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POWER BUILDING
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August 22, 1980

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. B. J. Youngblood, Chief
Licensing Projects Branch No. 1

Re: McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369, 50-370

Dear Mr. Denton:

At requested by Mr. Robert L. Tedesco's letters of July 29, 1980 and July 31, 1980, please find attached additional information on the discussion in the McGuire Final Safety Analysis Report on the Radwaste Management System at McGuire Nuclear Station, the Radiological Effluent Technical Specifications, the Offsite Dose Calculation Manual, and the Process Control Program.

Revision 1 of the Process Control Program has been reviewed and approved. Our response includes 20 copies of a nonproprietary Process Control Program, Revision 1, and 20 copies of the proprietary Process Control Program, Revision 1.

Revision 1 of the McGuire Offsite Dose Calculation Manual has been reviewed and approved. Ten copies of this document are attached.

Also note that a response has been provided to your informal request for information telecopied to us on August 5, 1980.

Please advise us if you have any questions on this material.

Very truly yours,

William O. Parker, Jr. by LJB

William O. Parker, Jr.

LJB:scs
Attachments

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ADDITIONAL QUESTIONS FROM ETSB
ON THE FSAR FOR MCGUIRE NUCLEAR STATION, UNIT NOS. 1 AND 2
Docket Nos. 50-369 and 50-370

1) Revision 39 to the FSAR, page 11.5-9, refers to an evaporator concentrates batch tank and an evaporator concentrates storage tank. Provide the building plan and elevation location for these tanks.

2) Revision 39 to the FSAR, page 11.2-4a, refers to a Radwaste Facility Subsystem containing a 50,000 gallon Auxiliary Floor Drain Tank, a 50,000 gallon Auxiliary Waste Evaporator Feed Tank, associated lines, pumps and sump. The tanks are described as seismic. Provide the building plan and elevation for this radwaste equipment. Provide the analysis that shows that this major change to the radwaste system meets the guidelines of Regulatory Guide 1.143, as required by the acceptance criteria given in SRPs 11.2.II and 11.3.II (Rev. 1).

3) Revision 39 to the FSAR, page 11.2-4a, refers to a Contaminated Warehouse Subsystem containing laundry and decontamination equipment. This equipment is part of the radwaste management systems. Provide the building plan and elevation for the change. Provide the analysis that shows that this major change to the radwaste system meets the guidelines of Regulatory Guide 1.143, as required by the acceptance criteria given in SRPs 11.2.II and 11.3.II (Rev. 1).

4) The evaluation in 15.5.5 of the FSAR does not address storage tank rupture or liquid overflow from tanks not located in the Auxiliary Building. Provide the information required by the acceptance criteria in SRPs 15.7.2.II and 15.7.3.II, for tanks added by Revision 39.

5) Revision 39 refers to a Waste Shipping Pad (page 11.5-7). Figure 11.5.3-2 indicates that the pad drains to the yard service drain. Indicate what controls have been included to assure that liquid spills, overflow and drainage during mobile solidification or spent resin dewatering operations are collected and returned to the radwaste management system. Provide a Figure indicating the location of lines, instruments, equipment and radwaste connections for themobile equipment in this area. Provide your equipment interface with the process control program for solidification and dewatering operations.

6) Revision 39 refers to a 6000 gallon binder storage tank (page 11.5-4). Provide the location of this underground tank and its associated lines and pump, as related to other structures. Evaluate the hazards of binder storage and discuss the fire protection provisions and controls to mitigate flames and other ignition sources. Describe the materials of construction, toxic limits, temperature controls and ventilation for storing and handling the binder liquid. Is the tank located in an underdrain area or covered at grade level?

7) Revision 39 Figure 10.4.8-3 has been changed to show that there is no direct effluent from the steam generator blowdown system. Sections 11.4.2.1.4, 10.4.8.2.1 and Table 11.4.2-1 refer to EMF-32 as an effluent monitor. Is EMF-32 a recycle process monitor? Clarify the use of the word "effluent".

8) Revision 39 may need edit changes. We find that page 11.5-2 should be Rev. 10 (not Rev. 8); page 11.5-3 should be Rev. 10 (not Rev. 0); Table 11.1.1-1 (sheet 1 of 2) should be on the back side of page 11.6-6, Rev. 39. Please clarify.

