

REGULATORY DOCKET FILE COPY

Docket No. 50-244

Mr. Leon D. White, Jr.
Vice President
Electric and Steam Production
Rochester Gas and Electric Corporation
89 East Avenue
Rochester, New York 14649

FEB - 1980

FEB 13 1980

Dear Mr. White:

The Commission has issued the enclosed Amendment No. 31 to Provisional Operating License No. DPR-18 for the R. E. Ginna Nuclear Power Station. This amendment responds to a portion of your application dated December 14, 1979 (transmitted by your letter dated December 20, 1979), and is in response to your letter dated December 14, 1979, which proposed some additional security measures.

The amendment incorporates a new Paragraph 2.B(2)(a) into License No. DPR-18 which authorizes Rochester Gas and Electric Corporation to receive and store four (4) mixed oxide fuel assemblies. The amendment also revises Paragraph 2.E of the license and thereby approves the additional security measures for unirradiated mixed oxide fuel assemblies stored outside the plant containment.

This amendment will in no way prejudice our future decision on the use of this mixed oxide fuel in the R. E. Ginna Nuclear Power Station.

Copies of our Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Donald L. Ziemann
Donald L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures:

1. Amendment No. to
License No. DPR-18
2. Safety Evaluation
3. Notice

cc w/enclosures:

See next page

See Previous Yellow

OFFICE	DOR: ORB #2	DOR: A/DIR				
SURNAME	DLZiemann	DEisenhut				
DATE	2/13/80	2/13/80				8008060689

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Mr. Leon D. White, Jr.
Vice President
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Rochester Gas and Electric Corporation
89 East Avenue
Rochester, New York 14649

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The Commission has issued the enclosed Amendment No. to Provisional Operating License No. DPR-18 for the R. E. Ginna Nuclear Power Station. This amendment responds to a portion of your application dated December 14, 1979 (transmitted by your letter dated December 20, 1979), and is in response to your letter dated December 14, 1979, which proposed some additional security measures.

The amendment incorporates a new Paragraph 2.B(2)(a) into License No. DPR-18 which authorizes Rochester Gas and Electric Corporation to receive and store four (4) mixed oxide fuel assemblies.

The amendment also revises Paragraph 2.E of the license and thereby approves the additional unirradiated mixed oxide fuel assemblies outside the plant containment.

Copies of our Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures:

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2. Safety Evaluation
3. Notice

cc w/enclosures:
See next page

not required - official input rec'd 1/25/80
Note change E.K. 1/30/80 or Amendment, see "p" 183

OFFICE	DOR:ORB #2	DOR:ORB #2	NMSS	OELD	DOR:ORB #2	DOR:ORB #2
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DATE	1/28/80	1/28/80	1/28/80	1/31/80	1/12/80	2/3/80

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Mr. Leon D. White, Jr.

- 2 -

February 13, 1980

cc w/enclosures:

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Rochester, New York 14604

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Director, Technical Assessment
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Office of Radiation Programs
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Agency
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U. S. Environmental Protection
Agency
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ROCHESTER GAS AND ELECTRIC CORPORATION

DOCKET NO. 50-244

R. E. GINNA NUCLEAR POWER PLANT

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 31
License No. DPR-18

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Rochester Gas and Electric Company (the licensee) dated December 14, 1979 (transmitted by letter dated December 20, 1979), and the licensee's filing dated December 14, 1979, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application and the licensee's filing, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, Provisional Operating License No. DPR-18 is hereby amended by adding a new Paragraph 2.B(2)(a) and by revising Paragraph 2.E to read as follows:

2.B(2)(a) Pursuant to the Act and 10 CFR Part 70, to receive and store four (4) mixed oxide fuel assemblies in accordance with the licensee's application dated December 14, 1979 (transmitted by letter dated December 20, 1979).

2.E The licensee shall maintain in effect and fully implement all provisions of the Commission-approved physical security plan, including amendments and changes made pursuant to the authority of 10 CFR 50.54(p). The approved Security Plan consists of 10 CFR 2.790(d) information, collectively titled, "R. E. Ginna Nuclear Power Plant Unit 1 Security Plan," dated January 19, 1978, as revised December 8, 1978 and December 14, 1979.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Date of Issuance: February 13, 1980



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 31 TO PROVISIONAL OPERATING LICENSE NO. DPR-18
ROCHESTER GAS AND ELECTRIC CORPORATION
R. E. GINNA NUCLEAR POWER PLANT
DOCKET NO. 50-244

1.0 INTRODUCTION

By application dated December 14, 1979 (transmitted by letter dated December 20, 1979), the Rochester Gas and Electric Corporation (RG&E) applied for a license amendment to authorize the receipt and storage of four mixed oxide fuel assemblies in the storage racks in the R. E. Ginna spent fuel pool. By letter dated December 14, 1979 RG&E submitted proposed changes to the Security Plan, which address additional measures to be implemented to meet the present requirements of 10 CFR Part 73 for the physical protection of mixed oxide fuel assemblies.

