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

ENVIRONMENTAL EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO THE CONVERSION OF THE

PROVISIONAL OPERATING LICENSE TO A FULL-TERM OPERATING LICENSE

ROCHESTER GAS AND ELECTRIC CORPORATION

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-~~255~~-244

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1.0 INTRODUCTION

The R. E. Ginna Nuclear Power Plant (Ginna) is located about 20 miles east of Rochester on the south shore of Lake Ontario in the Town (township) of Ontario, Wayne County, New York.

The Atomic Energy Commission's* (AEC or the Commission) Directorate of Licensing (the staff) issued a provisional operating license to the Rochester Gas and Electric Corporation (RG&E), the licensee, for the Ginna Plant on September 19, 1969. The license was amended on March 1, 1972, to allow operation at power levels up to 1,520 MWt. Since that time, Ginna has on occasion operated at or near that power level.

Pursuant to Section A of revised Appendix D** of 10 CFR 50, the licensee submitted to the Director of Regulation, on August 15, 1972, an environmental report. The revised regulation further required that the Director of Regulation, or his designee, analyze the report and prepare a detailed statement of environmental considerations. It is within this framework that a Final Environmental Statement (FES) (Ref. 1) related to the operation of the Ginna plant (Docket No. 50-244) was issued by the staff in December 1973.

The proposed action is the conversion of the Provisional Operating License (POL) No. DPR-18, to a Full-Term Operating License (FTOL). The FES was issued in support of this proposed action. However, the license conversion process was delayed due to the inception of the Systematic Evaluation Program (SEP). The SEP is a program to review the designs of older operating nuclear plants to reconfirm and document their safety.

In a letter dated August 6, 1982 (Ref. 2), the licensee was requested to review the FES for significant changes to the Ginna facility or the environs that would affect the original conclusions. The staff has reviewed the FES and the licensee's September 10, 1982 submittal (Ref. 3) to determine if an FES supplement is necessary. Some sections of the FES have not been specifically addressed in this Environmental Evaluation as they have not been altered. The staff's review has determined that in the context of current analytical procedures and rules, there would be no significant environmental impacts beyond those previously identified and evaluated in the environmental impact statement, prepared in conjunction with the proposed conversion of the POL to an FTOL. The bases for this conclusion are set forth below.

2.0 HISTORICAL SITES

The FES indicated that the nearest National Register historic properties were located in Rochester, NY., approximately 20 miles from the Ginna reactor. Updated information indicates the presence of Heritage Square, a site listed on the National Register, located on Ontario Center Road approximately 1.5 miles southeast of the Ginna site.

*NRC's predecessor
**Currently known as 10 CFR Part 51.

Present Staff Evaluation

Heritage Square is not physically impacted by the operation of the plant. Because of its relatively low profile, plant structures probably do not present an annoying visual impact to users of Heritage Square. The staff's conclusion in the FES was that potential adverse impacts occurring offsite would be confined to traffic to and from the plant site and occasional maintenance on the substation, transmission lines, and right-of-way. This conclusion is still valid.

3.0 ENVIRONMENTAL ASPECTS OF OPERATION OF THE PLANT AND TRANSMISSION FACILITIES

Based on its environmental review, the Staff concluded that there would be several adverse environmental affects resulting from the operation of Ginna. These conclusions are documented in the FES. Review by the staff of more recent information has not resulted in identification of any new issues. The discussion which follows gives an update of the issues unresolved in 1973 and of specific staff recommendations. Outstanding contentions from the original hearing are also discussed.

In determining the potential affects of the proposed issuance of an FTOL, the Staff re-examined the environmental impact of operation of the Ginna Plant as discussed in the FES. This re-examination included an evaluation of whether previously identified environmental impacts would be changed in any way should an FTOL be issued. The impacts reported in the 1973 FES are restated below and are followed by the present Staff evaluation of those impacts associated with the proposed action to issue an FTOL.

There were several issues outstanding at the time of FES issuance. The water quality related issues were: fish impingement on the cooling water intake screens; thermal effects to biota in the receiving water; chlorine releases to the receiving water; and, compliance with thermal standards. The terrestrial issues were: presence of endangered and threatened species; land use near the plant; terrestrial ecology; and, construction of transmission right-of-ways. The resolution of these issues was to require the utility to monitor the environment during operation and to propose mitigation plans as necessitated by data.

