



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

March 22, 1996

Dr. Robert C. Mecredy  
Vice President, Nuclear Operations  
Rochester Gas and Electric Corporation  
89 East Avenue  
Rochester, NY 14649

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT -  
R. E. GINNA NUCLEAR POWER PLANT (TAC NO. M92763)

Dear Dr. Mecredy:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application of November 5, 1992, as supplemented by letter dated June 19, 1995, requesting an exemption from Paragraphs I.D.3 and I.D.5 of Appendix K to Part 50 of Title 10 of the Code of Federal Regulations.

Paragraph I.D.3 requires that the refilling of the reactor vessel and the time and rate of reflooding of the core be calculated by an acceptable evaluation model (EM) that considers the thermal and hydraulic characteristics of the core and reactor system.

Paragraph I.D.5 requires that when (1) reflood rates are 1 inch per second or higher, the reflood heat transfer coefficients be based on applicable experimental data for unblocked cores, and (2) reflood rates are less than 1 inch per second during refill and reflood, heat transfer calculations be based on the assumption that cooling is only by steam.

The R. E. Ginna Nuclear Power Plant (Ginna) design relies on upper plenum injection (UPI) for the emergency core cooling system injection during the reflood phase of a large-break loss-of-coolant accident. UPI is therefore not a lower-flooding design, and the prescriptions in Paragraphs I.D.3 and I.D.5 do not apply. The EM described in WCAP-10924-P, Volume 1, Revision 1, Addendum 4, "Westinghouse UPI Model Improvements," dated August 1990, is an empirically verified model, approved by the staff, and is more directly applicable to the top-flooding situations at Ginna that satisfy the intent of Appendix K, Paragraphs I.D.3 and I.D.5.

9603260280 960322  
PDR ADOCK 05000244  
P PDR

**NRC FILE CENTER COPY**

CP-1

DF01

R. Mecredy

-2-

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by:

Allen R. Johnson, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosure: Environmental Assessment

cc w/encl: See next page

Distribution:

- Docket File
- PUBLIC
- PDI-1 Reading
- SVarga
- SShankman
- SLittle
- AJohnson
- RJones
- FOr
- OGC
- ACRS
- RCooper, RI
- LDoerflein, RI
- EJordan, T-4 D18

DOCUMENT NAME: G:\GINNA\GI92763.ENV

\*See Previous Concurrence

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	LA: PDI-1	PM: PDI-1	OGC*	D: PDI-1		
NAME	SLittle	AJohnson: smm	MYoung	SShankman		
DATE	03/22/96	03/22/96	03/15/96	03/22/96	03/ /96	

OFFICIAL RECORD COPY

R. Mecredy

-2-

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,



Allen R. Johnson, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosure: Environmental Assessment

cc w/encl: See next page

Dr. Robert C. Mecredy

R.E. Ginna Nuclear Power Plant

cc:

Peter D. Drysdale, Senior Resident Inspector  
R.E. Ginna Plant  
U.S. Nuclear Regulatory Commission  
1503 Lake Road  
Ontario, NY 14519

Robert Hargrove (5)  
Environmental Review  
Coordinator  
26 Federal Plaza  
New York, NY 10278

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

Mr. F. Williams Valentino, President  
New York State Energy, Research,  
and Development Authority  
2 Rockefeller Plaza  
Albany, NY 12223-1253

Charlie Donaldson, Esq.  
Assistant Attorney General  
New York Department of Law  
120 Broadway  
New York, NY 10271

Nicholas S. Reynolds  
Winston & Strawn  
1400 L St. N.W.  
Washington, DC 20005-3502

Ms. Thelma Wideman  
Director, Wayne County Emergency  
Management Office  
Wayne County Emergency Operations Center  
7336 Route 31  
Lyons, NY 14489

Ms. Mary Louise Meisenzahl  
Administrator, Monroe County  
Office of Emergency Preparedness  
111 West Fall Road, Room 11  
Rochester, NY 14620

UNITED STATES NUCLEAR REGULATORY COMMISSION

ROCHESTER GAS AND ELECTRIC CORPORATION

DOCKET NO. 50-244

R. E. GINNA NUCLEAR POWER PLANT

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering granting an exemption from Facility Operating License No. DRP-18, issued to Rochester Gas and Electric Corporation (RG&E or the licensee), for operation of the R. E. Ginna Nuclear Power Plant (Ginna), located in Wayne County, New York.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action is the granting of an exemption from Appendix K to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR Part 50), Paragraph I.D.3, "Calculation of Reflood Rate for Pressurized Water Reactors," and Paragraph I.D.5, "Refill and Reflood Heat Transfer for Pressurized Water Reactors."

The Ginna design relies on upper plenum injection (UPI) for the emergency core cooling system (ECCS) injection during the reflood phase of a large-break (LB) loss-of-coolant accident (LOCA). UPI is therefore not a lower-flooding design, and the prescriptions in Paragraphs I.D.3 and I.D.5 prescriptions do not apply. The evaluation model (EM) described in WCAP-10924-P, Volume 1, Revision 1, Addendum 4, "Westinghouse UPI Model Improvements," dated August 1990 is an empirically verified model, approved by the staff, and is more

directly applicable to top-flooding situations at Ginna that satisfy the intent of Appendix K, Paragraphs I.D.3 and I.D.5.

The proposed action is in accordance with the licensee's exemption request dated November 5, 1992, as supplemented by letter dated June 19, 1995.

