



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 128 TO FACILITY OPERATING LICENSE NO. NPF-21
WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PROJECT NO. 2

DOCKET NO. 50-397

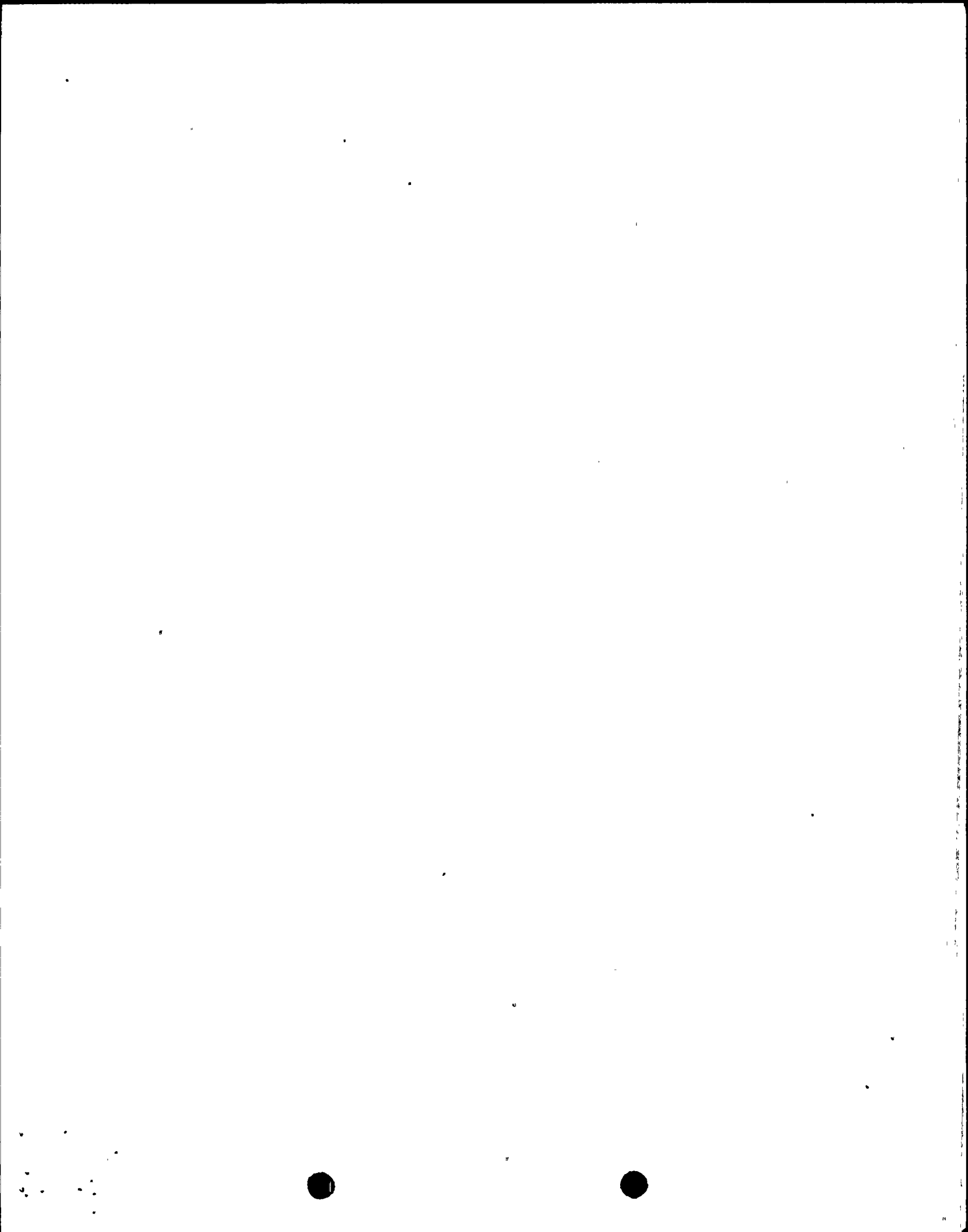
1.0 INTRODUCTION

By letter dated December 6, 1993, and supplemented May 6, 1994, Washington Public Power Supply System submitted a request for changes to the Technical Specifications (TS) for Nuclear Project No. 2. The proposed changes would revise TS 3/4.3.7.5, Table 4.3.7.5-1, "Accident Monitoring Instrumentation Surveillance Requirements"; TS 3/4.4.2, "Safety/Relief Valves," Note 4.4.2.b "***"; TS 3/4.5.1, "Emergency Core Cooling Systems," Note 4.5.1.e.3.b "*"; and the Bases for TS 3/4.4.2. TS 3/4.3.7.5, Table 4.3.7.5-1, "Accident Monitoring Instrumentation Surveillance Requirements," would be revised to include a note which qualifies safety/relief valve (SRV) position indicator applicability and surveillance requirements to be exempt from the provisions of TS 4.0.4 provided the surveillances are performed within 12 hours after reactor steam pressure and flow are adequate to perform the test. TS 3/4.4.2, "Safety/Relief Valves," Note 4.4.2.b "***", and TS 3/4.5.1, "Emergency Core Cooling Systems," Note 4.5.1.e.3.b "*", would be revised to identify that the 12-hour time limit for performing the SRV position indicator surveillance testing starts when plant steam pressure and flow are adequate to perform the test. The Bases for TS 3/4.4.2 would be revised to identify that testing of safety/relief valves is normally performed at lower power with adequate steam pressure and flow.

The staff noticed a discrepancy between the original submittal and the supplemental letter. In the original submittal, the note to Table 4.3.7.5-1 was proposed only for the refueling surveillance. In the supplemental letter, the licensee did not specify the applicability of the note. When the staff pointed out the discrepancy, the licensee explained it as an oversight. The licensee's intent was to apply the note to the refueling surveillance of item 10. The explanation eliminated the discrepancy.