Subsequent to the issuance of the FES, the Environmental Protection Agency (EPA) has developed regulations and procedures for implementation of Clean Water Act provisions applicable to aquatic aspects of nuclear steam electric generating stations. The Clean Water Act procedures apply to and constrain the major impacting features of the NRC licensed projects. The NRC Atomic Safety and Licensing Appeal Board decided in the Yellow Creek case (ALAB-515) that the NRC did not have the authority

for including any license conditions of its own for the protection of the aquatic environment because the Clean Water Act placed full responsibility for these matters with the Environmental Protection Agency. The following discussion of water quality issues relies on the assessment conducted for and the requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued by the State of New York for Ginna.

3.1 Fish Impingement

In the 1973 FES for Ginna the Staff stated in the Summary and Conclusions Section that:

> "Impingement of fishes on the intake screens could cause some losses to the fish population, particularly in late fall, winter, and late spring."

On the basis of this conclusion the staff required that certain monitoring programs be included in the license.

> "The applicant will conduct a program to determine the magnitude and significance of fish impingement on the traveling screens and, if found necessary as a result of the study, modify the system to reduce or eliminate the problem."

Present Staff Evaluation

The monitoring program outlined above was not required by the NRC because the FTOL, to which it would have been a condition, was not granted. However, fish impingement monitoring was conducted at Ginna as part of the requirements of the NPDES Permit issued under the Clean Water Act. This permit was issued on April 1, 1977 by the EPA but enforcement responsibility was subsequently transferred to New York State under the State Pollution Discharge Elimination System (SPDES) program. The fish impingement program results are available in the report entitled "1977 Impingement Program Analysis Report" (Ref. 4). Region 8 Division of Fish and Wildlife staff of the New York State Department of Environmental Conservation (NYS DEC) reviewed the impingement report (as required under Section 316b of the Clean Water Act) for renewal of the NPDES permit. The Regional Fish and Wildlife staff concluded that impingement rates were not significant enough to require modifications to the intake structure at this time. However, they felt that operational procedures such as spring maintenance shutdowns, should be continued to prevent peak alewife impingement and RGE should continue to investigate operational procedures to reduce impacts on nearby fish populations. They also indicated that impingement monitoring should continue. The recommendations of the Regional Fish and Wildlife Division have been included in the draft renewal of the SPDES permit. According to permit procedures, an opportunity for a public hearing will be provided prior to issuance of the new permit.

The NRC staff concludes on the basis of the review performed by the NYS DEC Division of Fish and Wildlife and the requirements now in the present permit (or proposed for the new permit) that fish impingement at Ginna will have minimal effects on nearby fish populations.

3.2 Thermal Effects

In the 1973 FES the staff concluded that:

> "Attraction of fishes to the thermal plume in winter accompanied by plant shutdowns could produce some cold-shock mortalities."
>
> and
>
> "The applicant will plan scheduled plant shutdowns in a manner to reduce the cold-shock effect on fish resulting from the cooling-water discharge."

A contention on this matter has been filed with the Hearing Board as follows:

> The NEPA analysis for the facility is inadequate because it fails to adequately consider the effect on cold-shock on lake biota resulting from emergency shutdown of the facility, and because it fails to adequately consider the effect of cold-shock on lake biota as a result of recirculation of discharge water into the intake water during the winter when lake ambient temperature falls below 37°F.

Present Staff Evaluation

No monitoring of cold-shock mortalities have been required by the NRC. However, the licensee conducted a study to determine the effects of a winter shutdown on fish residing in the heated discharge plume. This report entitled "A Biological Assessment of a Power Plant Shutdown During Winter" (Ref. 5) was prepared by the licensee to address these issues. Although the staff could not find a specific review of the cold-shock report by the NYS DEC Division of Fish and Game, the DEC overall conclusion is that operation of the plant has not significantly impacted the fish and wildlife populations and continued operation under conditions established in the SPDES Permit should not impact fish and wildlife populations significantly (Ref. 6). The NRC will rely on the conditions of the SPDES permit to ensure that cold-shock will not create significant environmental impact.

3.3 Chlorine Releases

The FES analysis of the releases of chlorine biocide resulted in the proposed license condition that:

"The applicant will monitor and control the use of chlorine such that excessive damage to aquatic biota does not occur." (FES p. vi).

