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## **Constellation Energy**

R.E. Ginna Nuclear Power Plant

July 8, 2004

Mr. Robert L. Clark  
Office of Nuclear Regulatory Regulation  
U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

**Subject:** Response to Request for Additional Information dated April 7, 2004, Regarding Proposed Control Room Emergency Air Treatment System (CREATS) Modification and Change in Dose Calculation Methodology to Alternate Source Term  
R.E. Ginna Nuclear Power Plant  
Docket No. 50-244

- References:**
1. Letter from Robert C. Mecredy (RG&E) to Robert L. Clark (NRC) dated May 21, 2003, License Amendment Request Regarding Revision of Ginna Technical Specification Sections 1.1, 3.3.6, 3.4.16, 3.6.6, 3.7.9, 5.5.10, 5.5.16, and 5.6.7 Resulting From Modification of the Control Room Emergency Air Treatment System and Change in Dose Calculation Methodology to Alternate Source Term.
  2. Letter from Robert L. Clark (NRC) to Robert C. Mecredy (RG&E) dated January 20, 2004, Request for Additional Information Regarding R.E. Ginna Nuclear Power Plant License Amendment Request Relating to the Control Room Emergency Air Treatment System Modification (TAC No. MB9123).
  3. Letter from Robert C. Mecredy (RG&E) to Robert L. Clark (NRC) dated April 22, 2004, Design Information for the Proposed Control Room Emergency Air Treatment System (CREATS) Modification.
  4. Letter from John E. Maier (RG&E) to Dennis M. Crutchfield (NRC) dated May 19, 1983, Structural Reanalysis Program SEP Topics, II-2.A, III-2, III-4.A and III-7.B, R.E. Ginna Nuclear Power Plant.
  5. Letter from C. Stahle, NRC, to R. W. Kober, RG&E, Subject: Safety Evaluation Report on the Structural Upgrade Program, dated March 24, 1987.
  6. Letter from A. Johnson, NRC, to R.C. Mecredy, RG&E, Subject: Supplemental Safety Evaluation - Systematic Evaluation Program/Structural Upgrade Program at R. E. Ginna, dated November 15, 1989.

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7. Letter from Mary G. Korsnick (Ginna Station) to Robert L. Clark (NRC), dated July 8, 2004, Response to Request for Additional Information (RAI) dated June 9, 2004, Regarding Proposed Control Room Emergency Air Treatment System (CREATS) Modification and Change in Dose Calculation Methodology to Alternate Source Term.

Dear Mr. Clark:

The attachment to this letter provides a response to the Request for Additional Information (RAI) contained in Reference 2, and should be docketed as an addendum to Reference 1. If you have questions regarding the content of this correspondence, please contact Mr. Mike Ruby at (585) 771-3572 or Mr. George Wrobel at (585) 771-3535.

Very truly yours,

*Mary G. Korsnick*  
Mary G. Korsnick

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

I, Mary G. Korsnick, being 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 response 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 8 day of July, 2004.

WITNESS my Hand and Notarial Seal:

*Sharon L Miller*  
\_\_\_\_\_  
Notary Public

My Commission Expires: 12-21-06

7-8-04  
\_\_\_\_\_  
Date

SHARON L MILLER  
Notary Public, State of New York  
Registration No. 01M16017153  
Monroe County  
Commission Expires December 21, 2006

**Attachments:**

1. Response to RAIs

**Cc: Mr. Robert L. Clark (Mail Stop O-8-C2)**  
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**Attachment 1**  
**Response to RAIs**

## RAI Response

### Ginna Specification ME-326

1. *Provide a table describing the following information:*
  - a. *A list of mechanical and electrical instrumentation and control equipment installed in the modified CREATS and CRECS systems requiring seismic qualification. Indicate whether the equipment is new or existing. Similar equipment can be represented by grouping.*
  - b. *The location (elevation in a building or structure) of the equipment and the source of the required response spectra, consistent with your licensing basis, to be used for seismic qualification of the equipment.*
  - c. *Seismic qualification method to be used for the equipment (indicate whether it is based on your licensing basis, or an NRC endorsed industry standard, etc.).*
  - d. *The results of seismic qualification of the equipment (indicate whether any modification or re-design is necessary).*

Table of Equipment and Seismic Qualification

Equipment	Equipment Location	Qualification Method
CREATS Fans (new)	Relay Room Annex (1)	Testing, IEEE 344-1987
Interconnecting duct/pipe between Control Room and Annex (new)	See Reference 3	See Reference 3
Dampers and Duct Work (new)  Note: Some existing duct work will remain for operation of normal HVAC, but will not be required for new CREATS operation.	Control Room above suspended ceiling (2)	Analysis, EPRI 1007896, Seismic Evaluation Guidelines for HVAC Duct and Damper Systems, April 2003.

