

BALTIMORE GAS AND ELECTRIC COMPANY

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May 13, 1980

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VICE PRESIDENT
SUPPLY

Mr. Robert G. Ryan
Director, Radiological Emergency Preparedness Division
Federal Emergency Management Agency
1725 I Street N.W.
Washington, D. C. 20472

Docket Nos. 50-317
50-318
License Nos. DPR-53
DPR-69

Dear Mr. Ryan:

During a recent meeting with the NRC Emergency Review Team assigned to the Calvert Cliffs Nuclear Power Plant, it was made quite clear that any comments we might have regarding the NRC's current requirements on emergency planning should be transmitted formally. At this meeting, the NRC/FEMA team emphasized that their requirements were those specified in NUREG 0654/FEMA REP 1 with little or no deviance.

Accordingly, Baltimore Gas and Electric is providing the enclosed detailed comments on NUREG 0654/FEMA-REP-1 which we consider to be responsive to all outstanding NRC/FEMA requests for comments on radiological emergency planning issues raised at the meeting. In providing these comments, we wish to note our agreement with the objective of improved emergency planning for nuclear facilities and our belief that the enclosed comments are consistent with that objective. We particularly wish to note that where the proposed NRC/FEMA requirements are inconsistent with the wishes or capabilities of our local and state officials, the most careful attention should be given to the recommendations of those officials, who bear the majority of the responsibility for interfacing with the citizens in the plant's vicinity.

Very truly yours,

Enclosure

cc: Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
Attn: Docketing and Service Branch

General George Brooks, Dir., Maryland CD & DPA
Messrs. R. E. Corcoran, Div. RAD Control State DHEM
V. D. Horsmon, Civil Defense Director, Calvert County
O. Wood, Civil Defense Director, St. Mary's County
O. B. Chessman, Jr., Civil Defense Director, Dorchester Co.

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POOR ORIGINAL

cc: Messrs. R. B. Minogue, U. S. Nuclear Regulatory Commission
H. R. Denton, Director, Office of Nuclear Reactor Regulation
E. L. Conner, Jr., U. S. Nuclear Regulatory Commission

COMMENTS OF BALTIMORE GAS AND ELECTRIC COMPANY
ON COMBINED NUCLEAR REGULATORY COMMISSION/FEDERAL EMERGENCY MANAGEMENT AGENCY'S
"CRITERIA FOR PREPARATION AND EVALUATION OF RADIOLOGICAL EMERGENCY RESPONSE PLANS
AND PREPAREDNESS IN SUPPORT OF NUCLEAR POWER PLANTS" (FOR INTERIM USE AND COMMENT)
NUREG-0654/FEMA-REP-1

INTRODUCTION

In general, NUREG 0654/FEMA-REP-1 (hereinafter referred to as NUREG 0654) is a useful effort at delineating the latest thinking by NRC and FEMA on radiological response planning for nuclear power plants; however, there are a number of areas where the documents inflexibility precludes acceptable and locally preferable alternative solutions. Also, the document suffers in places from the failure to separate the function of protecting the public from the function of informing the public (primarily through the media). Finally, the document and its interpretation lacks necessary integration, appearing in places to represent the thinking of individuals or groups within the larger organizations.

It is stated (p. 4) that "FEMA and NRC regard all the elements contained here as essential for an adequate radiological emergency plan." The elements are then stated to include notification, communications, public information, equipment, accident assessment, exercises, and drills. It is useful and helpful to have the NRC and FEMA issue, in NUREG 0654, a catalog of the capabilities and procedures they intend to use in evaluating emergency planning efforts. However, most of the specific requirements represent only one of several alternative means of assuring that a high degree of emergency preparedness is developed and maintained. In fact, many of the criteria in NUREG 0654 represent new staff positions - developed just in the last few months. They have not been subjected to peer review or documentation and, as subsequent comments indicate, many deserve some reconsideration and revision. Since the NRC/FEMA team site visits have already shown that NUREG 0654 is being used as an inflexible checklist, necessary revisions to that document should be issued as quickly as possible.