Present Staff Evaluation

No NRC requirement to monitor chlorine has been placed on the RG&E since issuance of the FES. RG&E has monitored and controlled the use of chlorine. Based on operating experience the licensee has found that the use of chlorine can be decreased. At this time, less than 2,000 gallons of sodium hypochlorite are used per year and application is made twice per week over a nine month per year schedule.

The FES indicated that as much as 83,000 gallons of chlorine could be used per year to control algal growth in the condensers. Usage at that time was to inject chlorine at a rate of 3-4 gpm for 20 minutes every 4 hours in summer and every 8 hours during winter. This was expected to result in a discharge concentration of residual chlorine of 0.3 ppm (0.3 mg/l) at the canal discharge point. The SPDES Permit currently restricts the use of residual chlorine to 0.3 mg/l average daily discharge and a maximum of 0.5 mg/l. Although this is about the same average discharge concentration as analyzed in the FES, the overall use of chlorine and the amount of time chlorination is used is much less than that reviewed in the FES. With the reduction in chlorine usage employed by the licensee and the restrictions of the SPDES Permit the staff concludes that the environmental effects from chlorine discharge will not be significant. The NRC will rely on the conditions of the SPDES permit to ensure that biocide usage will not create significant environmental impact.

3.4 Thermal Standards

Contention D to Ginna hearing on the FTOL conversion states that:

"The Applicant is in violation of applicable Federal and New York State water quality standards in that it does not possess an exemption for the discharge of water at temperatures of 23.4°F above ambient..."

Present Staff Evaluation

Compliance with water quality standards is now covered by the NPDES permit No. NY0000493 issued on April 1, 1977. Responsibility for this permit has been transferred from EPA to NYS under the SPDES program. The renewal of this permit was applied for in October 1981. The permit includes application for a thermal discharge variance (316a of the Clean Water Act). A

demonstration that a less stringent limit would adequately protect the aquatic community has been made by the applicant to support the application for the variance. The demonstration report is entitled, "Ginna Nuclear Power Plant 316(a) Demonstration Supplement NPDES Permit." The current SPDES permit allows an increase in discharge temperature over ambient of 28°F and a maximum discharge temperature of 102°F. The Regional Fish and Wildlife Division has not yet approved the 316(a) variance. The thermal discharge requirements including the 316(a) will be reviewed by NYS as part of the permit renewal. The permit renewal process allows for public hearings on contested issues. The NRC will rely on the NYS-SPDES permitting process for disposition of the thermal issues.

3.5 Endangered and Threatened Species

On September 2, 1982, the NRC notified the U.S. Fish and Wildlife Service (FWS) area office in Newton Corner, Massachusetts, of this proposed FTOL action and review of the 1973 Environmental Statement for the Ginna Nuclear Power Plant (Ref. 7). This letter requested that the NRC be notified of any federally listed or proposed endangered or threatened plant or animal species in the vicinity of the Ginna Nuclear Power Plant. The FWS responded on September 28, 1982 (Ref. 8) notifying the NRC that except for occasional transient species, no federally listed or proposed threatened or endangered species under their jurisdiction are known to exist in the project impact area. The letter states that the NRC has satisfied the requirements of Section 7(c) of the Endangered Species Act.

The NYS DEC has its own list of endangered species which lists the bog turtle (Clemmys muhlenbergi) as endangered. The licensee, in a letter to NRC dated September 10, 1982, states that there may be potential bog turtle habitat on the site, however, no bog turtles have ever been seen or reported at Ginna. To check on the possibility of bog turtles occurring on the Ginna site, John Baylor of the Bronx Zoo, Bronx, New York (an authority on bog turtles), was contacted by telephone by NRC staff on October 25, 1982. Mr. Baylor stated that bog turtles do not occur on or near the Ginna site.

3.6 Land Use

In the 1973 Ginna FES (Section 2.1) it is stated that the site contains 338 acres with the site boundaries being shown in Figure 2.2 of the FES. Since 1973 the site has been increased by 150 acres and the new site boundaries are presented in Figure 3.1. Most of the additional acres are west of the original site between Lake Ontario and Lake Road. A small area has also been acquired south of the switchyard. The land use of the 150 acres has not changed since acquisition by RG&E, they remain primarily in orchards and general agricultural use.

