DISTRIBUTION OF MEETING SUMMARY

DATED MAR 17 1975

Tennessee Valley Authority
ATTN: Mr. James E. Watson
Manager of Power
818 Power Building
Chattanooga, Tennessee 37401

bcc: E. G. Beasley, Jr.
307 U.B.A.
Tennessee Valley Authority
Knoxville, Tennessee 37902

Mr. R. H. Marquis
General Counsel
629 New Sprakle Building
Knoxville, Tennessee 37902

William E. Garner, Esquire
Route 4
Scottsboro, Alabama 35768

50-438

Docket Files
NRC PDR
LPDR
NRR Reading (M. Groff)
LWR 2-3 Reading File
VAMoore
RCDeYoung
DMuller
KGoller
DSkovholt
RDenise
JStolz
KKniel
ASchwencer
DVassallo
OParr
WButler
BYoungblood
WRegan
GDicker
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SVarga
MWilliams
FSchroeder
RMaccary
HDenton
RTedesco
VStello
JKnight
SPawlicki
LShao
BGrimes
WGammill
MSpangler
JKastner
RBallard
CLong
GLainas
VBenaroya
TNovak
TIppolito
DRoss
OELD
I&E (3)
SD (3)
EGoulbourne
ACRS (16)
DKDavis
REJackson
EJVallish, I&E II

memo
LB

MAR 1 7 1975

DOCKET NOS.: 50-438 AND 50-439

APPLICANT : TENNESSEE VALLEY AUTHORITY (TVA)

FACILITY : BELLEFONTE NUCLEAR PLANT, UNITS 1 AND 2

SITE VISIT TO INSPECT FOUNDATION LIMESTONE UNDER UNITS 1 AND 2

On March 5, 1975, representatives of the Nuclear Regulatory Commission visited the Bellefonte Nuclear Plant site to inspect the limestone foundation for the containments, auxiliary and control buildings. The visit had been arranged to occur just prior to the first pour of concrete (now estimated to begin on March 10, 1975). The only unusual feature observed was the fracturing of limestone caused by blasting and reported in IE Rpt Nos. 50-438/75-1 and 50-439/75-1. TVA had removed most of the fractured limestone around Unit 1 except for a large block (12x15x40 feet) on the northeast wall near the containment. TVA will grout the seams surrounding this block (see attached TVA memorandum) and place fill concrete in the areas of over excavation. After the site visit, there was a short meeting (attendance list attached) to summarize our visit. TVA indicated that they will follow the same procedure as outlined above for removing other loose rock and grouting where required during excavation. The NRC representatives had no objections to this approach but requested all of these activities to be documented as part of the geologic mapping. TVA was also advised that Dr. R. Lutton of the Corps of Engineers would be visiting the site to inspect the foundations on March 7, 1975. In regard to two possible future site visits with NRC licensing personnel, I requested about 4 weeks notification prior to the point of grouting the containment rock anchors (estimated for June 1975) and prior to completing rock excavation at the intake structure.

Post-CP review items were briefly discussed and the attached list given to TVA to indicate the areas planned for review. I indicated that the list would be formally transmitted to TVA with a letter requesting their schedule for resolution of these items.

Original signed by

Donald K. Davis, Project Manager
Light Water Reactors Branch 2-3
Division of Reactor Licensing

Enclosures:
1. Memo dtd 2/26/75 from TVA
2. List of Attendees
3. Post-CP Review Items

OFFICE ➤	x7886/LWR2-3					
SURNAME ➤	DKDavis:cjb					
DATE ➤	3/17/75					

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

ENCLOSURE 1

W. W. Aydelott, Project Manager, Bellefonte Nuclear Plant, Hollywood (2)

R. M. Hodges, Bellefonte Design Project Manager, 100 DB-K

February 26, 1975

BELLEFONTE NUCLEAR PLANT - INSPECTION OF ROCK EXCAVATION FEBRUARY 18, 1975, BY R. W. ALLEN, J. H. COULSON, AND C. D. DURFEE

The above-named design inspection team visited the plant site to make a decision on rock excavation in the Units 1 and 2 reactor building areas east of the north-south centerline and also on the rock face between the reactors along the W-line in the area of the auxiliary building. They were accompanied by Ann Beck, the resident geologist; Art Soderberg, geologist from the Raccoon Mountain Pumped-Storage Plant; Forrest Gilbert, Construction Engineer; and William Lawhorn, representing the field engineer.