There are three specific concerns that warrant special attention:

1) The 15 minute notification requirement (and corresponding criteria for mobilization of support personnel, sirens/tone alerts, etc.) is based on an inconsistent premise and should be revised. Credible accidents that can lead to a very large release of fission products to the environment, sufficient to require protective actions out to 10 miles are slow to develop - a day or more from onset to significant release are much more likely outcomes of these very improbable events than a release within an hour or two. Consequently there will be time for an orderly process of notification. In the highly unlikely event of a more rapid release, warnings would be limited to specific wind selectors, and concentration of emergency resources would prove more efficient than general approaches over all sectors. For the specific geography and demography of Calvert Cliffs, this is particularly true.

2) The presumptive or precautionary nature of the criteria - where a site or general emergency condition must be declared based on process instrumentation well before the assurance of any significant release to the environment occurs. In view of the strict notification requirements it is better to couple the public notification/protective action process to actual releases from the plant or projected doses which can reasonably be expected rather than on the basis of plant conditions which, if uncorrected, might ultimately lead to a release.

3) There are a number of requirements which are only peripherally related to emergency preparedness yet which are written (or interpreted) with such specificity as to seriously hamper the legitimate judgmental process of the state and local officials and the plant operators. The arbitrary requirement for a relocation center at least 15 miles from the plant, a principal Emergency Operation Facility

(EOF) within one mile of the reactor, and a redundant and exotic meteorological data system are cases in point.

As a final general comment, it should be noted that NUREG 0654/FEMA-REP-1 refers to 32 other documents, many of which provide supplemental criteria that are to be followed. Requirements which arise by reference to such documents should be avoided; where necessary, relevant guidelines should be extracted from such reports and included in the next version of NUREG 0654. References to documents still in the comment stage, such as NUREG-0610, should be avoided.

Specific Revisions to NUREG 0654 Evaluation Criteria

II.B.5 Revise last sentence to read: "The minimum capabilities and staffing onshift and/or available following the declaration of a site emergency or general emergency shall be as indicated in Table B-1."

Basis: (1) Given the for-comment status of Table B-1 the reference to minutes should be relegated to the Table; (2) For events of the type listed in NUREG 0610, only those in the Site and General Emergency classes normally warrant augmentation of plant staff; (3) Different levels of augmentation may be appropriate.

II.B.5 Revise requirement for "HP Technician" or "Rad/Chem Technician" on
Table
B-1 Shift.

Basis: Assuming the major tasks involved are based on NUREG-0578's Improved Post-Accident Sampling capability requirements, it is redundant and unnecessary to have two individuals on shift to perform these functions prior to augmentation of the emergency organization. One of either type of expertise should suffice in meeting the requirement.

II.B.5 Revise extreme right column heading to read: "Additions Within
Table
B-1 Approximately 60 Minutes."

Basis: Unrealistic augmentation time considering that most plant personnel reside outside a 5 mile radius of nuclear plants. Augmentation of plant staff should be planned to allow finite time for notification, don clothing and travel to the plant. A reasonable augmentation time would be approximately 60 minutes recognizing that many personnel will arrive within 30 to 45 minutes depending upon where they reside.

II.B.5 Delete "Shift Foreman."
Table
B-1
Notes:*

Basis: The Shift foreman will be in the crew of the affected unit assuming no problem occurs with unaffected unit. The Shift Supervisor or Shift Foreman on affected unit will supply coverage, if in the unlikely event SRO coverage is needed before the second Shift Foreman arrives as part of the augmenting crew.

II.C.2 Delete the second sentence.

Basis: The other requirements in NUREG 0654 provide for an extensive communications network, which will join representatives from all "principal organizations" (a term which deserves clarification). The requirement to send utility staff to governmental centers will increase the risk that such centers will not rely on the EOF, will divert needed resources from the plant, and is unlikely to assist the actual task at hand.

II.D.1 Revise first sentence to read: "An emergency classification and emergency action level scheme similar to that set forth in NUREG-0610."

Basis: NUREG-0610's emergency classification includes an unusual events category which consists of non-emergency conditions that may be reportable because of their current newsworthiness and public interest nature. State and/or local offsite authorities should be notified of those events by procedural requirements outside emergency planning similar to that required by a recent NRC rule-making (10 CFR Part 50.72).

