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PETITION RULE PRM 50-39 (50 FR 20799) ⑤

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WRITERS DIRECT DIAL NUMBER

July 22, 1985

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Attention: Docketing and Service Branch

Re: Southern California Edison Company
Petition for Rulemaking on GUARD
Decision (Docket No. PRM-50-39)

Gentlemen:

The Commission recently published, at 50 Fed. Reg. 20799 (May 20, 1985), notice of receipt of a petition for rulemaking filed by Southern California Edison Company in response to the Court of Appeals' decision in GUARD v. Nuclear Regulatory Commission, 753 F.2d 1144 (D.C. Cir. 1985). The notice invited the comments of interested parties concerning the petition, which proposes that the Commission amend its emergency planning regulations at 10 C.F.R. § 50.47(b)(12) to clarify that onsite and offsite emergency response plans need include medical arrangements only for persons who are both contaminated and traumatically injured. No pre-arrangements for medical services would be required for persons who are exposed to excessive radiation but are not contaminated, and have not also suffered physical injury requiring immediate treatment in a medical facility.

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On behalf of Carolina Power & Light Company, The Cleveland Electric Illuminating Company, Duquesne Light Company, Kansas City Power & Light Company, Kansas Electric Power Cooperative, Inc., Kansas Gas and Electric Company, Louisiana Power & Light Company, Northern States Power Company, Ohio Edison Company, Pennsylvania Power & Light Company, Sacramento Municipal Utility District, The Toledo Edison Company, Union Electric Company and Wisconsin Electric Power Company, all of whom hold operating licenses and/or construction permits for nuclear power reactors, we are pleased to provide the following comments for the Commission's consideration.

I. Summary

We support the petition for rulemaking for the following reasons:

1. Time is not of the essence in treating excessive radiation; and, therefore, persons suffering from irradiation do not require emergency medical treatment.
2. Radiation exposure is a relatively easy injury to treat. Any large community hospital should be capable of treating persons exposed to excessive radiation.
3. Existing hospitals are capable of treating far more than the number of persons who potentially would be so severely irradiated as to require non-emergency hospitalization. The nature of radiation injury is such that transporting such persons to facilities anywhere in the United States would not increase the danger to them.
4. Granting the petition would be consistent with the studies upon which 10 C.F.R. § 50.47(b)(12) was based.

II. Background

The Commission's emergency planning regulations at 10 C.F.R. § 50.47(b)(12) require that:

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Arrangements are made for medical services
for contaminated injured individuals.

See also 10 C.F.R. Part 50, Appendix E, § IV.E.

In Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 N.R.C. 528 (1983), the Commission interpreted 10 C.F.R. § 50.47(b)(12) to include persons exposed to excessive amounts of radiation, as well as those contaminated with radiation and also traumatically injured. Id. at 530, 533.1/ The Commission concluded that adequate medical arrangements for radiation exposed persons would be provided by a list of area medical facilities capable of treating radiation injuries. Id. at 536. This conclusion was based on the nature of radiation injury and its treatment:

The nature of radiation injury is that, while medical treatment may be eventually required in cases of extreme exposure, the patients are unlikely to need emergency medical care. The non-immediacy of the treatment required for radiation-exposed individuals provides onsite and offsite authorities with an additional period of time to arrange for the required medical service. Thus, any treatment required could be arranged for on an ad hoc basis.

. . . [A]dequate medical services
could be provided by using existing local

1/ The Appeal Board in San Onofre had determined that the phrase "contaminated injured individuals" in 10 C.F.R. § 50.47(b)(12) was not intended to include persons who were exposed to radiation but not contaminated. Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 N.R.C. 127, 136-38 (1982). The medical basis for the distinction between contaminated injured and radiation exposed persons recognized by the Appeal Board is discussed infra.

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or regional facilities including arrangements made specifically for onsite personnel and emergency workers.

Id. at 535-36 (footnote omitted).

