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**Constellation Energy**
Generation Group

October 24, 2006

U. S. Nuclear Regulatory Commission
Washington, DC 20555

**ATTENTION:** Document Control Desk

**SUBJECT:** **R.E. Ginna Nuclear Power Plant**
Docket No. 50-244

Response to Request for Information Re: License Amendment Request: Emergency Core Cooling System (ECCS) Accumulator Boron Concentration Verification Frequency

Reference 1: Letter to USNRC Document Control Desk from Mary G. Korsnick (Ginna), subject: License Amendment Request: Emergency Core Cooling System (ECCS) Accumulator Boron Concentration Verification Frequency, dated March 28, 2006.

Reference 2: Letter to Mary G. Korsnick (Ginna) from Patrick Milano (NRC), subject: Request for Additional Information Regarding Test Frequency for Accumulator Boron Concentration, R.E. Ginna Nuclear Power Plant (TAC NO. MD0686), dated August 31, 2006

On March 28, 2006 R.E. Ginna Nuclear Power Plant, LLC (Ginna) submitted Reference 1 for NRC review. On August 31, 2006 the NRC requested additional information in Reference 2. Attachment (1) and Figure (1) contain the requested information based on the referenced correspondence.

Should you have questions regarding the information in this submittal, please contact Mr. Robert Randall at (585) 771-3734 or Robert.Randall@constellation.com.

Very truly yours,

Mary G Korsnick

Mary G. Korsnick

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**STATE OF NEW YORK :**
**: TO WIT:**
**COUNTY OF WAYNE :**

I, Mary G. Korsnick, begin duly sworn, state that I am Vice President, R.E. Ginna Nuclear Power Plant, LLC (Ginna LLC), and that I am duly authorized to execute and file this request on behalf of Ginna LLC. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Ginna LLC employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Mary G. Korsnick

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Monroe, this 24 day of October, 2006.

**WITNESS** my Hand and Notarial Seal: Sharon L. Miller
Notary Public

My Commission Expires: 12-21-06
Date

SHARON L. MILLER
Notary Public, State of New York
Registration No. 01MI6017755
Monroe County
Commission Expires December 21, 20 06

MK/MR

Attachment (1): Requested Information
Figure (1): Accumulator Drawing

cc: S. J. Collins, NRC
P.D. Milano, NRC
Resident Inspector, NRC (Ginna)
P.D. Eddy, NYSDPS
J. P. Spath, NYSERDA

# Attachment (1)

## Requested Information

## Requested Information

**Question 1: To justify the proposed change of SRs, the licensee evaluated ECCS Accumulator levels, volume addition, leakage in, leakage out and sample concentrations for an 8 month period between April 2005 and December 2005. This time interval was chosen because it was considered to be representative of accumulator behavior since 2003. Explain what parameters were considered to determine the representative behavior since 2003.**

As indicated in Reference 1, the eight (8) month period was chosen because it is consistent with the requested sample frequency plus 25%. To validate that this data was representative of ECCS Accumulator behavior over a longer interval, the below information was collected and evaluated.

- The bimonthly sample concentrations for the ECCS Accumulators were collected for a three year period starting in January 2003 and ending December 2005. Reactor Coolant System (RCS) boron was also collected for the same time period. The level indication is manually recorded each shift by the control room operators. The readings were recovered for the three year period beginning in January 2003 corresponding to the sample dates. These three variables were plotted on Attachment 1, page 6, of the original submittal (Reference 1) to indicate the consistency of the boron concentration with changing RCS concentration. This is one indication of minimal or zero back leakage from the RCS, the most likely source of inleakage or dilution.

- There were eleven (11) occurrences of water makeup to the ECCS Accumulators between January 2003 and December 2005, four (4) of which were performed on April 8 and 9, 2005 as part of level stabilization during the startup from the Spring outage. Of the seven (7) remaining fills at steady plant conditions, three (3) occurred during the eight month period in question and resulted in the 282 gallons indicated in the table in Attachment 1, page 3 of Reference 1.

- Between January 2003 and December 2005, only one use of the procedure used to evaluate inleakage (level increase) was recorded, and that level increase was determined to be from thermal expansion.

**Question 2: List all possible sources of water that could leak into or out of the accumulator. Indicate those sources that were not included in the analysis, and why.**

In-leakage – Two potential sources of inleakage were identified:

> Note: The Charging System, although a higher pressure than the ECCS Accumulators, is not considered an in-leakage source because it is not connected to the ECCS Accumulators, except through the RCS.

- Because the RCS is at a higher pressure than the ECCS Accumulators and isolated by check valves only, the most likely source for in-leakage is back flow from the RCS loops. This was considered in Reference 1.

