G. Staley

Item 4

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

JAN 24 1984

Docket Nos. 50-424/425

MEMORANDUM FOR: Walter P. Haass, Deputy Chief
Quality Assurance Branch
Division of Quality Assurance,
Safeguards, and Inspection Programs, IE

M. A. Miller, Project Manager
Licensing Branch No. 4
Division of Licensing, NRR

FROM: Ronald L. Ballard, Chief
Environmental & Hydrologic Engineering Branch
Division of Engineering, NRR

SUBJECT: HYDROLOGIC ENGINEERING REVIEW OF VOGTLE Q-LIST

Plant Name: Vogtle Electric Generating Plant
Licensing Stage: OL
Docket Nos.: 50-424/425
Responsible Branch: Quality Assurance Branch

In response to your memorandum of November 29, 1983, we have reviewed the Vogtle Q-List as given in Tables 3.2-1 and 3.2-2 of the FSAR.

The safety-related structures, systems and components that fall within the responsibility of the Hydrologic Engineering Section and are listed in Table 3.2-2 are as follows:

1. NSCW Cooling Towers and Basins
2. Refueling Water Storage Tank
3. Condensate Storage Tank
4. Reactor Make-up Water Storage Tank

The Hydrologic Engineering Section also reviews local intense rainfall and the potential to flood safety-related structures. This review is based on the applicant's site grading plan and provisions to accomodate rainfall on the roofs of safety-related structures. Any alterations to the site drainage plan (e.g., landscaping, paving, roads, railroads, culverts, ditches, security fencing and berms, roof scuppers, parapets, etc.) could change flood levels determined by the staff in its review. For these reasons, the site drainage system and roof scuppers should be added to the Q-List. Additionally, there

are three outside Seismic Category I safety-related water storage tanks (refueling, reactor make-up and condensate) with associated dikes that would contain any tank spills. The three tanks are on the Q-List but the dikes are not. The dikes should be added to the Q-List.

This review was performed by G. Staley who can be reached on X28003.

Ronald L. Ballard

Ronald L. Ballard, Chief
Environmental & Hydrologic
Engineering Branch
Division of Engineering

cc: J. Spraul
M. Fliegel
W. Gammill
G. Lear
O. Parr
G. Staley

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JAN 24 1984

Item 5

Docket Nos. 50-524/525

MEMORANDUM FOR: Elinor Adensam, Chief
Licensing Branch #4, DL

FROM: Ronald L. Ballard, Chief
Environmental & Hydrologic Engineering Branch, DE

SUBJECT: HYDROLOGIC ENGINEERING SAFETY QUESTIONS FOR VOGTLE OL REVIEW

Plant Name: Vogtle Electric Generating Plant
Licensing Stage: OL
Docket No. 50-524/525

Attached are Hydrologic Engineering Safety Questions for transmittal to the applicant prior to the February 6 site visit. We consider the attached as Draft Questions, since some may be resolved or revised and others may be generated as a result of the site visit.

We are in the process of initiating a contract that will include the review of the mechanical draft cooling tower (UHS) performance at Vogtle. Our contractor may request additional information from the applicant in order to complete his review. However, since that contract has not yet been finalized we cannot now provide an estimated date for those questions.

This review was performed by Gary B. Staley of the Hydrologic Engineering Section, phone X28003.

Original signed by Ronald L Ballard

Ronald L. Ballard, Chief
Environmental & Hydrologic
Engineering Branch
Division of Engineering

8402230734

Attachment: As stated

cc: W. Johnston
O. Parr
W. Gammill
M. Miller
M. Fliegel
J. Kane
G. Staley

OFFICE	DE:EHEB	DE:EHEB	DE:EHEB				
NAME	GBStaley:ws	MFliegel	RLBallard				46
DATE	1/23/84	1/23/84	1/24/84				

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Vogtle Electric Generating Plant
Hydrologic Engineering Safety Questions
Docket Nos. 50-424/425

240.1 Your design basis ground water level of elevation 165.0 ft msl is not substantiated by some of the observation well readings in the water table aquifer. Well numbers 124 and 142 have readings in excess of elevation 200 ft msl for several quarters. Figure 2.4.12-7, Sheet 2, shows a groundwater elevation of about 145 ft msl near well number 129, whereas Table 2.4.12-7, Sheet 2, shows an elevation of 176.0 ft msl for first quarter 1980 for well number 129.

