

August 4, 1982

Docket No. 50-245
LS05-82 -03-004

Mr. W. G. Council, Vice President
Nuclear Engineering and Operations
Northeast Nuclear Energy Company
Post Office Box 270
Hartford, Connecticut 06101

Dear Mr. Council:

SUBJECT: MILLSTONE SEP TOPIC II-1.C - POTENTIAL HAZARDS DUE TO
NEARBY TRANSPORTATION, INSTITUTIONAL, INDUSTRIAL AND
MILITARY FACILITIES

Enclosed is the staff's revised final evaluation of SEP Topic II-1.C for the Millstone Plant. This evaluation is based on the safety analysis provided by your letter of April 27, 1981 and as supplemented by your letter of May 10, 1982. The evaluations compare your facility as described in Docket No. 50-245 with the criteria currently used for licensing new facilities.

As a result of your letter of May 10, 1982, the staff now concludes that Topic II-1.C meets current licensing criteria since the topography of the site would not channel a dense explosive gas cloud toward the plant in the event of a propane tank car incident within the exclusion area.

This evaluation will be a basic input to the integrated safety assessment for 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 complete.

Sincerely,

Original signed by:

James Shea, Project Manager
Operating Reactors Branch No. 5
Division of Licensing

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DSU USE (27)

ADD:
G. Staley

Enclosure:
As stated

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See next page

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Mr. W. G. Council

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MILLSTONE 1
SYSTEMATIC EVALUATION PROGRAM
II-1.C, POTENTIAL HAZARDS DUE TO
NEARBY TRANSPORTATION INSTITUTIONAL INDUSTRIAL AND
MILITARY FACILITIES

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 hazards originating at nearby facilities.

II. REVIEW CRITERIA

General Design Criterion 4, "Environmental and Missile Design Basis," of Appendix A, "General Design Criteria for Nuclear Power Plants," 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 III-4.D, "Site Proximity Missiles" reviews the extent to which the facility is protected against missiles originating from offsite facilities.

IV. REVIEW GUIDELINES

The review was conducted in accordance with the guidance given in Standard Review Plan (SRP) Section 2.2.1-2.2.2, "Identification of Potential Hazards in Site Vicinity."

V. EVALUATION

Three significant industrial complexes exist within 10 miles of the Millstone site. These are:

<u>Name</u>	<u>Location</u>	<u>Approximate No. of Employees</u>	<u>Distance</u>	<u>Sector</u>
Dow Chemical Corp. (general chemicals)	Ledyard	300	10 miles	NE
Pfizer Corp. (general chemicals)	Groton	2,700	5.5 miles	ENE
Electric Boat (Division of General Dynamics -submarines)	Groton	20,000	5.5 miles	ENE

In addition to the submarine base and Coast Guard Academy there is a training headquarters at Camp O'Neil in East Lyme for Connecticut Army National Guard units.

Camp O'Neil is owned and operated by the Military Department of the State of Connecticut. It consists of 80 acres on which there are located 70 buildings for various purposes. It is an administrative training center for troops of the Connecticut Army National Guard.

On a full-time basis, besides a small contingent of post operations personnel, it contains the headquarters for the Connecticut Military Academy, the 745th Signal Company, and an Organizational Maintenance Shop (regional maintenance of vehicles and equipment).

On a part-time basis, during various weekends from March through November, it is occupied by troop units for administrative training, billeting, and supply functions. Because of the administrative nature of its occupancy, the camp's operation has no effect on station operation.

No other military operations such as firing ranges, military airfields, ordnance depots, and missile sites exist near the site.

The area around the Millstone site was investigated and found to contain no explosives, chemicals, airborne pollutants, flammable or dangerous gases, nor tanks or pipelines near enough to the site to pose a danger if they were to explode or burn.

A railroad right-of-way of the Penn Central Company transverses the site from east to west. The mainline tracks are about 0.5 miles from the Unit 1 Reactor Building and upgrade from the plant. Traffic on the spur of the mainline track which extends onto the site is controlled to minimize the possibility of railroad traffic related accidents.

A spur of the Penn Central railroad serves the Millstone Nuclear Power Station exclusively. The switch for that spur is normally set for through traffic. To reach any station facility, the locomotive must pass through a second switch, which is normally set to direct traffic past the station to a dead end near the sound. Therefore, the possibility of unauthorized transport of hazardous materials does not exist on the spur.

Hazardous materials that are shipped on the track which crosses the site between New Haven and New London include Chlorine, Anhydrous Ammonia, Carbon Dioxide, Propane, Ethyl Alcohol, Rosin, Ammonium Nitrate, and Hydrochloric Acid. Among these materials, only the shipment of propane (about 44 carloads per year) is in the "frequently shipped quantities of hazardous material" category as defined in Regulatory Guide 1.78.