The bedding planes east of the centerline dipped downward 17 degrees toward the east. Displacement in the vertical face east of the centerline of units is evident in both reactor areas along an exposed bedding plane roughly 12 feet below the rock surface. The displacement at this elevation has taken place up-dip, and the rock above projects over the rock below about 1/2 to 1 inch for the most part. A similar condition exists along the W-line face. In addition, the top 3 feet ± is displaced with broken rock at each end. At the south end a 10- to 12-foot-high wedge of rock projects 6 to 8 inches out from under the rock above.

The following will confirm the decisions agreed upon in a meeting with you:

W-Line Face

1. Remove the upper 3 feet ± of broken and displaced rock back as far as it is loose with mechanical equipment. Where it cannot be accomplished with machinery, light blasting can be used.

2. The surface crack parallel to the W-line and roughly 15 feet to the east is to be exposed by peeling back the adjacent saw-toothed layer of rock with machinery to determine the depth of the crack. The extent of the crack and its thickness will govern a decision as to whether or not to grout.

3. The rock at the south end is to be removed by blasting where necessary down to and including the displaced lower wedge of rock which projects 6 to 8 inches out from under the rock above. This wedge of rock which has been displaced and is to be removed extends

back to the exposed vertical seam which can be observed when looking at the south end of this area.

4. On the north end the upper four to five feet of broken rock at the front corner that has been displaced above the bedding plane shall be removed with machinery. The rock shall be removed back from the W-line along the stepped-up crack which can be observed from the north side daylighting at the surface some 12 or 15 feet east of the W-line.

Reactor Units 1 and 2 - East of Centerline

1. Remove all broken or loose rock on sloping surfaces and vertical faces. Bars shall be used to wedge and pry off all loose or cracked material. Clean up all surfaces.

2. In order to consolidate fractures developed essentially normal to bedding and partially open bedding planes, both of which were caused by shifting of rock strata during blasting operations, the rock foundation will be grouted. This will require all exposed cracks to be mapped. Areas requiring treatment as observed on February 18, 1975, were generally limited to the eastern half of reactors 1 and 2. Other areas may be treated as required after blasting and cleanup if field inspection verifies the presence of fractures. The method of treatment will be as follows:

   a. Drill Holes

      1. 2-Inch or larger vertical percussion holes are to be drilled nominally 10 feet on center from the rock surface to elevation 587 (for the reactor areas) or the lowest open-cut elevation in the vicinity of the area being treated.

      2. Where vertical rock cuts are involved, holes shall be drilled parallel to the face of the cut and 5 feet from the face.

      3. Where near vertical fractures are known to occur in the rock, additional percussion holes shall be drilled at angles intended to intercept the fracture at one or more elevations. Locations of angle holes to be determined by the project geologist.

4. All drill holes shall be checked by the project geologist just prior to grouting to establish that they are open to the proper depth. Obstructions shall be cleaned by use of a blow pipe or by redrilling.

5. The area surrounding each drill hole shall be kept free of foreign material; otherwise, a 1-foot pipe shall be caulked into the top of the drill hole.

6. Partially open bedding planes shall be broken open or drilled so that a pipe of at least 3/4-inch diameter may be caulked into the opening to a depth of several inches. Starting at the lowest exposed elevation, these pipes should be installed about every 10 feet along the bedding planes. All pipes shall be capped and extended horizontally a sufficient distance to be easily accessible outside the concrete walls which are to be poured prior to grouting. At the time of the grouting operation, these pipes will be used as bleeders.

b. Grouting Operations

1. Sequence of application of grout and viscosity shall be controlled by the project geologist.

2. General application procedures shall comply with TVA Construction Specification No. G-26, "Pressure Grouting of Rock Foundations with Portland Cement," except that only gravity pressure shall be used.

