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November 22, 1999

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

DEVIATION UNDER 10CFR21

Dear Sir or Madam:

Enclosed please find Sciencetech, Inc.'s subsidiary NUS Instruments, Inc. (NUSI) formal report as a follow up to our previously provided October 28, 1999, preliminary notice. NUSI has opened a 10CFR21 file concerning this component and has numbered it as 21-99-01.

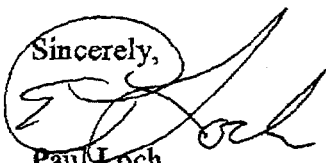
NUSI has opened a 10CFR21 file concerning this component and has numbered it as 21-99-01.

SCIENTECH/NUSI Contacts

Martin Booska
Sciencetech QA Representative
(301) 387-7012

Paul Loch
President
(407) 333-8895

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

Sincerely,


Paul Loch
President, SCIENTECH, Inc.

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908 PT21

SCIENTECH Written Report
For Potential Deviation Under 10CFR21 – Reference File 21-99-01
(Initial Facsimile Report Submitted to the NRC on 10/28/99)

REPORTING INDIVIDUAL

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

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AFFECTED FACILITY AND PRODUCT WHICH IS NON-COMPLIANT

The facility is Carolina Power & Light, Robinson Plant. The Basic Component is a Low Level Amplifier used to process signals from resistance temperature detectors (RTDs). The module is NUS Instruments Model No. RTL850

SUPPLYING FIRM IDENTIFICATION

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

DESCRIPTION OF DEFECT AND ASSOCIATED SAFETY HAZARD
(INCLUDES THE DATE THAT INFORMATION WAS OBTAINED)

NUS Instruments Model RTL850 Low Level Amplifiers were installed in the Robinson Plant at Carolina Power & Light as replacement modules for Hagan Model 118 modules and NUS Instruments Model RTD850 modules due to the RTL's better temperature coefficients. The modules were being used to monitor primary plant temperatures of the cold and hot legs to provide Tave and ΔT indications for operators. The lead length compensation circuitry on the RTL converter PC board has its polarity inverted. This results in the output of the RTL, when configured in three wire mode, to read higher than it actually should. The magnitude is dependent upon the range configured, the RTD type, the lead resistance and other factors. This error can result in actions being taken to control the reactor based upon incorrect information. NUS Instruments became aware of this problem on October 22, 1999 and a 10CFR21 log entry was made with the number 21-99-01 assigned to it.

THE NUMBER AND LOCATION OF ALL PRODUCTS AFFECTED

Twelve modules (P/N: NUS-A002PA-1, Rev. 0, configured for three wire RTD operation using RTL Personality Module (RPM) P/N: NUS-B003PA-3, Rev. 0) were supplied to CP&L Robinson Plant in February of 1998 and an additional module (P/N: NUS-A002PA-1/3, Rev. 1, configured for three wire RTD operation using RPM P/N: NUS-B003PA-3, Rev. 1) was supplied to the same facility in May of 1999.

CORRECTIVE ACTION THAT HAS BEEN OR IS BEING TAKEN

Corrective action for the basic component is to replace the internal RTL Personality Module (RPM, P/N: NUS-B003PA-3) in all RTL modules with a new RPM built to a revised schematic to correct for the inverted polarity on the PC board. Corrective action to include:

- 1) Breadboard and validate RPM changes to correct polarity (completed)
- 2) Revise board schematic and assembly drawings to reflect changes (completed)
- 3) Revise all accompanying documentation to address changes (completed)
 - a) Test Plan
 - b) Test Procedure
 - c) Operating and Maintenance Manual
 - d) Qualification Report (800 and 500 Series)
 - e) EDB (NUS-B003EA)
- 4) Assign Project Manager for Return Authorization 99-020 (completed)
- 5) Build new revision 3 RPM and verify acceptability via Testing (completed)
- 6) Build new revision 3 production RPMs to replace all earlier versions (completed November 23, 1999 to be ready for delivery no later than January 14, 2000)
- 7) Make arrangements with affected utility to replace old RPMs with new ones (completed)
- 8) Make positive accounting by serial number of all revision 0, 1 and 2 RPMs (completed)

NUS Instruments has verified through testing that the units equipped with revision 3 RPMs properly compensate for lead length resistance and is confident no recurrence of this problem will occur. All affected utilities have been notified of this problem and all affected components have been recalled (including modules in Non-Safety Related applications).

RESPONSIBLE PARTY FOR CORRECTIVE ACTION

NUS Instruments

ESTIMATE OF WHEN CORRECTIVE ACTION WILL BE COMPLETE

14 January 2000

CAUSES FOR THE DEVIATION

1. Procedures were not in place to require that changes made during prototyping were verified/tested, properly documented, and carried through to the production design.
2. Production Test Procedure did not require testing to verify proper compensation for lead length resistance.

CORRECTIVE ACTION TO PREVENT RECURRENCE

1. Create a Standard Operating Procedure (SOP) to cover prototyping and define the process where the design inputs are officially extracted from the myriad of sources to a single design specification at the start of the project. This needs significant review prior to completion of any milestones in the Project [engineering/management/QA].
2. Revise existing production test procedures to include verification of proper compensation for lead length resistance for three wire RTD's.
3. Provide training on new SOP to all personnel who will use it in the performance of their job duties.

NOTE: Estimated date for completion of corrective action to prevent recurrence is 15 March 2000

COMMENTS OR ADVISE TO PURCHASERS/LICENSEES

NUS Instruments recommends that all facilities ensure that inherent lead resistance compensation capability of any three wire RTD converter performs properly. For more technical information, contact: Niel Skousen, Sr. Engineer, Phone: (208) 525-3742/(208) 524-9229, Fax: (208) 529-4721, Email - nskousen@scientech.com.

SCIENTECH/NUSI CONTACTS

Paul Loch
President
(407) 333-8895

Martin Booska
SCIENTECH QA Manager
(301) 387-7012

General Information or Other (PAR)

Event # 36374

INFORMATION WAS OBTAINED)

NUS Instruments Model RTL850 Low Level Amplifiers were installed in the Robinson Plant at Carolina Power & Light as replacement modules for Hagan Model 118 modules and NUS Instruments Model RTD850 modules due to the RTL's better temperature coefficients. The modules were being used to monitor primary plant temperatures of the cold and hot logs to provide Tave and DeltaT indications for operators. The lead length compensation circuitry on the RTL converter PC board has its polarity inverted. This results in the output of the RTL, when configured in three wire mode, to read higher than it actually should. The magnitude is dependent upon the range configured, the RTD type, the lead resistance and other factors. This error can result in actions being taken to control the reactor based upon incorrect information. NUS Instruments became aware of this problem on October 2, 1999 and a 10 CFR PART 21 log entry was made with the number 21-99-01 assigned to it.

CORRECTIVE ACTION THAT HAS BEEN OR IS BEING TAKEN

Corrective action for the basic component is to replace the internal RTL, Personality Module (RPM, P/N: NUS-B003PA-3) in all RTL modules with a new RPM built to a revised schematic to correct for the inverted polarity in the PC board.

NUS Instruments has verified through testing that the units equipped with revision 3 RPMs properly compensated for lead length resistance and is confident no recurrence of this problem will occur. All affected utilities have been notified of this problem and all affected components have been recalled (including modules in Non-Safety Related applications)

ESTIMATE OF WHEN CORRECTIVE ACTION WILL BE COMPLETE:

14 January 2000

The R2DO (Len Wert) and NRR (Vern Hodge) were notified by the NRC operations officer.
