



Northern States Power Company

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June 29, 1984

Mr R L Spessard, Director
Division of Engineering
U S Nuclear Regulatory Commission, Region III
Office of Inspection and Enforcement
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr. Spessard:

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

In response to your letter dated May 31, 1984 which transmitted Inspection Reports No. 582/83-22 (DE) and 306/83-22 (DE) the following information is provided.

Violation

10CFR 50.59(a)(1) states, in part, that "The holder of a license authorizing operation of a production or utilization facility may...(ii) make changes in the procedures as described in the safety analysis report..., without prior Commission approval, unless the proposed change involves a change in the technical specifications incorporated in the license or an unreviewed safety question." 10 CFR 50.59(b) states, in part, that "The licensee shall maintain records of changes...in procedures made pursuant to this section, to the extent that such changes, constitute changes in procedures as described in the safety analysis report. These records shall include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question." The licensee's July 17, 1981, analysis of the adequacy of the station electrical distribution system which was incorporated by reference in the Updated Safety Analysis Report (Reference 2 of Section 8.10, Page 8.10-1) assumed a minimum pre-trip 345 KV bus voltage of 348 KV.

Contrary to the above, on some occasions in 1983 the plant was operated at bus voltages between 342 KV and 345 KV without a prior safety evaluation. Although a subsequent licensee analysis indicates that operating voltages substantially lower than 342 KV are acceptable, the licensee did not conduct a safety evaluation in advance to determine if such operating voltages involved a unreviewed safety question.

This is a Severity Level IV violation (Supplement I).

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Response

Corrective actions have been taken and are documented in Inspection Report 282/83-22 (DE) and 306/83-22 (DE). These include:

- a. Procedural direction has been given to operators to ensure the adequacy of offsite power sources.
- b. A re-analysis of adequacy of station electrical distribution system voltages taking into account recent plant improvements has been completed. This analysis was submitted to the Office of Nuclear Reactor Regulation for review and approval. Region III was informed of the acceptability of this analysis.

We believe these actions fully address the deficiencies identified in the inspection report. However, the violation cited (plant operation outside the range of an assumption of an analysis referenced in the Updated Safety Analysis Report [USAR]) must be contested. There are two reasons for this: 1) First, the specific assumption cited in the inspection report was only one of many inter-dependent assumptions used in the analysis. The assumed system conditions, taken as a whole, were not violated during the four days in 1983 noted in the inspection report. 2) Secondly, an assumption in a report referenced in the USAR cannot serve as a "trigger" for initiation of a 10 CFR Part 50, Section 50.59 safety evaluation report. All such assumptions having safety significance must be explicitly stated in the USAR if deemed significant by the licensee or if directed by the Commission. All important limitations subject to NRC review and approval must be incorporated in the Technical Specifications.

Non-applicability of Assumptions to Four Dates in 1983

As noted in the inspection report, an analysis of the adequacy of the station electrical distribution system was completed and submitted for NRC review in 1981. The following assumptions were made in that analysis for grid voltages:

1. NSP system in a worst-case pre-disturbance condition.
2. Accident in one unit and trip of both units.
3. Post trip system voltages of 345 KV on the 345 KV system and a voltage on the 161 KV system determined by the initial setting of the load tap changer (LTC) regulating this voltage. The load tap changer is assumed to react too slowly to regulate this source.

As reported in our letter dated December 8, 1983, there were four instances in 1983 where 345 KV system voltage fell below the voltage assumed in the 1981 analysis of 345 KV (Table 1 of our December 8, 1983 letter). As noted in the table, these were brief periods when one of the unit generators was used to receive VARS for regulation of system voltage. This is a routine operating procedure used when the system is

lightly loaded and voltages must be held down. Under these conditions, on trip of the unit receiving VARS, 345 KV system voltage will rise. The following facts should be highlighted w_th respect to these four instances:

1. 345 KV system voltage (with both units on-line) was below the post-trip voltage of 345 KV assumed in the 1981 analysis, however
2. Post-trip 345 KV voltage (if both units would have tripped as assumed in the 1981 analysis) would have increased above 348 KV following the trip since VARS were being received and the other assumption in our 1981 analysis that the NSP system was in a worst case pre-disturbance condition did not apply. As shown on the attached Table, adjacent 345 KV substation voltages were all at 345 KV or above on the four dates in question. It is clear that the Prairie Island plant was not holding up the system (as was assumed in the 1981 analysis) but was being used to hold down voltage on a very strong grid. It was also determined that on all four of these days 4160 V safeguards bus voltage remained well above the minimum acceptable value of 92%

The assumptions we used in our 1981 analysis were therefore not applicable to the conditions existing on the four dates reported in our December 8, 1981 letter. If we had believed that the purpose of the 1981 analysis was to establish absolute limits on system voltages, a different set of assumptions would have been used. We would also have provided our explicit commitment to limitations based on these assumptions. To prevent further compliance problems, plant operating procedures now take generator reactive loading into account in establishing minimum acceptable grid voltages. A simple absolute voltage limit is not appropriate.

