

August 3, 1981

Docket No. 50-29
LS05-81-08-002



Mr. James A. Kay
Senior Engineer - Licensing
Yankee Atomic Electric Company
25 Research Drive
Westborough, Massachusetts 01581

Dear Mr. Kay:

SUBJECT: YANKEE ROWE - SEP TOPIC II-2.A, SEVERE WEATHER PHENOMENA

By letter dated December 17, 1980, we forwarded to you our draft evaluation of SEP Topic II-2.A, "Severe Weather Phenomena". Your response dated February 10, 1981, stated that you concurred with our assessment except for the evaluation of snow and tornado loadings.

Regarding the snow loadings you stated that the local terrain effects would result in values much lower than those provided in our evaluation and requested that we re-evaluate the snow loadings accordingly.

The snow load value for the site region has been recently studied as part of a NOAA Study, "Estimating Water Equivalent Snow Depth from Related Meteorological Variables," (NUREG/CR-1389, May 1980) which shows the 100 year snow load in that area to be from 50 to 60 lb/ft². Cautions are advised in the use of interpolation of the isopleths, in this mountainous area, since local topographic influences can affect snowfall totals. Similarly, structural effects on drifting snow can result in higher or lower loads than shown for ground level snow loads in this NOAA report.

Additional research on snow loading is being completed through use of actual field studies on power plant structures in the northeast and the Great Lakes areas. Thus, subject to additional information resulting from these studies, the snow loads defined in our December 17, 1980 evaluation, i.e., normal of 40 lbs/ft² and snow load combined with probable maximum winter precipitation of 125 lbs/ft², should be used for structural response analysis.

Your comments regarding the design basis tornado are similar, indicating that terrain effects will significantly effect the tornado wind loadings and frequency.

The tornado analysis by McDonald (Enclosure 2 of our December 17, 1980 letter) considered 224 tornadoes, during the period from 1950-1978, that occurred in the 3x3 degree square area roughly centered about the Yankee

B108050322 B10803
PDR ADDCK 05000029
PDR

SE04
S10
DS4 USE
EX(11)

Rowe site. This analysis suggests an upper bound 95 percentile tornado wind speed, with a 10^{-7} probability level of approximately 300 mph is appropriate. This value is the suggested wind speed at the site, for the analysis of structural design capability. Inherent in the McDonald tornado analysis are weighting factors for population density, storm intensity and topographic features that could effect the observation of any tornado. Selection of a 300 mph upper 95 percentile wind speed provides a conservatism beyond the expected value of approximately 250 mph for the 10^{-7} probability level. In addition, the outbreak of tornadoes in Kentucky and Tennessee during April 3 and 4, 1974 indicates that tornadoes can occur in mountainous terrain.

Based on the studies mentioned above, we do not feel that you have provided sufficient justification for us to change our earlier evaluation provided on December 17, 1980. Therefore, we consider that evaluation to be final and Topic II-2.A to be completed.

The evaluation will be a basic input to the integrated safety assessment for your facility. The assessment may be revised in the future if your facility design is changed or if the NRC criteria relating to this subject is modified before the integrated assessment is complete.

Sincerely,

Dennis M. Crutchfield, Chief
 Operating Reactors Branch #5
 Division of Licensing

cc: See next page

OFFICE ▶	SEPB:DL	SL/SEPB:DL	C/SEPB:DL	ORB#5:DL	C/ORB#5:DL	AD-BA:DL
SURNAME ▶	GWalton:dn	CBeninger	WRussell	RCaIso	DCCrutchfield	GCWalton:dn
DATE ▶	7/27/81	7/27/81	7/27/81	8/3/81	8/3/81	8/3/81

Mr. James A. Kay

cc

Mr. James E. Tribbie, President
Yankee Atomic Electric Company
25 Research Drive
Westborough, Massachusetts 01581

Greenfield Community College
1 College Drive
Greenfield, Massachusetts 01301

Chairman
Board of Selectmen
Town of Rowe
Rowe, Massachusetts 01367

Energy Facilities Siting Council
14th Floor
One Ashburton Place
Boston, Massachusetts 02108

U. S. Environmental Protection
Agency
Region I Office
ATTN: EIS COORDINATOR
JFK Federal Building
Boston, Massachusetts 02203

Resident Inspector
Yankee Rowe Nuclear Power Station
c/o U.S. NRC
Post Office Box 28
Monroe Bridge, Massachusetts 01350