

# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: B605280224 DOC. DATE: 86/05/23 NOTARIZED: NO DOCKET #  
 FACIL: 50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester C 05000244  
 AUTH. NAME AUTHOR AFFILIATION  
 KOBER, R. W. Rochester Gas & Electric Corp.  
 RECIP. NAME RECIPIENT AFFILIATION  
 LEAR, G. E. PWR Project Directorate 1

SUBJECT: Responds to B60409 request for addl info re isolation devices, in order for NRC to complete review of SPDS. New field multiplexers seismically qualified & utilize input cards providing electrical isolation.

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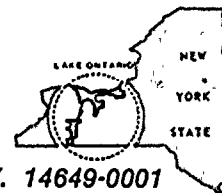








ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649-0001



ROGER W. KOBER  
VICE PRESIDENT  
ELECTRIC & STEAM PRODUCTION

TELEPHONE  
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May 23, 1986

Director of Nuclear Reactor Regulation  
Attention: Mr. George E. Lear, Chief  
PWR Project Directorate No. 1  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Safety Parameter Display System  
R. E. Ginna Nuclear Power Plant  
Docket No. 50-244

Dear Mr. Lear:

An NRC letter dated April 9, 1986 requested additional information concerning isolation devices in order for the Staff to complete their review of the Safety Parameter Display System (SPDS). The Ginna Station SPDS system utilizes field input cables that formerly terminated in the original plant process computer. The input cables now terminate at the field multiplexers of the new system, which are now in the same physical location as the old computer. The isolation devices provided in the Reactor Protection System (RPS) and Engineered Safety Features Actuation System circuits were not modified during installation of the SPDS.

The existing isolation devices were reviewed by the NRC Staff during the Systematic Evaluation Program (SEP) assessment of SEP Topic VII-1.A, Isolation of Reactor Protection System from Nonsafety Systems, Including Qualification of Isolation Devices. The stated objective of the Staff review was to verify that the Ginna reactor has a reactor protection system design which provides effective and qualified isolation of nonsafety systems from safety systems to assure that safety systems will function as required. The conclusion of the review, stated in a letter dated July 30, 1981 from Dennis M. Crutchfield to John E. Maier, was that "the Staff's position is that suitably qualified isolators have been provided at Ginna."

In order to assure that the RPS isolation devices are not subject to stresses more severe than anticipated in the original design, the new field multiplexers are seismically qualified and utilize input cards which provide electrical isolation sufficient to prevent any credible voltage excursion from propagating to the RPS inputs from other inputs via the multiplexer itself. All multiplexer outputs are fiber optic and, therefore, will not propagate spurious voltages from external sources.

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PDR ADCK 05000244  
PDR



Adol  
1/0



DATE May 23, 1986

TO Mr. George E. Lear

The only other conducting cables terminating at the multiplexers are the 120 VAC power supplies from the Technical Support Center Uninterruptable Power Supply (TSC UPS). These cables are routed with 120 VAC and lower voltage cables. Breakers and fuses are also provided to protect the multiplexers in the event of electrical faults. Therefore, this modification has not degraded the isolation provisions reviewed and approved by the NRC Staff under the SEP program and the Staff conclusion remains valid.

Very truly yours,

  
Roger W. Kober







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P. Shuttleworth w/Encl.  
PM w/Encl.

May 16, 1986

DOCKET NO(S). 50-244

Mr. Roger K. Kober, Vice President  
Electric and Steam Production  
Rochester Gas & Electric Corporation  
89 East Avenue  
Rochester, New York 14649

SUBJECT: R. E. GINNA NUCLEAR POWER PLANT

The following documents concerning our review of the subject facility are transmitted for your information.