Dampers and Duct Work (new)	Relay Room Annex (1)	Analysis, IEEE 344/87
Dampers and Duct Work (new)	Stairwell (3)	Analysis, IEEE 344/87
Filter Units (new)	Relay Room Annex (1)	Analysis, IEEE 344/87
Heaters (new)	Relay Room Annex (1)	Testing, IEEE-344-1975 (as endorsed by RG-1.100 R1)
Motor Control Centers (MCC), Molded Case Circuit Breakers, and Transformers (new)	Relay Room Annex (1)	Testing, IEEE-344-1987
Thermostats (new)	Control Room (2)	Testing, IEEE -344-1987
Relays (new)	Various	Testing, IEEE-344-1987
Timers (new)	Relay Room Annex (1)	Testing, IEEE-344-1987
Switches and indicators (new)	Control Room (2)	Testing, IEEE-344-1987
Air Conditioning Units (new)	Relay Room Annex Roof (1)	Testing, IEEE-344-1987

(1) Relay Room Annex

Elevations: Floor 271  
Roof 289

Spectra: Bounded by Ginna Station Seismic Upgrade Program, Auxiliary Structures Seismic Analysis, Addendum 1, March 12, 1981, Gilbert Associates, Inc. (see question #3 below).

(2) Control Room

Elevations: Floor 289  
Suspended Ceiling 301  
Roof 308

Spectra: Ginna Station Seismic Upgrade Program, Auxiliary Structures Seismic Analysis, Addendum 1, March 12, 1981, Gilbert Associates, Inc. (see response to question #3 below).

(3) Stairwell

Elevation: Floor 271

Spectra: Ginna Station Seismic Upgrade Program, Auxiliary Structures Seismic Analysis, Addendum 1, March 12, 1981, Gilbert Associates, Inc. (see question #3 below).

2. *The use of Reference 2.1.13, Institute of Electrical and Electronics Engineers IEEE 323-1983, "Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," is not endorsed by the NRC. IEEE 323-1974 or IEEE 323-2003 should be used. Please verify that the new motor control centers, breakers, distribution panels, cables and other electrical equipment associated with the CREATS and the CRECS will be qualified in accordance with IEEE-323-1974 or IEEE 323-2003.*

Response: All new safety related motor control centers, breakers, distribution panels, cables and other electrical equipment are being purchased Class 1E through vendors with a qualified Appendix B QA program and qualified to IEEE 323-1974.

3. *The Reference 2.2.3, Ginna Station Floor Response Spectra (FRS) Curves, is not clear. Is it the licensing basis FRS from the FSAR? Please provide the details.*

Response: No, the response curves illustrated in the UFSAR are based on those developed for the SEP program, and are considered historical. The ME-326 reference 2.2.3, Ginna Station Floor Response Spectra Curves, refers to the In-Structure Spectra developed by Gilbert Associates based on Reg. Guide 1.60 at .2g (SSE) and .08g (OBE) zero period ground acceleration and is referenced in Ginna UFSAR Section 3.7.3.7.5.1, General Analytical Procedures. The response spectra curves were used in the seismic upgrade piping program, in response to IE Bulletins 79-02 and 79-14, and are considered Ginna's licensing basis curves for future plant modifications. These curves were developed to support Engineering Work Request (EWR) 2512, which was reviewed by the NRC as described in NUREG-0821, Integrated Plant Safety Assessment Systematic Evaluation Program, R.E. Ginna Nuclear Power Plant, Section 3.3.2.1(4).

4. *In Section 12.4, Structural Load Criteria, provide justifications for the use of the following percentage numbers:*

- (A) Section 12.4.2, Live Load --- 25% of uniform live loads.
- (B) Section 12.4.5, Thermal Loads --- 2.5% of dead loads.
- (C) Section 12.4.6, Pipe Reactions --- 2.5% of dead loads.

- Response: A. Uniform live loads are used in normal and severe loading conditions. Twenty five percent (25%) of these loads are used in extreme loading conditions per Ginna UFSAR section 3.3.5.2.2.A, and Reference 5, page 5
- B. Per Reference 4, Section 3.4.3 and Reference 5, page 5
- C. Per Reference 4, Section 3.4.4 and Reference 5, page 5

5. *Explain why the Tornado and Missile Loads are not included in Section 12.4 of the Ginna Specification ME-326?*

Response: With the exception of the Air Conditioning (AC) Units mounted on the roof of the Annex, Ginna Spec ME-326 addresses only components located inside the Control Room and Annex where they are protected by the structure. The AC units are being designed to withstand design basis tornado wind loads. There is no requirement to protect them from tornado missile loads, since the revised dose analysis for the Tornado Missile Accident (TMA) indicates that CREATS operation is not required to meet the prescribed dose limits (see Reference 7).