3. Volume of grout used shall be designated as cubic feet based on the absolute volume of cement. Total acceptance shall be designated by area treated within a specific structure (viz., east half of reactor 1, etc.).

c. A detailed grouting procedure will be prepared to perform the operation.

Original Signed By
R. M. Hodges

R. M. Hodges

RMH:RWA,JHC,CDD:NH
CC: G. L. Buchanan, 401 UB-K
R. G. Domer, 519 MIB-K
Roy H. Dunham, 505 UB-K
J. M. Kellberg, 51 EB-K
H. H. Mull, 707 UB-K

ENCLOSURE 2

MEETING WITH TENNESSEE VALLEY AUTHORITY
BELLEFONTE NUCLEAR PLANT, UNITS 1 AND 2
HELD MARCH 5, 1975

LIST OF ATTENDEES

Nuclear Regulatory Commission (NRC)

D. K. Davis
E. J. Vallish, I&E II
R. E. Jackson

Tennessee Valley Authority (TVA)

F. E. Gilbert
J. H. Coulson
T. E. Spink
W. W. Aydelott
J. F. Cox
C. Glidewell
R. W. Allen
M. K. Beck
A. D. Soderberg
C. D. Durfee

ENCLOSURE 3

POST-CP REVIEW ITEMS

Item	TR Branch	Source	Probable Method of Resolution
1. R&D Program	RSB	SER 1.7, 4.4, ACRS	BAW-10097 Review
2. Airport Relocation Study	AAB	SER 2.2, PSAR Q2.52	TVA-FAA Study
3. Location of Permanent Meteorological Tower	SAB	SER 2.3	Topo Map or Site Visit
4. Geologic Review of Foundations	SAB	PSAR Q2.15, 2.76, 2.77	Site Visit (March or April)
5. Turbine Missiles	AAB	SER 3.5	Development of Staff Position (III.A.1 of Generic Safety Items)
6. ATWS	RSB	SER 5.2.2, TVA Ltr 9/30/74	BAW-10099 Review
7. Heatup-Cooldown Limits (10 CFR 50 Appendix G)	MTEB	SER 5.2.4	B&W Topical Report (to be Submitted)
8. Post-LOCA Cooling	RSB & EICSB	SER 7.3, TVA Ltr 10/7/74	Design Criteria from TVA and Development of Staff Position
9. ECCS Testing	RSB	SER 6.3.4	Reg. Guide 1.79 & Crossover Pipes
10. RPS II and Pressurizer Trip	EICSB	SER 7.2, ACRS	BAW-10085 Review
11. Instr. to Monitor	EICSB	SER 18.6; ACRS	Development of Reg. Guide
12. RC Pump Overspeed	RSB	SER 18.7, ACRS	Test Results and Evaluation from B&W (I.A.3 of Generic Safety Items)
13. Rock Anchor Tests	SEB	SER 18.4, ACRS	Meeting with TVA or Site Visit
Other Items			
14. Operability Assurance Testing Program	MEB	PSAR Q3.83	

DISTRIBUTION

MAR 5 1975

Central File
NRR: Rdg. File
NRR: CBAB

Frank Schroeder, Acting Director for Technical Review, TR

STATUS OF TECHNICAL ASSISTANCE REQUEST 1298

PLANT NAME: Bellefonte Nuclear Plant Units 1 and 2
LICENSING STAGE: CP
DOCKET NUMBER: 50-438 and 50-439
RESPONSIBLE BRANCH: Environmental Projects Branch 4
PROJECT MANAGER: G. Dittman

This is to advise you that although we have prepared a response for the initial (outline) phase of the TAR, the project manager has requested that it be delayed pending receipt and analysis of a report by TVA regarding their sampling program for this years spawning season. The new target date for the initial phase response has been tentatively changed to the week of March 24, 1975. The September 30, 1975 target date for the final response is unchanged.

