EDISON

October 6, 1998

Office of General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
Request for Legal Opinion on the Scope of 10 CFR § 50.54(x)
San Onofre Nuclear Generating Station (SONGS) Units 2 and 3

Southern California Edison Company (SCE) desires to implement cross-ties between the electrical power systems of SONGS Units 2 and 3 so that, in an emergency involving a blackout at one unit, an emergency diesel generator at the other unit would be able to supply electrical power to the blacked-out unit. SCE intends to use the cross-ties only during an emergency declared under 10 CFR § 50.54(x), which permits a licensee to depart from requirements during an emergency in order to protect the public health and safety. Based upon advice of counsel, SCE has concluded that it does not need NRC approval to install the cross-tie or to use it when Section 50.54(x) is invoked. Nevertheless, given the absence of guidance or precedents that directly address this issue, there is some legal uncertainty whether Section 50.54(x) may be invoked for cross-connections of units, and for that reason SCE has elected to request a legal opinion regarding the scope of 10 CFR § 50.54(x). Specifically, SCE requests that NRC issue an opinion on the San Onofre docket which concludes that a licensee may use 10 CFR § 50.54(x) to take action that departs from applicable requirements and the design and licensing basis for one unit at a multi-unit site, when such action is immediately needed to mitigate an emergency at another unit at the site.

The basis for this request is provided in the enclosed request. In summary, there is no NRC guidance or precedent that directly addresses this issue. As explained in the enclosed request, however, such a departure would comport with the language of Section 50.54(x), would promote the purpose of Section 50.54(x), and would be consistent with the statement of considerations for Section 50.54(x). Therefore, there is a strong legal basis for NRC to issue the requested opinion.

There are also sound practical reasons for NRC to issue the requested opinion. Given the absence of any guidance on precedents, there is uncertainty regarding NRC's position on the scope of Section 50.54(x). As a result, licensees (including SCE) will be reluctant to establish provisions for cross-connecting their units during an emergency. Absent a legal opinion on Section 50.54(x), licensees may feel compelled to forego provisions that may help prevent or mitigate core damage or other impacts on the public health and safety. A legal opinion on the scope of Section 50.54(x) will remove this uncertainty, and thereby promote safety.

Accordingly, SCE requests that NRC issue a legal opinion which concludes that Section 50.54(x) may be used by one unit to depart from applicable requirements and its design and licensing basis, when such action is immediately needed to mitigate an emergency in another unit. SCE's request is limited to this legal question. SCE is not requesting that NRC approve the implementation or use of the planned cross-ties at SONGS.

Sincerely,

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
J. W. Clifford, NRC Project Manager, San Onofre Units 2 and 3
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REQUEST BY SOUTHERN CALIFORNIA EDISON COMPANY (SCE) FOR LEGAL OPINION ON THE SCOPE OF 10 CFR § 50.54(x)

I. Introduction and Purpose

San Onofre Nuclear Generating Station (SONGS) currently has two operating units (Units 2 and 3). SCE is planning to implement cross-ties between the electrical power systems, specifically the Emergency Diesel Generators (EDGs) of these units so that, in an emergency involving a blackout at one unit, an emergency EDG at the other unit would be able to supply electrical power to the blacked-out unit. SCE intends to use the cross-ties only during an emergency declared under 10 CFR § 50.54(x), which permits a licensee to depart from requirements during an emergency in order to protect the public health and safety.

There currently are no NRC guidance or precedents that directly address whether one unit, which is not in an emergency and is operating within its design and licensing basis, may use Section 50.54(x) to depart from applicable requirements (including its design and licensing basis) to help mitigate an emergency in another unit. The purpose of this request is to seek a legal opinion from the NRC on the SONGS docket on whether the scope of Section 50.54(x) encompasses such departures.

