04/14/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE	)	Docket No. 50-170
(TRIGA-Type Research Reactor)	)	(Renewal of Facility License No. R-84)

NRC STAFF'S STATEMENT OF POSITION
ON UNSTIPULATED CONTENTIONS OF PETITIONER
CITIZENS FOR NUCLEAR REACTOR SAFETY, INC

Pursuant to the Stipulation dated March 30, 1981 and signed by the Staff, the Armed Forces Radiobiology Research Institute (AFRRI or Licensee) and Citizens for Nuclear Reactor Safety, Inc. (Petitioner) on March 31, 1981, the Staff herein sets forth its statements of position regarding those contentions of the Petitioner which were not stipulated to, and which were submitted with the Stipulation as Attachment B.

BACKGROUND

On December 9, 1980, Petitioner filed a Petition for Leave to Intervene in this proceeding. On December 24, 1980, the Staff and the Licensee filed responses to the Petition, opposing the Petition on the issues of interest and standing. The Petitioner then filed an Amendment to Petition for Leave to Intervene on January 16, 1981. The Staff responded to the Amendment on January 26, 1981, and concluded that the Petitioner had cured the defects of interest and standing in the original Petition. In the Staff's Response,

it was noted that the Staff intended to meet with the Petitioner and the Licensee to attempt to stipulate admissible contentions.

Following a number of meetings, on March 27, 1981, the Staff, Petitioner and Licensee met, and as a result were able to stipulate as to the admissibility of six of Petitioner's proposed contentions. Agreement was not reached on seven additional contentions. Both sets of contentions were filed with the Board in the Stipulation signed by the parties and the Petitioner on March 31, 1981. As a consequence of these efforts and the parties' and Petitioner's agreement upon a stipulation of contentions, the Licensing Board now has before it the tasks of (a) ruling on Petitioner's "Amendment to Petition for Leave to Intervene", dated January 16, 1981; (b) approving the Stipulation dated March 31, 1981; (c) ruling on the admissibility of the nonstipulated contentions advanced by the Petitioner. In the balance of this pleading, the Staff submits its position concerning the nonstipulated contentions as set forth in Attachment B to the Stipulation.

DISCUSSION

As a general matter, for the contentions proposed to be admissible, they must fall within the scope of the issues set forth inthe Federal Register Notice in this proceeding,[1/] and comply with the requirements of

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1/ A Notice of Hearing has not yet been issued in this proceeding, since the Licensing Board has not yet ruled upon any request for hearing and/or petition for leave to intervene. See 10 CFR § 2.105(e). Notice of opportunity to request a hearing, which identifies to some extent the subject of the proceeding, has been published in the Federal Register. See "Armed Forces Radiobiology Research Institute (AFFRI); Consideration of Application for Renewal of Amended Facility License", 45 Fed. Reg. 78314 (November 25, 1980).

10 CFR 2.714(b) and applicable Commission case law. See, e.g., Northern States Power Co. (Prairie Island Nuclear Generating Plant, Unit Nos. 1 and 2), ALAB-197, 6 AEC 188, 194 (1973), aff'd, BPI v. Atomic Energy Commission, 502 F.2d 424, 429 (D.C. Cir. 1974); Duquesne Light Co. (Beaver Valley Power Station, Unit No. 1), ALAB-109, 6 AEC 243, 245 (1973); 10 CFR § 2.714(h).

10 CFR § 2.714(b) requires that contentions which intervenors seek to have litigated be filed along with the basis for those contentions set forth with reasonable specificity. A contention must be rejected where:

> (a) it constitutes an attack on applicable statutory requirements;
>
> (b) it challenges the basic structure of the Commission's regulatory process or is an attack on the regulations;
>
> (c) it is nothing more than a generalization regarding the intervenor's views of what applicable policies ought to be;
>
> (d) it seeks to raise an issue which is not proper for adjudication in the proceeding or does not apply to the facility in question; or
>
> (e) it seeks to raise an issue which is not concrete or litigable.

Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974).