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION

Response to NRC Letter of July 29, 1980

Enclosure 1

1) A general arrangement drawing has been furnished showing the plan and elevation for the evaporator concentrates batch tank and an evaporator concentrates storage tank. This information will be incorporated into the next FSAR revision.

2) The Radwaste Facility structure was designed as a Category 1 structure. This exceeds the guidelines of Regulatory Guide 1.143. We will update the FSAR to reference the criteria for this facility. The general arrangement drawing for the Radwaste Facility, which shows the piping layout, is attached and will be included in the FSAR.

   The Radwaste Facility Subsystem consists of the 50,000 gallon Auxiliary Floor Drain Tank, the 50,000 gallon Auxiliary Waste Evaporator Feed Tank, associated lines, pumps, valves, sump and instrumentation. The Radwaste Facility is divided into two portions, the Tank Building and the Equipment Building. The Tank Building is a category 1 structure, with the building itself actually serving as the two tanks. This design is similar to the Spent Fuel Pool and also includes a stainless steel liner. The Equipment Building is also a category 1 structure and contains pumps, transfer lines, valves, instrumentation and controls. This facility provides additional surge capability designed to handle the temporary storage of liquid waste in the event of processing equipment breakdown.

3) The Contaminated Warehouse Subsystem as shown in Revision 39 to the FSAR will not be completed prior to fuel loading. Therefore, it should not be included in your current review. The FSAR will be revised to clarify this item.

4) The Radwaste Facility Subsystem tanks added by Revision 39 are not located in the auxiliary building. These tanks, however, are constructed such that they do not represent a potential release via a rupture. (See response to Question 2.) Any liquid overflow is to a seismically designed sump in a seismic class structure. Any gaseous release resulting from a liquid overflow is bounded by the analysis in Section 15.5.5 of the FSAR.

5) A sketch outlining the solidification pad and the piping for the binder tank and facility services has been furnished.

   Note that the Waste Shipping Pad does not drain to the yard drain. The drain shown in figure 11.5.3-2 is from the curbed area around the Binder Storage Tank fill nozzle. This valve is normally left open to allow rain water which collects in the curbed area to drain. This valve is closed during binder storage tank filling operations to contain any spilled binder in the curbed area for subsequent cleanup.

Any spills or overflow during waste processing are contained on the Waste Shipping Pad by curbs on all sides. A sump is located in the pad area to collect and contain spills. Any liquid contained in the sump is sampled to determine composition and transferred to either the evaporator concentrates storage tank or the resin batching tank, using a portable sump pump and the waste return line connection located on the Waste Shipping Pad.

Interface connections for the solidification contractor include the waste supply line, flush water supply line, waste return line, plant radwaste vent line, air supply line, power supply and in-plant communications system. These connections will be modified to utilize unique fittings on each air and liquid connection.

6) A sketch showing the location of the binder storage tank and associated lines and pumps has been attached. The 6,000 gallon Binder Storage Tank is constructed of carbon steel lined with a phenolic coating as recommended by Dow. Temperature extremes are avoided since the tank is buried. The tank vent is equipped with a pressure/vacuum breather valve and a flame arrestor. Styrene vapor release from the tank is substantially reduced due to the constant tank temperature and the breather valve. The OSHA time weighted average working limit for styrene is 100 ppm. During the solidification process using the Dow binder, all transfer of binder to the liner is done using the contractor filling head, which is vented using a blower and subsequently filtered for styrene prior to entering the plant vent system. Station directives will be utilized to control ignition sources in the binder storage area. The binder storage tank will not float during a saturated soil condition. There is not a direct path from the tank to the underdrain system.

7) Sections 11.4.2.1.4, 10.4.8.2.1 and Table 11.4.2-1 of the FSAR will be revised to show that EMF-32 is <u>not</u> an effluent monitor.

8) Editing changes to the FSAR will be made as requested.

ETSB PSOITIONS AND COMMENTS ON THE RETS AND ODCM
FOR MCGUIRE NUCLEAR STATION, UNIT NOS. 1 AND 2
Docket Nos. 50-369 and 50-370

1) Changes to the standard definition on SOLIDIFICATION are not acceptable. We have reviewed the FSAR through Revision 39 and the proposed PCP and find no justification for changing the standard definition. Solidification applies to evaporator bottoms, boric acid solutions, chemical wastes, filter sludge, spent resin, and (whenever chemical waste pond discharges are not permitted) the filter/demineralizer slurry. Dewatered spent resin or resin slurry in high integrity containers are "packaged", not solidified.