SCE's request is limited to the legal question posed above SCE is not requesting that NRC approve the implementation or use of the planned cross-ties at SONGS [1]

II. Description of Planned Cross-Ties for SONGS

As indicated above, SCE is requesting a legal interpretation of Section 50 54(x), and is not seeking NRC approval of the application of Section 50 54(x) to use of the cross-ties at SONGS Nevertheless, SCE believes that its legal request will be better understood and appreciated if it is placed in a factual context. Therefore, SCE is providing the following description of the planned cross-ties for SONGS [2]

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[1] In a letter dated December 31, 1996, SCE submitted a safety evaluation under 10 CFR § 50 59 for the cross-ties at SONGS, and requested NRC approval of preoperational testing and final turnover of the cross-ties In ongoing discussions between the NRC and SCE, the NRC questioned the regulatory context for NRC review of this submittal

[2] A more complete description was provided in SCE's letter to NRC dated December 31, 1996

Each of the operating units at SONGS has two trains of safety-related AC electrical power Each train includes an EDG, which supplies electrical power to a 4.16 kV safety-related bus. Each train is separate, and independent from the EDGs of the other unit and from the other train of the same unit. The EDGs for a unit are capable of supplying the loads required to achieve safe shutdown or mitigate a design basis accident at the unit, assuming a loss of offsite power and a single failure (including a failure of one of the two EDGs for the unit). An event involving the loss of offsite power plus the loss of both EDGs of a unit is beyond the design basis of the unit, except as required to satisfy the station blackout requirements in 10 CFR § 50 63. In this regard, SONGS is a 4-hour coping plant under Section 50.63.

Since 1990, SONGS has had a "Desperate Operating Instruction" which calls for use of Section 50.54(x) to cross-connect a non-blacked-out unit's EDG(s) to the 4.16 kV safety-related bus of the corresponding trains of a blacked-out Unit. Because the cross-ties are currently installed but disabled at Units 2 and 3, the instruction states that the cross-connection should be implemented by lifting leads and installing jumpers to bypass existing interlocks.

In the mid-1990s, SCE conducted an Individual Plant Examination of External Events (IPEEE) for SONGS, which included an examination of events which were outside the design basis for Units 2 and 3 These events included a severe seismic event which resulted in a loss of offsite power and a failure of both EDGs at one of the units (i.e., a unit blackout involving loss of all AC power). The IPEEE identified that steam generator dryout and core uncovery could be avoided during a unit blackout if electrical power could be supplied within 55 minutes to one of the 4 16 kV safety-related busses of the blacked-out unit. Under the Desperate Operating Instruction for SONGS, operators might not be able to complete lifting of the leads, installing jumpers, and taking the other requisite actions to cross connect the electrical power systems of the two units within the 55 minute period identified in the IPEEE. As a result, SCE committed to install an engineered EDG cross-connect capability between Units 2 and 3 in order to be able to supply electric power to a blacked-out unit within 55 minutes.[3] The EDG cross-ties and associated controls are described in more detail in Attachment 1

If only one EDG were operable, the cross-connection would enable the EDG to supply power for both units. However, the cross-connection would take the unit with the operable EDG and place it in a condition outside its design and licensing basis - - the cross-connection would leave the EDG available for use but technically inoperable, which would be inconsistent with the technical specifications for SONGS. Therefore, the cross-tie would be used only after an emergency has been declared under Section 50 54(x)

The IPEEE identified a significant safety benefit from this cross-connection In particular, the IPEEE determined that the core damage frequency would be reduced from 2 E-4 per year with no cross-connection (including no use of jumpers) to 7 E-5 per year as a result of installation of the engineered cross-connection capability

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[3] Letter dated December 15, 1995, from Walter C Marsh (SCE) to NRC

III. Applicable Guidance and Precedents

10 CFR 50.54(x) states as follows:

> A licensee may take reasonable action that departs from a license condition or a technical specification (contained in a license issued under this part) in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent.

Although the rule itself refers to departures from license conditions and technical specifications, the statement of considerations for Section 50.54(x) states that it may also be used to depart from applicable NRC regulations.[4]

There is no NRC or industry guidance which directly addresses whether Section 50.54(x) may be used by one unit, which is not in an emergency, to depart from its requirements to help mitigate an emergency in another unit. Similarly, SCE is not aware of any precedents which directly address this issue. However, for the following reasons, SCE believes that it would be appropriate to invoke Section 50.54(x) for such a purpose.

A The Language of Section 50.54(x) Is Sufficiently Broad To Permit Its Application to Cross-Connection of Units

The language in Section 50.54(x) is broad. It provides general authorization for a licensee to depart from requirements when such action is needed to protect the public health and safety. Section 50.54(x) does not expressly confine this authority to actions the unit experiencing the emergency. Thus, the literal language of Section 50.54(x) would not preclude one unit from departing from its requirements in order to mitigate an emergency in another unit.

