REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

50-259

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50-260 Browns Ferry Nuclear Power Station, Unit 2, Tennessee 05000260
50-296 Browns Ferry Nuclear Power Station, Unit 3, Tennessee 05000296
AUTH.NAME AUTHOR AFFILIATION
MILLS,L.M. Tennessee Valley Authority
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards responses to GE Svc Info Ltr 402 re wetwell/Drywell inerting.Operating instructions for containment inerting sys & primary containment sys revised.

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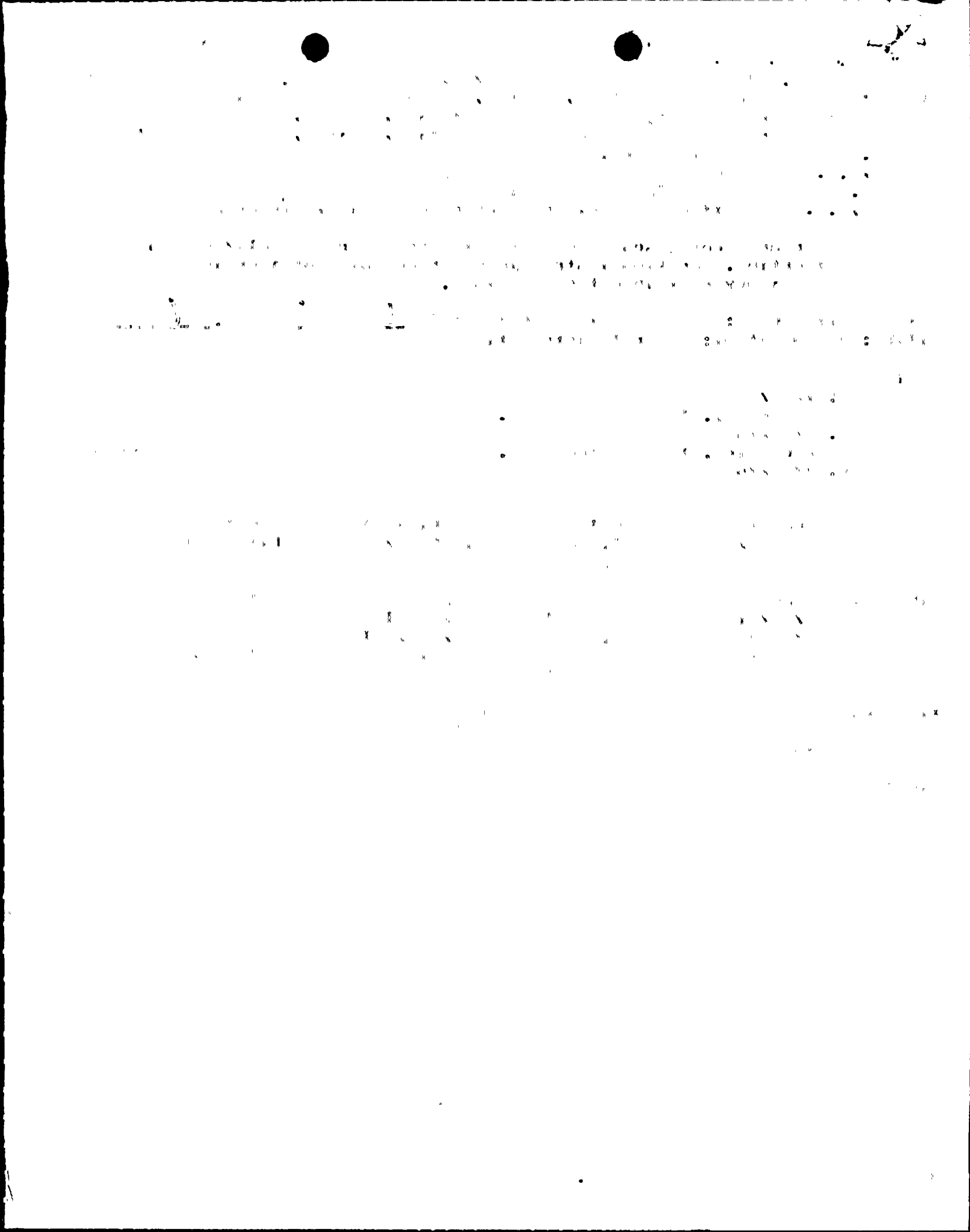

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

October 5, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

In the Matter of the	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

By my letter to you dated September 14, 1984, we provided general information regarding implementation of General Electric Service Information Letter (SIL) 402 at the Browns Ferry Nuclear Plant. As committed to in that letter, we are submitting as an enclosure a more detailed discussion of the SIL 402 implementation.

