



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 159 TO FACILITY OPERATING LICENSE NO. DPR-10
POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

INTRODUCTION

By letter dated January 12, 1990, the Power Authority of the State of New York (PASNY or the licensee) submitted a proposed amendment requesting changes to the Technical Specifications (TS) for the James A. FitzPatrick Nuclear Power Plant. The amendment would revise Note 16 to Table 3.1-1, "Reactor Protection System (SCRAM) Instrumentation Requirement," and Note 9 to Table 3.2-1, "Instrumentation That Initiates Primary Containment Isolation." The proposed changes would allow the main steamline high radiation monitor trip level setpoint to be increased during Operating Cycle 10 to accommodate testing of the incore stress corrosion monitoring system. The proposed change would allow the setpoint to be temporarily changed from the present value (corresponding to three times the normal full power background radiation level) to a setpoint corresponding to three times the normal full power background radiation level which is expected to result from the injection of hydrogen for the corrosion monitor tests.

The corrosion monitor tests involve incremental increases of the hydrogen flow rate to the core using the hydrogen water chemistry system while monitoring certain specified parameters. These parameters will provide the basis for establishing the amount of hydrogen needed to suppress crack growth in material susceptible to intergranular stress corrosion cracking (IGSCC), an integral part of the licensee's IGSCC control and monitoring program. The addition of hydrogen reduces the concentration of oxygen in the coolant and increases the nitrogen-16 carryover in the steam. This results in higher background radiation levels detected by the main steamline radiation monitors (MSLRMs).

By letter dated May 16, 1985, the staff issued Amendment No. 90 which approved a similar change to the MSLRMs to allow hydrogen testing during Operating Cycle 7. The amendment was effective for that operating cycle only. This safety evaluation closely replicates the safety evaluation written for Amendment No. 90.

EVALUATION

The MSLRMs are used to detect gross failure of fuel cladding during normal power operation that may be caused by any number of mechanisms (e.g., pellet-cladding mechanical interaction, manufacturing defects). When high radiation in the main steam lines reaches the setpoint of the radiation monitors, a

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reactor trip is automatically initiated to reduce the possibility of additional failure of the fuel cladding and, at the same time, the main steamline isolation valves (MSIVs) automatically close to limit the release of fission products. The setpoints of the MSLRMs are set high enough above normal background radiation levels to prevent spurious trips and low enough to actuate in the event of significant fuel clad failure.

