Docket File

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

June 22, 1970

Memo

Roger S. Boyd, Assistant Director for Boiling Water Reactors, DRL
THRU: Robert L. Tedesco, Chief, BWR-2, DRL

TECHNICAL MEETING WITH THE TOLEDO EDISON COMPANY REGARDING THE DAVIS-BESSE NUCLEAR POWER STATION DOCKET NO. 50-346

A meeting was held with the Toledo Edison Company on May 20, 1970. The purpose of this meeting was to: (1) obtain a commitment from the applicant for resolution of areas still outstanding, (2) discuss with applicant the responses in Amendments 3 and 5 to DRL information request dated February 12, 1970, and (3) indicate which matters would require further documentation. A list of attendees is enclosed.

The applicant agreed to install a second charcoal filter in series with the filters in emergency ventilation system. This additional filter will reduce the staff's calculated iodine thyroid doses at the exclusion boundary and low population zone boundary to below 200 rem.

Matters discussed which will require documentation were noted and will be submitted by the applicant in Amendment 6. The Amendment will take about three weeks to prepare and submit to DRL (June 12, 1970).

We further indicated to the applicant that: (1) iodine reduction system must be provided for the spent fuel storage pool area, (2) pipe whip protection must be provided to assure failure of steam lines and feedwater lines will not result in failure of the containment building, and (3) radiolytic hydrogen control following a LOCA will allow purging only as a backup system.

At the conclusion of the meeting the following matters remained unresolved:

(1) flood protection level
(2) bedrock exploration program
(3) seismic design spectra

Site-Related Matters

1. Flood Protection

At a separate meeting with TEC's hydrology consultant, Dr. J. C. Ayers and D. Nunn of the Site Environmental Radiation Group (SERG) reviewed a proposed method of arriving at the Lake Erie maximum probable lake level. Dr. Ayers indicated it might require a maximum of 3 months

calculational effort to complete the proposed analysis. The applicant indicated he would have Dr. Ayers perform this additional analysis but would not be committed to protect the plant to this level until the analysis is completed.

This matter is included on the May 26, 1970 ACRS site visit agenda.

2. Solution Cavities and Fissures

A separate meeting with the applicant's consultant, Woodward & Clyde, and T. Cardone of SERG was held to discuss the cavity and fissure exploration and remedial program proposed for the site. The applicant indicated the proposed program was felt to be the best method of determining if cavities and fissures are present in the foundation bedrock. Excavation down to bedrock has been started and the surface of the bedrock will be accessible for T. Cardone (SERG) and our consultant, H. Waldron of the USGS when they visit the site on May 25, 1970.

The staff position is that the applicant's program should include a deeper boring exploration of bedrock on a grid sufficient to assure significant solution cavities or fissures will be discovered.

3. Design Basis Accident

The applicant has agreed to provide a second charcoal filter in series with present filters in the emergency ventilation system. This additional filter will reduce the iodine thyroid dose for the DBA to well below 10 CFR Part 100 guideline values.

4. Seismic

The applicant has been informed of the seismic response spectra and time-history accelerogram which would be acceptable for the seismic design of Class I structures and components. TEC will make a decision regarding this matter within the next few days. (See Meeting Report May 19, 1970 for more details).

Other Matters

Following the discussion of site-related matters the following areas were reviewed with the applicant. Resolution of each matter regarding documentation requirements is indicated.

Mechanical

1. The applicant's nuclear steam supplier (B&W) indicated it could not comply to the ASME Standard Code for Pumps and Valves for the primary coolant boundary defined in the forthcoming code publication. B&W indicated it knew of no pump and valve vendors which were qualified for the proposed N stamp. It was indicated to the applicant that the "hardship clause" could be used if justification were provided.

   The applicant will document this justification in Amendment 6.

2. Additional documentation will be submitted in Amendment 6 for clarification of applicant's response to questions 3.9, 4.1, 4.3, and 4.14. The applicant discussed each of the above questions and indicated what each response would include.

Structures

The applicant was requested to provide documented clarification of questions 5.1, 5.3, and 5.7 of the February 12, 1970 DRL request for additional information. This additional information will be submitted in Amendment 6. In addition to the above formal questions, the informal questions 5.11 and 5.25 sections e & f provided at the meeting with Bechtel in Gaithersburg on March 13, 1970 were discussed. Bechtel agreed to provide additional information to Dr. Schauer on these matters.

Bechtel indicated the topical reports it is preparing on seismic and tornado design may be submitted to DRL before the end of 1970.

Instrumentation

1. DC battery systems will be completely separated and will require operator action to supply voltage to either bus from a single battery source. This will be documented in Amendment 6.