   Ref: RETS pages 1-7, 3/4 11-20 and 3/4 11-7A. (See additional questions on the PCP, item 1, in Enclosure 3.)

2) The following changes to the liquid and gaseous monitoring instrumentation are not acceptable.

   a) Pump curves are not flow devices. It is our position that you should have a device that measures minimum RC discharge in order to take credit for inplant dilution in establishing set points on effluent monitors in the ODCM. We have suggested a flow switch, flow meter, weir level, pump discharge sensor, motor amp-switch or computer alarm on minimum RC pumps running. Clarify the device to be used for this requirement.

      Ref: RETS pages 3/4 3-66 and 3/4 3-71.

   b) The monitor EMF-44 provides automatic termination of containment ventilation unit condensate releases at the established set point, per FSAR, Table 11.4.2-1 and the ODCM. As such, footnote 1 is applicable for the channel functional test on systems with automatic isolation. The change to footnote 2 is not acceptable.

      Ref: RETS page 3/4 3-70.

   c) Two oxygen analyzers are required in Tables 3.3-13 and 4.3-13 of the RETS. We have reviewed the FSAR through Revision 39. Our position is given in SRP 11.3 (Rev. 1). Section 11.3.3.2 of the FSAR specifies that there are four on line gas analyzers (shown on Figure 11.3.2-5). The change to one oxygen analyzer is not acceptable. We require action to be taken whenever the oxygen concentration exceeds 2% by volume as given in SRP 11.3 (Rev. 1), therefore, the change to 3% by volume is not acceptable in the RETS.

      Ref: RETS pages 3/4 3-74, 3/4 3-79 and 3/4 11-17.

3) The standard RETS has adopted a limit, above which use of the radwaste treatment system is required to meet 10 CFR 50.36a. Our bases for the limiting values is given and our position has not changed. The change to higher

projected dose levels is not acceptable. The change to the surveillance requirement to exclude projections when the system is not operable would also exclude demonstrating how you plan to meet the LCO and, therefore, the change is unacceptable.

Ref: RETS pages 3/4 11-6 and 3/4 11-14.

4) No justification has been provided for the change to delete tritium grab samples from the ventilation exhaust from the spent fuel pool area. We have discussed sample locations to resolve this sampling requirement. Deletion is not acceptable.

Ref: RETS page 11-11.

5) The liquid and gaseous off-line effluent monitors and samplers should be described in the ODCM as having minimum flow alarm levels (flow switches). We need this information to complete our review.

Ref: ODCM section 8.3.0.

6) In connection with item 3, above, we have reviewed your methodology for determining dose impact for projecting when to use radwaste treatment system equipment. We find that the simplified equations are based on conservative estimates and averaged concentrations for estimated releases of certain nuclides based on continuous use of all radwaste treatment equipment over the life of the plant. The equation calculates a constant rate with zero rate of change. This plan is not representative of real releases. For example, Cs-134 and Cs-137 are generally low during the first years of operation; the ratio of Cs-134 and Cs-137 to other nuclides varies with the treatment method, segragation of fluid streams, fission product generation and release mechanisms; and many long term and short term operational variables are not represented by Cs-134 and Cs-137 concentrations alone. The same general arguments hold for the radioactive materials in gaseous effluents. In the RETS, we have allowed a variable rate, but set a limit (above which the radwaste equipment must be used) on the fixed rate of change. Since the cumulative dose calculations are computerized at your facility, the simplest method would be to update dose calculations at least once every 31 days, maintaining plant records on operational, release and treatment conditions to use for projection purposes as given in the surveillance requirements. As stated in NUREG-0133, some nuclides which take more than 31 days to identify, may be estimated for projection purposes, only. We need your response in order to complete our review.

Ref: ODCM section 8.4.0.

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION

Response to NRC Letter of July 29, 1980

Enclosure 2

1. We agree that the Standard definition on SOLIDIFICATION is acceptable.

2. (a) An interlock on the discharge canal flow rate measuring device will be provided to terminate liquid waste releases if minimum dilution flow is not available.

   (b) We agree that Footnote 1 is acceptable for this reference.

   (c) We agree that two oxygen analyzers shall be provided. Action shall be taken whenever the oxygen concentration exceeds 2% by volume.

