RAGEMS) in accordance with Section 6.2 of NUREG-0737, Supplement 1. Similar information for the offgas effluent stack monitoring system (OGESMS) is included in Attachment 2.

Proposed deviations from the guidance in RG 1.97 for OGESMS are individually discussed below.

RG 1.97 Exception for Noble Gas Instrumentation Lower Range

RG 1.97 recommends the noble gas effluent monitoring instrumentation range start at 10^{-6} μCi/cc. OGESMS can attain a lower limit of detection (LLD) of $1x10^{-5}$ μCi/cc. This LLD meets the NUREG-0737 Item II.F.1, Attachment 1, Position (2) criterion of the instrumentation range beginning at normal conditions (ALARA). For normal effluent monitoring, the NRC Staff has previously approved using an LLD of 10^{-4} μCi/ml when RAGEMS is inoperable (Nine Mile Point Unit 1 (NMP1) Technical Specifications (TS) Amendment 66, dated November 2, 1984). Additionally, routine grab samples are taken with an LLD of less than 10^{-7} μCi/cc. The NRC Staff has also approved, on October 18, 1985, a RG 1.97 exception at Prairie Island to utilize an LLD of 10^{-4} μCi/cc for noble gas effluent monitoring.

These NMP1 TS LLDs for noble gas monitoring may be relocated to the Offsite Dose Calculation Manual (ODCM) per Generic Letter (GL) 89-01. A request for TS amendment to relocate the radiological effluent TS (RETS) per the GL will be submitted for Staff review in October 2001. Subsequent to NRC approval of the requested change to the LLD and the RETS relocation, the ODCM will be revised.

NUREG-0737 and RG 1.97 Exception for Noble Gas Upper Range

NUREG-0737 Item II.F.1, Attachment 1, Positions (1) and (2) state that noble gas monitors with an upper range of 10^5 μCi/cc be installed. This position is restated in RG 1.97. An upper range of 10^3 μCi/cc was approved for NMP1 in the Staff's November 14, 1991, RG 1.97 safety evaluation for RAGEMS. The upper range for OGESMS is 1 μCi/cc (Xe-133).

NUREG-0737 Item II.F.1, Attachment 1, Clarification (2) states that the system design shall accommodate a design basis release and then be capable of following decreasing concentrations of noble gases. OGESMS does meet this clarification. For NMP1, the site-specific design basis effluent release occurs from a loss of coolant accident (LOCA). The maximum noble gas effluent concentration through the stack for this accident is 0.4 μCi/cc based on the same

methodology and source term as used in the NMPC's NUREG-0737 submittal dated December 18, 1998. The stack is the only effluent release point for this design basis accident. At NMP1, a containment purge is not utilized to respond to a design basis accident. The OGESMS upper range limit of 1 μCi/cc (Xe-133) provides a safety margin greater than a factor of two for the design basis accident.

For beyond design basis (severe) accidents, a modified Eberline Model 6112B teletector is used to provide high range noble gas release estimates if the OGESMS monitoring range is exceeded. The permanently installed teletector has an upper limit of 10^5 μCi/cc (Xe-133). The detector is mounted in a shielded housing next to the stack sample line. Remote readout is available in the screen house. A dedicated headset is provided at the remote readout location for communication with the control room.

Based on the above, the use of OGESMS, in conjunction with use of the teletector during severe accidents when necessary, provides adequate capability for proper emergency response per the requirements of 10 CFR 50.47. Use of OGESMS will not affect NMPC's capability to implement emergency action levels and make protective action recommendations.

RG 1.97 Credit for Dilution to Meet Required Range

The NRC Staff's Safety Evaluation (SE) dated November 19, 1986, provides the following statement concerning the recommended instrumentation range for particulates and halogens:

> "With dilution, the recommended range is satisfied."

Effect of Equipment Change on Previous NRC Review

> Samples will not be diluted when utilizing OGESMS. Particulate and halogen collection times will be based on sample line dose rates or stack release rates.

The following two sections describe exceptions necessitated by the lack of dilution capability when utilizing OGESMS.

RG 1.97 Exception for Particulates and Halogens Upper Range

A range of 10^{-3} to 10^2 μCi/cc with a 30 minute sample time is indicated in RG 1.97 for analysis of particulates and halogens. The purposes for measurement of these variables identified in RG 1.97 are detection of significant releases, release assessment, and long-term surveillance. The onsite analysis facility at NMP1 has the capability to analyze samples up to a concentration of 0.1 μCi/cc with a 30 minute sampling time.

Analysis utilizing the design basis effluent release from a LOCA for NMP1 yields a maximum concentration of particulates and halogens of $5x10^{-2}$ μCi/cc. This analysis is based on the same methodology and source term as used in the NMPC's NUREG-0737 submittal dated December 18, 1998. The onsite analysis facility upper range limit of 0.1 μCi/cc provides a safety margin with a factor of two for the design basis accident without considering the conservatism inherent in the analysis. This upper range limit is sufficient to meet the intended purposes for measurement of particulates and halogens. Additionally, NMPC has the capability to utilize a conservative iodine to noble gas ratio to estimate offsite releases. Therefore, the exception to the upper range, in conjunction with other available alternatives, provides adequate capability for proper emergency response per the requirements of 10 CFR 50.47. Use of OGESMS will not affect NMPC's capability to implement emergency action levels and make protective action recommendations.

