BALTIMORE GAS AND ELECTRIC COMPANY

P.O. BOX 1475

BALTIMORE, MARYLAND 21203

ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

November 22, 1978

U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Docket Nos: 50-317
50-318

Attention: Boyce H. Grier, Director
Office of Inspection and Enforcement

Gentlemen:

This refers to your Inspection Reports 50-317/78-24 and 50-318/78-18, which transmitted certain items of apparent non-compliance with NRC requirements. Enclosure (1) to this letter is a written statement in reply to the items noted in Appendix "A" of your letter of October 30, 1978.

In addition to requesting a description of the corrective action associated with the apparent non-compliance items, your letter expressed a concern regarding our management control systems related to the area of your inspection. In order to add continuity to the overall management of the Site Emergency Plan and its implementing procedures, the responsibility for the administration of the plan will be consolidated under a single unit supervisor (the Radiation Safety and Chemistry Engineer), rather than having several unit supervisors responsible for different aspects of the plan as is presently being done. This change in organizational responsibilities will be accomplished prior to January 1, 1979. Additionally, a Quality Assurance audit of the Site Emergency Plan is presently in progress and will be completed prior to the change in responsibilities to assist in an orderly and complete transition.

Should you have further questions regarding this reply, we will be pleased to discuss them with you.

Very truly yours,

A. E. Lundvall, Jr.
Vice President - Supply

AEL/RED/ds

Enclosures

ENCLOSURE (1)
Reply to NRC Letter Dated October 30, 1978
NRC Inspection Report 50-317/78-24; 50-318/78-18

Item A.1

Prior to this inspection which resulted in your finding that our air sampling method was inadequate, i.e., not capable of detecting I-131 at the protective action level of 5×10^{-8} uCi/cc, we based our technique on the accidents which are described in Chapter 14 of the Final Safety Analysis Report (FSAR). We recognized the need for rapid assessment of I-131 concentrations and whole body dose to determine the extent and significance of an airborne activity release and as such developed a simple method which would yield approximate, albeit conservative, results. The discussion which follows describes the basis for this conservative practice.

Section 14 of the FSAR describes various postulated incidents of which four occurrences could involve a release of radioactive material to the environment. These postulated occurrences consist of a Fuel Handling Incident, Steam Generator Tube Rupture Incident, Waste Gas Incident and Maximum Hypothetical Accident. Even though the calculated release of radioactive material as a result of these occurrences is well within 10CFR100 guidelines, the Site Emergency Plan (SEP) contains protective action criteria based on a 2.5 Rem whole body dose limit, (10% of 10 CFR100) and a 15 Rem thyroid dose limit, (5% of 10CFR100).

The Fuel Handling Incident is conservatively calculated to result in a 3.0 rem whole body dose and a 0.276 Rem thyroid dose. This assumes the complete release of activity as a result of a failure of all 176 fuel rods in the hottest fuel assembly. The whole body dose, if received is 120% of the SEP limit (2.5 Rem) while the thyroid dose is 1.8% of the SEP limit (15 Rem). This incident then would clearly be whole body dose limited by a factor of 120/1.8 or 67.

The Steam Generator Tube Rupture Incident was similarly calculated to result in a .067 Rem whole body dose and a 1.1×10^{-4} Rem thyroid dose. These exposures represent 2.68% and 0.0007% of their respective SEP limits. As in the case of the Fuel Handling Incident, the whole body dose would be the limiting exposure by a factor of about 3800.

The Waste Gas Incident as described in the FSAR would not be expected to result in any significant iodine release, and in fact the FSAR does not list any iodine release. The actual exposure as a result of such an incident would be expected to come from the noble gases present and therefore this incident is considered to be whole body dose limited.

The Maximum Hypothetical Accident is calculated to result in a site boundary thyroid dose of 94 Rem and a whole body dose of 2.2 Rem. It would appear that such an accident, even though not considered "credible", is thyroid dose limited and therefore SEP evacuation

criteria based on the whole body dose would tend to be non-conservative. However, following such an accident the quantity of gaseous Kr-88 and its resultant particulate daughter product Rb-88 are such that the Rb-88 release exceeds the calculated I-131 release by a factor of about 10. By assuming that all the Rb-88 collected is I-131, i.e., and overestimation of the I-131 by a factor of 10, conservative protective action would be taken as described in the SEP. Since Kr-88 decays to the particulate Rb-88 it is easily collected on a filter paper and subsequently counted. Using typical counting efficiencies of 17-20% for our filter paper geometry and collecting 10-20 liters of sample, an MDA of less than 5×10^{-8} uCi/cc can be achieved.