2. The applicant will submit in Amendment 6 criterion that the diesel generator capacity will meet the design loads for the 8000-hour continuous rating.

3. Response to questions 7.6 and 7.7 of the February 12, 1970 request for additional information will be revised in Amendment 6. The applicant indicated what his revision would include.

4. The instrumentation for the borated water storage tank will be designed to IEEE-279.

5. The applicant will document in Amendment 6 a criterion for sizing of the DC batteries. Each battery system will have full load capability for at least one hour.

6. The applicant will submit in Amendment 6 a criterion indicating any interlock failure which could result in fuel damage will be designed to IEEE-279.

7. The applicant indicated it intended to have the capability to operate the plant with only two of the four primary coolant pumps in operation. The staff indicated the present design trip circuits would not permit 2-pump operation. The applicant will revise the PSAR by Amendment 6 to permit 2-pump operation. This revision will include the automatic reset of the trip levels for 2-pump operation.

Primary Pump Flywheel

The primary coolant pump and flywheel will be supplied by Westinghouse. The applicant indicated it would check the manufacturer's performance of a vacuum degassing of the flywheel material prior to fabrication.

B&W was reminded that they were committed by the Three Mile Island Unit 2 Safety Evaluation to analyze the failure of the flywheel and submit a report to DRL indicating the consequences of this accident.

Spent Fuel Pool Ventilation

The applicant was informed that DRL's position would be to require a charcoal filter in the ventilation system for the fuel pool storage area.

Pipe Whip

The proposed pipe whip protection criteria were reviewed with the applicant. We indicated to the applicant that we would recommend that the main steam lines and feedwater lines be restrained to prevent failure of the containment building. The criteria proposed by the applicant do not provide this protection requirement.

Pressure Vessel Cavity

The applicant has proposed to design the pressure vessel cavity walls to withstand a 3.0 ft^2 primary system rupture. It was indicated by Bechtel that the primary difficulty in designing for larger breaks was the prevention of the resulting pressure increase from lifting the pressure vessel and not the collapsing of the cavity walls.

We described DRL current criteria for the cavity and indicated that the 3.0 ft^2 break may not be adequate.

Steam Line Failure

The applicant submitted in Amendment 5 an additional analysis of the consequence of the steam line failure accident with loss of offsite power and no operator action. This analysis indicates the cooldown following this accident with a stuck rod will result in the reactor returning critical at 2% power level.

This accident is currently being reviewed in depth for the Oconee plant operating license review. B&W indicated that the criteria for this accident would include that no fuel damage occurs. We asked the applicant to document this criterion.

Turbine-Generator Missiles

The applicant's analysis of the turbine generator missiles indicates the largest turbine missile would not penetrate the 18-inch thick reinforced concrete roof over the fuel storage pool. Bechtel indicated that protection against spalling from this missile is provided by a second ceiling under the 18-inch concrete roof.

Radiolytic Hydrogen Control

The applicant indicated the proposed design would not preclude the necessary space and penetrations to install a hydrogen control system. We indicated to the applicant that control of post-accident hydrogen following a LOCA by purging may be acceptable only as a backup to another system such as a catalytic recombiner.

Raymond R. Powell
Boiling Water Reactor Branch 2
Division of Reactor Licensing

Enclosure:
List of Attendees

Distribution:

Docket File	E. G. Case, DRS
DRL Reading	R. Maccary
BWR-2 File	CO (2)
P. A. Morris	Branch Chiefs, DRL,DRS
F. Schroeder	H. Steele
T. R. Wilson	R. Powell
S. Levine	AEC Attendees
R. DeYoung	
D. Skovholt	
P. Howe	

TOLEDO EDISON COMPANY

DAVIS-BESSE NUCLEAR POWER STATION

MAY 20, 1970

LIST OF ATTENDEES

AEC - DRL

R. Tedesco
R. Powell
T. Cardone
D. Nunn
J. Stolz

AEC - DRS

M. Fairtile
K. Wichman
D. Tondi
F. Schauer
R. Shewmaker

Woodward-Clyde Assoc.

R. Millet
D. Moorhouse
Y. Lacroix

Toledo Edison Co.

L. Roe
G. Trowbridge
W. C. Nodean
R. Bins
E. C. Novak
C. M. Gardam

University of Michigan

J. C. Ayers

CO

L. Beratan

Pickard, Lowe & Assoc.

K. Woodward

Bechtel

H. Wahl
J. Seoni
J. McGeady
W. H. Mable
A. Hawes
N. B. Young
W. G. Gordon
A. Yazdi
M. Patel
G. C. Decker
O. M. Esteves
S. N. Saba
M. V. Aaras

B&W

R. C. Hutto
J. Schroeder
W. S. Little
J. McFarland
R. C. Luken