2.0 EVALUATION

Technical Specifications 3/4.4.2, "Safety/Relief Valves," and 3/4.5.1, "Emergency Core Cooling Systems," require that the contained surveillances be performed during plant startup (for operability verification) and prior to entry into Operational Conditions 1, 2 or 3. Technical Specification 3/4.3.7.5, Table 3.3.7.5-1, "Accident Monitoring Instrumentation Surveillance



Requirements" requires that either the SRV acoustic monitors or the valve stem position indicators (VPI) be operable prior to entry into Operational Condition 1 or 2.

The licensee proposes to revise TS 3/4.3.7.5, Table 4.3.7.5-1, "Accident Monitoring Instrumentation Surveillance Requirements" to add a note which would allow the plant to reach adequate parameters prior to performing the surveillance. The licensee also proposes to revise TS 3/4.4.2, "Safety/Relief Valves," TS 3/4.5.1, "Emergency Core Cooling Systems," and the Bases for TS 3/4.4.2 to clearly identify that adequate plant conditions required to perform the surveillances are sufficient reactor pressure and steam flow.

Adequate steam pressure is needed to protect the SRV from damage when stroking. Opening the SRV without sufficient back pressure can lead the valves into a slamming effect on closure, and, therefore, potentially damage the valves. Sufficient steam flow is required to ensure that a slow depressurization, resulting in closure of the turbine bypass valves, does not occur when an SRV is opened. Opening SRVs can result in a reactor pressure transient which initially introduces negative reactivity. Subsequent closure of the SRVs can result in steam void collapse which leads to the introduction of positive reactivity. Therefore, a slow depressurization/cooldown, combined with the subsequent closure of the SRV, can result in a pressure and power spike and lead to a reactor scram. The licensee reviewed recent plant startup data and found that the aforementioned adequate parameters, namely steam pressure and flow, are achieved at 10 to 12 percent of rated thermal power. This corresponds to approximately 48 hours after reaching 950 psig.

