



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

MAR 07 1978

Docket file

Docket Nos. 50-390

50-391

Tennessee Valley Authority
ATTN: Mr. N. B. Hughes
Manager of Power
830 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

SUBJECT: REVISION 1 TO REGULATORY GUIDE 1.97

As a result of recent discussions and correspondence concerning Revision 1 to Regulatory Guide 1.97, the staff has developed more specific guidance to assist you in responding to our letter dated October 18, 1977.

This enclosed guidance provides a clearer basis for the development of your initial response. Its issuance, in our opinion, precludes the need for additional meetings to discuss the guide. Please let us know, however, if you have further questions or if you feel that further meetings are necessary.

In order to continue the effort involved in implementation of Regulatory Guide 1.97, we require that you submit the information described in our October 18, 1977 letter by May 1, 1978.

Sincerely,

A handwritten signature in dark ink, appearing to read "Steven A. Varga".

Steven A. Varga, Chief
Light Water Reactors Branch 4
Division of Project Management

Enclosure:
As stated

ccs:
Listed on page 2

Ap 3
GD

Tennessee Valley Authority

MAR 07 1978

ccs:

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1. The analysis described in position C.1 and C.2 should include the following:

- a. For each accident analyzed in Chapter 15 of the PSAR, describe how the proposed accident monitoring instrumentation will meet each provision of Positions C.1.a through C.1.f. Instrumentation provided in response to Position C.1.f shall include appropriate monitors of radioactive release rates through identifiable release points.
- b. Provide a specific reference and/or detailed description of how each instrument or group of instruments will satisfy the provisions of Positions C.4 through C.17. A general statement that a Position will be met is not sufficient.

2. Implementation of Position C.3 of Regulatory Guide 1.97

These guidelines provide a framework for the specific selection of instruments for worst-case conditions. These refer to situations where system performance is degraded such that coolant and containment pressures, and radiation levels in containment and in releases, greatly exceed values established by analyses of the postulated accidents listed in Chapter 15.

These worst case conditions may stem from several types of causes which have been identified in risk assessments (see WASH-1400 for one assessment of dominant event sequences in two reactors). The four measurements required by Position C.3 are considered to provide

adequate information to the operator to meet Position C.1.f of the guide for accident situations covered by C.3 (see General below).

Additional types of measurements may, however, be appropriate where, for a specific reactor design, the staff has identified accident sequences where operator awareness of the situations considered in Position C.3 would not otherwise be likely.

Three of the four measurements called for in Position C.3 are specific; the fourth is not (monitoring radioactivity release rates through identifiable release points). Listed below is supplemental guidance for C.3.d.

a. General: The intent is to monitor rates of releases for the worst-case conditions discussed above. The intent is to provide an assessment capability that will satisfy Objective 6 of the Discussion ("allow for early indication of the need to initiate action necessary to protect the public and for an estimate of the magnitude of the impending event").

b. Identifiable release points: Identifiable release points should include:

(1) For FWRs and BWRs

(a) Auxiliary building ventilation exhausts from areas where,

(i) ECCS equipment is housed and

(ii) Containment penetrations are located.

*Other release points may be determined to be important as a result of the analyses performed in conformance with Position C.1. This matter is to be addressed in connection with Phase II reviews (implementation of other provisions of Regulatory Guide 1.97, the scope of which for operating reactors will be determined on a case-by-case basis)

(b) Containment purge line exhaust-downstream of filters, if any.

(c) Annulus exhaust downstream of filters, if any.

(2) In addition, for BWRs

(a) Air ejector exhausts immediately downstream of the air ejectors.

c. Release Rates: The instrumentation need not have the capability to identify the rate of release of specific isotopes; rather the objective should be to have the capability to estimate the order of magnitude of the releases. In addition, these instruments will have the capability to estimate the rate of release of I vs. noble gas activity.

Tables VII 1-2, 1-3 and 1-4 of WASH-1400 are acceptable as a basis for establishing the initial airborne inventory of isotopes within the containment. The CORRAL Code analyses of WASH-1400 may be used to estimate the behavior of the activity within the containment.

This information can be used to estimate the rates and magnitude of releases to the release points considered above [worst case scenarios that result in an immediate release and for which instrumentation is not practical or would not provide useful information (e.g., steam explosions) need not be considered]. An alternate approach would be to determine the instrument requirements necessary to monitor releases that contain activity concentrations equivalent to that in the undiluted containment atmosphere described above. In all cases, the instrument proposed must be capable of measuring activity release rates between the upper limit of the normally installed instrumentation and the maximum release rate identified using one of the procedure described above.

3. The schedule for implementation of Regulatory Guide 1.97 includes development of the identification of the characteristics including location, range, environment, etc., of instrumentation to follow the course of an accident. In its assessment of the applicants proposal the staff will consider the availability of the equipment described. However, the staff recognizes that the schedule for installation of the equipment must include an allowance for development of equipment that is not currently commercially available, if equipment that is presently commercially available is not acceptable.