B. The Purpose of Section 50.54(x) Supports Its Application to Cross-Connect Units

As indicated in the following excerpts from the statement of considerations for Section 50.54(x),[5] the purpose of this section is to enable a licensee to deviate from requirements in order to protect the public health and safety:

- "Emergencies can arise, though, during which compliance with a license condition or technical specification could prevent necessary action by a licensee to protect the public

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[4] 48 Fed. Reg. 13966, 13969 (April 1, 1983).

[5] 48 Fed. Reg. at 13966-7.

health and safety. . . . Absolute compliance with the license in emergencies can be a barrier to effective protective action by a licensee."

- "It is the intent of the rule to allow deviations from license requirements in the special circumstances described. . . . the Commission believes that there should be a specific provision in the Commission's rules clearly indicating that a licensee may take reasonable action that departs from a license condition or technical specification in an emergency when such action is immediately needed to protect the public health and safety."

These statements clearly indicate that the purpose of Section 50.54(x) is protection of the public health and safety, which is given a higher priority than compliance with requirements. In fact, the statements of consideration go on to state that, if action is needed to protect safety, a licensee "would be obliged to take protective action that deviates from the license."[6]

Thus, the purpose of Section 50.54(x) would be served by taking one unit, which is operating within its design and licensing basis, and placing it outside of its applicable license requirements in order to mitigate an emergency in another unit.[7]

C. Cross-Connection of Units Is Consistent with the Commission's Intent in Giving Licensees Flexibility in Using Section 50.54(x)

In promulgating Section 50.54(x), the Commission stated that it desired to provide licensees with flexibility to enable them to take the necessary protective action during an emergency.[8]

> As for deviation guidance, one comment, which was opposed to such, was typical: "[w]e do not believe that it is feasible to provide detailed guidance as to when deviations are permissible. The whole purpose of the proposed amendments is to provide flexibility in situations that cannot be anticipated. Any effort to provide more detailed standards is likely to defeat that purpose by unintentionally excluding a situation in which a deviation is necessary or appropriate."
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> The Commission agrees with this comment, and feels that any attempt to define in more detail the precise circumstances under which a deviation is permissible is bound to exclude a circumstance where deviation might be entirely appropriate. Whereas the conditions under which a deviation is allowed are not described at length, nevertheless, the

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[6] 48 Fed Reg. at 13969

[7] In contrast, it would obviously be inconsistent with safety, and thus the purpose of Section 50.54(x), to insist that one unit comply with license requirements if doing so would render the licensee unable to prevent or mitigate core damage or other emergency condition in another unit.

[8] 48 Fed. Reg. at 13968

deviation criteria are quite specific: the licensee must be faced with an emergency situation in which compliance with the license is posing a barrier to effective protective action and rapid protective action is needed.

This statement clearly indicates that Section 50.54(x) is intended to be an expansive grant of authority to licensees to enable them to deal with emergency situations. It gives licensees "flexibility" to invoke Section 50.54(x), and it does not "exclude" any particular type of deviation needed to respond to an emergency.

It would be inconsistent with this statement by the Commission to limit the scope of Section 50.54(x) to deviations involving only the unit that is experiencing the emergency. Licensees should have the flexibility of deviating from applicable requirements and the design and licensing basis for one unit in order to help mitigate an emergency in another unit.

D. Section 50.54(x) Was Not Intended to be Tied to a Particular Facility

Section 50.54(x) was not intended for the protection of a particular unit from damage, but instead is focussed on protection of the public health and safety. As provided in the statement of considerations for Section 50.54(x):[9]

> "The rule does not apply to machinery or the facility, *per se*, but would apply if such damage is tied to a possible adverse effect on public health and safety."