If you have any questions, please get in touch with us through the Browns Ferry Project Manager.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills

L. M. Mills, Manager
Nuclear Licensing

Subscribed and sworn to before
me this 5 day of October 1984.

L. Cheryl Clark
Notary Public
My Commission Expires 6/24/86

Enclosure
cc (Enclosure):
U.S. Nuclear Regulatory Commission
Region II
ATTN: James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. R. J. Clark
Browns Ferry Project Manager
U.S. Nuclear Regulatory Commission
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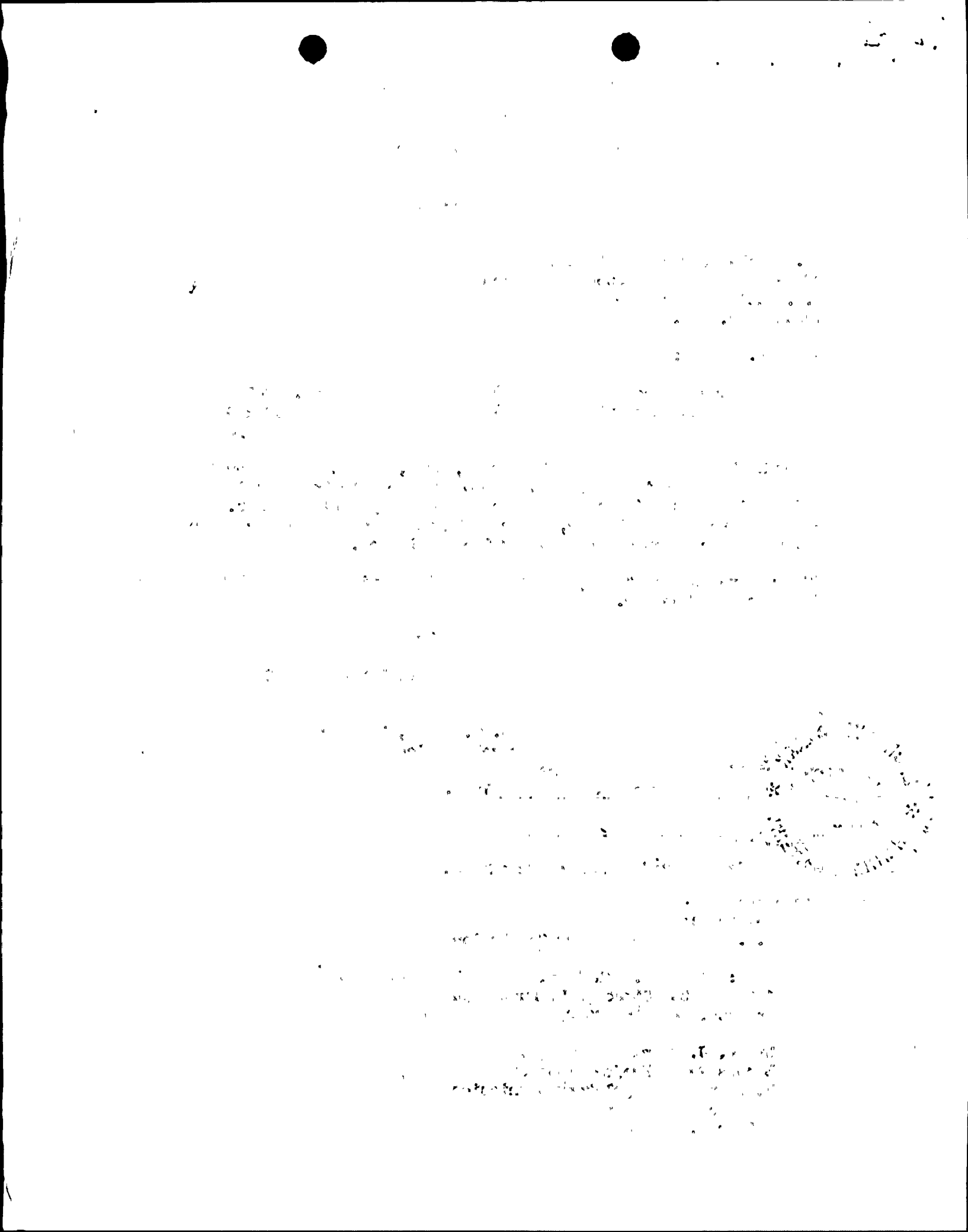


ENCLOSURE
IMPLEMENTATION OF GENERAL ELECTRIC
SERVICE INFORMATION LETTER 402
"WETWELL/DRYWELL INERTING"
BROWNS FERRY NUCLEAR PLANT

SIL 402 ITEM 1

Evaluate Inerting System Design

Evaluate the design of the nitrogen inerting system. Investigate the potential for introducing cold (less than 40°F) nitrogen and the orientation of the nitrogen port relative to the vent header, downcomers, or other equipment in the wetwell and drywell which may be in the path of the injected nitrogen. Assure that the temperature monitoring devices, the low temperature shutoff valve, and overall system design are adequate to prevent the injection of cold nitrogen into the containment.