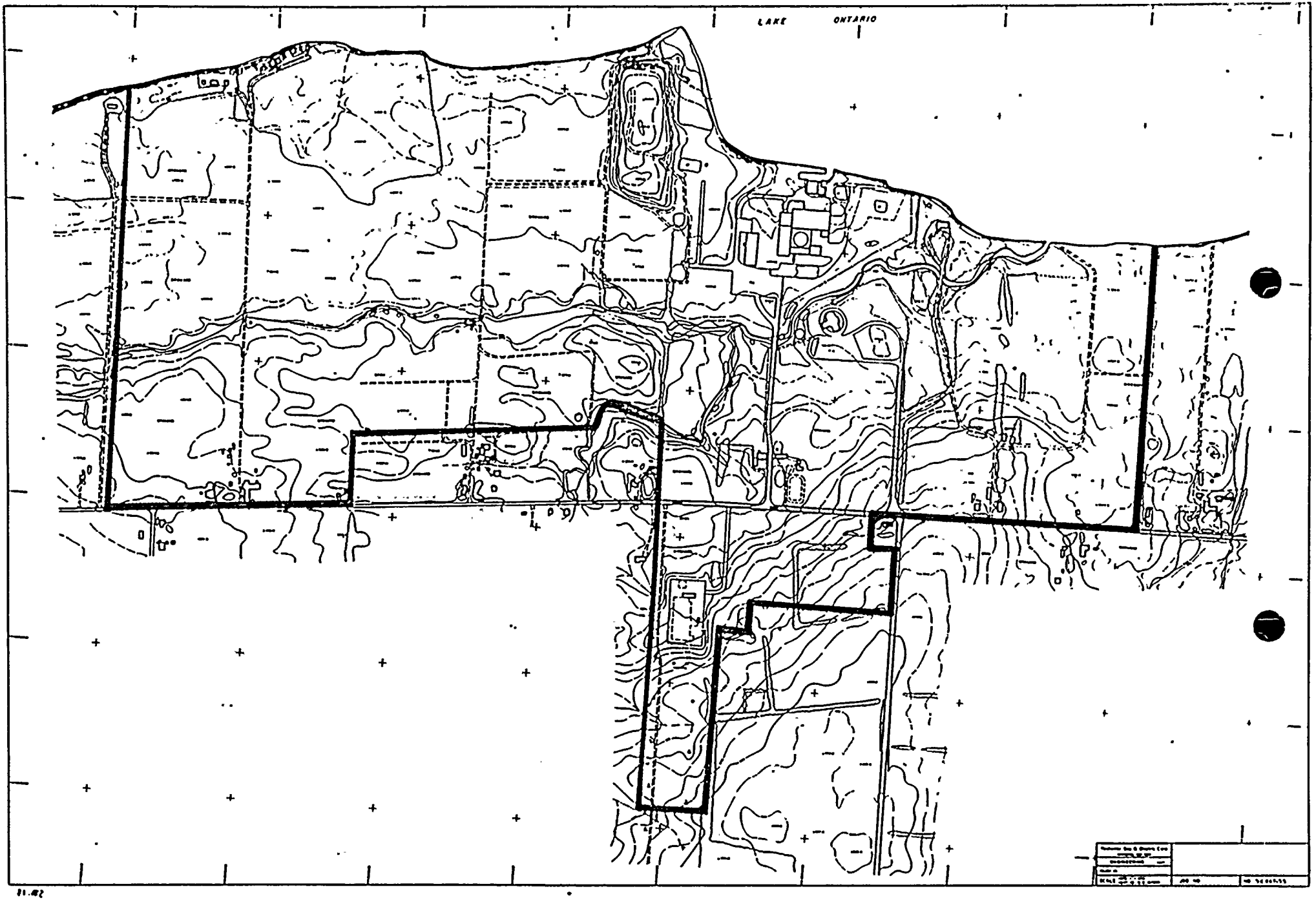

FIGURE 3.1

3.7 Terrestrial Ecology

Natural color aerial photographs of the Ginna site taken by an NRC staff contractor in 1972 and 1980 were examined. There are no indications of large habitat changes or of severe soil erosion between photographs. Therefore, except for natural ecological succession, no habitat modifications were detected which would indicate significant changes in the plant and animal populations.