3. & 6.

Our understanding of the guidance given in our conversation with NRC Staff on August 7, 1980 allows the following methods to be used.

The ODCM has been revised to indicate a difference between 31-day dose calculations and dose projections. Dose projections are performed to determine if radwaste processing equipment needs to be operated and are simplifications of the calculations used for 31-day dose calculations. 31-day dose calculations are used to determine historically what has happened; these calculations cannot be performed immediately upon completion of the time period under consideration, but must wait 30-45 days for analytical results and concurrent meteorological data to become available. 31-day dose calculation records are maintained for inclusion in the quarterly, semiannual, and annual dose summaries.

4. We agree to delete Table Notation e. on Table 4.11-2.c and revise the minimum sampling frequency for the unit vent to weekly.

5. The ODCM, Section B3.0, has been revised to include a description of liquid and gaseous off-line effluent monitors.

Enclosure 3

QUESTIONS FROM ETSB ON THE PCP
FOR MCGUIRE NUCLEAR STATION, UNIT NOS. 1 AND 2
Docket Nos. 50-369 and 50-370

1) The Process Control Program (PCP) for McGuire Nuclear Station submitted July 8, 1980, does not address dewatered spent resin (FSAR 11.5.3.2) processed to the shipping container without solidification. The FSAR includes the solidification statement, "if required". Therefore, you should provide the PCP to assure that dewatered spent resins can meet the free-water criteria and describe the methodology and steps to be taken to assure that the plant and/or mobile equipment can produce a product that will be acceptable at the burial site.

2) The PCP does not address the interface between facility personnel and the contract personnel. For example, who approves plant connections for mobile unit operation? Who approves adjustments to the solidification parameters? Who provides inspection of solidification product? What plant records are to be submitted by contract personnel? Who establishes batch input data and approves batch calculations? Who obtains samples for test verification? Who assures quality control of the solidification chemicals? Who calculates radioactive content and limits occupational exposure? Who specifies when pretreatment is required, how much and what chemical will be used?

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION

Response to NRC Letter of July 29, 1980

Enclosure 3

1. Since the Process Control Program (PCP) discusses the solidification of waste, the packaging of dewatered spent resins shall be described, as requested, in the next FSAR revision.

2. The PCP has been revised to address the interface between Duke Power Company and contract personnel. Note that plant procedures have been written which describe in detail the steps to assure proper interface with the mobile unit.

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION

Response to NRC telecopy of August 5, 1980

Comments on Draft McGuire RETS

1. It is agreed that changes to Table 3.12-1 as indicated are acceptable. In regard to the groundwater sampling locations, please refer to FSAR Chapter 2, Appendix 2B, Figure 2B-1. A review of Appendix 2B will indicate that groundwater flow in the immediate vincinity of the site is toward the Reactor Building area in all directions. Recharge does occur from Lake Norman, however, note that the wells sampled should not be affected since groundwater flow from these locations is either toward the site or into the discharge canal. Therefore, contamination of groundwater from liquid effluents is highly improbable.

2. It was agreed that the airborne particulate analyses could be performed using a gamma isotopic analysis in lieu of a gross beta analysis.

3. The suggested changes are acceptable.

4. This number originated within the NRC and has been accepted by Duke Power Company.

5. A requirement is included in Technical Specification 3.11.1.2 to conduct a study of the radiological impacts on finished drinking water supplies with regard to the requirements of 40CFR 141 when certain limits are exceeded.

   Figures 5.1-1 and 5.1-1 have been attached.

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION

Response to NRC telecopy of August 5, 1980

Comments on McGuire ODCM

1. (a) The format of the ODCM and PCP has been changed to indicate revision numbers, a list of effective pages and approval by signed cover letter.

   (b) The ODCM has been revised to explain the methodology used to calculate the recirculation factor. Other parameters are variable.

2. This value was obtained from the NRC. It will be revised to 1.6E+04.

3. Section 3.4 has been deleted.

4. This question is addressed by our response to the NRC letter of July 29, 1980 Enclosure 2, Question 3 and 6.

   Section B4.4 has been deleted.

   The meteorlogical values transmitted by the telecopy have been incorporated into the ODCM.

   An additional sampling location for broadleaf vegetation has been added approximately 18 miles north of the site.

   Figure B5.0-1 has been changed to two figures one of which is a site map of TLD locations.