

UNITED STATES OF AMERICA
 NUCLEAR REGULATORY COMMISSION

In the Matter of

ROCHESTER GAS AND ELECTRIC
 CORPORATION

(R.E. Ginna Nuclear Power Plant)

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 Docket No. 50-244

EXEMPTION

I.

Rochester Gas and Electric Corporation (the licensee) holds Provisional Operating License No. DPR-18, which authorizes operation of the R.E. Ginna Nuclear Power Plant (Ginna) (the facility).. This license provides, among other things, that it is subject to all rules, regulations and Orders of the Commission now or hereafter in effect. The facility is a pressurized water reactor located in Wayne County, New York.

II.

Section III.L of Appendix R to 10 CFR Part 50 requires, among other things, that alternative or dedicated shutdown capability provided for a specific fire area shall be able to (a) achieve and maintain subcritical reactivity conditions in the reactor; (b) maintain reactor coolant inventory; (c) achieve and maintain hot standby conditions for a PWR; (d) achieve cold shutdown conditions within 72 hours; and (3) maintain cold shutdown conditions thereafter.

By letter dated April 13, 1983, the NRC staff transmitted a Fire Protection Safety Evaluation approving the licensee's proposed modifications for conformance to the requirements of 10 CFR 50 Appendix R. In that transmittal, the staff reviewed the dedicated shutdown system originally proposed by Rochester Gas and Electric Corporation (RG&E) on March 19, 1981,

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and approved it as an alternative shutdown system. The staff's review of the licensee's submittals indicated that the modifications proposed were of an extensive nature, numerous, and required a significant amount of new equipment. The licensee's position was that the system modifications were extensive enough to be considered a dedicated system. The staff disagreed in that regard but did agree that the system was acceptable as an alternative shutdown system and that it met the requirements of Appendix R to 10 CFR 50. With the staff approval of the system the schedular requirements of 10 CFR 50.48(c)(4) were enacted. These requirements call for the implementation of modifications before startup after the earliest of the following events commencing 180 days after Commission approval:

- (1) The first refueling outage;
- (2) Another planned outage that lasts for at least 60 days; or
- (3) An unplanned outage that lasts for at least 120 days.

The approved system involved extensive proposed plant modifications including: (1) a new vital bus switchgear located in the Standby Auxiliary Feedwater Building; (2) new dedicated shutdown system (DSS) switchgear including a new seismic category 1 structure; (3) new power, control, and instrument circuits for the DSS bus; (4) a new DSS control panel containing instrumentation and controls for the DSS including isolation and transfer devices; and (5) new dedicated instrument loops and transmitters. The commitment to install such a system represented a large engineering and construction effort. In addition, RG&E found that the vendor lead times for many of these items are now known to be especially long; with switchgear

delivery extending two or more years from receipt of orders. Procurement activities for such items alone precluded meeting the schedule dictated in 10 CFR 50.48(c)(4).

During the period of fire protection review, RG&E was also participating in the Systematic Evaluation Program (SEP). As with other SEP plants, fire protection was identified as one of the issues to be resolved. Another topic to be resolved under SEP was "Systems Required for Safe Shutdown." Initial studies by RG&E suggested that a dedicated shutdown system would offer the most effective solution to both the SEP and fire protection programs. Since the modifications to satisfy both SEP and Appendix R requirements were extensive, the licensee applied for a schedular exemption on November 17, 1982. The exemption request was denied because a firm schedule could not be presented in 1982 due to the integration with SEP modifications. However, during the SEP Integrated Assessment the licensee concluded that the dedicated shutdown system was unnecessary for SEP topic resolution and that 10 CFR 50 Appendix R compliance modifications should be redefined.

For the above reasons and due to escalating cost estimates for the dedicated shutdown system, the licensee decided to reanalyze the Ginna Plant to evaluate alternate means for meeting Appendix R requirements. As a result, a new alternative shutdown approach was defined between January and September of 1983. This approach provides for fewer plant modifications, allowing for a more timely and less expensive method of conforming to Appendix R.

In a submittal dated December 27, 1983, the licensee requested that the implementation schedule specified in 10 CFR 50.48(c)(4) for the proposed fire protection modification at Ginna be extended until the end of the refueling outage scheduled for the spring of 1986. Additional information was provided by letters dated April 9, 1984, April 17, 1984, April 27, 1984 and May 3, 1984.

A detailed description of the new alternative shutdown system was submitted by letter dated January 16, 1984. The approach combines local safe shutdown system control capability, limited upgrading of fire area boundaries and installation of one- and three-hour-equivalent protection of selected safe shutdown power, control and instrumentation circuits. The licensee believes that the approach provides a level of safe shutdown capability commensurate with that achieved by the earlier dedicated shutdown system but with a significantly reduced number of modifications. The modifications will be phased such that portions of the plant will be in conformance to Appendix R earlier than would occur with installation of the approved system. Further, the modifications will result in less impact on plant operations.