- Another source of inleakage is from the Safety Injection (SI) system. For this to occur, the SI pumps would have to be running. The SI pumps are idle when the plant is at power unless being tested or being used to fill the ECCS Accumulators. This was not considered in Reference 1 because this source would be Refueling Water Storage Tank (RWST) concentration and would not cause dilution.

Out-leakage – Limited to four paths because of system configuration:

Note: Out-leakage was not broken out in the submittal as separate sources, but was considered by quantifying the total makeup amount. Since out-leakage to paths other than to the RWST would provide additional indications, a decrease in ECCS Accumulator level absent other indications can be assumed to be to the RWST.

- Out leakage can occur by leaking check valves back through the SI recirc lines to the RWST. This would be detected by decreasing ECCS Accumulator level.

- Out-leakage to the Containment floor could occur via several vent and drain paths, but would be detected by increased Containment sump activity in conjunction with a decreasing level in the ECCS Accumulator. This path is unlikely because the vents and drains are capped or flanged.

- Out-leakage could occur to the Reactor Coolant Drain Tank (RCDT). This would be detected in conjunction with ECCS Accumulator level changes because the RCDT level is normally stable and is monitored in the control room.

- Out-leakage could occur to the Pressurizer Relief Tank (PRT) through leaking air operated valves and a relief valve. Although this would not be as readily detectable as leakage to the RCDT (PRT is a larger tank), over time it would be detected as a level increase in the PRT.

Although it is possible to have water transfer between ECCS Accumulators via the fill lines, it is unlikely because of the similar pressures and the two normally closed isolation valves in these connecting lines. In addition, this type of leakage would be readily apparent because of the relative level change between the two accumulators.

**Question 3: During a 6-month period, 283 gallons of water were added to Accumulator B to maintain level and boron concentration within the prescribed limit. What was the boron concentration of the added water?**

The water source was from the RWST with a boron concentration of between 2300 ppm and 2600 ppm, as controlled by the Ginna Technical Specification (TS) SR 3.5.4.2.

**Question 4: How were the values of $V_1$ and $V_2$ determined? What does the volume of 8311 gallons represent, and what does 15% mean?**

Using Ginna TS SR 3.5.1.2 as a reference, 50 % indicated level equates to 1111 $ft^3$. Converting 1111 $ft^3$ to gallons = 1111 * 7.48 = ~8311 gallons.

The value of 15% represents the delta indicated level between the ECCS Accumulator Hi and Lo level alarms (75 – 60 = 15).

Value $V_1$ represents the ECCS Accumulator volume at the Lo level alarm setpoint (60%). From procedural reference (Ginna Procedure S-16.11, Monitoring In-leakage into SA Accumulators), volume changes in the area of the level taps equates to ~6.25 gal/%. Therefore, if 50% level equals 8311 gallons, then:

$V_1$ = 8311 + (10% * 6.25 gal/%) = 8373.5 gal at 60% level

Value $V_2$ represents the volume of water (in-leakage) required to raise the ECCS Accumulator level from the Lo level alarm to the Hi level alarm setpoint. Using similar methodology as above, the 15% level increase would require:

$V_2$ = 15% * 6.25 gal/% = 93.75 or ~94 gal.

Note: Interpolation of the volumes in SR 3.5.1.2 would result in a value of 6.545 gal/% for level changes in this range. However, the values in the SR were rounded as suitable for their application. Interpolating the un-rounded numbers from the source analysis (Reference: Ginna Design Analysis DA-NS-97-051, Calculation of SI Accumulator Water Level as a Function of Water Level Indication) the value is ~6.25 gal/%.

**Question 5: Provide a more detailed description of the level instrumentation and how the instrumentation correlates levels of the liquid in the accumulator to corresponding volumes. In order to understand how the system works, physical arrangements of the different components of the system should be described.**

The attached as built ECCS Accumulator drawing, Figure (1), illustrates the relationship between the level transmitters (LT-934/935) and the ECCS Accumulator. The level transmitters are buoyancy displacer type transmitters and will not begin to indicate until the associated accumulator reaches a level corresponding to the bottom of the sensing unit. The Span of this unit is scaled to 0% - 100% of the 14 inch span of the unit. Whereas, the distance from the bottom instrument tap to normal water level is ~ 141 inches (Reference: Ginna Design Analysis DA-NS-97-051, Calculation of SI Accumulator Water Level as a Function of Water Level

Indication). Therefore, this could be considered a narrow range instrument, which provides increased sensitivity to detect inleakage.

Using the above information, the top and bottom of the scale would correspond to the following volumes.

