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 RUSSEL, W. T. Region 1, Office of Director

SUBJECT: Responds to NRC 870610 ltr re violations noted in Insp Rept  
 50-244/87-03. Corrective actions: addl positive sealing  
 provided at detector/connector-cable interface for Victoreen  
 high range radiation monitor.

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July 9, 1987

Mr. William T. Russell  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region 1  
631 Park Avenue  
King of Prussia, PA 19406

Subject: Inspection Report No. 50-244/87-03 Notice of Violations  
R.E. Ginna Nuclear Power Plant  
Docket No. 50-244

Dear Mr. Russell:

This letter is in response to Inspection Report 50-244/87-03, dated June 10, 1987, transmitting two notices of violation relative to 10CFR50.49. The RG&E position on these notices of violation, including (1) the corrective steps which have been taken and the results achieved, (2) corrective steps which will be taken to avoid further violations, and (3) the date when full compliance will be achieved, is included in the Attachment.

Although RG&E does not consider that any installed equipment was in violation of 10CFR50.49, as noted in the Attachment, RG&E has enhanced the documentation provided in the affected 10CFR50.49 files. The additional sealing, equipment testing, and analysis performed by RG&E provides further confirmation that all requirements of 10CFR50.49, including documentation, have been met. No further corrective actions are considered warranted.

Very truly yours,

Roger W. Kober

Attachment

8707250136 870709  
PDR ADDCK 05000244  
Q PDR

IEO1 1/1



ATTACHMENT

RG&E Response to Notices of Violation Concerning 10CFR50.49  
Inspection 50-244/87-03

NOTICE OF VIOLATION A:

"As a result of the equipment qualification (EQ) inspection of February 9-13, 1987, and in accordance with NRC Enforcement Policy (10CFR-2, Appendix C), the following violations were identified:

- A. 10CFR50.49(f) requires that qualification of each component be based on testing or experience with identical equipment or with similar equipment with a supporting analysis to show that the equipment to be qualified is acceptable.

10CFR50.49(k) requires, in part, that electrical equipment need not be requalified if it was previously required by the Commission to be qualified in accordance with the "Guideline for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors", (DOR Guidelines). Section 5.2.2, of the DOR Guidelines respectively requires, in part, that the type test is only valid for equipment identical in design and material construction to the test specimen, and any deviations should be evaluated.

Contrary to the above, during the EQ inspection on February 9-13, 1987 the licensee had not established similarity of the test specimen and the installed component for the following:

1. The installed Crouse-Hinds Electrical Penetration (Ref. paragraph 12.2, 050-244/87-03-02)
2. The General Cable Corporation's PVC cable used in a harsh environment. (Ref. 12.4, 050-244/87-03-03)"

RG&E RESPONSE:

As explicitly described in RG&E's March 6, 1987 letter response to the Inspection 50-244/87-03 exit meeting, the qualification information available in the RG&E 10CFR50.49 files at the time of the inspection provided reasonable assurance that the Crouse-Hinds electrical penetrations, and the General Cable Corporation PVC cables, were fully environmentally qualified in accordance with the DOR Guidelines and 10CFR50.49, in order to perform their required functions.

In the case of the Crouse-Hinds penetrations, all of the materials of construction were shown to be equal to or better than the materials which were tested, as documented in EEQ Package #8. In the case of the PVC cable, it was shown that minor differences in



PVC formulations, as could exist and still meet IPCEA S61-402 standards, were well within the performance requirements for the "control-type" applications at Ginna Station. Therefore, as stated in the March 6, 1987 letter, RG&E considers that no violation of 10CFR50.49 existed at the time of the inspection. However, RG&E has made improvements to the files in order to clarify the qualification documentation as follows:

- a) As noted in paragraph 12.2 of the Inspection Report, RG&E submitted a more detailed material-by-material analytical comparison of the tested penetrations and Ginna's Crouse-Hinds penetrations in a letter dated March 6, 1987. This comparison has been added to the EEQ Package #8 files. This additional information, which addresses all of the NRC concerns expressed during the inspection, provides the corrective action taken by RG&E. It should be noted that NRC comments in Section 12.2 of the Inspection Report, relative to consideration of humidity and nitrogen gas effects on the internal penetration materials were not brought up during the inspection. Nonetheless, these issues can be resolved as noted below:

- (1) The qualification test documentation in the files demonstrated material qualification using highly conductive boiler steam. This testing envelopes the noted humidity concerns
- (2) Nitrogen is an inert gas, which in this application excludes oxygen and, therefore, suppresses degradation from normal aging (oxidation) effects. Testing in an air atmosphere (78% nitrogen) is conservative.