NUREG-0737 and RG 1.97 Exception for Design Basis Shielding Envelope

NUREG-0737 Item II.F.1, Attachment 2, Clarification 2 states that the sampling system design for particulates and iodines be such that plant personnel could remove samples, replace sampling media and transport samples to the onsite analysis facility with radiation exposures that are not in excess of the criteria of General Design Criterion (GDC) 19 of 5 rem whole body exposure and 75 rem to the extremities during the duration of the accident. Table II.F.1-2 provides the following inputs to be used for the dose calculation: 10^2 μCi/cc of gaseous radioiodine and particulates deposited on sampling media, 30 minute sampling time, average gamma energy (E) of 0.5 MeV. The inputs are repeated in Note 12 to Table 1 of RG 1.97.

Utilizing the design basis effluent release from a LOCA for NMP1 yields a maximum concentration of gaseous radioiodine and particulates of $5x10^{-2}$ μCi/cc. Use of this concentration, in lieu of the 10^2 μCi/cc specified in NUREG-0737 and RG 1.97, to determine doses for plant personnel working with the sampling media during the accident results in estimated exposures less than the GDC 19 limits.

Commitments Beyond NUREG-0737 Incorporated by Reference into the Order

The 1983 Order required NMPC to implement and maintain equipment to comply with Items II.F.1(1) and II.F.1(2) in the manner described in NMPC's submittals referenced in the Order. Therefore, the details of NMPC's compliance with the NRC's positions are incorporated into the Order by reference. NMPC's letter dated November 29, 1982, provided a schedule for completion of the two Items, while referring to the submittal of April 16, 1982. The April letter stated that no deviations from NRC positions were taken for these Items. The compliance description in the letter also provided the following additional details that will require revision after substituting the use of OGESMS, in lieu of RAGEMS.

1. April 16, 1982, NMPC Response

   "Niagara Mohawk will install the radioactive gaseous effluent monitoring system designed and supplied by Science Applications, Inc."

   Revision

   NUREG-0737 Items II.F.1(1) and II.F.1(2) will be met in the future by use of OGESMS.

2. April 16, 1982, NMPC Response

   "This system will perform an on-line isotopic analysis of radioactive effluents including particulate, iodine, and noble gases."

   Revision

   NUREG-0737 requires continuous monitoring of noble gases and continuous sampling of particulates and iodines. On-line isotopic analysis is not required per NUREG-0737 and OGESMS does not provide this capability. Noble gases will be monitored continuously. Iodine and particulates will be sampled continuously, manually retrieved, and laboratory analyzed.

Conclusion

Use of OGESMS meets applicable NUREG-0737 and RG 1.97 criteria, except as described and justified above. Should OGESMS become unavailable during normal conditions, the auxiliary sample system can be used to sample plant releases. Also, manual noble gas and iodine/particulate samples can be collected during accident conditions. NMPC has concluded that the changes described herein provide adequate capability for proper emergency response per the requirements of 10 CFR 50.47. Use of OGESMS will not affect NMPC's capability to implement emergency action levels and make protective action recommendations.

Attachment 2 to
NMP1L 1612

RG 1.97 Instruments

Airborne Radioactivity Releases

	Noble Gas	**Iodine/Particulates**
Type	C, E	E
Category	2	3
SENSOR/TRANSMITTER INFORMATION		
Equipment Part Number	RE-RN03A/B	Sample Analysis
Location	Turbine Building	Chemistry Lab
Safety related in the Q List Database	Not Safety Related	N/A
Included in the EQ Program (10 CFR 50.49)	No	N/A
Seismically qualified per applicable criteria	No	N/A
Power Supply	NIB11/B12	N/A
DISPLAY DEVICE INFORMATION (1)		
Equipment Part Number	RAM-RN10A/10B	N/A
Indicating Range	10^{-1} to 10^{6} cps (2)	N/A (3)
Location	Control Room Panel J	Chemistry Lab
Safety Related in the Q List Database	Not Safety Related	N/A
Power Supply	NIB11/B12	N/A

(1) Recorders RR-112-80A/B have indicating ranges of 10^{-1} to 10^{6} cps and 10^{1} to 10^{6} cpm for monitors RAM-RN10A/B and RAM-112-07A/08A, respectively. These instruments are located in the control room and are powered by RPS busses 11/12.

(2) Range equivalent to 10^{-7} to 1 μCi/cc. Indicating range for the low-range monitors RAM-112-07A/08A is 10^{1} to 10^{6} cpm (10^{-7} to 10^{-2} μCi/cc).

(3) Detection capability is 10^{-9} to 0.1 μCi/cc.