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

OCT 31 1984

MEMORANDUM FOR: George Knighton, Chief
Licensing Branch No. 3
Division of Licensing

FROM: Voss A. Moore, Chief
Human Factors Engineering Branch
Division of Human Factors Safety

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION CONCERNING THE SAFETY PARAMETER DISPLAY SYSTEM FOR BEAVER VALLEY 2

The staff has reviewed the applicant's submittal concerning the Safety Parameter Display System and concluded that insufficient information was provided to complete its evaluation. The information needed by the staff to complete the evaluation is defined in the enclosure. Please forward the enclosure to the applicant and request a response within 60 days.

S H Weiss for
Voss A. Moore, Chief
Human Factors Engineering Branch
Division of Human Factors Safety

Enclosure:
As stated

cc: D. Ziemann
F. Rosa
G. Mazetis
F. Orr
J. Joyce
L. Lazo

Contact:
G. W. Lapinsky
x29694

C/8

REQUEST FOR ADDITIONAL INFORMATION

CONCERNING THE

BEAVER VALLEY 2

SAFETY PARAMETER DISPLAY SYSTEM

Each operating reactor shall be provided with a Safety Parameter Display System (SPDS). The Commission approved requirements for an SPDS are defined in NUREG-0737, Supplement 1. In the Regional workshops on Generic Letter 82-33 held during March 1983, the NRC discussed these requirements and the staff's review of the SPDS.

The staff reviewed the SPDS safety analysis and implementation plan provided by Duquesne Light (Reference 1). The staff was unable to complete the review because of insufficient information. The following additional information is required to continue and complete the review:

INSTRUMENTATION AND CONTROL SYSTEMS INFORMATION

420.01 Isolation Devices

Provide the following:

a. For each type of device used to accomplish electrical isolation, describe the specific testing performed to demonstrate that the device is acceptable for its application(s). This description should include elementary diagrams when necessary to indicate the test configuration and how the maximum credible faults were applied to the devices.

b. Data to verify that the maximum credible faults applied during the test were the maximum voltage/current to which the device could be exposed, and define how the maximum voltage/current was determined.

c. Data to verify that the maximum credible fault was applied to the output of the device in the transverse mode (between signal and return) and other faults were considered (i.e., open and short circuits).

d. Define the pass/fail acceptance criteria for each type of device.

e. A commitment that the isolation devices comply with the environmental qualifications (10 CFR 50.49) and with the seismic qualifications which were the basis for plant licensing.

f. A description of the measures taken to protect the safety systems from electrical interference (i.e., Electrostatic Coupling, EMI, Common Mode and Crosstalk) that may be generated by the SPDS.

HUMAN FACTORS ENGINEERING INFORMATION

620.01 Data Validation

Describe the specific methods used to validate data displayed in the SPDS. Also describe how invalid data is defined to the operator.

620.02 Verification and Validation Program

Define and discuss the Verification and Validation Program Plan which was used in the development of the SPDS. Also, describe results to date from the Verification and Validation Program, and the corrective actions taken to address identified design deficiencies.

620.03 Unreviewed Safety Questions

Provide conclusions regarding unreviewed safety questions or changes to technical speicifcations.

620.04 Implementation Plan

Provide a current schedule for full implementation of the SPDS including hardware, software, operator training, procedures and user manuals.

REFERENCE

Letter from E.J. Woolever (DLC) to D. Eisenhut (NRC) with attachment, dated August 1, 1984.

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

SEP 11 1984

Docket No. 50-412

MEMORANDUM FOR: G. Knighton, Chief, Licensing Branch No. 3, Division of Licensing

FROM: Olan D. Parr, Chief, Auxiliary Systems Branch, Division of Systems Integration

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR BEAVER VALLEY POWER STATION, UNIT 2 - AUXILIARY SYSTEMS BRANCH

The enclosed request for additional information for Beaver Valley Power Station, Unit 2 is a result of recent ACRS concerns involving the handling of heavy loads (SRP Section 9.1.5). We request that the applicant respond to this request for information as soon as possible.

Olan D. Parr

Olan D. Parr, Chief
Auxiliary Systems Branch
Division of Systems Integration

Enclosure:
As Stated

cc w/enclosure:
R. Bernero
L. Rubenstein
T. Novak
J. Wermiel
J. N. Wilson
M. Licitra
M. Ley
R. Anand

Contact:
R. Anand
X29465

8409180374 (2pp)

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REQUEST FOR ADDITIONAL INFORMATION
BEAVER VALLEY, UNIT 2
AUXILIARY SYSTEMS BRANCH

Section 9.1.5 - As a result of recently identified ACRS concerns, provide a response to the following request for information regarding the handling of heavy loads:

a. Describe the means provided to assure the integrity of concrete structures, lifting eyes, and any other heavy loads so that they will not fall apart while being handled during refueling should the lifting eye fail or the load impact other structures.

b. Alternatively, describe the consequences of failure of concrete structures or other heavy loads during handling. This evaluation should confirm that unacceptable fuel damage or damage to safety related equipment will not occur.