Thus, Section 50.54(x) is focussed on safety, not a particular facility or unit. Therefore, actions authorized by this section should not be limited to actions within the unit experiencing the emergency, but instead should encompass any actions needed to protect the public health and safety, including taking one unit outside of its design and licensing basis to cross-connect it with another unit that is experiencing an emergency

E. NRC Guidance Recognizes that Severe Accident Management Guidelines May Involve Cross-Connections and Use of Section 50.54(x)

NRC has long encouraged licensees to develop severe accident management guidelines (SAMG) Although prevention and mitigation of severe accidents are outside the licensing basis of plants licensed to operate under Part 50, both NRC and the industry have recognized that it is preferable for licensees to develop voluntary plans for dealing with severe accidents than attempting to take actions on an *ad hoc* basis in the unlikely event a severe accident were to occur [10] Accordingly,

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[9] 48 Fed. Reg. at 13968-9

[10] *See, e.g.*, SECY-98-131, "Status of the Integration Plan for Closure of Severe Accident Issues and the Status of Severe Accident Research" (June 8, 1998)

the industry has developed and is committed to implementing SAMG as provided in NEI 91-04, Rev. 1, "Severe Accident Issue Closure Guidelines."

In recent clarifications to NEI 91-04,[11] NEI has emphasized the value of using SAMG to pre-plan protective actions for postulated emergency situations, including actions under Section 50.54(x) that involve deviations from requirements:

> In practice, the application of §50.54(x) and (y) can lead (and has led) to situations where existing decision-making processes and plant procedures are disregarded, potentially an uncontrolled situation. When entry into §50.54(x) and (y) is declared for entry into SAMG, the SAMG should be followed in order to maximize the likelihood of successful accident mitigation.

Comments by the NRC staff on these clarifications to NEI 91-04 recognize that the SAMG may entail "cross-ties to a second, non-affected unit."[12] These same comments also recognize that implementation of the SAMG may require a licensee to invoke Section 50.54(x). As the staff stated:

> However, we caution that actions taken almost immediately upon entry into SAMG could depart from the licensing basis and Technical Specifications, and therefore require licensees almost immediately to invoke §50.54(x) and (y).[13]

Thus, NRC has recognized that a licensee may pre-plan to invoke Section 50.54(x) to take actions that involve departures from requirements during an emergency.[14]

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[11] Letter dated July 22, 1997, from David J Modeen (NEI) to Gary Holahan (NRC), enclosing "Clarifications to Severe Accident Management Industry Guidelines," p 5.

[12] Letter dated January 28, 1998 from Gary M. Holahan (NRC) to David Modeen (NEI), Enclosure p. 1.

[13] *Id.*, p. 2.

[14] For several reasons, it would be unreasonable to prohibit use of Section 50.54(x) to pre-plan departures from requirements during an emergency. First, such a prohibition would discourage planning, which is clearly contrary to safety and the NRC's goal of encouraging licensees to develop SAMG. Second, if a licensee were required to obtain NRC approval for plans that call for departures from requirements during beyond design basis accidents conditions, licensees would be discouraged from establishing such plans, which again would be contrary to safety

NRC's comments on NEI's clarifications to NEI 91-04 did not directly state that Section 50 54(x) may be invoked to use a cross-connection between units However, as indicated above, NRC's comments clearly recognize that SAMG may call for cross-connections between units and that licensees will almost assuredly need to invoke Section 50 54(x) to implement SAMG When considered in combination, these statements lend further support for the conclusion that a licensee may use Section 50.54(x) to cross-connect units

F. Summary

There is no NRC guidance or precedent that directly addresses whether a unit, that is not experiencing an emergency, may use Section 50.54(x) to depart from applicable regulatory requirements in order to help mitigate an emergency in another unit However, such a departure would comport with the language of Section 50 54(x), would promote the purpose of Section 50 54(x), would be consistent with the provisions in the statement of considerations for Section 50 54(x), and would further NRC's goal of encouraging licensees to develop severe accident management guidelines Therefore, there is a strong basis for NRC to conclude that Section 50.54(x) may be used to enable one unit, that is not in an emergency, to depart from regulatory requirements and its design and licensing basis to mitigate an emergency in another unit

IV. Need for a Legal Opinion from NRC on Section 50.54(x)

As discussed above, there is a strong basis for concluding that Section 50 54(x) may be used to enable one unit, that is not in an emergency, to depart from regulatory requirements to mitigate an emergency in another unit However, there is no NRC guidance or precedent that directly addresses this issue. Absent such guidance and precedent, there is uncertainty regarding NRC's position on this issue A legal opinion from NRC would help eliminate this uncertainty

There are several reasons why issuance of a legal opinion to eliminate this uncertainty is desirable