TVA RESPONSE

We have reviewed the system design of the Browns Ferry containment inerting system. The current system design has multiple controls and indications which are sufficient to prevent cold nitrogen ($<50^{\circ}F$) from flowing into the primary containment. During purging operations, nitrogen flow and temperature is monitored in the control room to maintain $\geq 50^{\circ}F$ nitrogen temperature. If nitrogen temperature decreases to $<50^{\circ}F$, the low temperature shutoff valve will close and prevent injecting cold nitrogen into the primary containment. During makeup operations, the makeup vaporizer electric heater will energize if nitrogen temperature decreases to $<70^{\circ}F$ and the low temperature shutoff valve will close if nitrogen temperature decreases to $<50^{\circ}F$. The continued use of these low temperature setpoints will preclude any low temperature problems. It should be noted that the configuration of the nitrogen injection piping into the wetwell at Browns Ferry is different from the configuration at Hatch Nuclear Plant as shown in figures 1 and 2. As such, the liquid nitrogen and/or cold gases would not impinge directly on any downcomer or the vent header.

SIL 402 ITEM 2

Evaluate Inerting System Operation

Review the operating experience of the inerting system to assure that the vaporizer, the low temperature shutoff valve and the temperature indicators have functioned properly. Evaluate the plant calibration, maintenance and operating procedures for the inerting system. Assure that cold nitrogen injection would be detected and prevented.

TVA RESPONSE

We have reviewed the operating experience of the containment inerting system at Browns Ferry. Our review indicates that the vaporizers, system controls, and temperature indicators have been functioning properly.

We have reviewed the maintenance history from January 1, 1984 to present. The only maintenance item found that could affect the low temperature controls for the inerting system was that the purge line low temperature shutoff valve calibration was checked on February 17, 1984. The temperature controller and the low temperature shutoff valve have been added to the system instrument and maintenance instruction to ensure that the temperature controller receives required periodic calibration or maintenance.

To further ensure proper operation of the inerting system, we have revised the Operating Instructions (OI) for the Containment Inerting System (OI 76) and Primary Containment System (OI 64). OI 76 ensures that cold nitrogen ($<50^{\circ}F$) will not be injected into the primary containment during purging operations. OI 64 now monitors run time of the drywell Delta P air compressor to detect possible cracking of internal containment piping.

SIL 402 ITEM 3

Test for Drywell/Wetwell Bypass Leakage

Perform a bypass leakage test as soon as convenient to confirm the integrity of the vent system. This test should be conducted during plant operation following normal plant procedures. If no procedures exist, the following is a general guide for preparing your procedure: pressurize the drywell to approximtely 0.75 psi above the wetwell pressure, maintain this drywell pressure and measure the pressure buildup in the wetwell. Any bypass leak area can then be calculated (and is limited by Technical Specifications on many plants) from the wetwell pressure and the drywell-wetwell pressure difference. This will provide an indication that the vent system integrity is intact and that no gross failure exists.

TVA RESPONSE

A drywell/wetwell bypass leakage test was performed on Browns Ferry unit 1 and unit 2 to ensure the integrity of the vent system as requested by NRC IE Bulletin 84-01 for plants that were currently operating. The results of the test indicate from the long drywell/wetwell Delta P compressor idle times and the relatively low leakage flow rates, that there are no anomalies that are indicative of cracks in either unit 1 or unit 2 vent headers. Based on the visual inspection (Item 5) and procedural changes (Item 2), the bypass leakage test will not be performed on unit 3, which is currently in a refueling outage.

SIL 402 ITEM 4

Inspect Nitrogen Injection Line

Conduct an ultrasonic test (UT) as soon as convenient of all accessible welds in the nitrogen injection line from the last isolation valve to the wetwell and drywell penetrations. Also UT the containment penetrations and the containment shell within 6 inches of the penetration. UT is recommended because cracks would be most likely to initiate on the inside of the pipe or on the side of the metal in contact with cold nitrogen.

