

MAY 7 1982

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Docket Nos: 50-390
and 50-391

Mr. H. G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Dear Mr. Parris:

Subject: Request for Additional Information Concerning Liquefaction
at the Watts Bar Nuclear Plant, Units 1 and 2

On February 9, 1982, your staff submitted an interim report entitled "Liquefaction
Evaluation of the ERCW Pipeline". On March 17, 1982, your staff submitted the
final report on this subject.

Although the final report is still being evaluated, our review to date has raised
the following concerns. We have established a tentative date of May 14, 1982,
with your staff to discuss these items.

- i) In the liquefaction potential evaluation analysis of the soils
underneath and around buried pipelines, TVA has used a design
earthquake with 0.18g maximum horizontal acceleration at ground
surface for defining the Safe Shutdown Earthquake (SSE). This
definition of SSE is different than that given in Section
2.5.2.6 of the Watts Bar FSAR, where SSE is defined as a maximum
response spectrum at high frequency.

The design response spectra are shown in FSAR Figure 2.5-236b.
A site specific spectrum was used by the staff (SER Section
2.5.2.2) for comparison with the SSE. This site specific
spectrum was developed from acceleration time histories
recorded on rock. Thus, both the FSAR SSE as well as the
site specific spectrum represent motion on rock.

Our staff finds that TVA's use of 0.18g peak acceleration at
the ground surface as the Watts Bar SSE definition to be
unacceptable.

- ii) We note that TVA has used the modified liquefaction approach
given in the H. B. Seed and I. M. Idriss paper, "Field Cor-
relation of Soil Liquefaction with SPT and Grain Size", as
a basis for their analyses presented in both the interim and
final reports.

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By letter dated January 28, 1982, we advised you that this approach was not acceptable by the staff. On March 15, 1982, your staff responded to staff questions regarding the Seed and Idriss paper. After a review of these responses, we will reassess the applicability of this empirical approach and will be prepared to discuss this item at the May 14, 1982, meeting.

- iii) TVA has not provided the details of the seismic analysis procedure used for analyzing the buried pipes. TVA should clearly identify soil parameters which were used for analyzing the seismic response of these buried pipes and provide the details of the procedure used in the analysis.

The staff believes that the bases of TVA's liquefaction analyses and seismic analysis procedure should be resolved with the staff before proceeding with any additional work on this item.

If you have any questions concerning this matter please contact the project manager, T. J. Kenyon, at (301) 492-7266.

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

Sincerely,

ES
 Elinor G. Adensam, Chief
 Licensing Branch No. 4
 Division of Licensing

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SURNAME	T. Kenyon/hmc	M. Duncan	E. Adensam				
DATE	4/19/82	4/29/82	5/16/82				

WATTS BAR

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