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September 8, 1987

Dr. J. Nelson Grace, Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St. NW, Suite 2900
Atlanta, Georgia 30323

07 SEP 17 P2:54

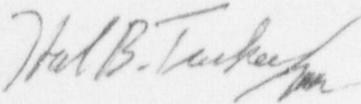
Subject: McGuire Nuclear Station
Docket Nos. 50-369 and 50-370
Unresolved Item 50-369, 370/87-13-01

Dear Dr. Grace:

During a telephone conversation on May 19, 1987, Duke agreed to submit a response to the subject Unresolved Item to the NRC Region II that would address the sampling requirements of Table II.F.1-2 in NUREG-0737 and how the sampling system meets those requirements. Please find attached the subject response.

Should there be any questions concerning this subject, please contact Duke Licensing.

Very truly yours,



Hal B. Tucker

SEL/113/jgc

Attachment

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

Mr. W.T. Orders
NRC Resident Inspector
McGuire Nuclear Station

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RESPONSE TO URI 369, 370/87-13-01

The NRC requested a review of the radioiodine and particulate sampling requirements of NUREG 0737 Table II.F.1.-2 (attached) and a determination as to whether the four criteria for sampling considerations are met. No documentation could be found that specifically addresses the compliance to the NUREG Table; however, Duke believes that McGuire is complying with two of the four criteria and request an exception to one of the criteria. Full compliance can be easily attained with the exception to one of the criteria. Full compliance can be easily attained with the completion of Nuclear Station Modification (NSM) MG-1-1623 and MG-2-0588. The NSM's are intended to satisfy the criteria of Regulatory Guide 1.97 and have an NRC commitment completion date before the end of the 1988 refueling outages.

Duke has performed a study of a design bases accident and determined that the maximum unit vent particulate and iodine activity is 0.033 microcurie per cc. This value disagrees with the 100 microcurie per cc Design Basis Shielding Envelope criteria mentioned in the NUREG.

Duke believes representative sampling per ANSI N13.1-1969 is met based on a 1981 stack velocity profile study. The stack sampler met the criteria of the ANSI standard. The NSM's include the installation of heat tracing; therefore, the sampling consideration for entrained moisture will be satisfied.

Duke believes the letter of the sampling consideration for continuous collection is met with the present Technical Specification sampler. Existing plans were to disrupt flow only to the radiation monitor providing remote readout when the unit vent noble gas high-high range monitor trip 1 alarm occurred. The monitor setpoint is preferentially selected at three times background. This would not affect the Technical Specification sampling equipment and a sample would continue to be obtained. Our designed basis accident unit vent activity is 0.033 microcurie per cc and alone would not prevent sample collection. The proximity of the annulus ventilation filters could prevent retrieving a sample and an alternative sample location is being pursued. Duke plans under NSM MG-1-1623 and MG-2-0588 to route sampling lines to a lower radiation area away from the annulus ventilation filters. Correlation charts for evaluating the particulate and iodine activity in the sample based upon dose rate are being developed.

Due to the expected maximum unit vent activity, Duke considers shielding is not necessary to meet the 5 Rem whole body and 75 Rem extremity dose criteria. With the exception that the Design Basis Shielding Envelope criteria is not consistent with McGuire's design bases accident unit vent activity, Duke believes full compliance can be attained before the end of the 1988 refueling outages.

TABLE II.F.1-2

SAMPLING AND ANALYSIS OR MEASUREMENT OF HIGH-RANGE RADIOIODINE AND PARTICULATE EFFLUENTS IN GASEOUS EFFLUENT STREAMS

EQUIPMENT - Capability to collect and analyze or measure representative samples of radioactive iodines and particulates in plant gaseous effluents during and following an accident. The capability to sample and analyze for radioiodine and particulate effluents is not required for PWR secondary main steam safety valve and dump valve discharge lines.

PURPOSE - To determine quantitative release of radioiodines and particulates for dose calculation and assessment.

DESIGN BASIS - 10^2 μ Ci/cc of gaseous radioiodine and particulates, deposited on sampling media; 30 minutes sampling time, average gamma energy (E) of 0.5 MeV.
SHIELDING
ENVELOPE

SAMPLING MEDIA

- Iodine > 90% effective adsorption for all forms of gaseous iodine.
- Particulates > 90% effective retention for 0.3 micron (μ) diameter particles.

SAMPLING CONSIDERATIONS

- Representative sampling per ANSI N13.1-1969.
- Entrained moisture in effluent stream should not degrade adsorber.
- Continuous collection required whenever exhaust flow occurs.
- Provisions for limiting occupational dose to personnel incorporated in sampling system, in sample handling and transport, and in analysis of samples.

ANALYSIS

- Design of analytical facilities and preparation of analytical procedures shall consider the design basis sample.
- Highly radioactive samples may not be compatible with generally accepted analytical procedures; in such cases, measurement of emissive gamma radiations and the use of shielding and distance factors should be considered in design.

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