The purpose of the bases requirement of 10 CFR § 2.714 is to assure that the contention in question does not suffer from any of the infirmities listed above, to establish sufficient foundation for the contention to warrant further inquiry of the subject matter in the proceeding, and to put the other parties sufficiently on notice "so that they will know at least generally what they will have to defend against or oppose". Peach Bottom

supra at 20. From the standpoint of bases, it is unnecessary for the petition "to detail the evidence which will be offered in support of each contention". Mississippi Power & Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 426 (1973). Furthermore, in examining the contentions and bases therefore, a licensing board is not to reach the merits of the contentions. Duke Power Company (Amendment to Materials License SNM-01773 -Transportation of Spent Fuel from Oconee Nuclear Station for Storage at McGuire Nuclear Station), ALAB-528, 9 NRC 146, 151 (1979); Peach Bottom, supra at 20; Grant Gulf, supra at 426. This principle was recently reaffirmed in Houston Lighting And Power Company (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 548 (1980) where the Appeal Board pointed out that, with regard to basis, all that is required at the petition stage is that the petitioner state the reasons for its contention.

In sum, at the petition stage, although a petitioner need not establish the validity of its contentions and the bases therefor, it is incumbent upon the petitioner to set forth contentions and the bases therefor which are sufficiently detailed and specific to demonstrate that the issues raised are admissible and that further inquiry is warranted, and to put the other parties on notice as to what they will have to defend against or oppose. This is particularly true where, as here, a hearing is not mandatory, in order to assure that an asserted contention raises an issue clearly open to adjudication. Cincinnati Gas & Electric Company, et al. (William H. Zimmer Power Station), ALAB-305, 3 NRC 8, 12 (1976); Gulf States Utilities Company (River Bend Station, Units 1 and 2), ALAB-183, 7 AEC 222, 226 at n.10 (1974).

Based on the foregoing, and as set forth below, the Staff believes Petitioner's contentions which were submitted with the Stipulation as Attachment B fail to meet the requirements of 10 CFR § 2.714(b) and accordingly should not be admitted as issues controversy in this proceeding. For the convenience of the Licensing Board and the parties, each unstipulated contention is reproduced below, followed by the Staff's statement of position.

Contention 1

Accidents I

The analysis of the loss of coolant accident (LOCA) and the two design basis accidents (DBAs) within Applicant's Hazard Summary Report (HSR) is faulty in that:

1) It erroneously concludes that in event of an accident described therein as "Loss of Shielding and Cooling Water", air convection cooling would be sufficient to prevent cladding failure and significant fission product release.

Petitioner contends that in the event of a rapid loss of coolant while the reactor core is in the pulse mode, there could be a sudden temperature elevation sufficient to cause multiple cladding failures and fission product releases in excess of the limits provided in 10 CFR Part 20;

2) Both of the DBA analyses in the HSR ("Fuel Element Drop Accident" and "Fuel Element Clad Failure Accident") erroneously consider only those radiation doses to humans that would result from submersion exposure to the noble gases released.

Petitioner contends that if such accidents were to occur, individuals would receive additional exposure due to internal emissions of the noble gases, sustaining injuries far greater than those predicted in the HSR.

Staff Position

The Staff opposes admission of part 1 of this contention on the grounds that it lacks adequate basis and fails to alert the parties as to

the matters sought to be litigated. The Petitioner does not indicate the mechanism by which the reactor could achieve pulse mode without the water moderator. The present wording of the contention states a physical impossibility, since the coolant is required to maintain criticality, and without criticality it is not possible to pulse the reactor. The Staff is aware of no scenario in which the reactor would not shut down upon loss of coolant, and the Petitioner has done nothing more than assert, without basis, that these events could occur.

Based on the foregoing, the Staff opposes admission of part 1 of this contention.

The Staff opposes admission of part 2 of this contention on the grounds that it lacks adequate basis and constitutes an indirect challenge to the Commission's regulations. 10 CFR Part 20 quite clearly bases the allowable concentrations of the noble gases, Argon, Krypton and Xenon, on submersion exposures (see 10 CFR Part 20, Appendix B, n.2). The Petitioner has set forth no "special circumstances" pursuant to 10 CFR 2.758 to demonstrate why the basis for Part 20 limits, submersion exposure, should not be applied in this case. Based on the foregoing, the Staff opposes admission of part 2 of this contention.

