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SUBJECT: Special Rept: on 930922, radwaste/RB ventilation gaseous effluent monitoring sys (GEMS) declared inoperable as result of failed daily surveillance activity. Liquid nitrogen dewar transfer collar replaced & GEMS returned to svc on 930928.

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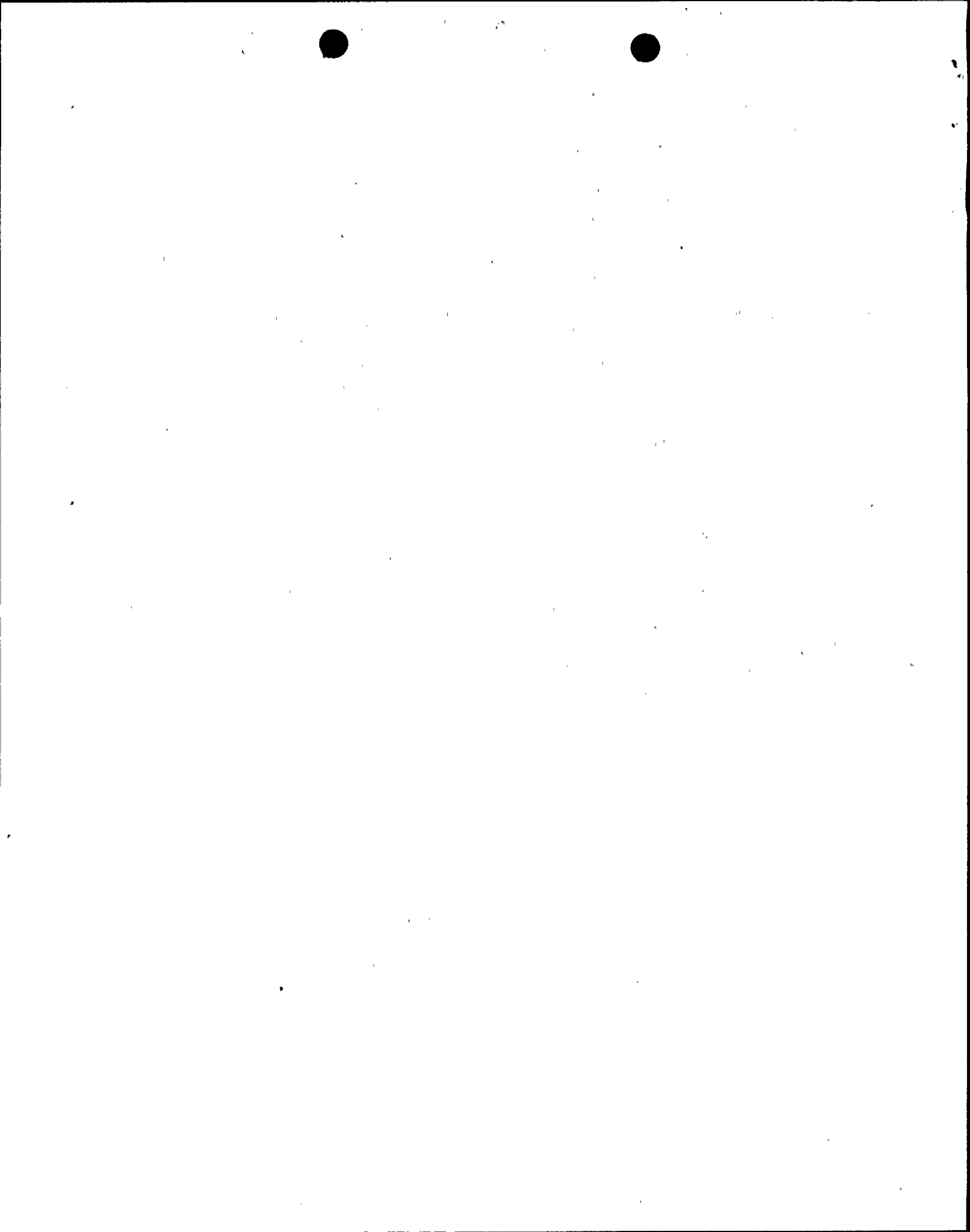
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EXTERNAL:	EG&G BRYCE, J.H		2	2		L ST LOBBY WARD		1	1
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John H. Mueller
Plant Manager-Unit 2
Nuclear Generation