8311 gal/50% level – (50% * 6.25 gal/%) = ~ 7998.5 gal at 0% level

8311 gal/50% level + (50% * 6.25 gal/%) = ~ 8623.5 gal at 100% level

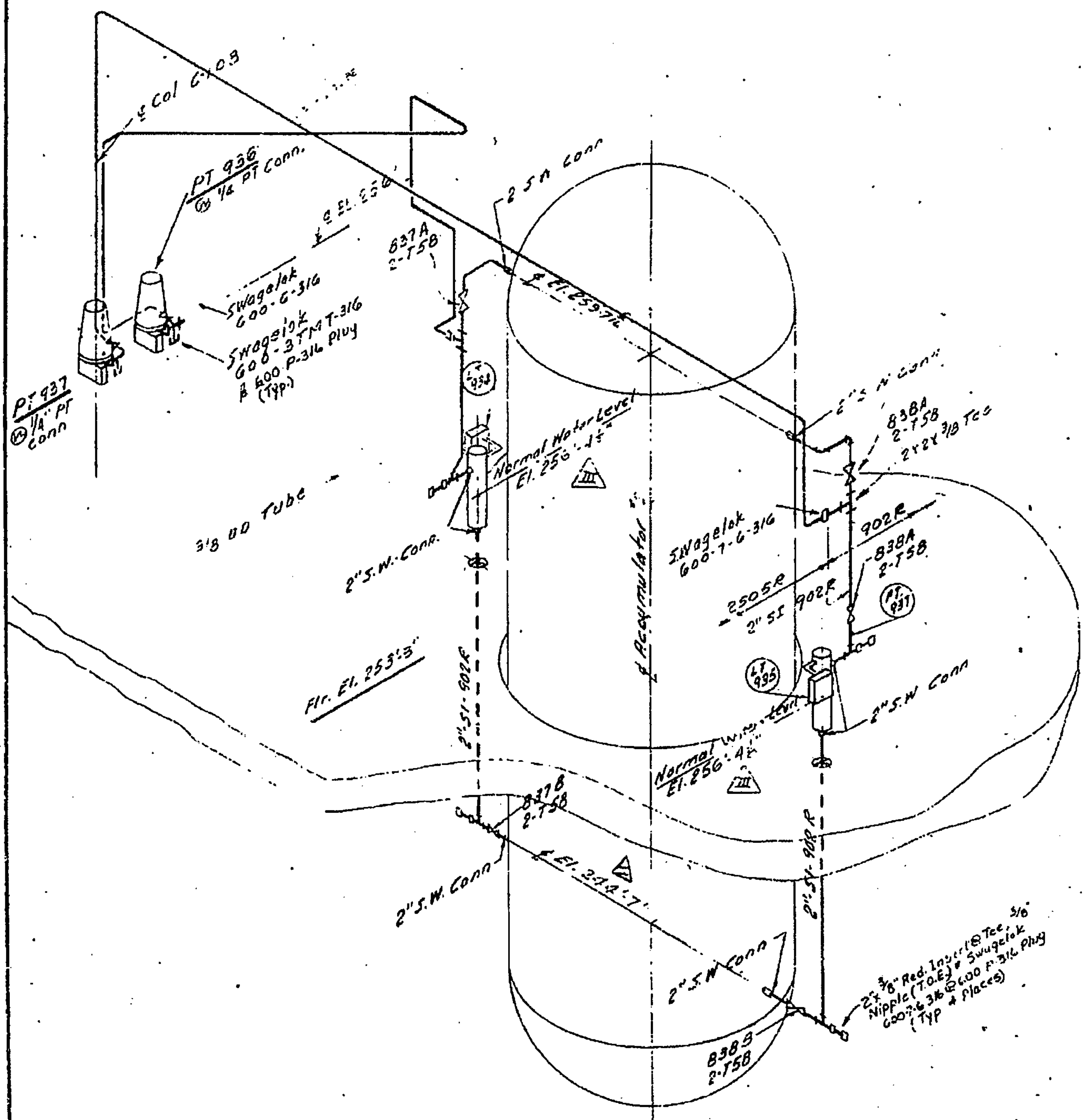
PT 936
PT 937
Swagelok 600-6-316
Normal Water Level
Normal Water Level
3/8 OD Tube
2" S.W. Conn.
2" S.W. Conn
2" S.W. Conn
Flr. El. 253'3"
2" SI-902R
℄ Accumulator
837A 2-T58
837B 2-T58
838A 2-T58
838B 2-T58
Swagelok 600-7-6-316
902R
2" SI 902R
2505R
2" SI-902R

Figure (1)