2.0 DISCUSSION

The spent fuel storage racks at the Ginna plant are a Wachter Associates design which used square, type 304 stainless steel containers to hold the fuel assemblies in a checkerboard pattern, i.e., fuel assemblies located in every other storage lattice position with the alternate positions filled only with water. Even though the square fuel assembly and water containers are the same size, (i.e., of an outside dimension of 8.43 inches) RG&E states that it is not possible to insert a fuel assembly into a water container because the opening at the top of the water container is restricted by lead-in guides which is too small to admit a fuel assembly. The nominal thickness of the stainless steel which was used to make these square containers is 0.090 inches, so that the thickness of stainless steel between all adjacent containers is 0.180 inches. The 8.43 inches square containers are held in a close packed array. This results in a mean distance between fuel assembly centers of 11.92 inches and a fuel assembly volume fraction in the storage rack of 0.426.

In the original criticality analysis for these fuel racks RG&E assumed that the highest fissile fuel enrichment would be 3.5 weight percent U-235. This enrichment in a 14 x 14 Westinghouse fuel assembly results in a maximum fissile fuel density of 39.0 grams of U-235 per axial centimeter of fuel assembly.

In the criticality analysis for the mixed oxide fuel assemblies RG&E used the actual fuel loadings. These give an average enrich-

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ment of 3.17 percent fissile fuel of which about 0.7 percent is uranium 235, 2.35 percent is plutonium 239, and 0.11 percent is plutonium 241. These enrichments in these 14 x 14 Westinghouse fuel assemblies result in a density of 35 grams of fissile fuel per axial centimeter of fuel assembly.

Pickard, Lowe and Garrick, Inc. (PLG) of Washington, D. C., performed the nuclear analysis for RG&E. They used their version of the LEOPARD computer program to generate macroscopic cross sections for input to four energy group, diffusion theory calculations. These were made with the PDQ-7 program. The LEOPARD program is a derivative of the MUFT and SOFOCATE programs, which were developed for the Atomic Energy Commission in the late 1950's along with the PDQ diffusion theory program. RG&E's report provides the results of criticality calculations which were made with these methods. Included in these were calculations of critical experiments with $\text{PuO}_2\text{-UO}_2$ fuel. From these calculations an uncertainty of $0.0163 \Delta k$ was established for the $\text{PuO}_2\text{-UO}_2$ fuel at the 95 percent confidence level.

PLG calculated the k_{eff} of an infinite array of mixed oxide fuel assemblies in the Ginna spent fuel pool to be 0.87. When the calculational uncertainty is added this base case k_{eff} is <0.89 . PLG states that the effect of possible perturbations to this base case would be essentially the same as that previously determined for the uranium dioxide fuel.

3.0 EVALUATION

3.1 RECEIPT AND STORAGE OF MATERIAL

In the previous parametric calculations for off-design conditions for uranium dioxide fueled assemblies in these racks PLG considered the minimum thickness of stainless steel, the minimum spacing between fuel assemblies, an increase in temperature to 200°F , an increased number of mesh points in the PDQ calculation, the axial neutron leakage, and the inclusion of the inconel fuel assembly spacer grids in the calculation. PLG found that the net result of all of these effects was essentially nil. There is no reason to believe this result would be significantly different for these mixed oxide fuel assemblies. Hence, the maximum calculated k_{eff} for these mixed oxide assemblies is less than 0.89. This is the same as it was for the uranium dioxide fuel assemblies.

Based on the above, we find that all factors that could affect the neutron multiplication factors in this pool have been conservatively accounted for and that the maximum neutron multiplication factor in this pool with these mixed oxide fuel assemblies in the racks is within the R. E. Ginna Technical Specification limit and well within the Standard Technical Specification limit of 0.95.