- As discussed in Section III E above, NRC has encouraged the industry, and the industry has committed, to develop SAMG A legal opinion would assist in accomplishing this common NRC and industry goal by removing uncertainty regarding whether the SAMG may take advantage of Section 50 54(x) to activate cross-ties of two units during a severe accident

- There are approximately 40 multi-unit sites in the United States As a result, the issue raised by SCE is likely to recur at other plants A legal opinion would benefit not only SONGS, but would help remove uncertainty regarding the scope of Section 50 54(x) at other multi-unit plants as well

- As discussed in Section 2 above, the IPEEE shows that the cross-connection at SONGS would produce a significant safety benefit Additionally, the NRC staff has informally

expressed the opinion that the cross-connection at SONGS would be beneficial to safety A legal opinion that the cross-connection can be used under Section 50 54(x) would remove a potential legal barrier to installation and use of the cross-connection at SONGS, and thereby would promote safety.

- SCE desires to comply with NRC regulations A legal opinion would eliminate any risk that SONGS might be taking an action that would not be consistent with Section 50 54(x)

In summary, given the uncertainty regarding the scope of Section 50 54(x), licensees (including SCE) will be reluctant to establish provisions for cross-connecting their units during an emergency. Absent a legal opinion on Section 50.54(x), licensees may feel compelled to forego provisions that may help prevent or mitigate core damage or other impacts on the public health and safety during an emergency. A legal opinion on the scope of Section 50.54(x) will remove this uncertainty, and thereby promote safety

V. SCE's Request for Legal Opinion

Based upon the foregoing, SCE requests that NRC issue a legal opinion on the SONGS docket on whether one unit, that is not in an emergency, may use Section 50.54(x) to depart from applicable requirements and its design and licensing basis to mitigate an emergency in another unit More specifically, SCE requests that the NRC reach the following conclusion regarding Section 50 54(x)

> When an emergency exists at one unit of a multi-unit site, a licensee may use 10 CFR § 50 54(x) to take reasonable action (either ad hoc or pre-planned action) that departs from the license conditions, technical specifications, or regulations applicable to any unit at the site, when such action is immediately needed to protect the public health and safety and no action consistent with the license conditions, technical specifications, and regulations that can provide adequate or equivalent protection is immediately apparent This action specifically includes taking a unit that is currently operating within its design and licensing basis to a condition that is beyond its design and licensing basis, when such action is immediately needed to protect the public health and safety and no action consistent with the license conditions, technical specifications, and regulations that can provide adequate or equivalent protection is immediately apparent

ATTACHMENT 1

DESCRIPTION OF CROSS-TIES OF ELECTRIC POWER SYSTEMS AT SONGS

For each safety-related train, the planned cross-connect capability consists of 1) an existing line running between the 4.16 kV busses of the corresponding trains of each unit, and 2) two hand switches at each end of each line (i.e., 4 switches per train, 8 switches in total) that could be used to connect the corresponding trains of the electrical power system at the two-units The planned cross-ties would meet the standards in IEEE 323, 344, 379, and 384 related to environmental qualification, seismic qualification, single failures, and electrical independence

With the hand switches in their normal position, the existing design functions of the electrical power system would be unaffected. Both switches on the corresponding train of both units (i e . four switches in total) would need to be manually manipulated to activate the cross-connect capability for one train. After the cross-tie is established, the required engineered safety feature (ESF) loads would be manually loaded from the control room

The switches would be located in a vital area on the respective unit's train's fire isolation switch panel in the Class 1E switchgear room. Access to vital areas is controlled by security key cards The cross-tie switches would be located in a cabinet, be uniquely identified from the fire isolation switches in the same cabinet, and have position indicators for "Normal" and "50 54X" operation Administrative controls would be in place to prohibit cross-tie switch manipulation except in an emergency declared under Section 50 54(x). Repositioning of any hand switch from the normal position would cause an alarm in the control room With redundant, alarmed switches, inadvertent repositioning of more than one switch (and inadvertent activation of a cross-tie) would be outside the single failure design basis for SONGS

The EDG cross-ties are only intended for use in a situation in which one unit has experienced a loss of offsite power and a loss of both of its EDGs, i.e . a unit blackout which is beyond the design basis of the plant If the other unit has one or more operable EDGs, use of a cross-tie would enable an available EDG to provide power to the blacked-out unit If only one EDG were available for the entire plant, the EDG would be used to supply power to both units