



910 Clopper Road ■ Gaithersburg, MD 20878-1399 ■ Phone: 301-258-2410 ■ Fax: 301-258-2463

September 12, 2001

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

Subject: DEFECT UNDER 10CFR21

Reference NUSI File 21-01-01

Dear Sir or Madam:

The NRC Operations Center Duty Officer was sent a preliminary notification by facsimile on August 13, 2001, 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 Basic Component is a  $\Delta T$  and Tave Time Domain Module used to calculate the differential and average temperature of the primary coolant across the core. The module is NUS Instruments Model No. TMD500-08/08/08-08-08-01/2, Part No. MBA-E063PA-1, Rev.0. 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,

A handwritten signature in cursive script that reads "MLO for Paul Loch".

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

A handwritten signature in cursive script that reads "M Booska".

Martin Booska,  
Director, Quality Operations  
(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)

IE 19



**10 CFR PART 21 REPORTING FORM  
FOR REPORTING OF DEFECTS AND NONCOMPLIANCE  
NOTIFICATION #21-01-01**

**NAME AND ADDRESS OF REPORTING INDIVIDUAL(S) OR ORGANIZATIONS.**

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

Phone: 407-333-8895  
Fax: 407-333-0735  
E-Mail: ploch@scientech.com

**FACILITY, COMPONENT AND/OR PRODUCT WHICH IS NONCOMPLIANT.**

The facility is the Rochester Gas and Electric Ginna Station Plant.  
The Basic Component is a  $\Delta T$  and Tave Time Domain Module used to calculate the differential and average temperature of the primary coolant across the core. The module is NUS Instruments Model No. TMD500-08/08/08/08-08-01/2, Part No. MBA-E063PA-1, Rev. 0

**SUPPLYING FIRM IDENTIFICATION (NAME, ADDRESS).**

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

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

While attempting to resolve the issues that generated the first part 21 (21-00-01), NUSI sent a design engineer to the facility to lend technical support and help them get the plant back in an operational status. This resulted in the modification of the surge suppression circuit on 3 of the 4 '98 built modules, installing 130-volt varistors in lieu of the 13-volt surge suppression diodes that were previously installed. This work was performed under the RG&E program and resulted in a solution to the noise issue, allowing plant operations to continue. The '97 built modules had 43 volt surge suppression diodes installed in their surge suppression circuit and were not exhibiting noise problems and therefore were not modified.

RG&E desired to change their instruments to a current output, which NUSI had convinced them is generally considered to be more stable. A purchase order (RG&E P.O. #5000002014) was delivered to NUSI for the conversion of 6 TMD500 modules (2 '97 builds and 4 '98 builds) from P/N: MBA-E062PA-1 (voltage output) to P/N: MBA-E063PA-1 (current output). The modifications involved two steps: 1) conversion of the module output circuitry from voltage to current; and 2) verifying that the surge suppression components were as defined by the MBA-E063PA-1 parts list.

RG&E began to send the total of six modules back to NUSI for modification. The first two modules received included one from a 1997 build and one from a 1998 build. After inspection of the two modules, a Client Repair Report was written to describe the manufacturing process. The surge suppression circuit components for both modules were found to be acceptable to the new parts list and only instructions for changing the output circuitry were given. (The 1997 modules used 43 volt diodes which were acceptable per the parts list and the 1998 module was found already modified with 130-volt varistors under RG&E's program. Both surge component configurations were acceptable.)

Months later the four remaining modules were sent to NUSI for modification. The same Client Repair Report and modification instructions were used. The modules were not inspected to verify the status of the surge suppression components. Only the output circuitry was modified.

On 4/25/01, NUSI was informed by RG&E that one of the modified modules was failing a bench calibration test (S/N: 9800771). The module failed to drive 50 mA<sub>dc</sub> through a 600 ohm load. The module was returned to NUSI under Return Authorization No. 01-016 (Reference P.O. #5000003370). After troubleshooting the module, it was discovered that the surge suppression components in this module were the 13-volt diodes. The module's surge suppression circuitry had not been modified. The module could only drive 21.6 mA through the 600 ohm load therefore the module could not pass the RG&E bench calibration test. (The output range of the instrument is 10 mA to 50 mA. As the current output increases across a 600 ohm load, the voltage seen at the module output reaches the diode's breakdown voltage, the diode conducts and shunts the current to ground.)