II.D.2 Delete.

Basis: (1) This criterion is redundant in as much as D.1 requires an organization of the spectrum of events into four classes and identification of these conditions which are indicative of each class. (2) As noted on Page 5, "No single specific accident sequence should be isolated as the one for which to plan because each accident could have different consequences, both in nature and degree." This logic suggests that the examples of NUREG 0610 should remain just that and preferably that reference to specific initiating events be eliminated and replaced by specific plant parameters and/or projected doses.

II.D.3 Add "Should this scheme be different from that set forth in NUREG 0610, the emergency plans of each organization shall reflect the agreement to use a modified scheme, and that modified scheme shall be used consistently."

Basis: (1) This criterion is apparently intended to avoid nonstandard criteria and nomenclature, which may mean different things to the utility, the state and the local officials. While this is an important objective, the language of II.D.1 invokes an impossible situation where compliance with NUREG 0610 is the only permitted way to achieve uniformity of practice. It is possible that state and local authorities may wish the utility to use their existing scheme.

II.E.1 Delete "set forth in NUREG 0610." Add the word "used."

Basis: Same basis as II.D.3.

II.E.6 Delete "(see Appendix 3)."

Basis: (1) This parenthetical phrase incorporates, by reference, a set of implementing criteria which have been the source of considerable controversy and debate. It would be preferable to separate the detailed and still evolving implementing criteria from the more general criteria of II.E.6.

II.E.6 Delete last two sentences. Add: "It shall be the responsibility of the State and local governments to ensure that such means exist and to activate such systems."

Basis: It is clearly the responsibility of the State and local governments for installation of notifications systems to the public. If this proposed requirement is based on concern for funds, these should be furnished by FEMA or other governmental agencies. It is expected that the notification system will be used to notify the public of other emergencies (tornado, flooding, chemical threat, etc.) besides radiological threat. There is no constitutional justification for a tax paying corporation to be subject to additional assessments to

provide a service which is normally the responsibility of a governmental agency, -- fire protection, police protection, etc.

II.E.6 Delete "Applicability" under operator.

Basis: Same basis as II, previous page.

II.E.7 Delete "applicability" under operator and add it to local.

Basis: The criterion applies only to the groups which are to notify the public as to actions to be taken.

II.E.7 Delete second sentence.

Basis: The accidents within any given category would result in widely varying public consequences. Some would not result in a release for a day or more some would result in a release within an hour. As noted in NUREG 0610 (see Note to item 2, page 1-13), the messages to the public will depend substantially on the specific circumstances, and should not be formally predetermined.

II.G.1 Delete "Applicability" under Operator.

Basis: This responsibility should lie with the State and local governments, not the utility. Utility should provide recommended information to the State and local governments, if requested. Separate dissemination may lead to inconsistencies in information provided, possibly creating confusion or lack of confidence among the public.

II.H.2 Delete second sentence,

Basis:

The utility, local, and state agencies should be permitted to determine their facility/interface needs on an individual bases, rather than being forced to meet some arbitrary requirements which do not take cognizance of existing facilities and equipment.

II.H.3 Insert the word "principal" before the word "organization."

Basis: It is unlikely that each group providing support will require a separately identified facility for nuclear emergencies.

II.H.5 Replace "NUREG 0610" by the words, "emergency action level scheme."

Basis: This criterion is a duplication of an expansion on II.D.1. The principal objective should be to assure a direct link between recorded levels of plant conditions and predetermined levels that call for some type of emergency actions. Thus the better reference is EAL's and not NUREG 0610.

II.H.6 Revise to read, "Each operator shall make provision to acquire data from or for emergency access to offsite monitoring equipment including."

Basis: As written, the criterion could be interpreted to mean that each operator should now acquire and maintain, at some unspecified location offsite, an array of seismological instrumentation, radar for tornado watches, etc. Clearly, the objective should be to devise a scheme to obtain supplemental resources as part of the emergency planning effort. There are many sources of geographical data, and radiological monitoring equipment can be obtained readily, should the need arise

II.H.7 Delete.

Basis: As framed, this criterion is too broad to be useful and the more specific criterion of II.H.6 covers the same subject.

