

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

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

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

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

50-439

✓ Docket Files

NRC PDR
LPDR
NRR Reading (M. Groff)
LWR 2-3 Reading File
VAMoore
RCDeYoung
DMuller
KGoller
DSkovholt
RDenise
JStolz
KKniel
ASchwencer
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WButler
BYoungblood
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GKnighton
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DZiemann
PCollins
WHouston
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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
(4)

LB

MAR 17 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/LWA2-3				
SURNAME	BKDavis:cjb				
DATE	3/17/75				

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

W. W. Aydelott
February 26, 1975

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

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.

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W. W. Aydelott
February 26, 1975

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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

POST-CP REVIEW ITEMS

<u>Item</u>	<u>TR Branch</u>	<u>Source</u>	<u>Probable Method of Resolution</u>
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
<u>Other Items</u>			
14. Operability Assurance Testing Program	MEB	PSAR Q3.83	

Docket Nos. 50-438
and 50-439

FEB 4 1975

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ECase TR BCs
AGiambusso ACRS (16)
RSBoyd SVarga
EGoulbourne DDavis
JE (3)
GDittman

A. Schwencer, Chief, Light Water Reactors Branch 2-3, RL
FORTHCOMING MEETING WITH TVA - BELLEFONTE NUCLEAR PLANTS, UNITS 1 & 2

DATE: Tuesday, March 4, 1975
LOCATION: Scottsboro, Alabama
TIME: 9:00 a.m.
PURPOSE: Site visit to inspect plant foundations
and discuss Post-CP review.

PARTICIPANTS:

NRC
D. Davis and R. McMullen

TVA
T. Spink, J. Kelberg, and J. Colson

Original Signed by

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

memo
LB

OFFICE >	x7886/LWR2-3					
SURNAME >	DDavis:rm					
DATE >	3/ /75					