October 7, 1993
NMP89328

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

RE: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Subject: Special Report

Gentlemen:

In accordance with Nine Mile Point Unit 2 (NMP2) Technical Specification (TS) Table 3.3.7.10-1, "Radioactive Gaseous Effluent Monitoring Instrumentation," Action Statement 139b, Niagara Mohawk Power Corporation is submitting the following Special Report concerning the inoperability of the Radwaste/Reactor Building Ventilation Gaseous Effluent Monitoring System (Vent GEMS).

Event Description

On September 22, 1993 at 1722 hours, with the reactor mode switch in the "RUN" position (Operational Condition 1), and the plant operating at approximately 100 percent rated thermal power, the Vent GEMS instrumentation was declared inoperable as a result of a failed daily surveillance activity. Daily surveillance tests are performed in accordance with Chemistry Department Procedure N2-CSP-RMS-D313. This procedure requires that the detector signal resolution (full width half maximum, FWHM) be less than or equal to 3.50 keV, when exposed to a Eu-152 check source. During this test, FWHM exceeded 3.50 keV on three energy peaks produced by the check source.

Cause of Event:

Troubleshooting of the cause of this poor detector resolution was performed under Work Order #93-02220-00. During troubleshooting, it was discovered that the liquid nitrogen (LN₂) transfer collar was cracked, allowing LN₂ vapor to vent onto the detector pre-amplifier. It is suspected that the combination of sub-freezing LN₂ vapor and the humid environment in which the instrumentation resides resulted in breakdown of the detector pre-amplifier field effect transistor (FET), in turn resulting in poor signal resolution. The cracked transfer collar was replaced. Prior to replacement of the detector pre-amplifier, the detector was temperature cycled to purge the detector cryostat of any moisture buildup which may have occurred as a result of the cracked LN₂ transfer collar.

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When attempting to return the Vent GEMS to operable, a severe ground loop was discovered which greatly impacted detector signal resolution. The ground loop was a result of the detector cryostat being in direct contact with the LN₂ dewar. This physical contact allowed transfer of system generated noise, e.g., pumps, relays, solenoids, etc., into the pre-amplified detector signal.

On September 25, 1993 at 1722 hours, during troubleshooting of ground loop problems, the Vent GEMS system was inoperable for 72 hours, which requires this Special Report in accordance with Technical Specifications. Following replacement of the cracked transfer collar and the pre-amplifier, correction of ground loop problems, completion of electronic tuning including detector alignment and the successful completion of surveillance procedure N2-CSP-RMS-D313, the Vent GEMS was returned to service on September 28, 1993 at 1850 hours.

Corrective Actions:

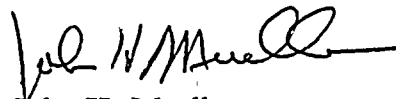
The following corrective actions have been taken:

- The detector has been temperature cycled.
- The detector pre-amplifier was replaced.
- The LN₂ dewar transfer collar was replaced.
- Ground loops were corrected and electronic tuning was completed.
- Manual alignment of the detector was completed.

Future Corrective Actions:

Actions are in progress per the disposition of Deviation Event Report (DER) #2-92-3920 to rework the LN₂ automatic level control system. This corrective action will eliminate stress on the LN₂ transfer collar during manual filling of the LN₂ dewar. Additionally, this action will ensure consistent detector geometry and eliminate the need for manual detector alignment which may result in development of ground loop problems.

Very truly yours,



John H. Mueller
Plant Manager-NMP2

JHM/GHM/lmc

xc: Mr. Thomas T. Martin, Regional Administrator, Region I
Mr. Barry S. Norris, Senior Resident Inspector