3.8 Transmission Facilities

In addition to the four 115-kV overhead transmission lines described in Section 3.8 of the 1973 FES, one additional overhead 115-kV transmission line has been constructed on the east side of the cleared right-of-way from the plant substation to the Fruitland substation, a distance of about 3.5 miles. Because the new line was built in an existing right-of-way, there was no additional environmental impact.

The natural vegetation in the transmission line right-of-way is being maintained with the use of EPA approved herbicides. These herbicides are selectively applied, as needed, every 3-5 years as a foliar spray to stumps or the basal portion of young, and therefore small, tree species. This differs with the FES Section 5.4.1 which states that transmission line corridor is maintained by mechanical clearing. The application of approved herbicides as basal spray should result in a negligible environmental impact.

3.9 New York State Coastal Management Program (CMP)

According to the "State of New York Coastal Management Program and Final Environmental Impact Statement" page II-3-4 #3, "All existing steam-electric generating facilities of 50 megawatts or more, --- if coastal waters are used for cooling or generation purposes, were included within the coastal boundary." The Ginna Nuclear Power Plant is rated at 490 MWe and uses coastal waters for cooling. It, therefore, meets the criteria for inclusion in the coastal boundary. According to the CMP page II-9-1 "The projects which meet one of the following two criteria have been determined to be projects for which a substantial amount of time, money and effort have been expended, and will not be subject to New York State's Coastal Management Program and, therefore, will not be subject to review pursuant to the Federal consistency procedures of the Federal Coastal Zone Management Act of 1972 as amended: (1) Those projects identified as grandfathered pursuant to State Environmental Quality Review Act at the time of its enactment in 1976; and (2) those projects for which a final Environmental Impact Statement has been prepared prior to the effective date of the Department of State Part 600 regulations [see Appendix A, DOS Consistency Regulations, NYCRR title 19, Part 600, 5600.3(4)]." Because the Final Environmental Statement for Ginna was

prepared (December 1973) prior to the effective date of the Department of State Part 600 regulations, the Ginna site is not subject to review pursuant to the Federal consistency procedures as amended.

3.10 Flood Plain Management

The Ginna plant is located on the south shore of Lake Ontario and between the Lake and Deer Creek. The revetment that protects the plant from Lake Ontario surges is in the 100 year floodplain. The length of the revetment is small in comparison to the Lake Shore and would not induce any significant increase in surge elevation on either side of the revetment.

The 1 percent chance per year (100 year return period) flood in Deer Creek is estimated to have a discharge of about 3000 ft^3/yr. At this discharge the stream elevation will be well below plant grade. There is a culvert bridge across Deer Creek that is in the 100 year floodplain. The bridge would induce some increase in stage for a short distance (less than 1/2 mile) upstream of the bridge. It appears that some modifications were also made to the Deer Creek channel when the plant was constructed but there is insufficient information to either ascertain the extent of the changes or their effect on Deer Creek flows.

This plant was constructed and in operation prior to issuance (May 24, 1977) of E.O. 11988, Flood Plain Management. The language in E.O. 11988 suggests that the intended application is for proposed floodplain actions post dating the Order and, therefore, the Order may not be applicable to the Ginna Nuclear Power Plant FTOL unless there were proposed changes involving the floodplain. The FTOL does not include any modifications involving the Lake Ontario or Deer Creek floodplains.

4.0 ENVIRONMENTAL IMPACT OF POSTULATED ACCIDENTS

The Final Environmental Statement (FES) for the R. E. Ginna Nuclear Power Plant was published in December 1973 (USAEC). At the time of publication of the FES, the Reactor Safety Study (RSS) (WASH-1400) (Ref. 9), had not been completed. This study, which was referred to on page 7-4 of the FES, represented an important advance over earlier methodologies used to assess risk. Independent reviewers of the study (Ref. 10) concluded also that the uncertainties, or error bands, were understated in the study and that the Executive Summary was a poor description of the contents of the report.

Since the time of publication of the RSS, consequence and risk calculations for so-called class 9 accidents, based on the RSS methodologies, have been performed for Environmental Statements for several plants prior to initial operation. The calculations have shown that the risk

from severe accidents (that is, the combination of the probability of occurrence and the resulting consequences) is generally comparable to the risk from normal operations. For the site-specific calculations of health effects referred to above, probabilities and magnitudes of severe releases from a prototype plant [either a Pressurized Water Reactor (PWR) or a Boiling Water Reactor (BWR)] are scaled to the plant's power level and combined with site-specific data on population distribution, meteorology, and protective actions.