In GUARD, the United States Court of Appeals for the District of Columbia vacated the Commission's interpretation of the planning standard set forth in § 50.47(b)(12) with respect to what constitutes "arrangements" for medical services for members of the general public who might be exposed to radiation. 753 F.2d at 1150. The Court of Appeals did not disagree with the Commission's reasoning that, because radiation injury does not require emergency medical care, radiation exposed persons can be treated on an ad hoc basis. Rather, the Court ruled that once the NRC decided radiation exposure was covered by the planning standard, a simple list of existing facilities could not be construed to constitute "arrangements." See id.

In remanding the matter to the Commission, the Court of Appeals afforded the Commission substantial flexibility in its reconsideration of 10 C.F.R. § 50.47(b)(12). The Court stated:

[W]e impose no tight restraint on the NRC's regulatory authority. The Commission, on remand, may concentrate on the [San Onofre] record; it may revisit the question, not now before us for review, of the scope of the phrase 'contaminated injured individuals'; it may describe genuine 'arrangements' for medical services for dangerously exposed members of the general public; or it may pursue any other rational course.

753 F.2d at 1146 (emphasis added).

III. Discussion

The petition for rulemaking proposes that 10 C.F.R. § 50.47(b)(12) be amended to read:

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Arrangements are made for emergency medical services for persons who are both (i) contaminated with radioactive material and (ii) physically injured such that immediate treatment in a medical facility is required.

Petition at 4.2/ For the reasons stated below, we believe there is a clearly established basis for limiting the requirement for pre-arrangements under 10 C.F.R. § 50.47(b)(12) to individuals who are both contaminated and traumatically injured.

A. Time Is Not of the Essence in Treating Radiation Exposure.

As the Commission noted in its Statement of Policy on Emergency Planning Standard 10 CFR 50.47(b)(12), 50 Fed. Reg. 20892, 20894 (May 21, 1985), "[T]he slow evolution of adverse reactions to overexposure to radiation [is a matter] . . . over which there is no genuine controversy." This statement is well supported by medical studies 3/ as well as the evidentiary record in San Onofre4/ and other NRC licensing proceedings addressing the issue of medical services.5/

2/ That is, arrangements would be made for individuals who are contaminated and, at the same time, traumatically injured.

3/ See generally Karl Hubner and Shirley Fry, eds., The Medical Basis for Radiation Accident Preparedness (New York: Elsevier/North-Holland, Inc., 1980), Sections I and III; Clarence Lushbaugh, "Human Radiation Tolerance," in Space Radiation Biology and Related Topics, ed. C. Tobias and P. Todd (New York: Academic Press, 1974), p. 475-522.

4/ Citations to the San Onofre record will follow the format used in the petition for rulemaking (see Petition at 6 n. 1), except that the San Onofre hearing transcript will be cited as "SONGS Tr. __," with the appropriate page number(s) supplied.

5/ E.g., Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2). A contention concerning medical

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The licensing board in San Onofre found that:

4. Time is not of the essence in decontamination or treatment of excessive radiation. Treatment of a traumatic injury always takes precedence. Persons can be decontaminated at home or at any facilities where showers are available. (Linnemann, Tr. 7084, 7087 [Vol. II, pp. 440, 443], Hauck, Tr. 7121-22, 7798 [Vol. II, pp. 468-69, 477])

5. In excessive exposure cases, there is an unintermittible clinical course which evolves over days and weeks. The gradual evolution of the injury allows for time in which to bring the results of tests and expertise to bear. (Linnemann, Tr. 7102-03, 10,843-44 [Vol. II, pp. 455-56, 535-36])

Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 N.R.C. 1163, 1245 (1982). The Appeal Board agreed that "[p]eople who suffer radiation injury . . . are unlikely to need emergency treatment." ALAB-680, 16 N.R.C. at 137. See also Applicants' Direct Testimony of Roger E. Linnemann on Issue No. 1 - Contention P (hereinafter "Linnemann"), ff. Perry Tr. 2980, at 3; Perry Tr. 2989-90, 3004, 3029-34 (Linnemann). Even the intervenor's witness in the Perry proceeding agreed that "radiation injuries are seldom immediately life threatening" Testimony of Dr. Robert L. McTrusty, ff. Perry Tr. 3149, at 3. See also ALAB-680, 16 N.R.C. at 138 (noting that intervenors' witness in San Onofre agreed that hospitalization for radiation exposure would not be an emergency matter).

