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U.S. Nuclear Regulatory Commission
Washington, DC 20555

1-27-93



Subject: R.P. Grill, **Filing of Petition for Rulemaking**
Docket No. PRM-50-56

Dear Sirs;

I would like to offer my comments on the proposed rule.

The power industry, including nuclear and non-nuclear utilities, has produced adequate evidence supporting the fact that exposure to lightning induced transients may affect generating station operation. Extensive research and testing, performed by utilities in the 1970's, provided the data and evaluated preventive measures to suppress transients transmitted from the switchyard to plant.

- Generally, the grounding mat, when properly designed, provides protection against human contact and excessive step voltage for faults within the switchyard or outdoor high voltage substation. The protective grounding system will envelope switching and lightning-induced interference, and facilitate the resulting overvoltage transient's dissipation. If additional measures, i.e. proper interface between the plant and switchyard mats and other means against direct lightning strikes are considered, then the transient voltage entering the plant power and control systems may be substantially reduced. Therefore, it would be imperative to emphasize in the proposed rule proper design and maintenance for the plant and switchyard's grounding system.

The following comments refer to other transient related problems:

- The high frequency transients can enter the redundant safety related system via the shared sources. Verification of the harmonics produced by each major contributor, i.e. rectifier or inverter, and the content of harmonics in the power and control systems should be evaluated and controlled.

- The effect of transient currents in DC and AC control and instrumentation circuits on the relay contacts should be evaluated.

- Insufficient attention was given in the past to the effect of an electrical fault on the protective relaying coordination and performance. Evaluation of the current transformer burden and response to the maximum short circuit current should be required.

Sincerely,
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