

CONSUMERS POWER COMPANY
PARNALL ROAD OFFICE
JACKSON, MICHIGAN
TWX 517-787-1987
3-2-71 1-10 PM

TWX INCOMING

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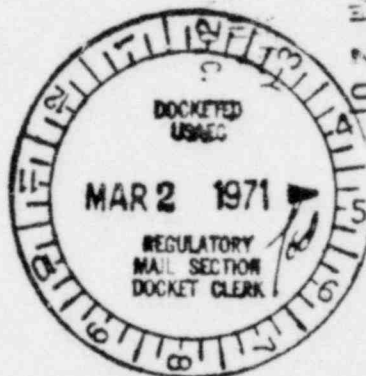
1971 MAR 2 PM 1 32

U.S. ATOMIC ENERGY COMM.
TWX UNIT

DR P A MORRIS, DIRECTOR
DIVISION OF REACTOR LICENSING
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D C

ATTENTION- MR D J SKOVHOLT

RE- DOCKET 50-155 Regulatory File Cy.
DRP 6 ZEK
PROPOSED TEC SPEC CHANGE 27



U.S. ATOMIC ENERGY COMMISSION WASHINGTON

1971 MAR 2 PM 2 01

HEADQUARTERS
MAIL SERVICE SECTION

WITH REGARD TO YOUR STAFF'S QUESTION CONCERNING THE CONSEQUENCES OF THE BACKUP CORE SPRAY NOZZLE PARTING AND FALLING TO THE TOP OF THE CORE AREA IN THE BIG ROCK POINT REACTOR VESSEL THE FOLLOWING INFORMATION IS SUBMITTED-

A- IN THE UNLIKELY EVENT THAT THE NOZZLE WAS TO BREAK AND FALL TO THE CORE REGION, IT WOULD PROBABLY LODGE ITSELF SUCH THAT THE LOWER TIP WAS RESTING BETWEEN A FUEL BUNDLE HANDLE AND GRID BAR WITH THE UPPER PORTION AGAINST THE BAFFLE PLATES. THIS WOULD NOT SIGNIFICANTLY ALTER FLOW THROUGH ANY PORTION OF FUEL BUNDLE BECAUSE OF THE SIZE OF THE NOZZLE TIP AND ITS INABILITY TO SEAT AGAINST THE UPPER TIE PLATE DUE TO PROTRUSIONS ABOVE THE TIE PLATE. IN THIS CASE ONLY ONE BUNDLE WOULD BE AFFECTED.

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B- A VERY SMALL CHANCE EXISTS THAT THE BROKEN NOZZLE WOULD CLEAR THE BAFFLE PLATES AND FALL SUCH THAT IT WOULD LIE ACROSS THE TOP OF THE GRID BARS. IF THIS WERE THE CASE, THE REDUCTION IN FLOW WOULD BE VERY SLIGHT. IN THE WORST CASE FOR AN INDIVIDUAL CHANNEL THE EFFECT WOULD BE SIMILAR TO PLACING AN ORIFICE WITH FLOW AREA APPROXIMATELY EQUAL TO THAT OF AN EMPTY FUEL CHANNEL ACROSS THE TOP OF THE GRID BARS. ASSUMING THAT THE BROKEN NOZZLE LAYS ATOP THE GRID BARS ABOVE TEN FUEL BUNDLES, THE EFFECT ON THE TOTAL FLOW AND CORE DIFFERENTIAL PRESSURE WOULD BE VERY SMALL. IT WOULD NOT BE OBSERVABLE ON INSTRUMENTATION.

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C- IF THE NOZZLE WERE TO ASSUME A POSITION AS DESCRIBED IN "B" ABOVE, CALCULATIONS THAT INCLUDE WEIGHT OF NOZZLE, BUOYANCY, AND DRAG FORCE CAUSED BY COOLANT FLOW INDICATE THAT THE NOZZLE WILL NOT BE LIFTED FROM THE TOP OF THE GRID BARS. THE NET FORCE DOWNWARD UNDER THE MOST SEVERE CONDITIONS WAS 10.8 LB PER LINEAL FOOT OF THE NOZZLE.

IN SECTION 4.1.2/B/ OF THE PROPOSED TECHNICAL SPECIFICATION CHANGE 27. PLEASE INSERT THE FOLLOWING PARENTHETICAL PHRASE AT THE END OF THE SENTENCE THAT READS "THE CORE SPRAY SYSTEM AND SHUTDOWN COOLING SYSTEM SHALL BE OPERABLE AND READY FOR SERVICE DURING REFUELING OPERATIONS."

/THE BREAKERS FOR MO 7070 AND MO 7071 SHALL BE TAGGED OPEN./

IN ADDITION, YOUR STAFF REQUESTED FURTHER INFORMATION WITH REGARD TO THE TYPE OF TRANSIENT THAT WOULD CAUSE THE 3.2 DEGREE FAHRENHEIT PER SEC CHANGE REFERRED TO IN ANSWER "A" OF APPENDIX 2 IN THE PROPOSED CHANGE. THIS TRANSIENT OCCURS ON A REACTOR SCRAM FROM 100 PERCENT POWER. ON A SCRAM THE TURBINE TRIPS, THUS EXTRACTION STEAM IS LOST TO THE FEED-WATER HEATER TRAIN AND THE RAPID COOLDOWN AT THE FEEDWATER INLET NOZZLES TO THE STEAM DRUM OCCURS. THE 300 DEGREE FAHRENHEIT PER HOUR "COOLDOWN RATE" REFERRED TO IN QUESTION "D" OF THE SAME APPENDIX IS DEFINED AS THE EMERGENCY COOLDOWN RATE IN THE "REACTOR VESSEL INSTRUCTION MANUAL." A 6.4 DEGREE FAHRENHEIT PER MINUTE EMERGENCY COOLDOWN RATE IS ALLOWED BY THE PRIMARY STEAM DRUM INSTRUCTION MANUAL. 100 CYCLES ARE ALLOWABLE AT THIS RATE.

THE ANSWERS TO THE TWO REMAINING QUESTIONS WILL BE SUBMITTED AS SOON AS THESE ANSWERS ARE AVAILABLE.

G J WALKE

NUCLEAR FUEL MANAGEMENT ADMINISTRATOR

CC- R L HAUETER

C J HARTMAN, BIG ROCK

R B SEWELL

END - WW

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FROM: Consumers Power Company
 Jackson, Michigan
 G. J. Walke

DATE OF DOCUMENT: 3-2-71 DATE RECEIVED: 3-2-71 NO.: 303

LTR. MEMO. REPORT. OTHER: TWX

TO: Dr. Peter A. Morris

ORIG.: 1 CC: OTHER:

ACTION NECESSARY CONCURRENCE DATE ANSWERED:
 NO ACTION NECESSARY COMMENT BY:

CLASSIF: U POST OFFICE REG. NO:

FILE CODE: 50-155

DESCRIPTION: (Must Be Unclassified)
 TWX re Proposed Change No. 27 to
 Tech Specs submitting info re our
 question concerning consequences of
 backup core spray nozzle parting &
 ENCLOSURES falling to the top of core
 areas.....

| REFERRED TO | DATE | RECEIVED BY | DATE |
|-------------------------------|--------|-------------|------|
| Ziemann W/9 cys for ACTION | 3-3-71 | | |
| DISTRIBUTION: | | | |
| Regulatory File | | | |
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| D. Thompson | | | |
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REMARKS:

DO NOT REMOVE

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