08/21/59

~~R. Kirk~~ Mr. ~~Mr. Harold Price~~

File

Mr. Karl R. Allen, Manager
Nuclear Development Department
Industrial Services Division
Florida Development Commission
Carlton Building, East Wing
Tallahassee, Florida

Dear Mr. Allen:

We appreciate your thoughtfulness in sending us the two reports on Reactor Site Analysis for a Commercial Test Reactor. We have reviewed these reports briefly and have a few comments to offer.

The general considerations and approaches used in this analysis appear to be satisfactory. The basic assumption of type and quantity of fission product release which might occur from a test reactor appears to be reasonable, though for any particular reactor this assumption might be more or less conservative depending on the accidents which might actually be credible. In some cases, for example, there might be released a much higher percentage of gaseous fission products and relatively less of the solids.

Calculations on the dosages that would be received as a result of an accident are in agreement with our rough estimates for the components considered. However, the total thyroid dose from iodine isotopes would be substantially higher than that calculated for I-131 alone. Similiarly for the bone dose, the Sr-89 would be about one-fifth of the total dose. The gamma dose from the passing fission product cloud does not appear to have been included. Our rough estimates indicate that it would be about 50 per cent of the direct shine dose at 1500 feet for eight hours exposure under inversion conditions.

The criteria used to determine the size of the exclusion area appear reasonable except for the values for thyroid dose. We believe that 250 rem is a more reasonable upper limit for this.

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By introducing a safety factor of two in the exclusion distance, many of the assumptions or criteria which may have been non-conservative have been overcome and it appears that sites of the types proposed could doubtless be found suitable for test reactors having appropriate containment or other safeguard features.

Sincerely yours,

Clifford K. Beck, Chief
Hazards Evaluation Branch
Division of Licensing
and Regulation

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