- ☐ Notice of Receipt of Application, dated \_\_\_\_\_.
- ☐ Draft/Final Environmental Statment, dated \_\_\_\_\_.
- ☐ Notice of Availability of Draft/Final Environmental Statement, dated \_\_\_\_\_.
- ☐ Safety Evaluation Report, or Supplement No. \_\_\_\_\_, dated \_\_\_\_\_.
- ☐ Notice of Hearing on Application for Construction Permit, dated \_\_\_\_\_.
- ☐ Notice of Consideration of Issuance of Facility Operating License, dated \_\_\_\_\_.
- ☐ Monthly Notice; Applications and Amendments to Operating Licenses Involving no Significant Hazards Considerations, dated \_\_\_\_\_.
- ☐ Application and Safety Analysis Report, Volume \_\_\_\_\_.
- ☐ Amendment No. \_\_\_\_\_ to Application/SAR dated \_\_\_\_\_.
- ☐ Construction Permit No. CPPR- \_\_\_\_\_, Amendment No. \_\_\_\_\_ dated \_\_\_\_\_.
- ☐ Facility Operating License No. \_\_\_\_\_, Amendment No. \_\_\_\_\_, dated \_\_\_\_\_.
- ☐ Order Extending Construction Completion Date, dated \_\_\_\_\_.
- ☒ Other (Specify) Biweekly Notice covering period April 9, 1986. Expiration date  
for hearing requests and comments May 9, 1986.

Division of PWR Licensing-A  
Office of Nuclear Reactor Regulation

Enclosures:  
As stated

cc: See next page

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SURNAME	P. Shuttleworth						
DATE	5/16/86						



1. *Phylogenetic relationships*—The phylogenetic relationships among the 12 species of *Phragmites* were determined using the parsimony method of Farris (1993) with the computer program PAUP (Phylogenetic Analysis Using Parsimony; version 3.11; Illinois Natural History Survey, Champaign, IL). The parsimony method was chosen because it is the most commonly used method for determining phylogenetic relationships (Farris 1993). The parsimony method was used to determine the most parsimonious tree (MPT) for the 12 species of *Phragmites*. The MPT was determined by using the heuristic search method of Farris (1993) with the computer program PAUP. The MPT was determined by using the heuristic search method of Farris (1993) with the computer program PAUP. The MPT was determined by using the heuristic search method of Farris (1993) with the computer program PAUP.

<sup>a</sup> Values are means ± SD.

Figure 1 consists of nine scatter plots arranged in a 3x3 grid. The top row shows the relationship between the number of children and the number of mothers for the first birth. The middle row shows the relationship for the second birth. The bottom row shows the relationship for the third birth. Each plot has 'Number of children' on the x-axis and 'Number of mothers' on the y-axis. The plots show a positive correlation between the number of children and the number of mothers, with the correlation being stronger for the first birth and weaker for the second and third births.

[illegible]

**Abstract**



Rochester Gas and Electric Corporation

R. E. Ginna Nuclear Power Plant

cc:

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- ☐ Order Extending Construction Completion Date, dated \_\_\_\_\_.
- ☒ Other (Specify) Biweekly Notice covering period March 12, 1986. Expiration date  
for hearing requests and comments April 11, 1986.

Division of PWR Licensing-A  
Office of Nuclear Reactor Regulation

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- ☐ Facility Operating License No. \_\_\_\_\_, Amendment No. \_\_\_\_\_, dated \_\_\_\_\_.
- ☐ Order Extending Construction Completion Date, dated \_\_\_\_\_.
- ☒ Other (Specify) Biweekly Notice covering period February 26, 1986. Expiration date for hearing requests and comments March 28, 1986.

Division of PWR Licensing-A  
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DATE➤	5/16/86						



[illegible]

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[illegible][illegible][illegible][illegible]

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthaler and Whistler (1973).

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Condition	10 years	12 years	14 years
1	~85%	~75%	~65%
2	~75%	~65%	~55%
3	~65%	~55%	~45%
4	~55%	~45%	~35%
5	~45%	~35%	~25%

the 1990s, the number of people in the world who are under 15 years of age is expected to increase by 1.2 billion, from 1.1 billion in 1990 to 2.3 billion in 2010. The number of people aged 65 and over is expected to increase by 1.1 billion, from 0.4 billion in 1990 to 1.5 billion in 2010. The number of people aged 15-64 is expected to increase by 1.1 billion, from 1.1 billion in 1990 to 2.2 billion in 2010. The number of people aged 65 and over is expected to increase by 1.1 billion, from 0.4 billion in 1990 to 1.5 billion in 2010. The number of people aged 15-64 is expected to increase by 1.1 billion, from 1.1 billion in 1990 to 2.2 billion in 2010.



Rochester Gas and Electric Corporation .

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