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Docket No. 50-289

GPU Nuclear Corporation
ATTN: Mr. H. D. Hukill
Vice President and Director of TMI-1
P. O. Box 480
Middletown, Pennsylvania 17057

Gentlemen:

Subject: Inspection No. 50-289/89-17

This refers to your letter dated October 18, 1989, in response to our letter dated September 19, 1989.

Thank you for informing us of the corrective and preventive actions documented in your letter. These actions will be examined during a future inspection of your licensed program.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:
Ronald R. Bellamy

Ronald R. Bellamy, Chief
Facilities Radiological Safety
and Safeguards Branch
Division of Radiation Safety
and Safeguards

cc w/encl:
T. G. Broughton, Operations and Maintenance Director, TMI-1
C. W. Smyth, Manager, TMI-1 Licensing
R. J. McGoey, Manager, PWR Licensing
E. L. Blake, Jr., Esquire
TMI-Alert (TMIA)
Susquehanna Valley Alliance (SVA)
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
Commonwealth of Pennsylvania

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bcc w/encl:
Region I Docket Room (with concurrences)
Management Assistant, DRMA (w/o encl)
DRP Section Chief
R. Hernan, PM, NRR
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October 18, 1989
C311-89-2118

U.S. Nuclear Regulatory Commission
Attn: Ronald R. Bellamy, Chief
Facilities Radiological Safety & Safeguards Branch
Division of Radiation Safety & Safeguards
Region I
475 Allendale Road
King of Prussia, PA 19406

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Response to IR 89-17

NRC Inspection Report 89-17 requested a 30-day response to unresolved item 80-30-01. The following responds to the three questions on the lower half of page 3 of the Inspection Report.

Question 1: Re-evaluate effluent charcoal cartridge results in consideration of possible improper geometry and/or iodine breakthrough. Determine whether or not these phenomena affected past effluent cartridge sample results.

GPUN Response: Radioiodine Breakthrough - Radioiodine breakthrough or less than expected radioiodine filter efficiency has been occurring in the condenser offgas (COG) sampling system. Radioiodine collected on the second radioiodine cartridge has ranged from 0% to 11% of that collected on the first radioiodine cartridge since July 1989. In order to quantify the radioiodine from the COG, the results of both installed radioiodine cartridges will be used to account for the radioiodine from the COG sampling system release point. Appropriate procedures will be established to quantify the COG radioiodine in this manner. In addition, a procedure providing guidance on the preparation, maintenance, and testing of the radioiodine cartridges used for the COG sampling system is being prepared to ensure consistent reliable COG sampling hardware.

Charcoal Cartridge Geometry - GPUN is conducting testing using two sample counting geometries; (1) a face loaded geometry and (2) a homogeneous geometry. These two geometries are being tested with three differently oriented source radioiodine cartridges (1) face loaded, (2) homogeneous, and (3) face loaded and flipped at mid count. The preliminary results of these tests indicated a face loaded geometry with a face

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loaded source or a homogeneous geometry with the same face loaded source flipped at mid count give the same results. The other counting geometry tests performed indicate overestimates or underestimates of the activity in the sources. Testing has also shown that COG radioiodine samples are face loaded samples, based on the front to back ratios of approximately 2.3 for the radioiodine calibration source and approximately 2.3 for COG samples.

Conclusion: GPUN will include any radioiodine in the second charcoal cartridge to account for the radioiodine released from the COG system. GPUN will calibrate and use the gamma spectroscopy counting system for a face loaded radioactive cartridge geometry, and count the COG samples as face loaded samples, based on current testing results. GPUN will also verify semi annually that the COG samples are face loaded (front to back ratio approximately 2.3) rather than relying on using a homogeneous geometry and manual flipping of the COG radioiodine samples at mid count.

Question 2: If results of (1) indicated past effluents have been reported incorrectly, as appropriate, provide revisions to Semi Annual Effluent Reports and re-evaluate dose assessments and provide revisions to the Annual Environmental Reports.

GPUN Response: Correct Past Effluent Reports - 1987, 1988, and the first half of 1989 effluent reports have been corrected and submitted to the NRC in GPUN letter C311-89-2090 dated August 3, 1989. This was discussed and accepted in Inspection Report 50-289/89-17. No further action is required. The 1989 second half effluent report has not been submitted since the year has not ended. This report will include the radioiodine COG effluent as stated in the response to (1).

Question 3: Provide the corrective actions necessary to correctly estimate effluents for condenser vent stack or other cartridge effluent sampling systems if the results of (1) indicate iodine breakthrough was occurring.

GPUN Response: To correctly estimate effluents for the COG, GPUN will take the actions noted in response to Question 1 above.

Also, other radioiodine cartridge effluent sampling systems have been evaluated. All other TMI-1 effluent systems are not hot, humid systems and do not require a hot humid sample stream. These systems do not normally exhibit radioiodine releases.

Sincerely

H. D. Hukill
Vice President & Director, TMI-1

HDH/DVH/spb:2118

cc: W. Russell, F. Young, R. Bores
Attachment