Prior to entry into Operational Condition 3, the licensee performs other surveillance testing to ensure that plant safety, for the period prior to verification of Technical Specification operability, is not compromised. These surveillances ensure that the SRVs, the automatic depressurization system (ADS) function of the SRVs, and the SRV position indication will function on demand. WNP-2 meets the following conditions to provide this assurance:

1. At least four SRVs are required to be operable for the safety mode function prior to entry into Operational Condition 1, 2, or 3.
2. The ADS logic is surveilled from the sensing devices (pressure and level switches) up to and including the relay contacts that actuate the SRV solenoid valves. This testing is performed prior to plant startup.
3. After SRV maintenance that involves disconnecting the solenoid, the solenoid valves are post maintenance tested prior to plant startup to verify that the solenoids stroke. This testing provides a high level of confidence that the solenoids will function on demand.
4. The SRVs are tested during power reduction for the refueling outage. The testing is performed to satisfy ASME Code setpoint testing requirements. This testing is normally performed to verify SRV safety



mode setpoints to support plant startup, and to identify SRVs that require setpoint adjustment.

5. There are three methods of opening the SRVs: (1) mechanically via steam pressure; (2) pneumatically via either of two redundant solenoids (the "A" or "B" solenoid) for each of the seven ADS SRVs; or (3) pneumatically via one solenoid (the "C" solenoid) for each of the 18 SRVs. Methods 2 and 3 are available to the operators in the control room. Control of three of the SRVs is available at the Remote Shutdown Panel. Control of an additional three SRVs is available at the Alternate Remote Shutdown Panel.
6. Licensee calculations have determined that the maximum number of SRVs required for successful ADS operation is five. This calculation was based on the decay heat load present after an extended run at 100 percent power. The decay heat load present prior to ADS functional testing is significantly lower than this. The decay heat is lower based on: (1) the installation of new fuel during the refueling outage; (2) the significant reduction of decay heat that occurs during the 30 days or longer of refueling outage time; and (3) the lower decay heat generated by a short period of operation at less than 10 percent power versus the heat that would be generated by operating at 100 percent power.
7. The High Pressure Core Spray (HPCS) and Reactor Core Isolation Cooling (RCIC) systems are required to be operable prior to entry into Operational Condition 1, 2, or 3 for HPCS and prior to exceeding 150 psig reactor pressure for RCIC. Thus, both systems are verified operable shortly before exceeding 950 psig. This provides a high level of confidence that they are operable and will be available if needed.

Therefore, additional time for operator response and alternate systems is available compared to the assumptions made in the accident analyses.

Presently, without exemption from Specification 4.0.4, TS 3/4.3.7.5 requires either the valve position indicator to be removed from the main steam relief valve (MSRV) and tested separately or the MSRV to be cycled without sufficient steam back pressure. Removal and stroking of the valve position indicator has the potential to damage the device on reassembly. Additionally, removal, stroking and reassembly of the valve position indicator increases plant staff exposure with no significant increase in overall plant safety. Operating the valve with insufficient steam back pressure has caused significant valve seat damage. The proposed revision would eliminate increased plant staff exposure and testing conditions potentially damaging to plant equipment. Therefore, the staff finds the proposed revision to TS 3/4.3.7.5, Table 4.3.7.5-1, "Accident Monitoring Instrumentation Surveillance Requirements," acceptable.

TS 3/4.4.2.b, "Safety/ Relief Valves," and TS 3/4.5.1.e.3.b, "Emergency Core Cooling Systems," require that MSRVs be opened to assure equipment operability. However, without sufficient steam pressure and flow, opening these valves can lead to an unnecessary challenge to the plant (a scram). The



proposed revision will delay opening of the MSRVs until adequate steam pressure and flow are achieved and therefore prevent the plant from being challenged. The staff finds the proposed revision to TS 3/4.4.2.b, "Safety/Relief Valves," TS 3/4.5.1.e.3.b, "Emergency Core Cooling Systems," and the Bases for TS 3/4.4.2 acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