RG&E has verified by inspection and test that all modules in their possession are able to drive the full range of current (50 mA) under maximum loading conditions (600 ohms).

**Root Cause:**

NUSI made an erroneous assumption that all 6 modules required the same modification instructions for converting from one part number to another. This assumption allowed the original Client Repair Report to be utilized for the conversion of all six modules. This error caused module S/N: 9800771 to be returned to RG&E after the conversion without the replacement of the 13-volt diodes to 130-volt varistors. The Client Repair Report is defined by NUSI procedure SOP 1-4. This procedure was not intended for conversion of modules from one part number to another and does not adequately define unique manufacturing or testing instructions. Had the module assembly been built from scratch under other existing SOPs, this problem would not have occurred. Custom modifications to design should not be allowed under the client repair process.

**THE NUMBER AND LOCATION OF ALL SUCH COMPONENTS IN USE AT, SUPPLIED FOR, OR BEING SUPPLIED TO ONE OF MORE FACILITIES SUBJECT TO 10 CFR 21.**

Four modules P/N: MBA-E062PA-1, Rev.0 were supplied to RG&E Ginna Station in October 1998, serial numbers 9800768 through 9800771 which were converted to a new P/N: MBA-E063PA-1, Rev. 0 to change the output range from a 0 to 8 Vdc output to 10 to 50 mAdc. Only one of the four modules (S/N: 9800771) was affected.

**DESCRIBE THE CORRECTIVE ACTION WHICH HAS BEEN, IS BEING, OR SHOULD BE TAKEN, INCLUDING RESPONSIBLE PARTIES AND AN ESTIMATE OF TIME INVOLVED.**

**Corrective Action:**

As stated above the affected module (S/N: 9800771) was reworked in accordance with RG&E P.O. #5000003370 and NUSI R.A. #01-016 and returned to RG&E 8/15/01.

Responsible party for corrective action: NUS Instruments

Estimate of time involved to complete corrective action: The affected module has been reworked. This action is complete.

**Corrective Action to Prevent Recurrence:**

The NUSI procedure SOP 1-4 is to be revised to not allow the conversion from one part number to another or other complex modifications changing the original design basis of the original part number.

NUSI management will conduct a training session in which all personnel will be informed and trained on the events that led to this Part 21 including contributing causes and corrective actions. All personnel will receive specific instruction on the modifications made to SOP 1-4.

Responsible party for corrective action to prevent recurrence: NUS Instruments (QA Representative).

Corrective actions will be completed by 10/1/01.

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

This Part 21 is only applicable to the above referenced modules supplied to RG&E (Ginna Station) and no other utilities are affected.

Signed: 

Date: 09/12/01



910 Clopper Road ■ Gaithersburg, MD 20878-1399 ■ Phone: 301-258-2410 ■ Fax: 301-258-2463

August 13, 2001

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

POTENTIAL DEFECT UNDER 10CFR21

Dear Sir or Madam:

SCIENTECH, Inc.'s subsidiary NUS Instruments, Inc. (NUSI) has determined that a Basic Component, supplied to Rochester Gas & Electric Ginna Station Nuclear Plant under RG&E purchase order 5000002014, contains a potential defect that is reportable under 10CFR21. NUSI determined that the potential defect was reportable under the provisions of 10CFR 21 on August 7<sup>th</sup>, 2001. SCIENTECH, Inc. President was informed August 13, 2001. RG&E is aware of this problem and the affected component is being modified to restore this item to an acceptable status by August 17.

A formal written report will be provided within 30 days of this notification. The component, ΔT Time Domain Module, M/N: TMD500-08/08/08-08-01/2, P/N: MBA-E063PA-1, Rev. 0 (1 ea.), S/N: 9800771, was originally manufactured as P/N: MBA-E062PA-1 (voltage output) by NUSI. NUSI performed a conversion of this item to P/N: MBA-E063PA-1 (current output) resulting in a defect. A total of six such items were converted under this purchase order but only one resulted in a defect. These items have been supplied to no other utility for use in Safety Related Systems. NUSI has opened a 10CFR21 file concerning this component and has numbered it as 21-01-01.

**SCIENTECH/NUSI Contacts**

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

Paul Loch  
President  
(407) 333-8895

If you have any questions or comments, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "M Booska for Paul Loch".

Paul Loch  
President, SCIENTECH, Inc.

GINNA

TO BE COMPLETED BY SENDER:  
TX # 21-01-01-F1