RG&E A Subsidiary of RGS Energy Group, Inc.

ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649-0001 • 585 546-2700 www.rge.com

ROBERT C. MECREDY
Vice President
Nuclear Operations

May 16, 2002

Mr. Robert L. Clark
Office of Nuclear Regulatory Regulation
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: Reactor Pressure Vessel Head Inspection Results, Response to NRC Bulletin 2002-01, Subject: *Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity*
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Reference: (1) Letter from R.C. Mecredy, RG&E, to R.L. Clark, NRC, Subject: *Response to NRC Bulletin 2002-01*, dated March 22, 2002.

Dear Mr. Clark:

In Reference (1), RG&E provided the information required within 15 days of the issuance of NRC Bulletin 2002-01. The purpose of this letter is to provide the information required within 30 days after plant restart following the next inspection of the reactor pressure vessel head. Ginna Station entered Mode 1 operation on April 19, 2002 completing a refueling outage during which it conducted an inspection of the reactor pressure vessel head. The enclosure to this letter provides the inspection scope and results as required by NRC Bulletin 2002-01.

I declare under penalty of perjury under the laws of the United States of America that I am authorized by RG&E to make this submittal and that the foregoing is true and correct.

Any questions concerning this issue should be directed to Brian Flynn, Scheduling Manager at (585) 771-3734.

Very truly yours,

Executed on May 16, 2002

Robert C. Mecredy

Robert C. Mecredy

~~A008~~
A095

1000472

Enclosure

xc: Mr. Robert L. Clark (Mail Stop O-8-C2)
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Regulatory Regulation
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

U.S. NRC Ginna Senior Resident Inspector

ENCLOSURE
NRC BULLETIN 2002-01 REQUIRED INFORMATION

The following provides Rochester Gas & Electric Corporations (RG&E's) response to the information required within 30 days after plant restart following the next inspection of the reactor pressure vessel head. The items in bold represent the requested information as documented in the Bulletin. RG&E's response follows each required item.

2. **Within 30 days after plant restart following the next inspection of the reactor pressure vessel head to identify any degradation, all PWR addressees are required to submit to the NRC the following information:**

   A. **The inspection scope (if different than that provided in response to Item 1.D) and results, including the location size and nature of any degradation detected.**

   RESPONSE:

   In Reference (1), section 1.D, RG&E proposed to investigate the Ginna Station reactor pressure vessel head in a three step approach. The proposed inspections identified in Reference (1) are shown below in italics. The actual inspections performed during the 2002 refueling outage (RFO) are then described along with their results.

   1. *A visual inspection of the insulation on top of the reactor pressure vessel head will be performed inside the CRDM Cooling Shroud as follows:*

      a. *The inspection will look for any signs of boric acid leakage from above which could lead to boric acid accumulation on the carbon steel surface of the vessel. This enhanced GL 88-05 type inspection will be performed by qualified VT examiners and will specifically look for any boric acid leakage which may have originated from overhead areas such as the CRDM head adaptor to CRDM seal weld, or from other overhead areas of the CRDM housing.*
      b. *Photographs of the interface of the reactor pressure vessel head penetrations and insulation will be taken to identify boric acid crystals and deformation of the insulation. The intention is to do 100% of this interface. These photographs will also be compared to previous photographs of the head region inside the CRDM Cooling Shroud in order to identify any changes from previous inspections.*
      c. *A video tape of the region will be made for future reference.*

These inspections were performed during the 2002 RFO and focused on three areas of potential concern:

a. Leakage from above the reactor pressure vessel head area which could run down to the head region (i.e., control rod drive mechanism (CRDM) to Head Adaptor housing seal welds).
b. The interface joint between the insulation and the head penetrations.
c. Any areas of concern where there was reason to suspect boric acid could be accumulating under the insulation (e.g., areas where the insulation appeared to be pushed up from below).

These inspections were performed by Level II and III Examiners of RG&E Technical Performance and Field Inspection Services (TP/FI) Group using a video camera in accordance with the inspection requirements of procedure VT-116, *Non Destructive Examination.*

The video inspection of the reactor pressure vessel head region was performed utilizing a 360 degree sweep around each penetration to insulation interface. A 360 degree sweep around each seal weld joint (the equivalent of the gasketed CRDM to Head connection on the Davis-Besse design) was also performed. In addition to boric acid deposits, the inspection also looked for areas where insulation appeared to be pushed up from below the insulation. Criteria established for the inspectors was developed by RG&E Engineering and the RG&E metallurgist.

