



NUCLEAR RESEARCH CORPORATION

August 26, 1994

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Reader:

Pursuant to the 10CFR, Part 21 "Reporting of Defects and Non-Compliance" Notice dated July 28, 1994 (copy attached) from the University of Virginia Reactor Facility, Nuclear Research Corporation (NRC) does not consider the reported defect as falling under the requirements of 10CFR, Part 21. This conclusion is based on the following:

- i) The contract in question did not have the requirements of 10CFR, Part 21 applied as a governing document. The purchase order was accepted as a non-safety nuclear equipment under off-the-shelf commercial terms.
- ii) Nuclear Research Corporation Bulletin 9103-PB is simply a sales brochure, and is not to be considered as a system design document for special applications. Subsequent sales literature has deleted reference to detector separation from ratemeter. A line driver or a local ratemeter is recommended when detector separation of greater than 20 feet is required.
- iii) For nuclear power plant applications with 10CFR21 requirements, the area monitoring system in question is always installed with a local ratemeter adjacent to the local detector separated by less than 20 feet. The local ratemeter then maintains communications with the remote ratemeter over a serial data link. The remote capability of the serial data link is greater than 2,000 feet. Such an application is currently operating at Kewaunee Nuclear Plant without any reportable deficiency.
- iv) The lack of ability to send the detector signal 300 feet was discovered by the Factory Service Engineer upon initialization of the instrumentation. He concluded that the Gamma Detector, Model GP-100C, lacked sufficient capability to establish reliable probe identification, using the installed cables of high capacitance.

As pointed out in the letter from University of Virginia, it is extremely unlikely that the ability of the detector to establish reliable communication will be overlooked at the time of equipment installation and testing in the field.

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Phone: (215) 343-5900

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August 26, 1994

The Factory Engineer subsequently provided the University of Virginia Reactor Facility replacement circuit card assemblies which incorporate different line drivers with sufficient capability to send the signal 300 feet without the need for changing the installed cables. The University of Virginia Reactor Facility has verbally informed Nuclear Research Corporation that these replacement circuit card assemblies have corrected this start-up problem and the system is now in operation.

In conclusion, Nuclear Research Corporation (NRC) does not feel that this is a reportable defect under 10CFR, Part 21. This application is unique for the University of Virginia Reactor Facility and does not affect other installations. The Service Engineer obviously was misunderstood by the Reactor Supervisor.

Sincerely,

NUCLEAR RESEARCH CORPORATION



Earl M. Pollock
President
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Attachment: As stated

cc: School of Engineering & Applied Science, University of Virginia

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington DC 20555

July 28, 1994

ENGINEERING & APPLIED SCIENCE 

NUCLEAR REACTOR FACILITY
Department of Mechanical,
Aerospace & Nuclear Engineering

University of Virginia
Charlottesville, VA 22903-2442

804-982-5440 FAX: 804-982-5473

Dear Reader:

Pursuant to 10 CFR Part 21 "Reporting of Defects and Noncompliance" we are reporting a defect in a basic component purchased by us from Nuclear Research Corporation. The nature of the non-compliance of the equipment is of such a nature that it is extremely unlikely that it would be overlooked upon equipment installation and testing thus it might not fall under the requirements of 10 CFR Part 21. The rest of this letter follows the listing of required topics as stated in Paragraph 21.21 Section 4.

i) Reported by:

Bouvard Hosticka
Acting Reactor Supervisor
University of Virginia Reactor Facility
Charlottesville, VA 22903
License # R-66 Docket 50-62

ii) Identification of Basic Component:

Nuclear Research Corporation area monitoring system consisting of model ADM 600A(V10) readout module and GP-100C Geiger-Muller detector.

iii) Identification of Firm supplying component:

Nuclear Research Corporation
125 Titus Ave
P.O. Box H
Warrington, PA 18976

iv) Nature of Defect:

The communication link between the readout module and the detector was incapable of working when the detector and readout were separated by more than 20 feet of cable. The calibration factors are held in memory in the detector and transmitted to the readout module upon energizing the system. Failure of the communication link manifests itself in either wrong calibration and detector type being sent from the detector to the readout or a complete failure of the detector with the appropriate "Probe Missing" message displayed on the readout. It is the situation where wrong calibration factors and configuration information is transmitted to the readout module from the probe that could have safety implications. The advertizing technical specification (NRCorp Bulletin 9103-PB) state that cabling up to 2000 feet can be used with this system. Procurement specifications from the University of Virginia required it to work with up to 300 feet of cabling. It fails to work with 30 feet or more of cabling.

v) Date of noncompliance noted:

The incorrect calibration factors were noted upon initial pre-installation testing on June 22, 1994. The system was delivered to the facility in March 1993 and had been in storage until June 1994 pending installation of cables.

vi) Number of units supplied:

The University of Virginia Reactor purchased five units for monitoring radiation at various locations throughout the facility.

vii) Corrective actions:

The supplier was immediately informed of the problem and they sent a service representative to our facility on July 12, 1994 to investigate it. Field modifications made to the detector electronics resulted in the readouts not recognizing the probe at all on long (greater than 30 feet) cables. Prior to the modifications, the probe was recognized as being installed but incorrect calibration and configuration information was sent from the probe to the readout module. Further field modification to the readout module allowed them to work with the 30 foot cable but not the 230 foot cable which is our longest run. The supplier has sent a new set of input/output cards for the readout module that they believe will fix the problem. We received them on July 26 and initial testing indicate that the new cards correct the problem.

vii) Advice which has been given concerning this problem:

The facility has been in frequent communication with the supplier to keep them informed of our problems. The supplier's service representative has informally indicated that similar problems have been noted with other installations and that the field modifications made to the detectors, new cards for the readout module, and lower capacitance cabling constitute a permanent solution. For the relatively short runs at the University of Virginia, the present cables may not have to be replaced with the lower capacitance ones.

City/County of Albemarle
Commonwealth of Virginia

I hereby certify that the attached document is a true and exact copy of a letter, presented before
(type of document)

me this 28th day of July, 1994.
by Bouvard Hosticka.
(name of person seeking acknowledgment)

Vicki L. Thomas
Notary Public

Copies:

My commission expires 2/28 1998.
USNRC Region II
101 Marietta Street NW.
Suite 2900
Atlanta, GA 30323

Sincerely,

Bouvard Hosticka
Bouvard Hosticka
Acting Reactor Supervisor

Nuclear Research Corp. ✓
125 Titus Ave.
P.O. Box H
Warrington, PA 18976