

August 23, 1982

Docket No. 50-409
LS05-82 -08-047

Mr. Frank Linder
General Manager
Dairyland Power Cooperative
2615 East Avenue South
LaCrosse, Wisconsin 54601

Dear Mr. Linder:

SUBJECT: SEP TOPIC III-4.D, SITE PROXIMITY MISSILES (INCLUDING AIRCRAFT) - LACROSSE

Enclosed is the staff's final evaluation of SEP Topic III-4.D for the LaCrosse Boiling Water Reactor. This evaluation is based on our review of your topic safety assessment report submitted by letter dated September 15, 1981. The staff has determined that LaCrosse meets the acceptance criteria for this topic.

This evaluation will be a basic input to the integrated safety assessment for your facility unless you identify changes needed to reflect the as-built conditions at your facility. This assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this subject is modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

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Enclosure:
As stated

cc w/enclosure:
See next page

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Mr. Frank Linder

cc

Fritz Schubert, Esquire
Staff Attorney
Dairyland Power Cooperative
2615 East Avenue South
La Crosse, Wisconsin 54601

O. S. Heistand, Jr., Esquire
Morgan, Lewis & Bockius
1800 M Street, N. W.
Washington, D. C. 20036

— Mr. R. E. Shimshak
La Crosse Boiling Water Reactor
Dairyland Power Cooperative
P. O. Box 275
Genoa, Wisconsin 54632

Mr. George R. Nygaard
Coulee Region Energy Coalition
2307 East Avenue
La Crosse, Wisconsin 54601

Dr. Lawrence R. Quarles
Kendal at Longwood, Apt. 51
Kenneth Square, Pennsylvania 19348

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
Rural Route #1, Box 276
Genoa, Wisconsin 54632

Town Chairman
Town of Genoa
Route 1
Genoa, Wisconsin 54632

Chairman, Public Service Commission
of Wisconsin
Hill Farms State Office Building
Madison, Wisconsin 53702

U. S. Environmental Protection
Agency
Federal Activities Branch
Region V Office
ATTN: Regional Radiation Representative
230 South Dearborn Street
Chicago, Illinois 60604

James G. Keppler, Regional Administrator
Nuclear Regulatory Commission, Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Mr. Ralph S. Decker
Route 4, Box 190D
Cambridge, Maryland 21613

Charles Bechhoefer, Esq., Chairman
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. George C. Anderson
Department of Oceanography
University of Washington
Seattle, Washington 98195

SYSTEMATIC EVALUATION PROGRAM

TOPIC III-4.D

LACROSSE

TOPIC: III-4.D, SITE PROXIMITY MISSILES (INCLUDING AIRCRAFT)

I. INTRODUCTION

The safety objective of this topic is to ensure that the integrity of the safety-related structures, systems and components would not be jeopardized due to the potential for a site proximity missile.

II. REVIEW CRITERIA

General Design Criterion 4, "Environmental and Missile Design Basis," of Appendix A, "General Design Criteria for Nuclear Power Plant," to 10 CFR Part 50, "Licensing of Production and Utilization Facilities," requires that nuclear power plant structures, systems and components important to safety be appropriately protected against events and conditions that may occur outside the nuclear power plant.

III. RELATED SAFETY TOPICS

Topic II-1.C, "Potential Hazards or Changes in Potential Hazards Due to Transportation, Institutional, Industrial and Military Facilities" provides a description of the potential missile hazards.

IV. REVIEW GUIDELINES

The review was conducted in accordance with the guidance given in Standard Review Plan (SRP) Section 2.2.3, "Evaluation of Potential Accidents," 3.5.1.5, "Site Proximity Missiles (except Aircraft)," and 3.5.1.6, "Aircraft Hazards."

V. EVALUATION

The potential for accidents as a result of nearby industrial, transportation and military facilities has been addressed in SEP Topic II-1.C, "Potential Hazards Due to Nearby Industrial Transportation and Military Facilities," (LaCrosse). As discussed in that report, there is little industrial activity in the vicinity of LACBWR. Using the guidelines of SRP 2.2.3, it was concluded that the threat to the safe operation of the plant posed by barge, train, or truck accidents resulting in explosions is sufficiently remote that such accidents need not be considered as a design basis event.

The evaluation of SEP Topic II-1.C also concluded that neither the LaCrosse Municipal Airport nor military aircraft represent an undue risk to the safe operation of the nuclear plant and meet the acceptance criteria of SRP 2.2.3. There are no gas pipelines in the vicinity of the plant so there is no hazard to LACBWR from missiles resulting from the explosion of gas pipelines.

A 350 MWe coal-fired plant, Genoa Unit No. 3 is located adjacent to LACBWR. The possible hazards due to missiles generated by an explosion at the coal unit were examined. No statistics on the probability of explosions at coal plants were available from the National Coal Association, Edison Electric Institute, Electric Power Research Institute (EPRI) or Factory Mutual Insurance Company. The consensus opinion was that no such statistics exist. Therefore, a qualitative type approach based partially on actual experience was utilized.

Robert Lundberg, an expert on coal plants at EPRI, was contacted (Reference 1). Of the three types of explosions imaginable at coal-fired plants, he considered a coal dust explosion as possible, but unable to generate missiles due to pressure being relieved as soon as the building is breached, as designed to occur if excessive pressure is generated. Observations at power plants which have experienced this type of explosion, such as Powerton (Commonwealth Edison) and J. P. Madgett (Dairyland Power Cooperative) support his statement with no missiles being generated. Explosions resulting in rupture of the steam drum and sending missiles flying 1/4-1/2 mile were known to have occurred at several small older units, but Genoa Unit No. 3 does not have a steam drum so that type of explosion is impossible. Mr. Lundberg designated an actual boiler explosion which could send missiles flying outside the plant as beyond the realm of possibility, with a probability of less than 10^{-7} .

Courtney Alvey, the Chairman of the National Fire Protection Association Committee on Furnace Explosions, was also contacted (Reference 1). He was not aware of any boiler furnace explosions which have ever sent missiles flying outside of the plant. Keystone Station (Pennsylvania Electric Company) and San Juan Generating Station (Public Service of New Mexico), which have experienced some of the worst boiler explosions in recent years were contacted. They confirmed that no exterior missiles were generated during the accidents. A review of a coal-fired boiler explosion more than twenty years ago at one of Dairyland Power's smaller plants also confirmed that no exterior missiles were generated.

Based on the viewpoint maintained by Mr. Lundberg, one of the foremost experts on coal-fired power plants in the world, and the historical record compiled during the one hundred years since electricity was first produced by a coal plant, it is our judgement that the hazards due to missiles generated by an explosion at the Genoa Unit No. 3 coal-fired plant are acceptably remote so that such an explosion does not need to be included as a design basis event.

VI. CONCLUSIONS

We conclude that the risk to LACBWR of missile impacts from externally generated explosions and aircraft crashes is extremely remote so that such an event does not present an undue risk to the health and safety of the public.

VII. REFERENCES

Letter dated September 15, 1981, Linder (DPC) to Crutchfield (HRC); LAC-7795.