Contention 2

Accidents II

Accidents can be expected to occur at the AFRRI reactor of a different kind and greater severity than those described in the HSR. Such accidents would result in significant offsite releases and include:

1) Failure of the N-16 diffuser system. Petitioner contends that in the event of such failure, N-16 bubbles would accumulate along the surface of the fuel element cladding causing: a) insulation of the fuel elements from the water coolant resulting in rapid temperature elevation of the elements and possible multiple clad failures, and loss of water shielding; and b) production and release of the gaseous radionuclide N-16 with its powerful gamma ray.

2) Two maximum credible accidents (MCAs) beyond the design basis of the reactor (Class 9 accidents): a) power excursion accident (PEA) resulting in multiple cladding failures at an elevated temperature with reduction in the thermalizing effect of hydrogen, followed by an explosive zirconium-steam interaction; and b) LOCA resulting in multiple cladding failures at an elevated temperature, followed by an explosive zirconium-air interaction.

Staff Position

The Staff opposes admission of part 1 of this contention on the grounds that it lacks basis and seeks to raise an issue which is not litigable. Petitioner has misunderstood the purpose of the N-16 diffuser system. The system was never intended to prevent the accumulation of nitrogen bubbles on the fuel cladding. On the contrary, the system retards the rise of dissolved nitrogen to permit the decay of N-16, which has a half-life of 5.7 seconds. The Staff could not litigate the effects of the failure of a system, where that system, when operable, performs an entirely different function from that described by the Petitioner.

The Staff opposes the admission of part 2 of this contention on the grounds that it lacks an adequate basis and raises an issue which is neither concrete nor litigable. The Petitioner has not described in any way the mechanism by which a power excursion accident or a LOCA could occur. More importantly, it is a scientific fact that the Zirconium hydride used in the fuel has a very low reactivity to both air and water.

It is simply physically impossible to have an "explosive Zirconium-steam interaction" or an "explosive Zirconium-air interaction".

Contention 3

Testing Facility

Petitioner contends that the AFRRI facility is a testing facility within the meaning of § 31.a(3) and § 104(c) of the Atomic Energy Act of 1954, as amended, and § 50.21(c) and § 50.2(r) of 10 CFR Part 50.

[AFFIDAVIT TO BE SUBMITTED AT THE TIME OF FILING OF STATEMENTS OF POSITION]

Staff Position

The Staff maintains that the AFRRI reactor is not a testing facility within the meaning of 10 CFR 50.2(r).

In The Trustees of Columbia University, ALAB-3, 4 AEC 349 (1970) the Atomic Safety and licensing Appeal Board reviewed the certified question of whether a TRIGA reactor was a "testing facility" according to the definition of 10 CFR 50.2(r)(1). The Appeal Board decided, based on the potential for releases of radioactivity, that it was not a "testing facility". Id. at 350, 351. The Staff follows the long-standing precedent of Columbia University and opposes the admission of this contention.

Contention 4

Siting

Applicant has failed to demonstrate that the AFRRI facility satisfies the siting criteria set forth at 10 CFR Part 100.

Petitioner contends the AFRRI reactor falls within the scope of Part 100 siting criteria either as a testing reactor or a research reactor and cites for the latter case the Memorandum from Vollmer (Director, Division of Engineering, NRR), to Eisenhut (Director, Division of Licensing, NRR).

Petitioner contends that because of the density and residential nature of the population in the plume exposure EPZ, the inadequacy and inaccessibility of highways, the inadequacy of Applicant's Emergency Plan, and meteorological, geological and hydrological conditions of the area surrounding the facility, Applicant cannot provide reasonable assurance that Part 100 offsite dose limits would not be exceeded in the event of a maximum credible accident.