Original Signed by
H. R. Denton

Harold R. Denton, Assistant Director
for Site Safety
Division of Technical Review

cc: C. Billups
G. Dittman
A. Kenneke
R. Thorsen

Memo - 4

OFFICE ➤	TR: CBAB	TR:CBAB	TR:SS			
SURNAME ➤	RThorsen:ck	MSpangler	HDenton			
DATE ➤	3/4/75	3/4/75	3/6/75			

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Docket

Docket Nos. 50-438
and 50-439

FEB 1 4 1975

NOTE TO: Voss A. Moore

HIGH ENERGY LINE BREAK ENVIRONMENT FOR SAFETY-RELATED ELECTRICAL GEAR

Clint Walker and Stu Thickman returned Don Davis's call on February 14, 1975 re Bellefonte 1/2 and gave the following information:

Section 3.11 of the PSAR addresses environmental quality for electrical safety-related equipment. It deals primarily with gear inside containment. Some additional design criteria are given in Section 9.4 of the PSAR as relates to ventilation equipment. With regard to pipe break of high energy lines outside containment, this is discussed in TVA's Response 3.57. The gist of the response is that proper functioning of the safety-related equipment will be assured by physical separation of redundant trains. The Bellefonte design is proceeding on the basis of that criteria. In the event that detailed design work reveals the need to take exception to the separation guide, a detailed examination will be performed in justification for an exception. TVA expects few, if any, exceptions will be required. Furthermore, they understand that equipment needed for safe shutdown of the plant that is exposed to steam environment conditions, would have to be justified based on actual test data on either that equipment or testing of equivalent equipment.

Original signed by

A. Schwencer, Chief
Light Water Reactors Branch 2-3
Division of Reactor Licensing

ccs: LWR 2-3 Rdg
D. Davis
R. Benedict
R. DeYoung
F. Schroeder
V. Stello
R. Tedesco
T. Ippolito
C. Long

Memo 4

OFFICE ➤	x7235 LWR 2-3					
SURNAME ➤	ASchwencer:cjb					
DATE ➤	2/14/75					

Form AEC-318 (Rev. 9-53) AECM 0240

☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

Docket Nos. 50-438,50-439
50-434 and 50-435

FEB 12 1975

A. Schwencer, Chief
Light Water Reactors Branch 2-3
Division of Reactor Licensing

POST CP REVIEWS OF BELLEFONTE 1 AND 2
AND SURRY 3 AND 4

In response to your two January 10, 1975, memos to me on the subject reviews, we have been informed by Region II that there does not appear to be any identified problems at present.which we feel are appropriate for discussion during post construction permit reviews.

We appreciate the opportunity to participate in these reviews; should future developments warrant such action we will contact you.

Original signed by
H.D. Thornburg

Harold D. Thornburg, Chief
Field Support and Enforcement Branch
Office of Inspection and Enforcement

cc: D. K. Davis, L
S. D. MacKay, L
G. C. Gower, IE
Region II

Memo
f

OFFICE	IE/FS/EB	IE/FS/EB.C				
SURNAME	GCGower:dsh	HDThornburg				
DATE	2/12/75	2-12-75				

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

Backup

JAN 31 1975

H. D. Thornburg, Chief, Field Support and Enforcement Branch,
Office of Inspection and Enforcement, Headquarters

POST CP REVIEWS OF TENNESSEE VALLEY AUTHORITY (BELLEFONTE 1 AND 2), AND VIRGINIA ELECTRIC AND POWER COMPANY (SURRY 3 AND 4) - AITS H00378F2 AND H00379F2

Region II has not identified any items of the type addressed in the subject Action Item Control Forms and, therefore, has closed them. The original copies of the Control Forms are attached.

C. E. Murphy, Chief
Facilities Construction Branch

cc: N. C. Moseley, IE:II
G. C. Gower, IE:HQ