II.H.8 Revise to read "Each operator shall provide meteorological instrumentation and procedures necessary to develop estimates of projected doses in a timely manner, and provisions to obtain meteorological data from such other sources that may exist within the 10 mile Emergency Planning Zone."

Basis: (1) There are a variety of techniques available that can be used to convert estimated releases to projected doses. The criterion should succinctly state the objective to be met rather than the specific procedure which is recommended by the NRC staff. (2) A criterion should not make reference to some other document, particularly when the latter is still in a state of development; rather the objective should be clearly stated.

II.H.9 Revise to Read "Each operator shall provide for an onsite Operations Support Center from which emergency monitoring, repair and recovery teams would be dispatched. An alternate staging area shall be identified."

Basis: For some accident conditions, particularly, those in the General Emergency Condition it would be preferable if emergency teams reported to a staging area away from a radioactive plume, highly contaminated surfaces, or direct radiation. Shielding and ventilation in a room close to the reactor (even if such a room met NRC's habitability requirements for a control room) will not remove the hazard associated with entrance and egress from the room and may result overall, in increased personnel exposures.

II.I.1 Delete the ending phrase of the first sentence, "and shall..."

Basis: (1) As noted on page 5 of NUREG 0654, "No single specific accident sequence should be isolated as the one for which to plan because each accident could have different consequences, both in nature and degree." This logic suggests that the examples of NUREG 0610 remain just that. Reference to specific initiating conditions should be deleted.

II.I.5 Delete.

Basis: (1) This is redundant to II.H.8, and since II.I.5 refers to facility requirements any reference to such should be in Section II.H.
(2) Since II.H.12 calls for a central point for analysis of all field monitoring data, it is better to have the meteorological data at that location. There is no obvious reason why the TSC should

require a separate readout capability given the communications network required by NUREG 0654.

II.I.7 Revise to read: "Each organization ... as low as 10^{-6} uc/cc."

Basis: (1) The stated detection limit corresponds, roughly, to an exposure of 0.1 rem for a period of one hour; a value well below PAG levels. Given the requirements for in-plant monitoring and diagnosis capabilities and the NUREG 0610 philosophy of precautionary protective measures there is no benefit from the II.I.7 detection limit (which basically ignores other diagnostic capabilities). (2) The phrase "under field conditions in any kind of weather" is too general, and to the extent that it might include hurricanes, tornadoes or other severe weather conditions, it is unduly restrictive. (3) The last sentence is presumably an allusion to noble gas trapped on charcoal. Procedures exist to remove noble gas.

II.J.4 Delete the words "at or near this offsite location."

Basis: Generally, individuals should not be permitted to exit the site if contaminated. Nonessential persons should not become contaminated even for a General Emergency. However, if they should, there are many places where decontamination can be accomplished, either on-site or off-site as appropriate.

II.J.6 Replace the words "individuals" by "personnel essential to plant operation or the management of a site or general emergency."

Basis: Not all individuals on-site will be in or make entries into controlled areas or areas where hazardous levels of airborne activity exist.

II.J.7 Delete.

Basis: It is clearly not the Operator's role to make recommendations on subjects outside his area of expertise and responsibility. The Operator, through the action of other criteria will be providing prompt notification to responsible local and state agencies, and will provide information about the status of the plant, releases and projected doses. The state plan can and should contain scenarios for implementing various types of protective actions based on information received from the operator -- including what courses of action to take when a general emergency is declared and major releases are already occurring

II.J.8 This criterion should be applicable to the state plan and not the Operators plan.

Basis: Evacuation is an action to be decided by and implemented by state and local agencies (see second sentence, top of page 4-2). The estimates must be based on the techniques and methods of evacuation implemented by these agencies. The Operator cannot make any meaningful estimates.

II.J.8 Delete second sentence.

Basis: Appendix 4 should be offered as for general guidance only. Local jurisdictions, the surrounding topography, and demographic setting can and should modify the arbitrary pie shape area called for in that Appendix.

II.J.10 Revise to read "(Table J-1 provides one possible way of clearly
(a) identifying sectors)."