The dedicated shutdown system requires complete system installation and testing before any safety benefit is achieved. By contrast, the alternative shutdown design will provide additional safety margin as each of the individual modifications is completed. There will be a phased implementation of safety improvements which could be completed by the end of the 1986 refueling outage. The staff agrees with the concept used by the licensee in

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proposing the alternative shutdown system. A detailed review of the proposed system is currently in progress and will be the subject of a future staff Safety Evaluation.

III.

Reasonable interim post-fire safe shutdown capability or interim fire protection measures must be provided in order to grant schedular exemptions from the implementation schedules of 10 CFR 50.48. The interim post-fire safe shutdown capability must address the requirements of Section III.G and III.L but to a lesser degree than full compliance. For example, limited repairs to restore hot shutdown equipment may be acceptable. By letters dated December 27, 1983, April 9, 1984, April 17, 1984, April 27, 1984 and May 3, 1984 the licensee described the interim measures being provided for ten fire areas of the Ginna plant. The ten areas are the battery room, auxiliary building operating floor, auxiliary building basement and mezzanine, charging room, screenhouse building, diesel generator vault, control complex (cable tunnel, air handling room, and relay room), intermediate building north, control room, and containment.

For those fire areas of the plant which require modifications that are affected by the schedular extension, the licensee verified that the following shutdown functions would be available following a fire: reactivity control, primary system makeup control, primary system pressure control, decay heat removal, process monitoring and support services. If a shutdown function could be potentially lost due to a fire, a procedure to restore the shutdown function was provided. Procedures constitute the interim shutdown capability

in the event of loss of shutdown functions in five plant fire areas: battery room 1B, auxiliary building intermediate floor and basement floor, diesel generator vault B, all levels of the intermediate building north, and control room. For the containment, the licensee has provided alternative capability to compensate for the lost shutdown function. With a procedure, for each of these areas the operator actions necessary to restore the lost shutdown function are delineated. Where the operator actions involve wiring modifications by the operators, all wires to be modified will be clearly identified and all jumpers will be precut and clearly marked with appropriate terminal numbers.

In addition to the actions necessary to restore or compensate for lost functions, the procedures for the battery room, diesel generator vault, and intermediate building north, identify the fire's potential effect on other equipment not necessarily needed to provide a shutdown function and identify what, if any, operator actions should be taken. Further, the procedures provide the operators the necessary guidance for initial plant cooldown and subsequent cold shutdown. All necessary actions can be performed by onsite personnel independent of the fire affected area. All necessary materials will be stored onsite.

The procedure for the control room identifies the actions necessary to achieve and maintain hot shutdown conditions. The licensee has committed to revise the procedure to provide the operators guidance for achieving cold shutdown. The revised procedure will be available three months after startup from the 1984 refueling outage. This commitment is acceptable to the staff. In the event of a fire in battery room 1B, control circuits for both

emergency diesel generators and controls for the service water pumps could be adversely affected. To restore the loss of these support functions, the licensee has provided a procedure which describes the actions necessary for local start and operation of the diesel generators and local operation of the service water pumps. The actions include removing control fuses for various electrical buses, operation of breakers and rewiring of local control panels.

In the event of a fire in the auxiliary building intermediate floor and basement floor area, both trains of battery power feeds and both trains of charging flow indication could be adversely affected. To restore the battery power feeds, the operators would utilize one of two procedures (one for each battery). Each of the procedures describes the necessary operator actions to tie the respective battery train to the technical support center battery. The operator actions generally include the use of key-locked disconnects or "inter-tie" switches. In the event of loss of charging flow indication, the operators will utilize pressurizer level indication to monitor shutdown functions provided by the charging system.

In the event of a fire in diesel generator vault B, the controls for the service water pumps could be adversely effected. To restore the loss of this support function, the licensee has provided a procedure which describes the actions necessary for local operation of the service water pumps. The operator actions include removal of control fuses from electrical buses and operation of various breakers.

In the event of a fire on any of the levels of the intermediate building north, the controls for the service water system, and steam generator pressure and source range instrumentation could be adversely

affected. To restore the lost shutdown functions, the licensee has provided a procedure which describes the actions necessary to achieve safe shutdown. The operator actions include removal of control fuses from electrical buses and operation of various breakers. In the event of loss of steam generator pressure indication, the procedure instructs the operators to utilize local steam generator pressure gauges located in the turbine building. In the event of loss of source range instrumentation, sampling of the reactor coolant system could be utilized. The procedure also identifies the actions necessary to isolate the steam generator blowdown valves, the pressurizer PORV, and the steam admission valves for the turbine-driven auxiliary feedwater pump.