(Continued)

services was litigated in a recent evidentiary hearing on emergency planning held on April 11-12, 1985. Citations to the Perry hearing transcript are in the format "Perry Tr. __," with the appropriate page number(s) supplied.

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There is a significant medical distinction between persons who are merely exposed to radiation and those who are both contaminated and traumatically injured. As Dr. Roger E. Linnemann has explained:

[A] person who is merely exposed to radiation does not give off radiation anymore than a burnt patient gives off heat. They have been injured, they have the energy deposition but [are] not radioactive.

Perry Tr. 2988 (Linnemann). See also ALAB-680, 16 N.R.C. at 137. No special emergency facilities or equipment are necessary to treat such persons. SONGS Tr. 7083 (Linnemann) [Vol. II, p. 439]; Linnemann, ff. Perry Tr. 2980, at 3.

In the case of a "contaminated injured" patient, the patient's traumatic injuries are complicated by radioactive contamination, i.e., loose radioactive particles adhering to the body. An exposure hazard exists both to the patient and to emergency response personnel until these particles are removed. Procedures must be implemented to reduce exposure and control the spread of any contamination while the patient is being decontaminated. Linnemann, ff. Perry Tr. 2980, at 2; Perry Tr. 2988-89 (Linnemann). See also ALAB-680, 16 N.R.C. at 137.

Thus, there is a medical basis for distinguishing for emergency planning purposes between persons who are only irradiated and those who are both contaminated and traumatically injured.

B. Radiation Exposure is a Relatively Easy Injury to Treat.

Not only is radiation exposure a medical non-emergency, it is a relatively easy injury to treat. Radiation exposure is seldom life-threatening. Moreover, the clinical course of excessive irradiation unfolds predictably over time. The initial symptoms of radiation sickness (which require an exposure of at least 75 rem within a period of a few hours) are nausea and in severe cases, vomiting. This gastric distress, which does not require hospitalization and can be handled at Red Cross or

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relocation centers, lasts 24 to 48 hours, after which the patient is asymptomatic for two or three weeks. Later treatment generally consists of blood transfusions. See Perry Tr. 2989-90, 3031-34 (Linnemann); SONGS Tr. 10,825-26 (Linnemann) [Vol. II, p. 529-30].

Thus, any large community hospital should have the capability to treat radiation exposure. See SONGS Tr. 7728-29 (Linnemann) [Vol. I, p. 364-65]; Perry Tr. 3029-30 (Linnemann). Since radiation exposure evolves over time and requires little in the way of immediate treatment, there would be time to transfer severely irradiated persons to any hospital in the country for long-term definitive care if necessary. See SONGS Tr. 9992-93 (Ehling) (Vol. II, pp. 493-94); SONGS Tr. 7102-03, 7106 (Linnemann) [Vol. II, p. 455-56, 459].

C. Existing Medical Facilities Are Capable of Treating Far More Than the Number of Radiation Exposed Persons Potentially Requiring Non-Emergency Hospitalization.

Even a severe nuclear power plant accident could be expected to produce few, if any, radiation exposed persons requiring hospital care. The characteristics of a radiation release and the capabilities for protective action make it highly unlikely that anyone offsite would receive the level of exposure (150 to 200 rem over a period of a few hours) which would require hospitalization. Linnemann, ff. Perry Tr. 2980, at 3-4. See ALAB-680, 16 N.R.C. at 138.

The licensing board in San Onofre assumed, based on a table taken from the San Onofre Final Environmental Statement ("FES"), that there might be as many as 1,000 persons requiring hospitalization for radiation exposure in the event of a severe accident at the plant.^{6/} LBP-82-39, 15 N.R.C. at 1197-99, 1200 n. 30. The Appeal Board noted that the NRC Staff testified

^{6/} The accident assumed by the licensing board had, according to the FES table, a probability of 1×10^{-6} per reactor year. LBP-82-39, 15 N.R.C. at 1197.

