

January 28, 2002

Mr. Alan Nelson  
Nuclear Energy Institute  
1776 I Street, NW., Suite 400  
Washington, DC 20006-3708

Mr. David Lockbaum  
Union of Concerned Scientists  
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Washington, DC 20006-3919

SUBJECT: PROPOSED STAFF GUIDANCE ON SCOPING OF EQUIPMENT RELIED ON TO MEET THE REQUIREMENTS OF THE STATION BLACKOUT RULE (10 CFR 50.63) FOR LICENSE RENEWAL THAT WAS ISSUED FOR COMMENTS ON NOVEMBER 14, 2001

Dear Messrs. Nelson and Lochbaum:

On January 15, 2002, the staff met with Nuclear Energy Institute (NEI) and other industry representatives to continue discussion of the subject issue from our earlier meeting that was held on January 10, 2002. During the January 15 meeting, the staff agreed to revise the above subject staff guidance to articulate further the staff position on scoping of SBO equipment in accordance with the requirements of the license renewal rule 10 CFR 54.4(a)(3) and the SBO rule (10 CFR 50.63). The staff also agreed to hold another meeting scheduled for mid-February pending the receipt of industry's comments on or before February 8, 2002.

We are requesting your comments on the enclosed staff position, in particular the boundary of the recovery equipment that should be within the scope. We request that you submit comments by February 8, 2002, so that the next public meeting on mid-February can be held on schedule. The staff plans on incorporating this position into the improved renewal guidance documents (NUREGs 1800, and/or 1801) in a future update. It is also possible that comparable changes might need to be made to NEI 95-10, Revision 3, "Industry Guidance for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule." If you have any questions regarding this matter, please contact Peter Kang at 301-415-2279.

Sincerely,

*/RA/*

Christopher I. Grimes, Program Director  
License Renewal and Environmental Impacts  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Project 690

Enclosure: As stated

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## NRC Staff Position on the License Renewal Rule (10 CFR 54.4) as it Relates to the Station Blackout Rule (10 CFR 50.63)

### Staff Position

Consistent with the requirements specified in 10 CFR 54.4(a)(3) and 10 CFR 50.63(a)(1), the plant system portion of the offsite power system should be included within the scope of license renewal. Based on precedent set in maintenance rule guidance (NRC Regulatory Guide 1.160), the switchyard should be considered for inclusion in this scope. The reasons for support of this position follow:

### Rationale

The license renewal rule, section 10 CFR 54.4(a)(3), requires that, "all systems, structures, and components relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for.....station blackout (10 CFR 50.63)" be included within the scope of license renewal. The station blackout rule, section 10 CFR 50.63(a)(1), requires that each light-water-cooled power plant licensed to operate be able to withstand and recover from a station blackout of a specified duration that is based upon factors that include: "(iii) The expected frequency of loss of offsite power; and (iv) The probable time needed to recover offsite power." The station blackout rule in this regard is consistent with the staff findings identified in the statement of considerations and NUREG-1032. In particular, with regard to factor (iv), the staff found that offsite power is more likely to be recovered (0.6 hours median time to restore) than the emergency diesel generators (8 hours median time to repair) ending a station blackout event.

Station blackout (SBO) is the loss of offsite and onsite ac electric power to the essential and non-essential switchgear buses in a nuclear power plant. It does not include the loss of ac power fed from inverters powered by station batteries nor loss of ac power from an SBO defined alternate ac power source. The SBO rule was added to the regulations in 10 CFR Part 50 because, as operating experience accumulated, concern arose that the reliability of both the offsite and onsite ac power systems might be less than originally anticipated, even for designs that met the requirements of General Design Criteria 17 and 18. As a result, the SBO rule required that nuclear power plants have the capability to withstand and recover from the loss of offsite and onsite ac power of a specified duration (the coping duration).

Licensees' plant evaluations followed the guidance specified in NRC Regulatory Guide (RG) 1.155 and NUMARC 87-00 to determine their required plant specific coping duration. The criteria specified in RG 1.155 to calculate a plant specific coping duration were based upon the expected frequency of loss of offsite power and the probable time needed to restore offsite power, as well as the other two factors (onsite emergency ac power source redundancy and reliability) specified in 10 CFR 50.63(a)(1). In requiring that a plant's coping duration be based on the probable time needed to restore offsite power, 10 CFR 50.63(a)(1) is specifying that the offsite power system be an assumed method of recovering from an SBO. Disregarding the offsite power system as a means of recovering from an SBO would not meet the requirements of the rule and would result in a longer required coping duration. The function of the offsite power system within the SBO rule is, therefore, to provide a means of recovering from the SBO.

This meets the criteria within license renewal 10 CFR 54.4(a)(3) as a system that performs a function that demonstrates compliance with the Commission's regulations on SBO.

The use of the offsite power system within 10 CFR 50.63(a)(1) as a means of recovering from an SBO should not be construed to be the only acceptable means of recovering from an SBO. A licensee could recover offsite power or emergency (onsite) power. It is not possible to determine prior to an actual SBO event which source of power can be returned first. As a result, 10 CFR 50.63(c)(1)(ii) and its associated guidance in RG 1.155, Section 1.3 and Section 2 requires procedures to recover from an SBO, including offsite and onsite power. During development of 10 CFR 50.63 the median time to recover an emergency diesel generator was determined to be longer than the median time to recover offsite power. The NRC staff determined that offsite power provided the preferred means to recover from an SBO event and, therefore, chose it as a factor used to calculate a required coping duration under 10 CFR 50.63(a)(1).

The offsite power systems of U.S. nuclear power plants consist of the country's transmission systems (the grid) and the plant systems that carry that power into the plants' electrical distribution systems which power safety equipment. The staff notes that it is not its intent to impose aging management programs on this country's transmission systems. As a practical matter, its authority in this area is limited. The staff has historically relied upon the well-distributed, redundant, and interconnected nature of the grid to provide the necessary level of reliability to support nuclear power plant operations. For purposes of the license renewal rule, the staff considers that the portion of offsite power equipment that includes the switchyard to the safety related buses should be included within the scope of the rule.

Nuclear power plant operators must ensure that the offsite power systems relied upon to meet GDC 17 and 18 are capable of performing their required function. The precedent set in the maintenance rule (10 CFR 50.65) guidance (RG 1.160, rev 2 and NUMARC 93-01, rev 2) indicates that, regardless of what organization actually performs the maintenance, switchyard equipment should be considered for inclusion in the rule. By ensuring that the appropriate offsite power system long-lived passive structures and components within the switchyard and down to the safety related buses are subject to an aging management review, we will ensure that the bases underlying the SBO requirements are maintained over the period of license renewal. This is consistent with the Commission's expectations in including the SBO regulated event under section 10 CFR 54.4(a)(3) of the license renewal rule.

Alternate ac power sources were accepted under the SBO rule as an alternate means of withstanding an SBO. The definition of an alternate ac power source is contained in 10 CFR 50.2. Based upon our review of 10 CFR 50.63, 10 CFR 50.2, the SBO RG 1.155, and the statement of considerations for the SBO rule, the staff finds that the intent of the SBO rule was to accept alternate ac power sources only as a means of coping with an SBO. While the rule did not require a coping analysis for alternate ac sources that could be made available within 10 minutes, it nevertheless required that the coping duration of 10 CFR 50.63(a)(1) be established. It is, therefore, not appropriate to accept alternate ac sources as a means of recovering from a station blackout and to limit the scope of equipment in license renewal which demonstrates compliance with the SBO rule to such alternate sources.

NUCLEAR ENERGY INSTITUTE

Project No. 690

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