

September 10, 2007

Mr. Dennis R. Madison
Vice President - Hatch
Edwin I. Hatch Nuclear Plant
11028 Hatch Parkway North
Baxley, GA 31513

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS. 1 AND 2, ONE-TIME ONLY
PROPOSED CONTINGENCY PLAN FOR USE DURING THE REPLACEMENT
OF THE EXISTING MAIN STACK HIGH RANGE RADIATION MONITORS
(TAC NOS. MD6129, MD6130)

Dear Mr. Madison:

By letter dated February 20, 2007, Southern Nuclear Operating Company (SNC), requested prior review by the Nuclear Regulatory Commission (NRC) staff of a proposed contingency plan to allow for a 6-day out-of-service time for the replacement of the main stack high range radiation monitors (MSHRMs) for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP). SNC proposes to replace the existing MSHRMs at HNP with new functionally equivalent monitors. During this changeover, neither the existing nor new MSHRMs would be available. As a result, high range radiation monitoring of this potential accident release path would be unavailable for a period of about 7 days. SNC determined that this condition would decrease the effectiveness of the approved HNP Emergency Plan and applied for approval by the NRC staff. In its letter, SNC identified several contingencies for assessing releases should an accident occur during the period the MSHRMs are out of service. The NRC staff has completed a review of the proposed contingency plan and supporting documentation. The NRC staff has concluded that the proposed contingency plan maintains the effectiveness of the applicable emergency plan, and continues to meet the standards of Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.47(b) and the requirements of Appendix E to Part 50. The NRC staff's conclusion is predicated to a large degree on the relatively short duration of the outage and the staff's expectation that SNC will make a best effort to minimize the duration of the outage to the extent practicable. The basis for the NRC staff's conclusion is contained in the enclosure.

Sincerely,

/RA/

Robert E. Martin, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure:
Safety Evaluation

cc w/encl: See next page

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DATE	9/6/07	9/6/07	08/29/2007	9/10/07

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO
ONE-TIME ONLY PROPOSED CONTINGENCY PLAN FOR USE DURING THE
REPLACEMENT OF THE EXISTING MAIN STACK HIGH RANGE RADIATION MONITORS
SOUTHERN NUCLEAR OPERATING COMPANY, INC.
EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By application dated February 20, 2007, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML070510429), Southern Nuclear Operating Company, Inc. (SNC, the licensee), requested prior review by the Nuclear Regulatory Commission (NRC) staff (staff) of a proposed contingency plan to allow for a 6-day out-of-service time for the replacement of the main stack high range radiation monitors (MSHRMs) for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP). SNC proposes to replace the existing MSHRMs at HNP with new functionally equivalent monitors. During this changeover, neither the existing nor new MSHRMs would be available. As a result, high range radiation monitoring of this potential accident release path would be unavailable for a period of about 7 days. SNC determined that this condition would decrease the effectiveness of the approved HNP Emergency Plan and applied for approval by the NRC staff. In its letter, SNC identified several contingencies for assessing releases should an accident occur during the period the MSHRMs are out of service.

2.0 REGULATORY EVALUATION

The NRC staff reviewed the proposed revision against the following regulations and guidance.

2.1 Regulations

Paragraph (a)(1) to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.47, "Emergency Plans," states that no operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47 also establishes standards that must be met by the onsite and offsite emergency response plans for NRC staff to make a positive finding that there is reasonable assurance that adequate protective measures can and will be taken in the

event of a radiological emergency. One of these standards, Section 50.47(b)(9), stipulates that adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use. Section IV.E to Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," of 10 CFR Part 50 provides that emergency facilities and equipment have adequate provisions for determining the magnitude of and for continuously assessing the impact of the release of radioactive materials to the environment.

2.2 Guidance

- Appendix 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980),
- "Emergency Planning and Preparedness for Nuclear Power Reactors," Regulatory Guide 1.101, Revision 4, and
- NRC Information Notice 2005-19, "Effect of Plant Configuration Changes on the Emergency Plan."

3.0 TECHNICAL EVALUATION

This evaluation is based on information provided in SNC's letter of February 20, 2007, including the attached 10 CFR 50.54(q) evaluation. SNC identified several contingencies for assessing releases should an accident occur during the period the MSHRMs are out of service. These included:

1. The main stack normal range monitors will remain in service and would be used as long as they remained on scale.
2. All monitors in the reactor building vents will remain in service during this period.
3. The drywell wide range monitors and the post-loss-of-coolant accident (LOCA) monitors will be available during this period and could be used for accident sequences, for which the releases would be monitored by these monitors.
4. Field monitoring teams would be dispatched in the event that the release exceeds the range of the normal range monitors.
5. The HNP dose assessment software is capable of performing assessments using readings from other in-plant monitors or the field monitoring results.
6. The HNP emergency action level scheme includes thresholds based on the various radiological effluent monitor indications, field monitoring team results, and various in-plant radiation monitors.

Although these contingency methods are available, the SNC 10 CFR 50.54(q) evaluation stated that the use of these contingency methods would not be effective as the MSHRMs since delays in emergency classifications, dose assessments, and protective action recommendations could occur. In considering whether the proposed outage would reduce the effectiveness of the HNP Emergency Plan, the staff considered the impact on the ability to perform the planning standard functions of onsite emergency response plans; Section 50.47(b)(4), emergency classification; Section 50.47(b)(9), assessment; and Section 50.47(b)(10), protective actions.