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that this calculation was overly conservative and should not be used for emergency planning purposes. ALAB-680, 16 N.R.C. at 138 n. 13.^{7/} The conclusion that the calculations in the FES were too conservative is consistent with current research on accident source terms which post-dates the studies on which FES calculations are based. See Perry Tr. 3180-83 (Hankins).^{8/}

In the unlikely event that local hospitals at a particular plant were not able to accommodate all persons suffering from radiation injury, all hospitals have written disaster plans which provide for any patient overflow to be handled by regional referral hospitals. Perry Tr. 2998-99, 3041 (Linnemann).^{9/} Even if local and regional hospitals could not handle all the severely irradiated persons, since radiation exposure does not require immediate treatment there would be ample time to transfer any patient overflow to other hospitals.

^{7/} In any case, evidence in the record in San Onofre demonstrated that local medical facilities were more than capable of handling 1000 persons with radiation injuries. SONGS Tr. 9991-92 [Vol. I, pp. 373-74]. See ALAB-680, 16 N.R.C. at 138.

^{8/} For example, a recent evaluation of the Perry design performed by General Electric to estimate offsite dose versus distance from the plant shows that even at distances as close as one mile from the plant, a core melt accident produces doses of less than 25 rem (far below the 150 to 200 rem required for hospitalization) when realistic credit is taken for design features which mitigate the potential fission product releases. Rebuttal Testimony on NUREG/CR-2239, ff. Perry Tr. 3158, at 9 (Hankins). The estimated frequency of the accident assumed in the GE study was five times greater than the accident assumed by the licensing board in San Onofre. See id.

^{9/} The Joint Commission on Accreditation of Hospitals' Accreditation Manual for Hospitals (1985), at p. 132-33, requires that each hospital have a written disaster plan and that the plan be implemented (by drill or actual emergency) semiannually.

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- D. Granting the Petition Would Be Consistent with the Studies Upon Which 10 C.F.R. § 50.47(b)(12) Was Based.

The Commission in San Onofre, after examining the legislative history of 10 C.F.R. § 50.47(b)(12) and the pertinent background guidance documents,^{10/} found that none of the materials explicitly addressed whether radiation exposed persons were intended to be included within the term "contaminated injured individuals." CLI-83-10, 17 N.R.C. at 532-33. In concluding that radiation exposed persons ought to be included, the Commission gave great deference to the position of the Federal Emergency Management Agency ("FEMA"). See id. at 533-34. However, the Commission also acknowledged that FEMA's position was not entirely clear. Id. at 536 n. 12a. See LBP-82-39, 15 N.R.C. at 1193-95 and n. 21.

For the reasons stated in the Petition, we believe that the studies leading to the adoption of 10 C.F.R. § 50.47(b)(12) are consistent with the amendment proposed in the petition for rulemaking. See Petition at 11-14. As stated by the Commission:

The regulation does not require dedication of resources to handle every possible accident that can be imagined. The concept of the regulation is that there should be core planning with sufficient planning flexibility to develop a reasonable ad hoc response to those very serious low probability accidents which could affect the general public.

^{10/} Those guidance documents are: NUREG-0396, EPA 520/1-78-016, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants" (1978), and NUREG-0654, FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (1980).

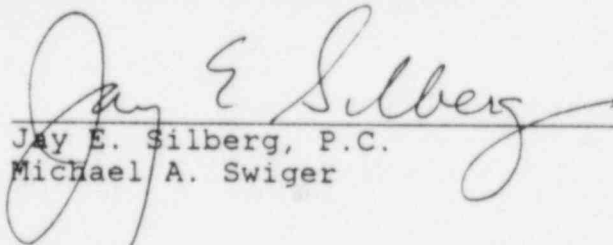
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CLI-83-10, 17 N.R.C. at 533. Pre-arrangements for persons who may be contaminated and traumatically injured in the event of a nuclear power plant accident constitute core planning which is a more than adequate basis for ad hoc measures to protect the health and safety of those who might be exposed to excessive radiation.

IV. Conclusion

In conclusion, the public safety does not require that emergency medical treatment be pre-arranged for persons exposed to excessive radiation unless those persons have been both contaminated and physically injured so as to require immediate medical treatment in a medical facility. The petition for rulemaking should therefore be granted.

Respectfully submitted,



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