Docket Nos. 50-348/364

	Docket File NRC PDR
February 8, 1984	L PDR
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Post Office Box 2641	EJordan
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	EReeves
Dear Mr. Clayton:	CParrish

By letter dated January 13, 1983, you requested an exemption to 10 CFR 20 relating to "Protection Factors for Respirators", footnote (c) of Appendix A. If granted, the exemption would allow credit for a radioiodine protection factor while employing the MSA 466220 GMR-1 Canister.

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The NRC staff review of your request continues. However, we need additional information shown in the enclosure. Draft questions were transmitted to your staff on January 30 and February 1, 1984, as our review progressed. This letter formally documents the NRC staff questions.

Please reply at your earliest convenience to allow continuing our review to support the upcoming refueling outage on Joseph M. Farley Nuclear Plant, Unit No. 1.

The reporting and/or recordkeeping requirements of this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

ORIGINAL STOWED BY

Steven A. Varga, Chief Operating Reactors Branch #1 Division of Licensing and the

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## UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555



February 8, 1984

Docket Nos. 50-348/364

Mr. F. L. Clayton Senior Vice President Alabama Power Company Post Office Box 2641 Birmingham, Alabama 35291

Dear Mr. Clayton:

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jef Operating Reactors Branch #1

Division of Licensing

Mr. F. L. Clayton Alabama Power Company

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- 471.0 RADIOLOGICAL ASSESSMENT BRANCH REQUEST FOR ADDITIONAL INFORMATION
- 471.1 Describe the methods which will be utilized to reduce potential radioiodine levels in the work area to minimal levels. This should include a discussion of the utilization of engineering controls, reactor coolant cleanup/purification, degasification, decay schemes, and system and area decontamination. Long term efforts to alleviate the root causes of this problem, such as fuel quality control, fission product/iodine trending, and operational controls should be briefly discussed.
- 471.2 Discuss the bases for your assessment that the use of positive pressure airline respirators (which provide a high level of protection along with some body cooling) degrades worker performance and efficiency as much as 25-50 %. This should include your dose rate, time and manpower estimates for the overall task.
- 471.3 Describe those actions planned to evaluate actual exposures of workers to airborne radioiodine concentrations as outlined in 10 CFR 20.103. This should include on-the-job and post task evaluations encompassing surveys, air sampling, and whole body/thyroid counts. A summary of the results of these actions should be provided to the NRC staff for evaluation of program effectiveness.
- 471.4 What additional training will be conducted to familiarize workers and health physics personnel with the restrictions and limitations for use of the GMR-I Canister for radioiodine protection?
- 471.5 Work performed by LANL on several different brands of cartridges (NUREG/CR-3403) showed a difference in penetration of radioiodine gas for some cartridges when cartridges were tested under conditions of flow cycling (representative of breathing) versus the same flowrate but under constant or steady state flowrate conditions. In general cyclic flow caused a decrease in service life of the cartridges. The experimenter suggests that unknown factors, perhaps charcoal granule size, packing density, bed depth, etc., may effecting penetration since the effect is unpredictable based on comparison with computer modeling calculations or data supplied to him by the cartridge manufacturers. The experimenter recommenc incorporating flow cycling based on breathing patterns into the test method. The licensee's exemption request does not include flow cycling in the test protocol. On the basis of what testing data does the licensee intend to account for this effect or lack thereof in testing or using cartridges?
- 471.6 Los Alamos found that water vapor in air was by far the most significant variable eff acting the service life of the cartridges at expected conditions of use. Since the amount of water in the air or relative humidity is greater as the temperature of the air increases (i.e., warmer air holds more water than cold air) the air temperature during testing and use is crucial. The log percent relative humidity versus service life is a linear releationship.
  - a. How does your test protocol account for the temperature the cartridges will see in use, i.e., 30°C versus 25°C as proposed?
  - b. Does the test protocol allow for extrapolation (via the above relationship between relative humidity and service life at a given temperature) to worst case relative humidity/temperature of proposed use?

4/1.7 What s the value of performing the equilibration test?

- 471.8 The licensee proposes to provide for quality control of the cartridges pursuant to the proposed test method per MIL STD-105. What is the criteria for acceptable service life under the proposed test conditions? What AQL is proposed for use in conjunction with MIL STD? What are the limits on variability for service life values?
- 471.9 What actions will be taken by the licensee to ensure that the 8 limitations of use enumerated by the licensee on page 2 of the request for exemption are not exceeded?
- 471.10 Identify the procedures which will incorporate the controls and restrictions associated with the use of GMR-I canisters for radioiodine protection.