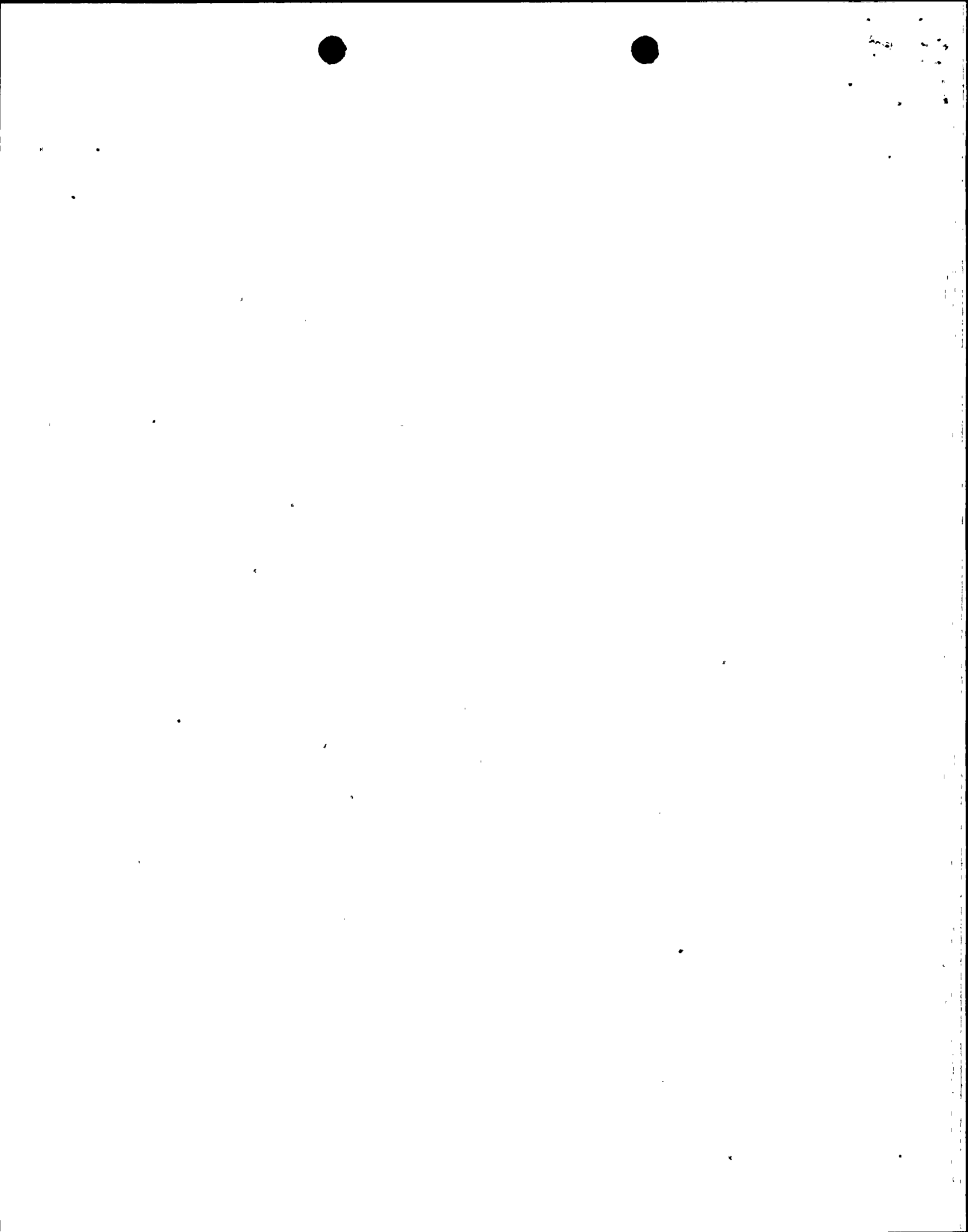
The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (59 FR 25131). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 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 the amendment.

5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Mohammed A. Shuaibi

Date: July 8, 1994



Mr. J. V. Parrish

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July 8, 1994

A copy of the related Safety Evaluation is also enclosed. A notice of issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Original signed by James W. Clifford

James W. Clifford, Senior Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 128 to NPF-21
- 2. Safety Evaluation

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MShuiabi	KPerkins, RIV/WCFO

* See previous concurrence

OFC	LA/DRPW <i>df-c</i>	I/PDIV-3 <i>11.8</i>	PM/PDIV-2
NAME	DFoster-Curseen	MShuaibi:mk	JClifford
DATE	6/21/94	6/21/94	7/7/94

OFC	SRXB	HCIB	OTSB	OGC	D/PDIV-3
NAME	TCollins*	JWermiel*	CGrimes*	Suttal*	<i>TQuay</i>
DATE	6/2/94	6/9/94	6/9/94	6/16/94	7/8/94

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