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October 19, 2000

NRC Operations Center
Document Control Desk
1 White Flint North
11555 Rockville Pike
Bethesda, MD 20852

50-244

Subject: DEFECT UNDER 10CFR21

Dear Sir or Madam:

The NRC Operations Center Duty Officer was sent a preliminary notification by facsimile on September 19, 2000, indicating that SCIENTECH, Inc.'s subsidiary NUS Instruments, Inc. (NUSI) had determined that a Basic Component, supplied to Rochester Gas & Electric Ginna Station Nuclear Plant may contain a defect reportable under the provisions of 10CFR21. An evaluation had been initiated and a formal report was to be provided to the NRC within 30 days of the preliminary notification.

The components, ΔT Time Domain Modules, M/N: TMD500-08/08/08/08-15-08-01/2, P/N: MBA-E062PA-1, Rev. 0 (4 ea.), were manufactured by NUSI. These components have not been supplied to any other utility for use in Safety Related Systems.

Enclosed please find SCIENTECH, Inc.'s subsidiary NUS Instruments, Inc. (NUSI) formal report as a follow up to the preliminary notice.

If you have questions or comments, please feel free to contact us at the numbers listed below.

Sincerely,


Paul Loch,
President, SCIENTECH, Inc.
(407) 333-8895


Martin Booska,
Manager, SCIENTECH Quality Programs
(301) 387-7012

Copy: Mr. Rudy Forgensi, Director, Operating Experience, Rochester Gas and Electric Corporation 1503 Lake Road, Ontario, New York 14519, (Fax 716-771-3325)

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**10 CFR PART 21 REPORTING FORM
FOR REPORTING OF DEFECTS AND NONCOMPLIANCE**

REPORTING INDIVIDUAL:

Paul Loch, President
SCIENTECH, Inc.-Presidents Office
2124 Silver Leaf Court
Longwood, FL 32779-2757

Phone: 407-333-8895
Fax: 407-333-0735

FACILITY, COMPONENT AND/OR PRODUCT THAT IS NONCOMPLIANT:

The facility is the Rochester Gas and Electric Ginna Station Plant. The Basic Component is a ΔT Time Domain Module used to calculate the differential temperature of the primary coolant across the core and thus, reactor power level. The module is NUS Instruments Model No. TMD500-08/08/08/08-15-08-01/2, Part No. MBA-E062PA-1, Rev. 0

SUPPLYING FIRM IDENTIFICATION:

NUS Instruments, Inc., a wholly owned subsidiary of SCIENTECH, Inc.
440 W. Broadway
Idaho Falls, ID 83402

**NATURE OF THE DEFECT, ASSOCIATED SAFETY HAZARD, AND THE DATE
THIS INFORMATION WAS OBTAINED:**

The modules provided to Rochester Gas and Electric (RG&E) were delivered in October 1998. These custom modules were provided for a special modification to a RG&E loop to provide a high current, low voltage output. The output of the module was found to be unstable with a capacitive load of approximately 2000pF combined with an inductive reactance (plant wiring). The modules exhibited these instabilities when placed in service at the plant. The noise, approximately 600mVac, was initially discovered by RG&E on 3 May 99. The noise that was present was determined to impact the calibration procedure for the RPS Channels 1, 3, and 4, OTDT/OPDT in the non-conservative direction. Immediate action was taken by both RG&E and NUS Instrument Engineering personnel to install noise suppression components. RG&E documented this in Plant Action Report No. 99-0845 and LER 99-009. In accordance with the action report and agreement by NUSI, on-site testing witnessed by NUSI was performed on 14 September 2000, the results of which caused NUSI to initiate a 10CFR Part 21 investigation. The results of the investigation have shown that the instruments output can be made unstable and, under certain conditions, will begin to oscillate.

NUMBER AND LOCATION OF ALL COMPONENTS AFFECTED:

This module was designed specifically for RG&E Ginna Station and has not been supplied elsewhere. Four modules (P/N: MBA-E062PA-1, Rev.0) were supplied in October 1998, serial number 9800768 through 9800771. Two additional similar modules were supplied in 1997, serial numbers 9700785 and 9700786. These modules may exhibit similar instabilities if installed in a new location with different capacitive loading.

CORRECTIVE ACTION WHICH HAS BEEN AND IS BEING TAKEN; RESPONSIBLE PARTIES AND AN ESTIMATE OF TIME INVOLVED:

Immediate corrective action was taken to reduce the noise on the output of the Instruments when NUSI engineering installed gain compensation circuitry in the Instrument's output. The plant voltage loop configurations are currently being converted to current loops, which will eliminate known instabilities.

CONTRIBUTING CAUSES:

- 1) Though the design modifications were analyzed for stability under normal loop loading conditions (including SPICE analysis of the response to various capacitive and resistive loading conditions), the analysis of output response to the actual loop configuration was not properly simulated.
- 2) Actual loop configuration and loading was not adequately specified in the procurement document.
- 3) The noise present on the 1997 build was deemed as insignificant when in hindsight it was a clue to a potential problem.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

- 1) Improved stability analysis should be provided on unusual design requirements. This will require a more complete definition of the output loop circuit parameters on the part of the customer up front to facilitate the design and analysis.
- 2) Better analysis/simulation of the actual in-field environments should be performed during the design review process.

RESPONSIBLE PARTY FOR CORRECTIVE ACTION:

NUS Instruments, 440 W. Broadway, Idaho Falls, ID 83402

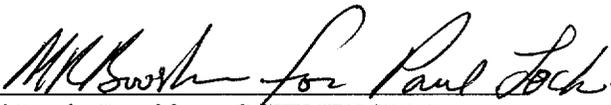
ESTIMATE OF TIME INVOLVED TO COMPLETE CORRECTIVE ACTION:

Two of the affected instruments have been modified with the output stabilization components to reduce oscillations/noise. One has been converted to a current loop output. Two others are at the NUSI facility to implement this conversion. One of the original 1997 build modules remains in use at RG&E in channel 2, and does not exhibit the major

instabilities of channels 1, 3 and 4. All modules are scheduled for conversion to current loop output before November 2001.

COMMENTS OR ADVICE THAT SHOULD BE GIVEN TO OTHER PURCHASERS OR LICENSEES.

No other facility has an NUSI module with a voltage output of this design. NUSI will encourage other licensees with voltage loops to convert to the inherently more stable current loop design rather than utilize any new or old voltage loop output designs.

Signed: 
Paul Loch, President, SCIENTECH, Inc.

Date: October 18, 2000