The Need for the Proposed Action:

The licensee has requested the proposed action to support conversion from a 12-month fuel cycle to an 18-month fuel cycle (Cycle 26), which is scheduled to begin with the startup of the plant from the 1996 refueling outage on May 31, 1996. During Cycle 26, the plant will operate with different thermal-hydraulic characteristics and neutron (power) distribution in the core. Higher power distribution limits and larger peaking factors require an update of an ECCS EM that is acceptable to the staff and includes the effects of UPI. The licensee's submittal of November 5, 1992, as supplemented on June 19, 1995, references the EM used to perform an LB LOCA analysis for plants with UPI are described in WCAP-10924-P, Volume 1, Revision 1, Addendum 4, and gives the technical bases for the requested exemption for Ginna.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the proposed action and concludes that the proposed exemption would allow the licensee to use the EM that is described in WCAP-10924-P, Volume 1, Revision 1, Addendum 4, and has been approved by the staff. The staff has concluded that the empirically verified EM model is more directly applicable to top-flooding situations at Ginna, and thus satisfies the intent of Appendix K, Paragraphs I.D.3 and I.D.5.

The exemption will not result in any changes to the facility or the environment.

The R. E. Ginna Nuclear Plant reactor is designed to withstand the effects caused by a loss-of-coolant accident including the double ended severance of the largest pipe in the reactor coolant system. The reactor core and internals together with the safety injection system are designed so that the reactor can be safely shut down, the essential heat transfer geometry of the core preserved following the accident, and the long-term coolability maintained. The ECCS is designed to meet acceptance criteria which preclude fission product release to the environment in excess of the guideline values of 10 CFR Part 100. The acceptance criteria for the LOCA, as prescribed in 10 CFR 50.46, are

- (1) The calculated peak fuel element cladding temperature is below the limit of 2200° F,
- (2) The cladding temperature transient is terminated at a time when the core geometry is still amenable to cooling. The localized cladding oxidation of 17% are not exceeded during or after quenching,
- (3) The amount of hydrogen generated by fuel element cladding that reacts chemically with water or steam does not exceed an amount corresponding to interaction of 1% of the total amount of Zircaloy in the reactor,
- (4) The core remains amenable to cooling during and after the break, and
- (5) The core temperature is reduced and decay heat is removed for an extended period of time, as required by the long-lived radioactivity remaining in the core.

These criteria were established to provide significant margin in ECCS

performance following a LOCA. The ECCS is designed to meet acceptance criteria even when operating with the most severe single failure.

The anticipated impact of the plant on the environment was evaluated in the Staff's Final Environmental Statement (FES) dated December 1973. Subsequently, in preparation for the Atomic Safety and Licensing Board's (ASLB) hearing on the conversion of Provisional Operating License No. DPR-18 for the R. E. Ginna Nuclear Power Plant to a Full-Term Operating License, the NRC staff performed an Environmental Evaluation (EE) dated June 17, 1983, of the original FES. The staff EE did not identify any significant new environmental impacts or any significant changes from those identified previously in the FES.

The offsite exposure from releases due to postulated design basis accidents has been analyzed by the licensee in the RG&E Ginna Nuclear Power Plant Updated Final Safety Analyses Report (UFSAR). The results of these analyses were within the bounds of 10 CFR Part 100 and considered (1) various accidents, including loss-of-coolant accidents; (2) the radioactivity release calculated for each accident; (3) the assumed meteorological conditions; and (4) population distribution versus distance from the plant. The staff has concluded that neither the types of accidents nor the calculated radioactivity releases will change due to the proposed action. The site meteorology as defined in the UFSAR is essentially a constant. One parameter that would be dependent on the proposed action is the population size and distribution as it could vary with time; however, the projected increase in population densities, as addressed in the FES and EE, are minimal through the year 2009 and the proposed action will not significantly increase doses to the public. Due to

design conservatism, maintenance and surveillance programs, inspection programs and the plant Technical Specifications, operation for the remaining life of the plant consistent with the proposed action will have no significant environmental impact.

The proposed action will not increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released off site, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the NRC staff concludes that no significant radiological environmental impacts are associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not, however, affect nonradiological plant effluents and has no other environmental impact. Accordingly, the staff concludes that no significant nonradiological environmental impacts are associated with the proposed action.

Alternatives to the Proposed Action:

Since the Commission has concluded that no measurable environmental impacts are associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the proposed action. Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement for the R. E. Ginna Nuclear Power Plant.

Agencies and Persons Consulted:

In accordance with its stated policy, on April 11, 1995, the staff consulted with New York State official F. William Valentino, State Liaison Officer of the New York Energy, Research, and Development Authority, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

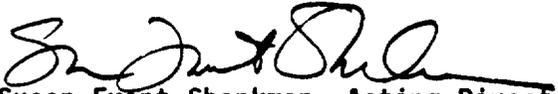
On the basis of the environmental assessment, the staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, it has determined that it will not prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated November 5, 1992, as supplemented by letter dated June 19, 1995, both of which are available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW.,

Washington, DC, and at the local public document room located at the Rochester Public Library, 115 South Avenue, Rochester, New York.

Dated at Rockville, Maryland, this 22th day of March 1996.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Susan Frant Shankman, Acting Director  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

R. Mecredy

-2-

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Allen R. Johnson, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosure: Environmental Assessment

cc w/encl: See next page

Distribution:

Docket File  
PUBLIC  
PDI-1 Reading  
SVarga  
LMarsh  
SLittle  
AJohnson  
RJones  
FOrr  
OGC  
ACRS  
RCooper, RI  
LDoerflein, RI  
EJordan, T-4 D18

DOCUMENT NAME: G:\GINNA\GI92763.ENV

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	LA:PDI-1	PM:PDI-1	OGC	D:PDI-1		
NAME	SLittle	AJohnson:smm	OGC	LMarsh & Shankman		
DATE	02/20/96	02/24/96	02/15/96	02/ /96	02/ /96	

OFFICIAL RECORD COPY