It appears from your discussion in Section 2.4.12 that your design bases value (165.0 ft msl) may represent more of an average value rather than an upper limit. The design basis groundwater should not be exceeded during the life of the plant. Provide additional justification to support your selected design basis ground water level of 165.0 ft msl. Your justification should include reasons for apparently disregarding some observed higher recorded values in the vicinity of the main plant area. Alternately, you may provide a revised (higher) design basis ground water level that can be supported by the records and will reflect a value that is not likely to be exceeded during the life of the plant. Your response should also include consideration of historic rainfall records in comparison to what has occurred during your groundwater monitoring period.

240.2 You have not provided sufficient information for the staff to review your provisions for site drainage. Provide the following information:

1. Full size (unreduced) drawings for Figure 2.4.1-2, sheets 1 and 2.

2. On the drawings mark the contributing drainage area and subbasins.

3. The drainage area, time of concentration, runoff coefficient and peak discharge (for the PMP) for each subbasin.

4. Elevations at each change in grade for all peripheral roads and railroads. Also provide sufficient spot elevations on all flat or gently sloping areas (main plant area, parking lots, switchyard etc.) such that the staff will be able to determine slopes or elevation limits.

5. Arrows on drawings to indicate assumed flow paths for overland and ditch flow.

6. Ditch cross sections and invert elevations at extremities and at each change in grade or size.

7. Locate all culverts (used for PMP discharge) on the drawings and provide the type and shape of pipe, inlet and outlet invert elevations and shape or type of inlet.

8. The design basis water surface elevation for safety-related structures in the main power block area as a result of local PMP on the site area. You should also provide the maximum water surface elevation (due to local PMP) for each subbasin that contributes flow in the vicinity of the power block.

240.3 Your estimates for probable maximum precipitation (PMP) in Table 2.4.2-2 are 20% to 30% less conservative than the values estimated by the staff using Hydrometeorological Report (HMR) 51 and 52. Since our Standard Review Plan 2.4.2 allows for at most a 5% difference, this discrepancy must be resolved. Since both staff and applicant values have been interpolated from HMR 51 and 52, there is apparently some judgemental error in interpretation. For the purpose of resolving this difference, we have listed below the values the staff determined and the appropriate HMR Figure number that was used:

1 hour 1 sq. mi PMP	19.1 inches	Fig 24, HMR 52
5 to 60 minute ratio	0.323	Fig 36, HMR 52
15 to 60 minute ratio	0.506	Fig 37, HMR 52
30 to 60 minute ratio	0.736	Fig 38, HMR 52

Provide your revised values and additional discussion to substantiate those values if different from the staff's.

240.4 Provide a tabulation of existing groundwater users and a map showing the location and other pertinent information as described in Section 2.4.13.2 of NUREG-75/094.

240.5 FSAR Section 2.4.13 is incomplete. Describe the nearest downgradient groundwater and/or surface water users and show that a postulated release from the most critical radwaste storage tank (which you must identify or cross reference) will result in concentrations at the nearest downgradient user that are less than those identified in 10 CFR Part 20, Appendix B, Table II, Column 2.

Item 6 1/30/84

Conference Phone - Vogtle Site Visit Hydrologic Q's

Jim Bailey — Bechtel

Schilling Bob

Shahahan — Kersland Bill

Kolbecky — Kiser Roy

Jim McLeod

Frank Buzzeandino — NRC

M. Miller

G. Staley

Discussed my Q's with the Applicant and Bechtel and they apparently didn't have any problem with them. Will discuss in detail at the site visit.

G. Staley

11:30

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