A perspective on the health impacts that could result from severe accidents at Ginna can be gained from comparison of recent calculations using the RSS methodology for the Perry Nuclear Power Plant (NUREG-0884) (Ref. 11). Although the Perry plant is a BWR, its site has many characteristics which are similar to the Ginna site. By comparison with the site parameters, the differences in source terms (i.e., the fractional releases and make-up of the fission products released to the environment) are relatively small. Also, the Perry plant has a power level more than twice that of Ginna (3579 MW thermal versus 1520 MW thermal). However, the Ginna site is in the same climatic regime as the Perry site and a comparison between sites of the meteorological parameters utilized in risk assessments shows that precipitation, wind direction and speed and atmospheric stability distributions are similar. Therefore, the risk assessment differences due to meteorological conditions are not expected to be large. The populations within 30 miles of the two sites are quite comparable; more people live within 10 miles of Perry, but more live within 20 miles of Ginna. However, more than twice as many people live within 50 miles of the Perry site compared to the Ginna site (NUREG-0348) (Ref. 12). The values of risk calculated for Perry, given in Table 5.12 of the Perry FES (NUREG-0884), have been adjusted for power level, and are shown in Table 4.1. Table 5.12 of the Perry FES also includes a risk estimate for early fatality. This value, because it is dependent on a threshold dose, cannot be scaled; the staff's experience indicates that a reduction of a factor of two in the magnitude of severe releases would produce more than a factor of two reduction in early fatalities.

The values in Table 4.1 have very large uncertainties. Section 5.9.4.1.4.7 of the Perry FES contains a discussion of the state-of-the-art of probabilistic risk assessment uncertainties. In addition to a discussion of the sources of uncertainty, that section characterizes the uncertainty as larger than an order of magnitude, but probably less than a factor of 100. The values for Ginna in Table 4.1 are more uncertain, due to the scaling involved, and are given to only one significant digit. However, the values shown do indicate that the risk are small.

TABLE 4.1 Average values of environmental risks due to accidents, per reactor-year for Ginna (based on power level adjustment of Perry)

Risk	Value
Population exposure	
person-rem within 50 miles	30
person-rem total	200
Latent cancer fatalities	
all organs excluding thyroid	0.01
thyroid only	0.002
Cost of protective actions and decontamination	$3000

A potential pathway for radioactive material leading to exposure of individuals is fallout on open bodies of water. As discussed in the Perry FES, contamination of the Great Lakes could be expected, via the airborne release pathway, for wind directions toward the lake. This pathway could also be significant for Ginna. It was found that the largest impact for this pathway was consumption of fish, though pathways such as drinking water and shore line usage were also considered. Were fish to be consumed without consideration of the potential exposure (that is, uninterdicted), the dose to individuals, and hence risk, could be comparable to that presented in Table 4.1. However, were the pathways to be interdicted, as is assumed for other pathways in the calculations leading to values in Table 4.1, the risk from fallout on the Great Lakes would be negligible compared to those from air and ground contamination.

Melting or severe degradation of reactor fuel has occurred in only one of the U.S. commercial nuclear power reactor units, during the accident at Three Mile Island, Unit 2 (TMI-2) on March 28, 1979. In addition to the release of a few million curries of xenon-133, it has been estimated that approximately 15 Ci of radioiodine were also released to the environment at TMI-2. This amount represents an extremely minute fraction of the total radioiodine inventory present in the reactor at the time of the accident. No other radioactive fission products were released in measurable quantity.

It has been estimated that the maximum cumulative offsite radiation dose to an individual was less than 100 mrems (see Ref. 13 & 14). The total population exposure has been estimated to range from about 1000 to 5000 person-rems. This exposure could produce between none and one additional fatal cancer over the lifetime of the exposed population. The same population receives each year from natural background radiation about

240,000 person-rems and approximately a half-million cancers are expected to develop in this group over its lifetime (see Ref. 13 & 14), primarily from causes other than radiation. Trace quantities (barely above the limit of detectability) of radioiodine were found in a few samples of milk produced in the area. No other food or water supplies were impacted.