TVA RESPONSE

Satisfactory operating experience, multiple controls and indications, and procedural controls make the introduction of cold nitrogen ($<50^{\circ}F$) unlikely in either the past or future. Therefore, we do not plan to perform ultrasonic examinations on the nitrogen injection lines penetrating the drywell and wetwell or the containment penetrations and containment shell within six inches of the penetration.

SIL 402 ITEM 5

Inspect Containment

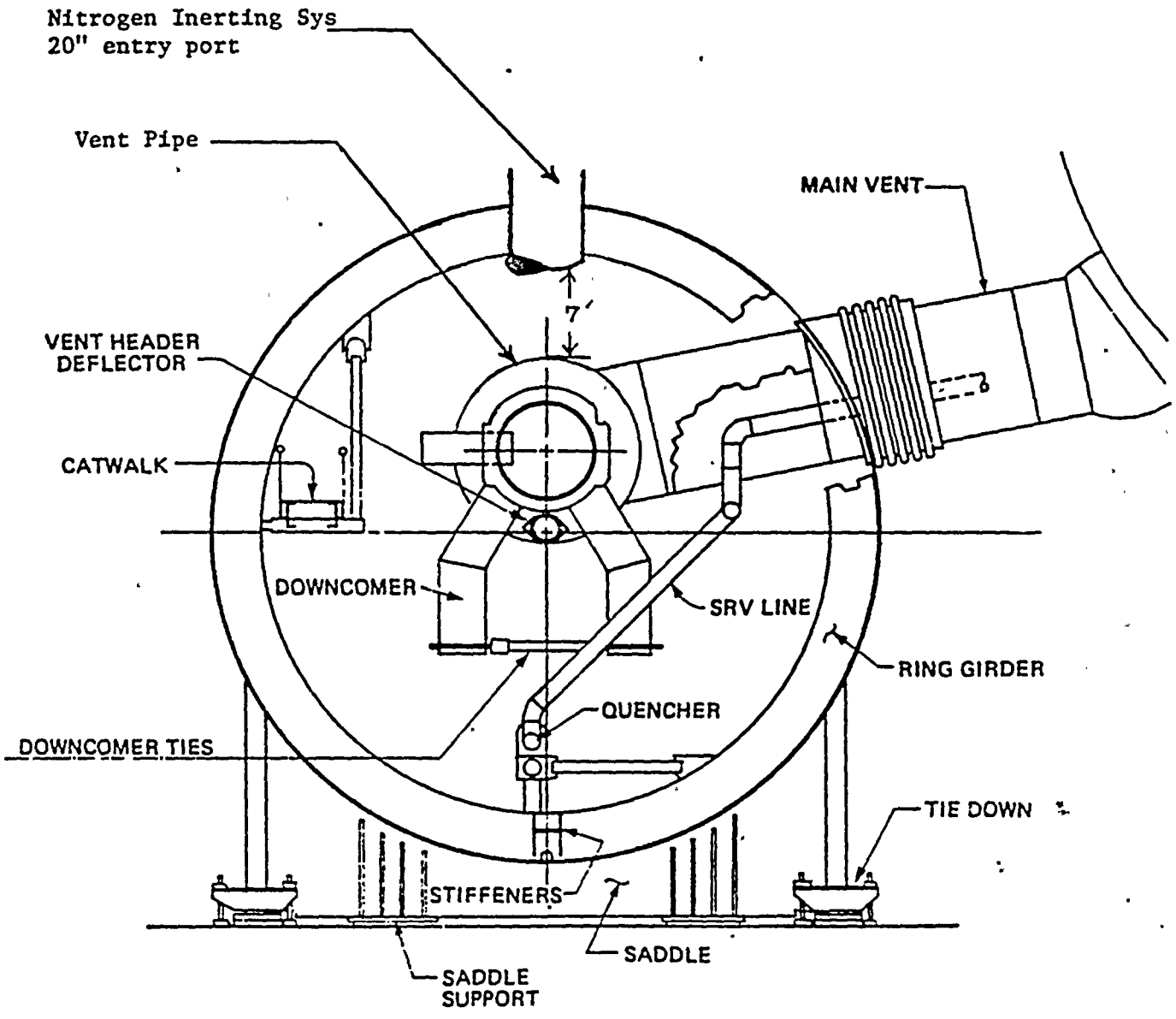
During the next planned outage, perform a visual inspection of the vent header, downcomers and other equipment in the containment which might be expected to be affected by the injection of cold nitrogen. The vent header should be inspected on the outside and the inside. Also inspect the containment shell or steel liner for at least 6 inches around the nitrogen penetration.

