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L16-82(05-12)-L

May 12, 1982

Mr. James C. Keppler
Director, Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

10 CFR Part 21 Defect
Eberline Micro Computer Printed Circuit Boards
Docket No. 50-461/CPPR-137

On January 12, 1982, Mr. G.W. Bell of Illinois Power Co. notified Mr. H.M. Wescott, U.S. NRC Region III, of a potential reportable defect per 10 CFR Part 21 regarding certain Micro Computer printed circuit boards supplied by Eberline Instrument Corporation. Based upon an evaluation, Illinois Power is notifying the Commission of a 10 CFR Part 21 defect. This report provides information as required by 10 CFR Part 21.21(6)(3).

- (i) Mr. Roger Herd, President of Eberline, P.O. Box 2108, Santa Fe, NM 87501, notified U.S. NRC by letter to Director, Region IV, Office of Inspection and Enforcement, on December 21, 1981. Mr. G.W. Bell of Illinois Power informed Mr. H.M. Wescott, U.S. NRC Region III, by telephone on January 12, 1982 of a potential 10 CFR Part 21 defect.

Mr. W.C. Gerstner, Executive Vice President of Illinois Power, by means of this report hereby informs the Commission of a 10 CFR Part 21 defect.

- (ii) Micro computer printed circuit boards (CPU III) used in the micro computer based radiation monitoring system. The following equipment utilizes the above mentioned circuit boards:

<u>Qty.</u>	<u>Description</u>	<u>Part #</u>
(1)	Control Room Control Terminal	11016-00
(1)	Health Physics Office Control Terminal	11017-00

<u>Qty.</u>	<u>Description</u>	<u>Part #</u>
(2)	Portable Terminal	11018-00
(14)	Fixed Digital CAM	11006-00
(10)	Portable Digital CAM	11007-00
(2)	HVAC-PRM	11008-00
(2)	SGTS-PRM	11009-00
(2)	Post-Treatment PRMS	11011-00
(3)	Analog Input DAM	11014-00

(iii) Eberline Instrument Corporation
P.O. Box 2108
Santa Fe, NM 87501

(iv) The subject CPU III boards possess a design defect in the interrupt structure such that if two interrupts of increasing priority occur sequentially, with the proper amount of time between them, the interrupt data may be changing while it is being read by the micro processor. This results in erroneous data with the effect that the computer resumes operation as if being powered up for the first time. Hence, total loss of old data and calibration parameters occurs. This defect was discovered during a testing program by the Eberline Instrument Corporation.

The safety hazard created by this defect is the possibility of an undetected release of radioactive effluents due to the fact that alarm setpoints may be exceeded without any abnormal indication from the radiation monitoring system. It would not easily be possible to determine the extent of the release, and the hazard created by such a release.

(v) Illinois Power was informed of the defect by letter from Baldwin Associates (IP Contractor and purchaser) on 1/81/82. Baldwin Associates was informed of the defect by letter from Eberline on December 23, 1981.

(vi) The following is a listing of the equipment containing the defective circuit boards, and the proposed locations of the same:

<u>Equipment Number</u>	<u>Equipment</u>	<u>Drawing Number (M01-)</u>	<u>Location</u>
1H13-P864	Control Room Control Terminal		800 Level MCR
ORM01J	Health Physics Ofc. Control Terminal	A23-1001-1	SA-S2-737
ORM04J	Portable Terminal		
ORM05J	Portable Terminal		
	Fixed Digital CAMs (14)		
1PR10S	Turbine Bldg. CAM1	1107-2	S-115-762
1PR11S	Turbine Bldg. CAM2	1106-2	N-104-737
1PR12S	Turbine Bldg. CAM3	1107-2	P-119-762
1PR13S	Turbine Bldg. CAM4	1106-3	S-129.7-737
1PR14S	Radwaste Bldg. CAM1	1106-3	S-124.9-737
1PR15S	Radwaste Bldg. CAM2	1106-3	S-126.1-737
1PR16S	Radwaste Bldg. CAM3	1106-3	S-129.7-737
1PR17S	Radwaste Bldg. CAM4	1106-3	S-128.7-737
1PR18S	Auxiliary Bldg. CAM	1109-2	AF-124-778
1PR19S	Fuel Bldg. CAM	1109-2	AF-124-778
1PR20S	Control Bldg. CAM	1107-6	V-128-762
1PR21S	Containment Bldg. CAM1	1108-5	B-5-803
1PR22S	Containment Bldg. CAM2	1109-2	AH-121-778
1PR23S	Containment Bldg. CAM3	1108-5	C-4-803
1PR24S-33S	Portable Digital CAMs (10)		
	Portable CAM 1-10		
OPR01S	Common Station HVAC Exhaust PRM	1107-6	AE-125-762
OPR02S	Common Station HVAC Exhaust PRM	1107-6	AE-125-762
OPR03S	Standby Gas Treatment Exhaust PRM	1107-6	AE-124-762
OPR04S	Standby Gas Treatment Exhaust PRM	1107-6	AE-124-762
IPR35S	Post Treatment Air Ejector PRM	1105-3	E-126.1-702
IPR41S	Post Treatment Air Ejector PRM	1105-3	E-126.1-702
OUIX-PR050	Meteorological Data		AC-130-781
OUIX-PR051	HVAC & SGTS Vents	M10-1105-25	AE-124-762
OUIX-PR052	Liquid Radwaste		F-126-737

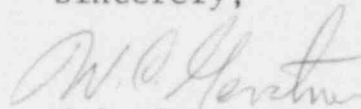
- (vii) A piggyback circuit board will be supplied by Eberline for each piece of equipment affected along with directions for installation, and an insert for the equipment description manual. This piggyback board contains a latch which prevents interrupt data from changing while it is being read, and is designed to alleviate the problem with no change in the operating characteristics of the instrument.

Eberline Instrument Corporation is responsible for supplying the piggyback boards (39 total: 37 necessary plus 2 spare) to Baldwin Associates at the Clinton Power Station. Illinois Power will direct the installation of the circuit boards. They will be installed prior to system acceptance tests.

(viii) In Eberline's notification letter to the U.S. NRC, Region IV, Office of Inspection and Enforcement dated December 21, 1981, it was stated that the licensee or purchasers of Eberline Micro Computer based radiation monitoring systems were informed of the defect, where upon corrective action was outlined with each of them.

Our evaluation of this reportable defect is available for your review at our offices. I trust that this letter provides sufficient information for your review and analysis of the problem.

Sincerely,



W.C. Gerstner
Executive Vice President

cc: H.H. Livermore, USNRC Resident Inspector

Director of Inspection and Enforcement - 3 copies
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Director-Quality Assurance
Illinois Department of Nuclear Safety