2. *Based on the visual and photographic inspection results of (1), RG&E will identify any suspect areas which require further investigation. Any penetrations which show signs of insulation distortion as described in the response to item 1.B above, or indications of a through-wall leak, will be further investigated (i.e., insulation will be removed).*

The video tape was reviewed outside the radiological control area by RG&E TP/FI and Engineering personnel. NRC Region I personnel also viewed the video tapes. Review of the video tape identified three areas for further investigation as summarized below:

a. The first area involved a portion of the insulation cement coating in proximity to penetration #20 which appeared to be elevated approximately 1-2 inches above the block insulation. In this case, the coating was pulled back an additional amount and a section of the block insulation was removed from around the area of the penetration # 20 to allow examination of the bare metal surface. The examination identified no indications of leakage from the penetration, nor boric acid deposits on the head. Samples of insulation material lying adjacent to the penetration were retrieved and analyzed for contamination. The contamination level of these samples when checked in the hot lab was 3000 dpm, which would indicate that it had not been in contact with primary water.

b. The second area investigated was an area where an insulation block was found lying adjacent to the internal side of the HVAC support shroud. This block had been observed during inspections performed in the early 1990's and was attributed to installation of previous instrumentation which was abandoned in place. During the more detailed video inspection, it could easily be seen that the block had been previously installed on the head itself. The area where the block came from appears in the video as one with an insulation debris pile. Again several samples were taken from the area immediately adjacent to the penetration at this location. Consistent with the above findings, the debris is a mixture of insulation block and cement coating. Sample contamination levels were approximately 3000 dpm. There was no indication of leakage or boric acid deposits in this area. The block was subsequently placed back in its original location on the head.

c. The third area reinspected was the CRDM to head adapter seal weld for penetration #6. The initial inspection showed what appeared to be a white substance on the seal weld area. Additional inspection of this seal weld by the Level III examiner determined that no boric acid was present. The indication was a false call and the result of light reflection and "welders arc decay" (i.e., the area were the weld ended).

In addition, the video inspection also demonstrated that at several penetration to insulation interfaces, gaps between the insulation and penetration material allowed the inspectors to see bare metal head and penetration steel and verify that no boric acid was visible.

3. *Ultrasonic Testing (UT) will be performed to verify the thickness of the reactor pressure vessel head for the center penetration (#1) from beneath the head. The penetration will be UT inspected using two concentric inspection paths around the penetration. Additionally, four areas on the outside of the CRDM Cooling Shroud support ring on the downhill side of the four instrumentation ports will be UT inspected from the exterior surface of the reactor pressure vessel head. Any areas which are identified by ultrasonic examinations to be significantly thinner than the design wall thickness will be subject to additional examinations up to, and including, insulation removal.*

During the 2002 RFO, the reactor pressure vessel head area adjacent to the outer edge of the HVAC shroud support in the vicinity of the instrumentation ports was targeted for UT. The UT of this area outside the support ring in the vicinity of penetrations effectively demonstrates that there is no potential of internal wastage of the head such as what has occurred at Davis-Besse.

Additionally, visual examination of the exposed reactor vessel head below the support ring revealed no indications of primary water leakage from above. Note that any degradation mechanism similar to Davis-Besse would be expected to show visible tell tale signs of wastage or apparent leakage between the gap at the support shroud and the head. No visible signs of leakage have been reported.

An additional measure was taken to demonstrate that areas where degradation had been seen at Davis-Besse (i.e., the top central region of the head), had not occurred at Ginna Station. Specifically, UT was performed from under the reactor pressure vessel head at radiuses of 4, 6, and 8 inches around penetration #1, which is located at the center of the head. The UT probe was calibrated on a specimen of a reactor vessel head from a cancelled unit. All measurements obtained were above nominal head thickness, providing further assurance that no degradation has occurred.

B. The corrective actions taken and the root cause of the degradation.

<u>RESPONSE:</u>

The inspections performed as discussed in item "A" above provide reasonable assurance that no degradation of the reactor pressure vessel head at Ginna Station has occurred, and therefore, did not dictate any further corrective actions during this RFO.

<u>References:</u>

(1) Letter from R.C. Mecredy, RG&E, to R.L. Clark, NRC, Subject: *Response to NRC Bulletin 2002-01*, dated March 22, 2002.