TVA RESPONSE

As requested by IE Bulletin 84-01, a visual inspection was performed on unit 3, which is in a refueling outage. No cracks were found; however, four pinholes were discovered in the downcomer to vent header weld in bay 6 on unit 3. All four pinholes in this construction weld were porosity holes, which have been ground out and repaired. For the same reasons listed in Item 4, we do not plan to perform the additional visual inspections specified in GE SIL 402 for unit 3.

We do not plan to perform any visual inspections per GE SIL 402 on units 1 and 2 based on the reasons listed in item 4.

Indicate the location of your
Nitrogen Inerting System entry Port.



CROSS SECTION OF THE TORUS
Hatch Unit 2

FIGURE 1

Cross Section of Torus - Brown Ferry Units 1, 2, & 3

PUTED BY Ron 2.10.84

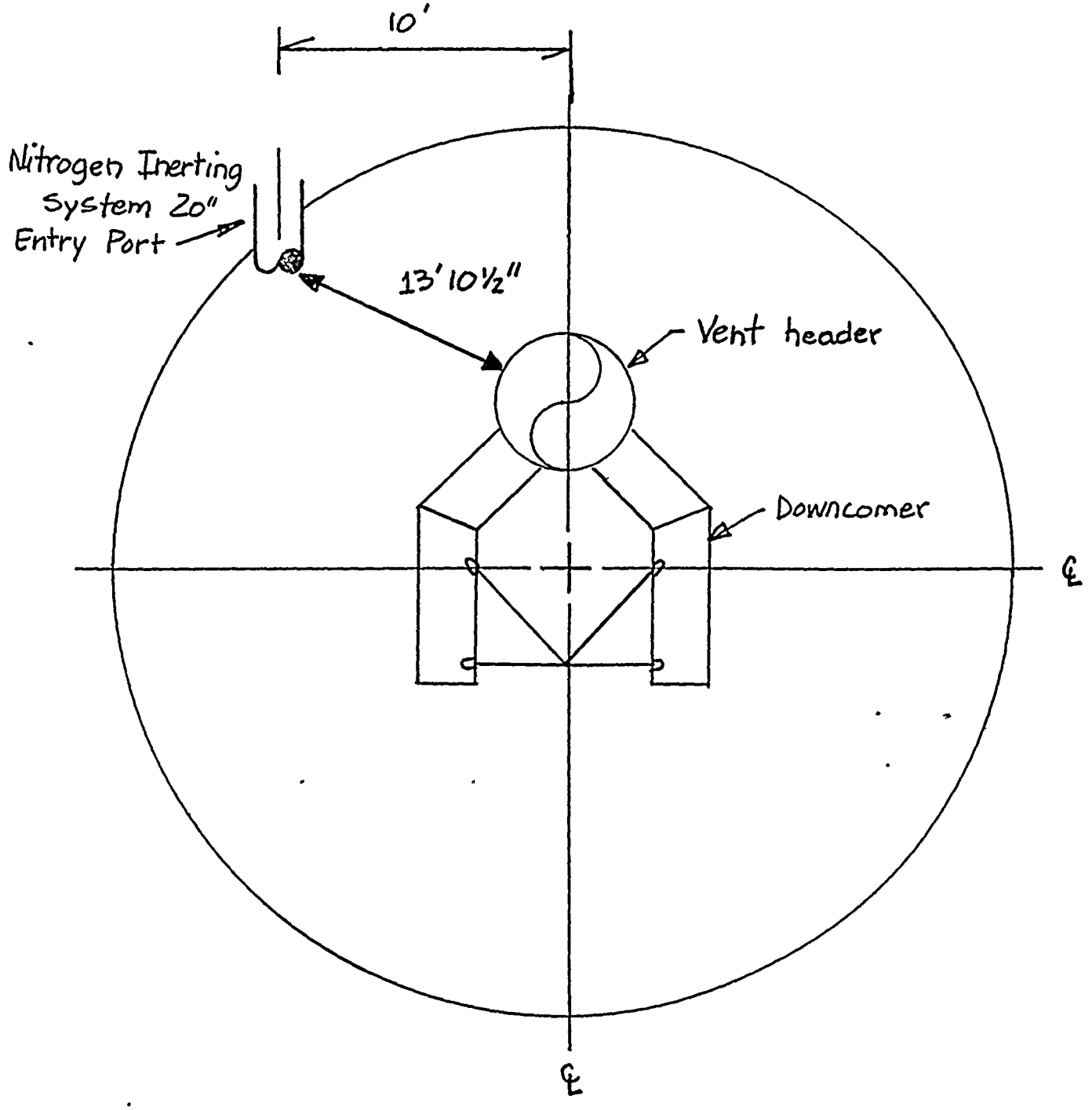


Figure 2