Propane gas is heavier than air and can form a potentially explosive mixture in air. However, Map #18990 dated September 8, 1981, indicates that the rail line on which propane is shipped thru the site runs thru an excavation in the hill which is approximately 20 feet below the natural contour of the ground immediately north of the reactor facilities. This railroad cut would channel a heavier-than-air propane cloud in an east-west direction away from the plant. The map indicates that the remainder of the topography of the site is about the same grade as the rail line and therefore would not cause a gravity flow of the cloud toward the plant site.

The effect of accidental gaseous releases on control room operators is evaluated as part of the TMI Action Plan, Item III.D.3.4, "Control Room Habitability" and as such is independent of the SEP program.

There are no grade crossings on or adjacent to the site at which hazardous materials might be transported across the tracks.

There are no major gas transmission lines within 5 miles of the site. The nearest low pressure gas distribution line is more than 3 miles from the site and is located at the corner of Clark Lane and the Boston Post Road in Waterford.

The closest oil transmission line is approximately 5 miles from the site in Groton, Connecticut.

Because they are 5 miles or more away from the site, both the gas and oil transmission lines constitute no threat to the safe operation of Millstone Unit No. 1 or to the site in general.

Ships that pass by the site in the shipping channels of Long Island Sound are of two types: general cargo freighters which usually are partially unloaded with drafts of 20 to 25 feet and deep draft tankers with drafts of 35 to 38 feet. Both of these ship classes must remain at least 2 miles offshore for fear of running aground on Bartlett Reef.

No oil barges pass to the shore side of Bartlett Reef; and, since there are no tank farms in Niantic Bay, no oil barges pass within 2 miles of the site.

The possible damage to the pump house by a drifting barge was investigated. The barge can only approach the pump house through the intake channel which is perpendicular to the front of the pump house. The relatively shallow bay bottom surrounding the intake channel will prevent the barge from hitting the pump house from its sides. Should a barge hit the pump house from the front, damage will be limited to the front wall of the recirculation distribution box which projects seaward

from the pump house. The service water pumps which are the only safety related equipment housed in the pump house are located approximately 40 feet from the front wall. The operation of these pumps will not be impaired and the water intake source will not be blocked as the water intake source lies between El (-) 28 ft - 0. in. and (-) 8 ft - 0 in.

For these reasons, the staff has concluded that shipping accidents would not adversely affect any safety related facilities.

There are presently two small commercial airports within 7 miles of the site, New London (Waterford) Airport and Trumbull Airport. No plans are anticipated by the owners of the airports for expansion of airport facilities.

Trumbull Airport, approximately 7 miles east of the site, handles regularly scheduled commercial passenger flights, but is inadequate for handling large jets.

New London Airport, 4 miles north of the site, is relatively small and handles no regularly scheduled commercial air traffic. Maximum runway length is 2000 feet. Except for occasional sightseeing trips over the site, the landing patterns are such that most planes are at least 3-1/2 miles from the site.

Trumbull Airport has three runways: 5-23 which is 5000 feet long, 15-33 which is 4000 feet long, and 10-28 which is 3000 feet long and unlighted. Due to limited traffic at Trumbull, there is no control tower. However, Instrument Landing Systems (ILS) service is available on runway 5-23 and Very-High Frequency Omni Range (VOR) service is available on runway 5-23 from Quonset Approach Control.

The air lane nearest to the site is V58 which is approximately 4 miles northeast of the site. Other adjacent air lanes include V16, which is approximately 6 miles northwest of the site, and V308, which is approximately 8 miles east of the site. The nearest high-altitude jet route, J121-581, passes approximately 9 miles southeast of the site. A second jet route, J55, passes approximately 12 miles to the northwest of the site.

Based upon the size of the airports and the location of flight paths, the impact of an airplane on Millstone Unit No. 1 is highly unlikely. Topic III-4.D, Site Proximity Missiles contains a more detailed analysis of aircraft hazards to the site.

The nearest major highway which would be used for frequent transportation of hazardous materials is U. S. Route 95, which is located at a distance of 4 miles from the Millstone site. This separation distance exceeds the minimum distance criteria given in Regulatory Guide 1.91, Revision 1; and, therefore, provides assurance that any transportation accidents resulting in explosions of truck size shipments of hazardous materials will not have an adverse effect on the safe operation of the plant. This separation distance also eliminates the possibility of a toxic gas release adversely affecting the safe operation of the plant.

VI. CONCLUSIONS

We have concluded that Millstone Unit No. 1 is adequately protected and can be operated with an acceptable degree of safety with regard to industrial, transportation, and military activities in the vicinity of the plant.

VII. REFERENCES

1. Standard Review Plan Section 2.2.1-2.2.2, Identification of Potential Hazards in Site Vicinity.
2. Regulatory Guide 1.91, Revision 1.
3. D. L. Ziemann letter to D. Bixel, dated November 27, 1979.
4. Millstone Unit No. 3 Preliminary Safety Analysis Report.
5. D. M. Crutchfield to W. G. Council, dated November 27, 1981.