Staff Position

The Staff opposes the admission of this contention on the grounds that it seeks to raise an issue which does not apply to the facility in question and therefore is beyond the scope of this proceeding. The scope of 10 CFR Part 100 is set forth in 10 CFR § 100.2(a) which states:

> This part applies to applications filed under Part 50 of this chapter for stationary power and testing reactors.

Since the AFRRI reactor is a research reactor, and not a power or testing reactor (See Staff Position on Contention 3, supra), the site criteria of Part 100 clearly do not apply. In the event the Petitioner seeks an exemption from the regulation, the "special circumstances" of 10 CFR § 2.758 must be addressed. Petitioner has failed to do so.

Contention 5

Routine Emissions I

Applicant has not demonstrated that airborne and waterborne radioactive emissions from routine operations and disposal of solid wastes will be maintained within the limits of 10 CFR Part 20 in that actual and probable violations of these regulatory limits have taken place on the occasions listed below and Applicant's radiation monitoring methods and corrective actions are inadequate to detect and prevent their recurrence.

1) The data cited in 4) of the stipulated contention (Routine Emissions I) and Applicant's written response to Petitioner's question submitted in the winter of 1979, "[w]hat is the highest total exposure measures over the year at any one of the reactor environmental monitoring stations, for the [years 1975-1979]", demonstrate that releases measured at these stations from 1962 through 1965, 1978 and 1979 resulted in average annual whole body doses to members of the public in excess of EPA's limit of 25 mrem.

2) Applicant's incineration at NNMC of 160 boxes of contaminated solid waste, cited in NRC Inspection Reports for 1975-1976, Docket No. 50-170, resulted in the release of radioactive gases and particulates in excess of the limits set forth at 10 CFR Part 20, Appendix C.

3) Since Applicant's Environmental Impact Appraisal (EIA), submitted in conjunction with its license renewal application, admits that the highest average unrestricted area exposure rate from airborne releases (set forth in the EIA) extends to residential areas, it is highly probable that such exposures have resulted and continue to result in doses to the public in excess of 0.5 rem and, violate the principle that emissions from Applicant's operation be kept as low as is reasonably achievable (the ALARA principle).

4) Applicant's Environmental Release Report, issued 12/14/71, indicate that between 1/1/70 and 7/1/71 exposure rates in several unrestricted areas were as high as 1-5 mRad/hr. At this rate, any person who lived or worked in these areas 500 hours in a year, or about 10 hours a week, would receive an annual whole body dose in excess of the NRC's limit of 0.5 rem/yr. Since 50-60% of the area within a one mile radius of the AFRRI stack is residential, it is highly probable that the population dose limit was exceeded during this period. This is a violation of the ALARA principle.

Staff Position

The Staff opposes admission of part 1 of this contention on the grounds that it is an attack on the Commission's regulations. In the case of research reactors, the NRC does not apply exposure standards set by EPA. The applicable NRC regulation is 10 CFR Part 20, which has an annual limit for whole body doses in unrestricted areas of 500 mrem (10 CFR § 20.105). The Petitioner has not demonstrated "special circumstances" pursuant to 10 CFR § 2.758 to show why Part 20 should not be applicable.

The Staff opposes admission of part 2 of this contention on the grounds that it fails to put the other parties on notice as to what they will have to defend against or oppose. Neither the Staff nor the Licensee have any record of the reports Petitioner refers to. The Staff is not aware of any incineration performed under this particular license and has been informed by AFRRI that all wastes are shipped off site. Unless the Petitioner is able to be specific enough to enable the reports to be identified, the Staff opposes this contention.

The Staff opposes admission of part 3 of this contention on the grounds that it lacks adequate basis and fails to alert the parties as to the matters sought to be litigated. The fact that an unrestricted area exposure rate extends to residential areas does not raise a litigable issue since, by definition, an unrestricted area can be a residential area (10 CFR § 20.3(a)(17)). The test is whether the emissions result in doses to the general public in excess of .5 rem per year. Petitioner has stated no basis for contending that it is "highly probable" that doses to the general public in excess of .5 rem per year have occurred.

