



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

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REGION V

Docket Nos.: 50-528, 50-529  
and 50-530

MEMORANDUM FOR: D. F. Kirsch, Acting Director  
Division of Reactor Safety and Projects, Region V

FROM: Darrell G. Eisenhut, Director  
Division of Licensing, NRR

SUBJECT: MINIMUM BENDING RADIUS FOR CABLES AT PALO VERDE - TIA 84-93

By memorandum from T. W. Bishop, dated September 25, 1984, Region V requested NRR to evaluate the minimum bending radius criteria established by Anaconda for use of Palo Verde. The minimum radii of 6 x O.D. for 1/C shielded medium voltage cable and 10 x O.D. for 3/C shielded medium voltage cable were based on tests conducted by Anaconda to determine the acceptability of cable bending radii at Palo Verde which are less than 12 x O.D.

NRR has evaluated your request and has concluded the following:

- (1) The majority of the cable system installation practices at nuclear power plants have evolved over the years based on industry experience.
- (2) In typical cable installations, deviations to these industry practices do occur for practical reasons.
- (3) There is no regulatory criteria to evaluate the adequacy of these industry practices, such as minimum cable bending radius. However, to the best of our knowledge, there have been no catastrophic cable failures either in nuclear plants or other cable installations where, to varying degrees, deviations from industry standards do exist.

Because of the above, it is our view that there is no regulatory basis to assess the effect of a deviation, such as reduced minimum bending radius for cables, from industry practices. However, if added assurance is desirable on the adequacy of the installed cable system at Palo Verde, we suggest that Region V request the applicant to provide any operational experience/test data on those cable installations which did not fully conform with the industry practices regarding the minimum cable bending radius criteria.

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This completes our evaluation of TIA 84-93.

*fet* *A.J. Muraglia*  
Darrell G. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

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