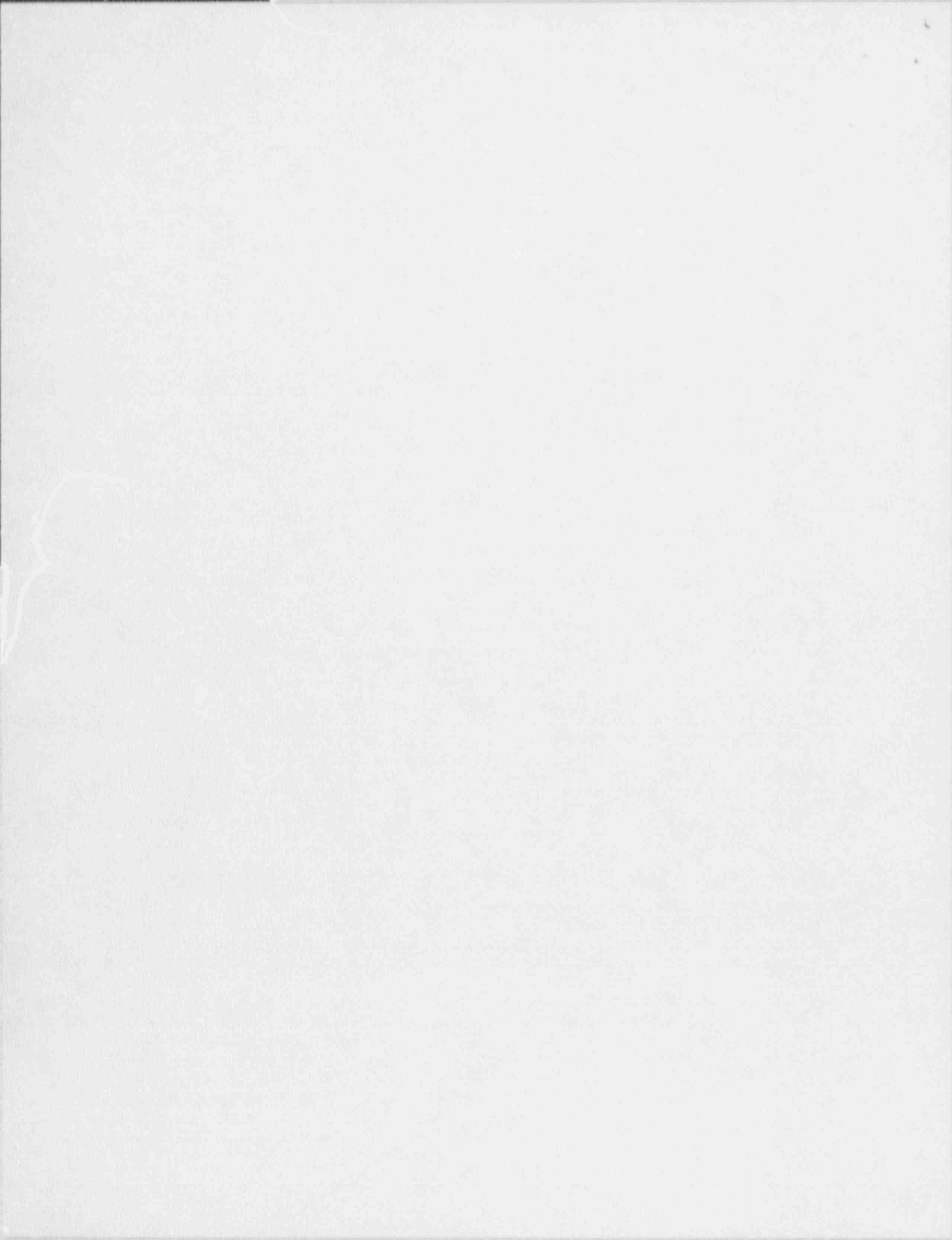
In the calculation of the radiological consequences of a control rod drop accident (CRDA), credit is taken for the MSLRMs to provide a signal to close the MSIVs upon detection of high radiation in the steam lines resulting from the design basis CRDA. The total time required to isolate the main steam lines, together with other assumptions, determines the amount of fission product activity transported to the condenser before the MSIVs are closed. The CRDA analysis, however, does not take credit for a reactor trip from the MSLRM in assuring that the fuel dispersal criteria is met.

For a CRDA occurring at power levels above 20 percent of rated power, there is a significant margin to the fuel cladding failure threshold. The CRDA becomes a concern only at power levels below 10 percent. The licensee has stated that the hydrogen addition test will only be conducted at power levels above 50 percent of rated power and that the MSLRM setpoints will be at their normal value before power level decreases below 20 percent. In addition, if due to a recirculation pump trip or other unanticipated power reduction event, the reactor power decreases to below 20 percent of rated power with the MSLRM setpoints at the test value, control rod withdrawal will be administratively prohibited until the necessary readjustments are made to the monitors to return them to their normal setpoints. Also, the licensee has committed that the setpoint changes will only be in effect during the period extending from 24 hours before the performance of the hydrogen injection test to 24 hours after completion of the test. Therefore, the setpoint changes will be in effect only when necessary and the changes will be closely controlled.

The capability for monitoring for fuel defects and failures will continue to be maintained with the present TS requirement associated with the main steam radiation scram and isolation monitor systems, routine radiation surveys, the performance of primary coolant water analysis, and the continued operability of the Steam Jet Air Ejector Radiation Monitors. Also, the licensee's existing quality assurance program, existing procedures, and special procedures or procedure changes used for the hydrogen testing, will minimize the potential for error associated with readjusting the MSLRM setpoints or excessive operation with the readjusted setpoints in effect.

SUMMARY

The licensee has committed to perform testing only above 50 percent of rated power, to increase the setpoint to its test value only when the plant is operating above 20 percent rated power, and to restore the setpoint to its pre-test value prior to reducing power below 20 percent of rated power. Also, the licensee has committed to implement the setpoint changes only when needed (starting no more than 24 hours before a test and continuing for no more than 24 hours after a test), and to prohibit control rod withdraw in the event of an uncontrolled power reduction below 20 percent of rated power when the



setpoint is at the test value. Based on the analysis, the licensee's continued capability to monitor for fuel defects and clad failures during the test, and the licensee's previous satisfactory experience with the testing program, the staff concludes that the proposed TS changes are acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) 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.

Dated: April 30, 1990

PRINCIPAL CONTRIBUTOR:
D. LaBarge