Additionally, collection of air samples at Calvert Cliffs show that the ratio of particulate beta-gamma air activity to iodine-131 activity is high. Analysis of airborne activity in the auxiliary building and the containment generally show ratios of 100 to 500. This data tends to support our conservative previous practice of "labeling" all of the activity collected on a filter paper as I-131. Based on our above described approach and procedures utilized to evaluate off site exposures from accident airborne releases, we strongly disagree with your contention that our procedures were inadequate. However, to reduce the extent of this conservative approach, modifications were made to the sample volumes and analytical techniques to reach the action level of 5×10^{-8} uCi/cc of radioiodine alone. These techniques were fully incorporated as of September 7, 1978.

Upon further reviewing the technique, it was felt that a different approach should be taken so as to reduce the amount of time necessary to detect this action level. This will be done by increasing sample flow rate and using improved instrumentation. Incorporation of this modification including calibration, procedure revision and training shall be completed by January 15, 1979.

Item A.2

The calibration procedures for the counting instrumentation in the emergency kits provide for an electronic calibration. However, as a result of the inspection, the counting instrumentation was calibrated with a spiked charcoal cartridge and particulate filter paper. The calibration of the counting instrumentation for the charcoal cartridge geometry was completed by September 7, 1978 and documented. The calibration of the counting equipment for the particulate paper and a temporary change to the calibration procedure was completed by September 22, 1978. This change is temporary in nature due to the future modifications in the Site Emergency Plan of the counting instrumentation. These modifications and associated procedure revisions will be completed by January 15, 1979.

Item A.3

The contents of the Auxiliary Building First Aid Room has been reinspected and emergency medical supply lists have been established for minimum levels of medical supplies to support a medical emergency at the plant. These lists will be utilized by Company medical personnel to conduct bi-annual inventories. The supply list of the emergency first aid bag has similarly been prepared and will be used as a check-list by plant personnel during their required inspections of emergency support equipment.

Supplies which have exceeded their posted expiration dates have been removed from the Auxiliary Building First Aid Room and discarded. These items were not considered part of emergency medical supplies, and therefore, they may not be replaced. The Service Building First Aid Room has been utilized as a Medical Examination/Treatment Room by Company Medical personnel to conduct physical examinations and treat illnesses and contains no emergency medical supplies as such.

The SEP will be revised appropriately to reflect the aforementioned changes and will include the necessary inventory check lists to document future emergency medical and first aid supply inventories. This revision will be initiated by January 15, 1979.

Item A.4

In case of a need to evacuate the site, a member of plant security will be dispatched to the farm and direct all personnel to report to the Farm Demonstration Building. The Security Guard will report completion of the search and notification to the Site Emergency Director.

Item A.5

A. Calvert County Memorial Hospital has no specific duties which require their utilization of any Calvert Cliffs procedures. They do have special procedures written by Radiation Management Corporation which provide guidance as to the handling of contaminated, injured personnel and in which they receive formal refresher training. However, these procedures would be applicable in all circumstances whether it be a Site Emergency or not. Therefore, the hospital should not be considered a support agency, as is Civil Defense.

B. During a Site Emergency, the Fire Department and Rescue Service do not establish communications directly with Calvert Cliffs personnel, but rather are directed in their efforts through the County Civil Defense Coordinator who will be communicating with B.G.&E. personnel. Here again, these groups have no specific Site Emergency function which they must carry out on their own, but simply are standing by to respond if called on by Calvert County Civil Defense.

Item B.1

All personnel assigned specific SEP responsibilities have received initial or refresher training, as appropriate. To avoid future items of non-compliance in this area, the Training Coordinator has implemented an accountability system to verify each person's training status. In addition, CCI-405A, Site Emergency Plan Implementing Procedure Administration, has been revised to require the Training Coordinator to maintain an up-to-date listing of all emergency team members in the Shift Supervisor's office. This will facilitate the deletion of those personnel who fail to renew their certification from the emergency team rosters.

Item B.2

A review of the SEP training conducted in 1977 was conducted and a report was submitted to the Chief Engineer on November 17, 1978. The failure to conduct this review was as a result of an oversight on the part of the Training Coordinator. The Training Coordinator has been counseled as to the importance of timely action in this area.

Item C.1

A report detailing the actions taken as a result of comments and recommendations made following the 1977 medical and site emergency drills was submitted to the Chief Engineer on November 17, 1978. The failure to make this report was as a result of an oversight on the part of the Training Coordinator. The Training Coordinator has been counseled as to the importance of timely action in this area.

Item C.2

A record of those personnel participating in the 1977 medical and site emergency drill has been generated. To avoid future items of non-compliance the Training Coordinator has implemented an accountability system which will record drill participation.

COMMENTS REGARDING "DETAILS" OF REPORT

In paragraph 6 of "Details", the report states that ".... Radiation Monitoring Personnel ... assigned to the Emergency Radiation Team would receive specific training ... when these individuals reported to their next work shift." According to our minutes of the exit interview, we stated that these Radiation Monitoring Personnel would receive the training in question before reporting to their next shift as an RMP. That is, they could assume the shift as an Operator, but not be "taken credit for" as an RMP until the training was completed.