Use of Assumptions in Referenced Reports as a "Trigger" for 10 CFR Part 50, Section 50.59, Safety Evaluations

Section 50.59(a) permits a licensee to make changes in the facility and in the procedures as they are described in the facility's USAR without prior NRC approval unless (1) the change involves a change in the technical specifications, or (2) the change involves an unreviewed safety question. Section 50.59(b) requires the licensee to keep records of changes made pursuant to Section 50.59(a), including a written safety evaluation, "to the extent that such changes constitute changes in the facility as described in the safety analysis report or constitute changes in procedures as described in the safety analysis report". These records must be summarized in a report to be furnished to the NRC on an annual basis.

Under the plain language used in Section 50.59, two types of changes trigger the need to conduct a safety evaluation: (1) a "change in the facility", or (2) a "change in the procedures". In addition, to trigger the safety evaluation requirements, the changes must be made in the facility or procedures as they are described in the facility's USAR.

We believe that the position taken in the Notice of Violation is inconsistent with Section 50.59. The Notice of Violation states that a change in an "assumption" contained in a licensee analysis triggers the safety evaluation requirement under 50.59(b). However, Section 50.59(b) applies only to changes in "facility" or in "procedures". Contrary to the position expressed in the inspection report, not all "assumptions" are considered to be either part of the facility or procedures. An assumption, such as the 345 KV assumption at issue in the Notice of Violation, is not part of any physical "facility", rather it represents a parameter within which the operation of the facility was analyzed. Nor does the 345 KV assumption fit within the definition of "procedures". A "procedure" sets forth a sequence of steps directed toward accomplishing a specific plant operation. An assumption such as the 345 KV assumption, is not itself a procedure. Under Section 50.59(b) it cannot serve as the basis for a requirement to undertake a safety evaluation. The interpretation of the 345 KV assumption in the Notice of Violation is that its use in the referenced analysis implied that the licensee would not operate below that level, and that operation below that level constituted a change in procedure which required a prior safety evaluation. In short, the Notice of Violation treated the assumption as a procedural limit. This is plainly contrary to its use within the referenced analysis. An assumption should not be treated as a limit unless it is specified as such.

We must also disagree with the position expressed in the Notice of Violation that the assumptions used in the analyses that are referenced in the USAR are incorporated into the USAR for the purposes of Section 50.59(b) even though the assumptions are not explicitly stated in the USAR. The safety evaluation requirement under Section 50.59(b) applies only to changes in facility or in procedures "as described in the safety analysis report". The dictionary definition of the word "describe" generally refers to a detailed representation. At a minimum, the definition requires an explicit recital of the item "described". The 345 KV assumption was not explicitly set forth in the SAR and therefore was not "described" in the SAR.

Assumptions used in analyses referenced in the USAR were not intended to be limits; they were intended only to define an analytical framework. Some assumptions are not even expressly identified in the analysis. Others are peripheral to the analysis and its outcome.

On the basis of those considerations, we believe that assumptions used in analyses that are referenced in the USAR, such as the 345 KV assumption, do not fall within the scope of Section 50.59, unless these assumptions are explicitly set forth in the USAR itself. We request that the Level IV citation issued to Northern States Power Company be withdrawn based on the information we have provided.

The deficiencies noted by Mr J F Steeter in the inspection report are acknowledged by Northern States Power Company and appropriate corrective actions have been taken to prevent a recurrence.

Mr R L Spessard, Region III, USNRC
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Northern States Power Company

Please contact us if you require further information related to our response.

Respectfully yours,

G H Neib, fm CEL
C E Larson
Vice President - Nuclear Generation

CEL/DMM/dab

c: Resident Inspector, NRC
NRR Project Manager, NRC
G Charnoff (Attn: A D Wasserman)

Attachment

345 KV VOLTAGES IN NEARBY OR ADJACENT SUBSTATIONS
AND POST-TRIP PRAIRIE ISLAND 345 KV VOLTAGES
ON DAYS IN QUESTION

DATE	TIME	PI GEN MVARs	PI ADJ MVARs	Bus Voltages (KV)			CALC. POST- TRIP PI
				PI	BLUE LAKE	AS KING	
01/12/83	600	-65	-165	342	348	352	348
02/27/83	1800-2000	-100	-150	343	345	351	348 (Unit 2 CSD)
04/02/83	900	-65	-165	344	348	350	350
05/08/83	2100	-85	-185	344	348	348	350