The values of whole body exposure to a hypothetical maximally exposed individual and the expected actual population exposure from so-called class 3 through 8 accidents given in the Ginna FES have been reviewed. No changes in the estimates are warranted. It should be noted that in 1982, Ginna experienced a tube rupture in one of its steam generators. As stated in the Ginna FES, some steam generator tube leakage is expected but, although events in classes 3 through 5 (including tube rupture events) are not expected, they could occur in the plant's lifetime. The NRC's report on the tube rupture accident (NUREG-0909) (Ref. 15) contains the estimates that the hypothetical maximally exposed individual received less than 4 millirem and the estimated actual population exposure was 0.1 person-rem. These are less than the Ginna FES estimates of 80 millirem, and 11 person-rem, showing that even "realistic" estimates can be conservative.

In conclusion, the evaluation of accidents presented in the Ginna FES in 1973 was at that time the state-of-the-art. The extention of that methodology by the use of probabilistic risk assessment (by comparison with the Perry plant) which is the state-of-the-art in 1982, does not change the conclusion that the risk to the public from severe accidents is small. The experience of a tube rupture accident at Ginna, which was not unexpected during the lifetime of the plant, exposed the public to exceedingly small doses which were well below the doses presented in the FES.

5.0 IMPLICATIONS OF THE PROJECT

5.1 The Requirement for Power

In its 1973 FES for the Ginna Power Plant, staff concluded that:

"The overall growth pattern of electric energy use in the northeastern region of the United States is such that the generating capacity of Ginna is certainly needed to satisfy the present demand and growth requirements of the RG&E service area within the next 2 to 5 years."

Present Staff Evaluation

Issues related to need for power have been eliminated from consideration in ongoing and future operating license reviews for nuclear power plants unless a showing of "special circumstances" is made under 10 CFR 2.758 or the Commission otherwise requires such issues be considered.

(See Commission rulemaking in 47 FR 12940, March 26, 1982).

5.2 Social and Economic Implications

In addition to assuring dependable supplies of electricity to Rochester Gas and Electric Corporation's service area, the FES indicated that the operation of the Ginna plant has two societal effects. The first of these is the operation of the Brookwood Science Information Center which provides civic, community, and educational groups with information about nuclear energy through displays, exhibits, slides, and movies. The closing of the center and the loss of the plant's educational benefits is covered in Section 7.3. The second societal effect is the contribution of $2.4 million (1972) in local property taxes and the employment of over 100 people to operate the plant.

Updated information indicates that the plant paid approximately $3.8 million in local property taxes in 1981. Ginna employs approximately 200 people and uses an additional 200 construction workers on projects involving backfits and new construction.

Present Staff Evaluation

The 60% increase in property taxes and the 100% increase in permanent onsite employment represent significant incremental benefits to the local area. However, as these benefits are in the nature of tranfers, they do not alter the benefit cost balance.

6.0 ALTERNATIVES TO THE PROJECT

In its 1973 FES for the Ginna Power Plant, staff concluded that:

"...No alternative means of power generation offer (sic) a better balance of environmental and economic costs and benefits than the option of the continued operation of the Ginna plant" and, also, that there were numerous"...Factors favorable to the applicant's choice of the Ginna site for a nuclear plant."

Present Staff Evaluation

The Commission has amended its regulations effective April 26, 1982, to provide that issues related to alternative energy sources will not be considered in ongoing and future operating license proceedings for nuclear power plants (47 FR 12940, March 26, 1982) and that issues related to alternative sites will not be considered at the OL stage (46 FR 28630, May 28, 1982).

7.0 BENEFIT-COST ANALYSIS

7.1 Power Benefits

In its 1973 FES the staff provided a benefit-cost analysis which concluded that, among other things:

1. "The Ginna Nuclear Power Plant, Unit No. 1 will produce electrical power more economically than any other method of power generation currently available to the applicant...

2. The principle direct benefit of approximately 2.94 billion KWhr of electric power per year to meet the power needs of the area far exceeds the expected environmental cost."

Present Staff Evaluation

Staff continues to find considerable support for the conclusions drawn in the 1973 FES; particularly those related to the economic advantage that operating nuclear facilities hold over conventional fossil plants.