No additional corrective action is necessary, since the EEQ Package #8 files now include all of the explanatory materials comparison analysis deemed necessary by the NRC.

- b) As noted in paragraph 12.4 of the Inspection Report, a confirmatory test of the specific PVC cables used in 10CFR50.49 applications in containment at Ginna Station was completed as of February 12, 1987. This test, which confirmed the suitability of the installed cable, has been incorporated into the EEQ Package #44 files. No additional corrective action is considered necessary.

#### NOTICE OF VIOLATION B:

"10CFR50.49(f) requires that qualification of each component be based on testing or experience with identical equipment or with similar equipment with a supporting analysis to show that the equipment to be qualified is acceptable.

Contrary to the above, during the EQ inspection on February 9-13, 1987, the licensee had not provided supporting documentation to establish qualification of the following:





1. The installed Victoreen High Range Radiation Monitor's cable/connector/detector environmental seal configuration using Raychem Heat Shrink Tubing over metal surfaces in the harsh environment. (Ref. paragraph 12.7, 050-244/87-03-05)
2. Deviation from Raychem requirements for Heat Shrink tube splice minimum seal length and minimum bend radius. (Ref. paragraph 12.6, 050-244/87-03-06)
3. Effects of insulation resistance changes and instrument accuracy for circuits using Coleman cable. (Ref. paragraph 12.5, 050-244/87-03-04)"

#### RG&E POSITIONS:

##### 1. Victoreen High Range Radiation Monitor

As noted in Enclosure 1 to RG&E's March 6, 1987 letter concerning Inspection 50-244/87-03, RG&E did address all of the leakage path failure mechanisms determined in the Victoreen Qualification Test Report 950.301. The final Victoreen assembly which passed the LOCA test did not provide a seal at the interface being questioned, at the base of the detector/connector-cable interface (See Victoreen Test Report 950.301, Page VI-45, Photograph VI-24, which was reproduced as Attachment 10 to Enclosure 1 of RG&E's March 6, 1987 response letter to Inspection 87-03). Therefore, RG&E has concluded that the configuration installed at the time of the inspection was fully environmentally qualified. It should be noted that a Raychem heat shrink tube was shown to form an environmentally qualified seal when installed over a metal surface, as documented in Reference 3.b.1, Figure IV-1, of EEQ Package #36.

RG&E did, however, provide additional sealing, prior to March 6, 1987 consisting of RTV 7403, at the detector/connector-cable interface, to provide additional positive sealing. This seal arrangement is virtually identical to the configuration demonstrated to be qualified in EEQ Package #36, Reference 3.b.3. The documentation relative to the acceptability of the presently-installed configuration has been added to the EEQ Package #36 files. RG&E does not consider that any additional corrective action is warranted.

##### 2. Raychem Minimum Seal Length and Bend Radius

As stated in Enclosure 5 of RG&E's 3/6/87 letter concerning Inspection 50-244/87-03, RG&E does not believe that the RG&E installations were violations of 10CFR50.49. The specified Raychem bend radius and overlap specifications were considered recommendations, not requirements. Based on RG&E experience with similar configurations, RG&E was confident that the installed configurations were acceptable. Based on IEIN 86-53, RG&E was made aware of industry-wide concern with these recommendations,



and promptly initiated a plan for actual LOCA qualification testing. As expected, the test results were acceptable. These qualification reports have been incorporated into EEQ Package #12 files. It is not considered that any additional corrective action is warranted.

### 3. Coleman Cable Insulation Resistance

As noted in Enclosure 3 to RG&E's March 6, 1987 letter relative to Inspection 50-244/87-03, RG&E considered that the combination of testing and materials analysis in Package #13 provided reasonable assurance that the cable would be able to perform its required function. This conclusion was also reached by the NRC and FRC in FRC TER C5257-454. Nonetheless, RG&E performed additional confirmatory testing, including measurements of leakage current, which demonstrated performance suitable for instrumentation circuits during DBE conditions. This test report has been included in RG&E's EEQ Package #13. No additional corrective action is considered necessary.