6. *In Section 12.5, Structural Load Combinations and Acceptance Criteria, you stated that the subject criteria were approved by the NRC as part of Phase 1 of the Structural Upgrade Program.*

- a. *Provide a summary of the Phase 1 of the Structural Upgrade Program and the NRC approval reference.*

Response: The Structural upgrade program is described in detail in section 3.3.2 of the Ginna UFSAR. However, in summary, as part of the Systematic Evaluation Program (SEP), the NRC staff reviewed the design and construction of certain structures to determine their ability to resist the forces developed by straight winds and tornadoes, as well as seismic and flood protection. The SEP integrated review identified certain limiting structural elements, which were then addressed by RG&E as part of the Ginna Structural Upgrade Program. The Structural Upgrade Program consists of a two-phase structural re-analysis program followed by installation of required modifications identified as a result of the analysis. NRC acceptance is documented in Reference 5 and Reference 6.



- b. *Explain why pipe break loads and jet impingement loads were not included.*

Response: Other than the cooling refrigerant system (see # 8 below), the new CREATS system components do not include any high energy piping, nor are they located in an area where they could be affected by a high energy line break.

- c. *Explain why Thermal Loads( $T_d$ ), Pipe Reaction Loads( $R_d$ ), and Normal Wind Loads( $W_n$ ) were defined, but were not included in the Load Combinations.*

Response: With the exception of the roof mounted AC units (see #5 above), the components in question are enclosed in a structure, and operate within parameters, where these loads would not be relevant to the calculations. The loads were included as part of a generic design criteria but were not applied unless relevant to the specific design.

7. *In Section 12.4, you stated that the lateral earth pressure (H) exerted by the soil on the various structures and the buoyant force(F') of the design basis flood are not applicable to any of the scope of work described in specification ME-326. Yet, in the table in Section 12.5.3, these forces were considered for load combinations for foundation stability. Please explain the purpose of this table, and discuss the effects of the CREATS Modification Project on the factors of safety of the foundation stability.*

Response: The first sentence in section 12.5 contains the generic words, "... load combinations and acceptance criteria will be considered in evaluating any modification." Some loads are not being considered as explained below.

Lateral earth pressure (H) is not applicable because the configuration of the C/B annex does not expose walls to uneven earth pressure on opposite sides of walls. Walls below grade of the annex are exposed to earth on both sides.

Buoyant force (F') was considered but not included because adding mass to the building by installing new equipment will only increase the structure's design margin to resist buoyant forces.

8. *Explain why pipe break loads were not considered for piping and pipe supports in Section 12.6.2 and Section 12.7.*

Response: The CREATS cooling system is configured such that a break in the high pressure refrigerant line would not affect any safety related equipment other than CREATS. A rupture in one train of the cooling system is very unlikely to result in damage to the other redundant train because: 1) the high pressure piping is limited to less than one inch diameter 2) the internal energy is limited to that of less than 100 pounds of R-22 at operating pressure and 3) the two trains are configured as individual units in their own enclosures. Furthermore, the CREATS system would not be required to attain or maintain safe shutdown conditions in the unlikely event that both CREATS trains are damaged, because the control room cooling could be maintained by the normal nonsafety cooling system.

9. *Explain why documentation of seismic qualification of mechanical and electrical instrumentation and control equipment was not included as part of the design documents listed in Section 18.2.*

Response: Section 18.2 is not intended to be a comprehensive list of the required design documents. Specifically, the first line of section 18.2 reads "Design Documents provided by the vendor shall include, but are not limited to:" Seismic qualification and commercial grade dedication plans are included in the Required Documents List described in section 18.1.

Design Criteria - PCR # 2000-0024, Revision 1

1. *Sections 9.6 and 9.7, under Mechanical Requirements, clarify whether the requirements in Reference 3.32 (EWR 2512) shall be used for new piping and pipe supports, and the requirements in Reference 3.31(EWR 10182) shall be used for modification to existing piping and pipe supports, respectively. Provide a summary for each document and the NRC approval reference, and provide any differences in requirements in comparison to those delineated in Attachment B.*

Response: EWR 2512 is an internal RG&E document that directs/details the Ginna Station Seismic Upgrade Program. The purpose of the program is/was to upgrade certain seismic piping systems at Ginna Station to then current (late 1970's) requirements and to provide a seismic data base for use with future plant modifications. This document describes the piping upgrade program referenced in NUREG-0821, Integrated Plant Safety Assessment Systematic Evaluation Program, R.E. Ginna Nuclear Power Plant, Section 3.3.2.1(4). The

requirements in Attachment B of the Design Criteria are consistent with those in this document.

EWR 10182 is also an internal document that describes Mechanical/Structural Configuration Changes. It acts as a reference for the design of specific and limited classes of well defined changes, and allows configuration changes that do not alter the design or licensing basis. The load combinations and criteria are consistent with NUREG-0800, Standard Review Plan Section 3.8.4, and Appendix A of the Design Criteria.

2. *Section 9.8 referenced an Attachment C, but your submittal did not contain an Attachment C. Please clarify discrepancy.*

Response: This is a typographical error. The words "Attachment C" should read "Attachment A/B as appropriate."