7.2 Social Benefits

The FES indicates that the plant contributes $2.4 million (1972) in local property taxes and employs 100 people. The FES also indicates that $225,000 was spent for studies relating to the environmental impact of the nuclear plant. As a result of its updating of information the licensee indicates that property taxes paid in 1981 were $3,797,698 and the number of people currently employed is 200. In addition, an average of 200 people have been employed to work on backfits and new constructions over the last few years. The cost of environmental studies is now estimated at several million dollars. Finally, a benefit not considered in the FES is the coordination and training of local governments, police and firemen in emergency planning and evacuation procedures.

Present Staff Evaluation

The updated values for taxes and employment represent increased regional benefits, although such benefits do not enter into the staff's benefit-cost considerations. Benefits derived from increased environmental knowledge and from the training of emergency response personnel are societal benefits that would be included in the staff's overall benefit cost analysis.

7.3 Brookwood Science Information Center

The FES states that the Center which is owned and operated by the licensee had been visited by more than 300,000 persons over a 2 1/2 year period. The center provided a vantage point from which the general public could view the progress of construction and obtain answers to questions concerning the effects of plant operation. With the completion of construction, the licensee conducted a nuclear power educational and information program for visitors. Subsequent to the publication of the FES, the Brookwood Center was closed to the general public, although it is available to organized groups for use as a meeting hall. However, the Center's primary function is to serve as a training center for plant personnel and as an emergency dose assessment center.

Present Staff Evaluation

The FES analysis concluded that the Brookwood Center contributed a non-quantified educational benefit to the overall benefit-cost analysis of the Ginna plant. With the closing of the center, that benefit is lost and the total benefit of plant operation is reduced correspondingly.

8.0 BASIS AND CONCLUSION FOR NOT PREPARING AN FES SUPPLEMENT

The NRC has evaluated the environmental effects of the continued operation of the Ginna facility and re-examined the impacts initially presented in the 1973 FES. This review has not led to the identification of any significant new environmental impacts or any significant changes in those identified previously in the FES, with respect to the proposed FTOL for Ginna. Accordingly, the NRC has determined, based on this assessment, that there are no new impacts that differ significantly from those evaluated in the FES, there are no substantial changes in the proposed actions relevant to environmental concerns and there are no significant new circumstances or information relevant to environmental concerns bearing on the proposed action or its impact. Therefore, the staff has determined that (1) the issuance of a supplement to the FES is not required under the National Environmental Policy Act (NEPA), and (2) the conclusion on page v., paragraph 7 of the FES for conversion of the Ginna POL to an FTOL is still valid, with the exception that the Technical Specifications called for are now included in Appendix I to 10 CFR 50 and the State Pollution Discharge Elimination System program.

9.0 REFERENCES

1. United States Atomic Energy Commission, "Final Environmental Statement Related to the operation of R. E. Ginna Nuclear Power Plant Unit 1," Docket No. 50-244, December 1973.

2. August 6, 1982, from D. M. Crutchfield (NRC) to J. Maier (RG&E), Subject: Environmental Review for License Conversion.

3. September 10, 1982, from J. Maier (RG&E) to D. M. Crutchfield (NRC) Subject: Final Environmental Statement Review.

4. Rochester Gas and Electric Corporation, "1977 Impingement Program Analysis Report", RG&E Report No. B-13-072, January 1980.

5. Rochester Gas and Electric Corporation, "A Biological Assessment of a Power Plant Shutdown During Winter," RGE Report No. B-13-073, January 1982.

6. November 30, 1981, from E. Radde (NYS DEC) to J. Cooper (NYS DEC), Pertaining to the SPDES Permit for Ginna.

7. September 2, 1982, from D. M. Crutchfield (NRC) to P. Nickerson (FWS), Pertaining to Endangered or Threatened Species in the Vicinity of Ginna

8. September 28, 1982, from P. Hamilton (FWS) to D. M. Crutchfield (NRC), Pertaining to Endangered or Threatened Species in the Vicinity of Ginna.

9. U. S. Nuclear Regulatory Commission, (WASH-1400) - NUREG-75/014, "Reactor Safety Study - An Assessment," October 1975.

10. NUREG/CR-0400, "Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission," H.W. Lewis et al, September 1978.

11. NUREG-0884, "Final Environmental Statement related to the operation of Perry Nuclear Power Plant Units 1 and 2," August 1982.

12. NUREG-0348, "Demographic Statistics Pertaining to Nuclear Power Reactor Sites," October 1979.

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