In the event of a control room fire which results in evacuation of the control room, interim safe shutdown capability is provided by a procedure which describes the operator actions necessary to achieve hot shutdown conditions. The procedure uses five plant personnel exclusive of the fire brigade and provides for local control of a charging pump, auxiliary feedwater pump and service water pump, local operation of a diesel generator, and installation of local indications for process monitoring. Reactivity control, reactor coolant makeup control, and primary-system pressure control will be provided by the charging system in conjunction with the refueling water storage tank and the pressurizer safety valves. Initial decay heat removal will be provided by a motor-driven auxiliary feedwater pump and the atmospheric dump valves. Service water or the city water system will supply water for the auxiliary feedwater pump. Diesel generators and the service water or city water system will provide the necessary

support services. The process monitoring function will be provided by the following instrumentation: reactor coolant hot and cold temperature, reactor coolant system pressure, pressurizer level, and steam generator pressure and level. Additionally, sampling of the reactor coolant system will be utilized for verification of reactivity control.

In the event of a fire in certain locations of the reactor containment, instrumentation circuits for pressurizer level, reactor coolant system pressure and source range neutron flux could be adversely affected. In the event of loss of pressurizer level indication, the operators would utilize other control room indications such as charging and letdown flow, and chemical and volume control system inventories to infer pressurizer level. In the event of loss of primary system pressure indication, the operators would utilize other control room indication in conjunction with the Post Accident Sampling System (PASS) panel. With manual alignment of isolation valves, the PASS panel has the capability to monitor primary system pressure. In the event of loss of neutron flux monitoring, the operator would utilize boron sampling to confirm reactor shutdown.

In those areas identified for which interim procedures are not available (auxiliary building basement and mezzanine, charging room, screenhouse building, and control complex) the staff was concerned that if a fire of significant magnitude were to occur in those locations, safe shutdown could not be achieved and maintained. However, the licensee indicated that in each of these areas, the vulnerable systems will be protected by one of the following means: (1) a continuous fire watch; or (2) automatic fire detection and fire suppression systems; or (3) complete, noncombustible fire

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barriers. The areas and their respective fire protection measures are identified in Table 1 of the licensee's April 9, 1984 submittal.

In those locations where a fire watch will be provided, an individual will be continuously present to detect and respond to any fire emergency. This provides reasonable assurance that a fire will be discovered in its initial stages before significant damage occurs and will be suppressed manually by either the fire watch or the plant fire brigade. Under these circumstances, fire damage will be limited, and no loss of safe shutdown capability should occur.

A fire may occur in those areas protected by automatic fire detection and suppression. However, because of the early warning capability of the detection system, the staff expects the fire to be discovered in its initial stages and suppressed by the plant fire brigade. If the fire should propagate rapidly, the automatic fire suppression system should activate to protect the vulnerable systems until eventual extinguishment. Therefore, no loss of shutdown capability should occur.

In several locations, the licensee has proposed to install a complete noncombustible fire barrier to protect one shutdown division. If a fire were to occur, the existing fire detection systems or a plant operator would detect a fire and summon the fire brigade. One shutdown division would be protected by the barrier until fire extinguishment was effected. Consequently, the staff has reasonable assurance that safe shutdown could be achieved and maintained via the undamaged shutdown division.

Based on the considerations discussed above, the staff concludes that the licensee has provided reasonable and acceptable interim post-fire safe shutdown capability or interim fire protection measures to support the

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request schedular exemption for the ten areas identified. Contingent upon approval by the staff, an alternative safe shutdown system will be installed for long term conformance with Sections III.G and III.L of Appendix R to 10 CFR 50. The staff finds that because of the interim measures implemented by the licensee, there is no undue risk to the health and safety of the public involved with continued operation of the plant until the startup from the 1986 refueling outage at which time installation of the alternative safe shutdown system will be complete.

IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest and therefore grants an exemption from the schedular requirements of 10 CFR 50.48(c)(4) until prior to startup from the 1986 refueling outage.

The NRC staff has determined that the granting of this exemption 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 this action.

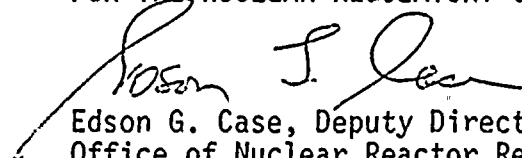
For further details with respect to this action see: (1) the licensee's request and supporting information dated December 27, 1983, April 9, 1984, April 17, 1984, April 27, 1984 and May 3, 1984; and (2) the proposed alternative safe shutdown system dated January 16, 1984, which are available



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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 14604.

FOR THE NUCLEAR REGULATORY COMMISSION


Edson G. Case, Deputy Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 10 day of May 1984.