The Staff opposes part 4 of this contention on the grounds that it lacks adequate basis and seeks to raise an issue beyond the scope of the proceeding. The Petitioner has misstated the facts in the Environmental Release Report. The Report states quite clearly that a direct radiation exposure rate of 5.0 mR/hr was produced at the Maxitron 250, an x-ray facility located in a building not part of the AFRRI complex. Since this Board is considering the license renewal of the AFRRI reactor, part 4 is beyond the scope of the proceeding.

Contention 6

Routine Emissions II

10 CFR Part 20 limits are inadequate to protect the health and safety of the population in the vicinity of the AFRRI reactor.

This proceeding presents "special circumstances" within the meaning of 10 CFR § 2.758 that warrant the Board's consideration of whether the offsite air- and waterborne release limits set forth at 10 CFR Part 20 and Appendices B and C thereto are adequate to protect the public health and safety.

[AFFIDAVIT TO BE SUBMITTED AT TIME OF FILING OF STATEMENT OF POSITION]

Staff Position

The Staff opposes the admission of this contention on the grounds that it is an attack on the Commission's regulations, and that it is so vague it fails to put the other parties sufficiently on notice as to what Petitioner seeks to litigate. The Petitioner states no basis whatsoever for its bare

claim that 10 CFR Part 20 limits are inadequate to protect the health and safety of the population in the vicinity of the AFRRI reactor.

Contention 7

Security

Neither the Physical Security Plan for the facility nor Applicant's history of security violations and substandard management and operating procedures demonstrate that the controlled access areas can be protected from sabotage or diversion of special nuclear material according to the standards set forth at 10 CFR Part 73.

The Draft Audit Report of the AFRRI facility prepared by the Defense Audit Service in 1979 cites frequent instances of security and management violations, including:

1) Eighteen activations of the facility alarm system during a 34-day period, caused by personnel leaving work after normal duty hours from unauthorized exits. Auditors were told by AFRRI security personnel and other AFRRI officials that investigations were not made of the activations and that not enough security people were on duty to investigate each time the alarm went off;

2) unauthorized people entering the facility by following employees in who used their magnetic cards to unlock the door;

3) failure to escort visitors attending weekly seminars and provide them with dosimeters;

4) failure of employees entering and exiting the building after hours to sign a log showing their time of arrival and departure;

5) violations of Applicant's accounting and dispensing procedures for controlled substances such as narcotics.

Staff Position

The Staff opposes admission of this contention on the grounds that it lacks adequate bases and appears to raise issues which do not apply to the

facility involved in this proceeding. The AFRRI reactor facility possesses special nuclear material of low strategic significance. As such, only § 73.67 of 10 CFR Part 73 applies. 10 CFR § 73.67(a)(2) requires that the physical protection system shall provide:

> (i) Early detection and assessment of unauthorized access or activities by an external adversary within the controlled access area containing special nuclear material;
>
> (ii) Early detection of removal of special nuclear material by an external adversary from a controlled access area;
>
> (iii) Assure proper placement and transfer of custody of special nuclear material; and
>
> (iv) Respond to indications of an unauthorized removal of special nuclear material and then notify the appropriate response forces of its removal in order to facilitate its recovery.

None of the instances cited by the Petitioner appear to demonstrate a lack of compliance with 10 CFR 73.67, especially in that there is no showing early detection would not be accomplished. In addition, the Petitioner fails to indicate the connection between the violations and the controlled access area. No allegation has been made that any of the violations resulted in unauthorized access to the controlled access area without detection.

CONCLUSION

For the reasons stated above, the Staff urges that the Licensing Board (a) approve the Stipulation submitted by the Staff, AFRRI and Petitioner

and (b) deny admission of all other contentions advanced by Petitioner at this time.

Respectfully submitted,

Richard G. Bachmann
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 14th day of April, 1981

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-170
ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE	)	
	)	(Renewal of Facility License No. R-84)
(TRIGA-Type Research Reactor)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S STATEMENT OF POSITION ON UNSTIPULATED CONTENTIONS OF PETITIONER CITIZENS FOR NUCLEAR REACTOR SAFETY, INC." in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 14th day of April, 1981:

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