These "Q's" sent to applicant on 10/12/84
27200 - 343

R. Gonzales

OCT 5 1984

Docket No. 50-412

MEMORANDUM FOR: Thomas M. Novak, Assistant Director
for Licensing, DL

FROM: William V. Johnston, Assistant Director
Materials, Chemical & Environmental Technology, DE

SUBJECT: HYDROLOGIC ENGINEERING QUESTIONS ON SITE FLOODING

In reviewing Section 2.4 of the BVPS-2 FSAR, we determined that the applicant had not provided sufficient information to support its conclusion that flooding would not affect safety-related structures. On August 25, 1983, we sent you several questions requesting additional information concerning site flooding. These questions were subsequently sent to the applicant on August 31, 1983. As you know, the applicant has appealed our request that they consider new PMP criteria; consequently, they have not responded to several of our questions.

Much of the information that we requested is necessary to review the applicant's analyses in the FSAR and has nothing to do with the new PMP criteria.

We have been instructed to independently analyze the local flooding problem at BVPS-2, on a tight schedule. However, before we can complete this analysis, we must have much of the previously requested information. Attached is a revised set of questions which contains no reference to the new PMP criteria. We request that you resubmit these questions to the applicant and request a prompt reply so that we may complete our analysis within the specified time.

/S/

William V. Johnston, Assistant Director
Materials, Chemical & Environmental
Technology
Division of Engineering

Attachment:
Questions

cc: See next page

8410160091 (4pp)

C/6

cc: w/o attachment
E. Case
R. Vollmer

w/attachment
G. Knighton
R. Ballard
M. Ley
R. Jachowski
R. Gonzales

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HYDROLOGIC ENGINEERING QUESTIONS ON LOCAL SITE DRAINAGE
BEAVER VALLEY POWER STATION UNIT 2
DOCKET NUMBER 50-412

1. (FSAR 2.4.2. 3.1) (SRP 2.4.3) In determining the local PMF for Peggs Run, you used a rainfall intensity of 9.3 in/hr. The staff does not agree that this approach is correct since 9.3 in. is the total PMP that you determined for a 1-hr period. The PMP must be broken down to appropriate time increments suitable for the drainage area and times of concentration that exist at the site. Document the adequacy of your design by using a rainfall intensity corresponding to the time of concentration for Peggs Run. Provide your estimate of time of concentration together with an explanation of how it was calculated.

2. (FSAR 2.4.2. 3.1) (SRP 2.4.3) It is not clear how you determined a PMF for Peggs Run. If you developed a hydrograph, provide a plot of the hydrograph or a tabulation of discharge versus time and describe the procedures used to develop the hydrograph. If you used some other method such as the rational formula, describe what was done and include the values of all parameters used.

3. (FSAR 2.4.2. 3.1) (SRP 2.4.3) You have not provided any information concerning the effects of the railroad culvert on potential flooding of the site. However, the staff notes that in responding to a USAEC staff position on the BVPS-2 PSAR, you stated that assuming that the railroad culvert is blocked and that the railroad embankment does not wash out, water will rise to an elevation of 729.6 feet on-site. In your analysis, you routed the Peggs Run PMF over the railroad embankment assuming an 800 ft weir length. Is this analysis still valid? If it is, please provide the following information for staff review:

   a. The basis for assuming a weir length of 800 ft.

   b. A profile of the railroad, in the vicinity of the culvert, showing elevations of the top of the rail at each break in slope.

   c. Elevation-storage data for the ponding area behind the railroad embankment.

   If conditions or design of the railroad culvert have changed from the PSAR, you should reevaluate the flood potential of the railroad culvert, make appropriate changes to the FSAR, and provide your re-analysis for staff review.

4. (FSAR 2.4.2. 3.1) (SRP 2.4.3) You state that you determined that, if the Peggs Run culvert failed during a PMF such that it would carry only negligible flow, due to blockage by debris, water levels in the vicinity of safety-related structures would be below an elevation of 730 ft. What elevation did you calculate? You further state that the U. S. Army Corps of Engineers water surface profiles program HEC-2, was used to generate a series of water surface elevations. Please provide those elevations together with the cross-sections used and their locations. Also provide all pertinent values such as Mannings "n" values, flows, starting water levels, slopes and any other assumptions used in computing water surface profiles. If you determined that water would overflow Peggs Run to the area east and south of the Highway 168 bridge-approach, provide a detailed topographic map of this area.

5. (FSAR 2.4.2. 3.2) (SRP 2.4.3) In analyzing local flooding, all you state is the method used to determine water depths and the maximum water elevations computed at the reactor building, the control building and the radwaste building.

a. Are these the only safety-related buildings that could be affected by local flooding?

b. You have not provided the staff sufficient information to enable it to review your local flood analysis. Please provide a more detailed description of your analysis.

c. You should also provide a detailed topographic map of the site showing roads and railroads together with their top elevations. Other obstructions to flow such as temporary and permanent buildings, trailers, sheds, fences, etc., should also be shown.