Basis: The 22-1/2^o sector is based on on-site reported wind direction. Actual trajectories will not be linear and the specific areas that will be protected should probably be based on local population distributions (e.g., housing developments, towns in the projected plume pathway) and not on whether a town is in a given pie-shaped wedge. The alphanumeric 22-1/2^o sector approach of Table J-1 introduces an unnecessary degree of complexity; whatever system that most comfortably serves the needs of state and local officials should be acceptable.

II.J.10 Delete.
(c)

Basis: This is properly within the scope of the state plan. It should be self-evident that several copies of the state plan will be available at the reactor..

II.J.10 Revise to read, "Relocation centers in host areas."
(h)

Basis: This site relocation centers will depend strongly on the specific site conditions. There is no good reason to abridge an orderly process of selecting relocation centers by setting priority on an arbitrary 15-20 mile distance.

II.N.1 Delete Note 3/.

Basis: No written information is provided to utilities of State and local governments as to how NRC response teams interface with State or utilities during an emergency. Information concerning the number of their personnel that may be involved, where they would expect to perform their functions, what their purpose would be, and what authority they would have are not known. Established emergency

response plans will be disrupted if NRC arrives and makes unexpected requests or demands on the State/local agencies/utility emergency organization. NRC interfacing with the State and local governmental agencies and the utility should be worked out ahead of time and be included in the Emergencies Plans.

II.1.2e (2) Delete.

Basis: This requirement would result in an unnecessary exposure to personnel (who may or may not be those called on in an emergency) and runs counter to Regulatory Guide 8.8. The simulated "drills", together with the experience from day-to-day operations and training should provide effective, knowledgeable personnel.

Comments on Appendix 2 to NUREG 0654

General

The requirements set forth exceed that needed to adequately prepare for or respond to an emergency at a nuclear power plant. The extent of software instrumentation and data acquisition required could introduce a level of complexity that actually detracts from emergency assessment capabilities. This entire appendix and all references thereto should be deleted from this document. The proper vehicle for meteorological criteria should be a regulatory guide issued for comment and later implementation.

Selected Specific Comments

1. Under Purpose, the reference to routine releases is not appropriate for emergency planning and should be deleted.
2. The acceptance criteria have little to do with actual emergency needs. The requirements should be coupled to and be of the same level of sophistication as the operator's techniques for converting plant effluent monitor readings to projected dose (II.I.4 on page 48), and should not call for information which is only peripherally related to meteorological dispersion (the requirement for dew point measurement is a notable example).
3. Given the requirements for making dose projections when plant equipment is inoperable or offscale (II.I.6 on page 48), and for access to another closeby source of meteorological data, a requirement for a redundant power to the meteorological system or redundant independent meteorological measurement system is excessive and unnecessary and should be deleted.
4. The requirement for a Class B real time model should be deleted. The additional insight gained from a Class B model is overwhelmed by the

Comments on Appendix 3 to NUREG 0654

The requirement for notification of the public within 15 minutes after declaration of a general emergency has already been criticized. The event scenarios in the general emergency class, with few exceptions are slow to progress to core melting.

For example, the BWR sequences, on the average, would take roughly a day from the time that a general emergency would be declared per NUREG 0610 until core melting began and the "worst" sequence (not, per NUREG 0396, to be used as the planning bases) would not result in containment failure for more than three hours. In such circumstances, the 15 minute requirement has no foundation.

To then require a notification system which, as a designed objective, must be foolproof is too extensive. While the process of notification might begin immediately, its focus can and should be geared to the various protective action scenarios. Specifically, if the indicated action is a precautionary evacuation of people within 2 miles downwind of the facility (as per NUREG 0610), then the notification need only be to those individuals. There is no circumstance where all individuals within 5 miles need to be notified within 15 minutes of the onset of a general emergency.

uncertainties associated with meteorological variations distant from the site particularly with regard to a ground level release. The requirements call for tailoring the "standard" dispersion estimators to account for local topographical features: unfortunately, the accuracy of models to do so is very poor.

5. The remote interrogation capability requirement should be limited to the nearsite EOF.
6. It is a constructive measure to attempt to standardize the software for meteorological data. However, it should be one which is already used at a majority of the reactor sites.