

June 24, 1985

To Hugh Thompson
From Henry Myers

On June 3, I sent you a memorandum concerning the B&V review of Watts Bar. This memorandum contains additional comments and questions pertaining to the matters discussed in the June 3 memorandum.

The B&V April 12, 1983 report and associated documents and TVA response thereto is not readily reviewable. For example, it is somewhere between difficult and impossible to determine the following.

-The specifics of what B&V actually reviewed. The April 12, 1983 B&V Summary Report contains little information in this regard. For example, with respect to instrumentation and control, which logic, control, schematic and connections drawings were reviewed and which circuits were checked against each class of drawing? Did B&V review relevant NCR's, 50.55e's, NSRS reports, and NRC inspection reports? If not, why not?

-The criteria used for deciding which of the 902 Findings reports would be included in the 428 Findings Reports tabulated in the April 12, 1983 B&V report. Nor is it clear how the 428 Findings listed in the April 12, 1983 B&V report converts into the 328 Findings listed in the February 7, 1984 B&V Supplementary Report.

-The criteria used for deciding which of the 428 Findings would be classified as Punch list, Non-Punch list, Confirmed, Open or Resolved. For example, the 25 Findings ultimately compiled by TVA under Category 3 concern inconsistencies between logic/control and electrical drawings. Examination of these findings shows that their classification wandered over the lot as they went from one reviewer to the next; the reasons for the changes and the ultimate significance of these findings either singly or in toto is obscure. It took NSRS R-84-19-WBN to bring out that these findings in their totality were significant.

-The extent to which B&V findings resulted from inadequate QA/QC vis-a-vis incomplete construction and/or inspection. B&V seems to have accepted TVA's explanation that, with 3 exceptions, the 382 Findings listed in the April 12, 1983 report as affecting safety related equipment were isolated deficiencies and/or would have been found in the course of subsequent inspections.

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There appears to be a major inconsistency in TVA's response to B&V and later to NSRS. On the one hand, in responding to B&V, TVA says the deficiencies found by B&V would have been found in the course of subsequent inspection and testing programs conducted by TVA. On the other hand, TVA's response to NSRS and NRC suggests that the B&V findings were isolated and not indicative of a pervasive QA/QC breakdown, thus leading TVA to assert that a more comprehensive review of the Watts Bar design and construction is unnecessary.

Furthermore, TVA's response that it would have found the deficiencies uncovered by B&V raises the question of the need for B&V. If TVA could have been relied upon to find and correct the problems, what was the purpose of B&V?

The following example is illustrative.

Section 6.1 of the April 12, 1983 B&V report describes B&V's review of electrical work. B&V discussed (p. 6-5) electrical installation. It stated among other things that: "The system had not yet been functionally checked. A complete functional check, or a functional check against the schematics and wiring diagrams, had not yet been performed. ... Selected physical wiring was compared against the wiring diagrams. .. Except for the three confirmed discrepancies listed, the electrical review found the design and construction (of completed areas) generally adequate."

B&V stated, in neither its April 1983 nor February 1984 reports, that 25 of its findings involved significant document discrepancies. Contrary to the B&V's sanguine conclusion, NSRS in July 1984 (R-84-19-WBN, p. 5), referred to the 25 B&V findings where "logic/control drawings did not agree with electrical drawings." NSRS stated that "The identified cause for the ... (deficiencies) was failure to implement design review procedures as required by engineering procedure EP 4.25."

Of particular interest is the trail of B&V Findings F105 and F805. NSRS R-84-19-WBN states that "F805 identified a cross tie between normal and emergency 125 V DC systems." While F105 and F805 do not have identical wording, TVA's Form 3 on F805 (dated 11/8/83) states "This finding is identical to F105"

F105 was initiated on October 27, 1982 and on this date it was classified "Open" by the B&V Lead Reviewer. On December 30, 1982, the Lead Reviewer changed the classification from "Open" to "Resolved." The Lead Reviewer's change from "Open" to "Resolved" apparently was based on TVA's response that while the schematic drawing was incorrect, the installation drawing was correct. On January 18, 1983, the B&V Project Manager classified F105 as "Open." The B&V Project Manager, in explaining classification in the "Open" category, stated:

The conditions noted are considered to have safety significance. Site inspection & or QA record review would be required to determine what corrective action is required.

On March 10, 1983, the B&V Senior Review Team manager reclassified F105 to the "Resolved" category. The B&V Classification Difference Report stated that the Senior Review Team classification was based "on the Sr. Team acceptance of drawing hierarchy vs. PM's (Project Manager's) hard evidence criteria. In each instance F105 was placed in Safety Category A which meant that F105 affected safety related equipment.

F805, which TVA said was identical to F105, was categorized as "confirmed" by the Lead Reviewer on November 3, 1982 and again on January 13, 1983. The B&V Project Manager categorized it as "Open" on February 4, 1983. The Lead Reviewer and Project Manager both placed F805 in the "A" category. On March 11, 1983, the Senior Review Team classified F805 as "Resolved" and in Safety Category B. The latter signified that F805 did not affect safety related equipment. The basis for the Senior Review Team having rated F805 differently from the B&V Project Manager was explained in the Classification Difference Report:

Type difference (i.e. "Resolved" rather than "Open") is based on the Sr. Team view that required paper work changes will be accomplished vs. PM's position that future action is required. Category difference (i.e. "B" rather than "A") is in degree rather than substance. I.E.; item has no safety significance vs. occurring in safety related area.

From the B&V documents it is unclear, if F105 and F805 are in fact the same findings, why the former is categorized as affecting safety related equipment and the latter is considered not to affect such equipment.

It is also appears that B&V never checked the actual installation or QA records as recommended by the B&V Project Manager on January 18, 1983.

In sum, the trail of F105/F805 shows that:

- findings were inconsistently classified,
- the B&V Project Manager was overruled by the Senior Review Team,
- B&V's final classification was based on B&V acceptance of TVA's explanation without B&V having checked the field installation and/or QA records as recommended by the B&V Project Manager.

Meanwhile, neither the B&V summary report nor the TVA Task Force Report nor the TVA Policy Committee Report indicate that B&V "Finding 805 identified a crosstie between normal and emergency 125 V DC systems." It was not until issuance of NSRS R-84-19-WBN, issued 15 months after the initial B&V report and 3 months after NRC staff were briefed on the B&V findings, that it would have been possible to know, without analyzing the B&V backup documents, that there was such a finding and that it was subject of disagreement.

F105/F805 and Category 3 illustrate the problems pervading the B&V review and TVA's response thereto.

This again raises questions similar to those posed previously:

Has TVA conducted an audit and/or review of logic/control and electrical drawings and as-installed circuitry to determine whether the B&V Category 3 Findings have been properly addressed? Where is any such audit documented? If such an audit and/or review has not been conducted, what actions have been taken pursuant to the NSRS statement (R-84-19-WBN, p. 6): "Since the [Category 3] problems have been demonstrated to be common in the four systems reviewed, it is reasonable to assume the deficiencies are institutional and all the plant systems should be reviewed and discrepancies corrected?"

What review of B&V Category 3 Findings and TVA response thereto has been conducted by NRC staff? Where is this review documented?