We find that when any number of the mixed oxide fuel assemblies, as described in this evaluation, are put into the Ginna spent fuel racks the k_{eff} will be less than the 0.95 limit. We have also re-examined the various spent fuel pool postulated accidents and have concluded that the consequences of these accidents are not changed by the inclusion of four MOX unirradiated fuel assemblies. We, therefore, find the request to receive and store four mixed oxide fuel assemblies acceptable. This conclusion will in no way prejudice our future decision on the use of this MOX fuel in the R. E. Ginna Nuclear Power Station.

3.2 SECURITY

We have reviewed the additional security measures proposed by RG&E letter of December 14, 1979. Based on this review we conclude that the measures described, when fully implemented in conjunction with the existing Security Plan, whenever unirradiated mixed oxide fuel assemblies are stored outside the plant containment, are acceptable. The changes submitted as enclosures to RG&E letter of December 14, 1979 are being withheld from public disclosure in accordance with Section 10 CFR Part 2.

4.0 ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

We have concluded, based on the considerations discussed above, that:

- (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration,
- (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and
- (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date:

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-244ROCHESTER GAS AND ELECTRIC CORPORATIONNOTICE OF ISSUANCE OF AMENDMENT TO PROVISIONAL
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 31 to Provisional Operating License No. DPR-18, to Rochester Gas and Electric Corporation (the licensee), which revised the license for operation of the R. E. Ginna Plant (facility) located in Wayne County, New York. The amendment is effective as of its date of issuance.

The amendment authorizes the licensee to receive and store four (4) mixed oxide fuel assemblies. The amendment also approves the additional security measures required for storage of unirradiated mixed oxide fuel assemblies outside the plant containment.

The application for the amendment and the licensee's security filing comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The licensee's filing dated December 14, 1979, is being withheld from public disclosure pursuant to 10 CFR §2.790(d). The withheld information is subject to disclosure in accordance with the provisions of 10 CFR §9.12.

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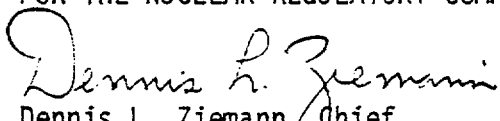
- 2 -

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated December 14, 1979 (transmitted by letter dated December 20, 1979), (2) Amendment No. 31 to License No. DPR-18, including the Commission's letter of transmittal, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Rochester Public Library, 115 South Avenue, Rochester, New York 14627. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 13th day of February 1980

FOR THE NUCLEAR REGULATORY COMMISSION


Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Four Mixed Oxide Fuel Assembly
Concluding security changes submitted
by letter dated 12-14-79 Date: 2/13/80
William O. Miller, Chief License Fee Management Branch, ADM Amended Form Date: 2/13/80

FACILITY AMENDMENT CLASSIFICATION - DOCKET NO(S). 50-244

Licensee: Rochester Gas

Plant Name and Unit(s): Pinna

License No(s): DPR-18 Mail Control No: 79/2280198

Request Dated: 12/14/79 (Ampl) 12/20/79 (ltr) Fee Remitted: Yes ☒ No ☐

Assigned TAC No: ~~12440~~ (or 12462?)

Licensee's Fee Classification: Class I ☐, II ☐, III ☐, IV ☒, V ☐, VI ☐, None ☐ Check # 086765

Subject: Amendment No. 31 Date of Issuance February 13, 1980

- ☐ 1. This request has been reviewed by DOR/DPM in accordance with Section 170.22 of Part 170 and is properly categorized.
- ☐ 2. This request is incorrectly classified and should be properly categorized as Class _____. Justification for classification or reclassification: _____
- ☐ 3. Additional information is required to properly categorize the request: _____
- ☐ 4. This request is a Class _____ type of action and is exempt from fees because it:
- (a) _____ was filed by a nonprofit educational institution,
 - (b) _____ was filed by a Government agency and is not for a power reactor,
 - (c) _____ is for a Class _____ (can only be a I, II, or III) amendment which results from a written Commission request dated _____ for the application and the amendment is to simplify or clarify license or technical specifications, has only minor safety significance, and is being issued for the convenience of the Commission, or
 - (d) _____ other (state reason therefor): _____

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Shea

Jennis L Zervani

Division of Operating Reactors/Project Management

- ☐ THE INITIAL FEE DETERMINATION HAS BEEN REASSESSED AND IS HEREBY AFFIRMED _____.
- ☐ The above request has been reviewed and is exempt from fees.

LFMB 6/78 Attached: 12/14 ampl. + 12/20/79 ltr. William O. Miller, Chief License Fee Management Branch Date D. Matthews, NMS agrees by telephone discussion with this position. 4/8/80