

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 7904050228 DOC. DATE: 79/03/27 NOTARIZED: NO DOCKET #
 FACIL: 50-244 ROBERT EMMET GINNA NUCLEAR PLANT, UNIT 1, ROCHESTER G 05000244
 AUTH. NAME AUTHOR AFFILIATION
 WHITE, L.D. ROCHESTER GAS & ELECTRIC CORP.
 RECIP. NAME RECIPIENT AFFILIATION
 ZIEMANN, D.L. OPERATING REACTORS BRANCH 2

SUBJECT: RESPONDS TO 790103 REQUEST FOR REVIEW OF STEPS INVOLVED
 AFTER REACTOR SHUTDOWN DURING POSTULATED FUEL HANDLING
 ACCIDENT INSIDE CONTAINMENT BLDG. CONCLUDES MORE THAN 100
 HOURS MUST ELAPSE AFTER SHUTDOWN BEFORE FUEL IS HANDLED.

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NOTES: ICY: D. ALLISON, C. HOFMAYER

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March 27, 1979

Director of Nuclear Reactor Regulation
Attention: Mr. Dennis L. Ziemann, Chief
Operating Reactors Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Fuel Handling Accident Inside Containment
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Ziemann:

In our letter of March 18, 1977 we provided a detailed evaluation of the potential consequences of a postulated fuel handling accident inside containment. The analysis showed that the consequences were well within the limits established by 10 CFR Part 100. In the analysis, we assumed that the fuel handling accident would not occur until at least 100 hours after shutdown. Your letter of January 3, 1979 asked that we provide justification that fuel would not be removed from the reactor vessel within 100 hours after a shutdown or propose a Technical Specification providing such a restriction. We have performed a review of the steps which must be accomplished between shutdown of the reactor and fuel handling at Ginna and have found that more than 100 hours of activities are required before fuel can be handled. Therefore, no Technical Specification change is required.

A chart displaying the sequencing and timing for each of the steps required between shutdown and refueling is attached. The following is a description of each of these steps. Time estimates are based on system capabilities, Technical Specification limits, and experience gained over past refueling outages.

1. Borate the reactor coolant system (RCS) to 2000 ppm boron. Using normal means of borating, the charging pumps, this will take a minimum of 5 hours. Rate of addition is approximately 10 gpm.

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2. Reduce the hydrogen concentration in the volume control tank to below 5 cc/kg. If the level has been reduced to below 15 cc/kg while at power, approximately 3 "burps" would be required to reduce the level to below 5 cc/kg. If plant cooldown is progressing while burping, then the burps are less effective due to the lower temperature. Thus, more burps may be required. The time estimate for this task is 12 hours.
3. Cool down the RCS to less than 140°F. Based on the Technical Specification limit for cooldown rate of 100°F/hr, this will take at least 4 hours.
4. Strip the reactor head and prepare for head lift. This step is comprised of several individual tasks and requires at least 29 hours. This time estimate includes the consideration that some tasks may be performed concurrently. The tasks include
 - a. Control rod drive mechanism cooling duct removal
 - b. Missile shield removal
 - c. Earthquake bars removal
 - d. Head insulation removal
 - e. Cable tray and electrical connections removal
 - f. Acoustical and thermocouple connections removal
 - g. Inflatable seal ring installation
5. Drain the RCS below the flange level. This step takes approximately 5 hours and may be performed concurrently with the head stripping.
6. Disassemble the instrument port conoseal. This step takes approximately 5 hours to perform.
7. Detension the studs. This step takes approximately 36 hours to complete.
8. Lift the vessel head and flood the cavity. This step takes 11 hours to complete.
9. Unlatch the control rod drive shafts. This step takes 9 hours to complete.
10. Remove the upper internals package. This step takes 8 hours to complete.

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After completion of these steps, fuel can be handled. The total time for these steps, taking into account that some can be performed concurrently, is 106.5 hours.

No time has been included for reduction of the radioactivity level in the RCS. Historically, this has taken between 48 and 60 hours. In order to maintain occupational exposures as low as reasonably achievable and to eliminate the requirement for respiratory protection equipment, RCS cleanup is normally performed prior to fuel handling. Addition of this step brings the total time from shutdown to fuel movement to between 130 and 150 hours.

Based on these times, the assumption that fuel is not moved within 100 hours of shutdown is conservative.

Very truly yours,



L.D. White, Jr.

Attachment

TIME FROM SHUTDOWN TO FUEL HANDLING
(See Text for Description of Step)