3.1 Emergency Classification

With regard to emergency classification, the emergency action level (EAL) thresholds based on the MSHRMs would be unavailable for use in classification. Although effluent radiation monitor alarms may often be the first indication of an off-normal release or radioactive material to the environment at the unusual event and alert classification levels, this is not the case at the higher emergency classifications. Environmental releases of a magnitude that would be monitored by the unavailable MSHRMs are associated with events that involve core damage. There are several EAL thresholds associated with precursors to core damage (e.g., plant conditions that could lead to core damage if not corrected) or those that are associated with indications that core damage has occurred (e.g., drywell high range radiation monitors, in containment hydrogen monitors). These other EAL thresholds would likely provide the basis for emergency declarations before the MSHRMs would have been on scale and well before there would be environmental radiation levels for the field teams to measure offsite. Also, the insights from severe accident analyses show that the more substantial environmental releases will occur via release pathways that are not monitored pathways. Since core damage would be identified by various precursor conditions, it is likely that the initial emergency declaration would not be a general emergency, and that the declaration would occur prior to the onset of a substantial release to the environment. As such, it is also likely that the emergency plan would be activated prior to the need to rely on the MSHRMs, and that the emergency response organization, including field monitoring teams would be available when a release comparable to the MSHRM range became imminent. Based on the above, the staff concludes that it is unlikely that the unavailability of the MSHRMs would, in and of themselves, preclude appropriate emergency classification and declaration, and subsequent protective action recommendations during the planned monitor outage.

3.2 Assessment

With regard to assessment, including dose assessment, the MSHRMs are utilized for performing dose projections. These dose projections provide input to emergency classification decisions discussed above and protective action recommendations discussed below. The ability to perform dose assessments is considered to be an important emergency response function. However, as identified in the SNC letter and analysis, the HNP dose assessment capability can be driven by inputs other than the MSHRMs. Nonetheless, as SNC stated, the unavailability of these high range radiation monitors would limit the ability to directly monitor main stack release with magnitudes comparable to site area or general emergencies without incurring delay (e.g., dispatching field monitoring teams.) Such events involve substantial core damage which could be monitored by increased readings on the drywell wide range and other post-LOCA monitors. As was noted above, dose projections based on effluent monitor readings are possible only if the release is in progress and the release is via a monitored pathway. The insights from severe accident analyses show that the more substantial environmental releases will occur via release

pathways that are not monitored pathways. Assessment of plant conditions begins with the lowest emergency classification declared and continues as the plant conditions deteriorate further and the emergency classification is escalated. Except in the unlikely occurrence of an event that progresses immediately to a general emergency, the results of the ongoing assessments at lower classifications will drive other response actions, including the dispatch of field monitor teams or the alternate determination of release source terms, before the release magnitude would cause the MSHRMs to be on scale had they been available. Based on the above, the staff concludes that it is unlikely that the unavailability of the MSHRMs would, in of themselves, preclude performance of dose assessments during the planned monitor outage.

3.3 Protective Action Recommendations

Finally, with regard to the capability to provide appropriate protective action recommendations (PARs) to offsite officials, the unavailability of the MSHRMs only affects PARs based on dose assessment results. PARs based on plant condition, including the default PAR associated with a general emergency, are unaffected by the monitor outage. A release of a magnitude warranting offsite protective actions is unlikely to occur in the absence of a degradation of the reactor coolant system, fuel, and containment fission product barriers—plant conditions that could be identified by several other EAL thresholds. These thresholds would likely be met prior to the onset of the radioactivity release to the environment. Thus, at a minimum, the default PAR associated with a general emergency could be relayed to offsite officials. Extension of the default PAR might be based on dose assessment and/or field monitoring results and the delay in obtaining these data could impact the extension of the PARs. However, the staff concluded above that it would be unlikely that the unavailability of the MSHRMs would, in and of themselves, preclude performance of dose assessments during the planned monitor outage. Accordingly, based on the above, the staff concludes that it is unlikely that the unavailability of the MSHRMs would, in and of themselves, preclude protective action recommendations during the planned monitor outage.

4.0 CONCLUSION

The staff performed a technical and regulatory review of the proposed outage of the MSHRMs at HNP. The staff has determined, based on the considerations above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by the planned monitor outage, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the proposed changes will not be inimical to the common defense and security or to the health and safety of the public. The staff's conclusion is predicated to a large degree on the relatively short duration of the outage and the staff expectation that SNC will make a best effort to minimize the duration of the outage to the extent practicable. This evaluation is applicable for a one-time only replacement of the existing MSHRMs.

5.0 REFERENCES

1. Letter from SNC to the NRC dated February 20, 2007, "Replacement of Main Stack High Range Accident Radiation Monitors," ADAMS Accession No. ML070510429.
2. "Emergency Planning and Preparedness for Nuclear Power Reactors," Regulatory Guide 1.101, Revision 4. ADAMS Accession No. ML032020276.

3. NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," ADAMS Accession No. ML040420012.
4. NRC Information Notice 2005-19, "Effect of Plant Configuration Changes on the Emergency Plan."

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Date: September 10, 2007

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