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File

LOG OF COMMENTS RECEIVED
ON
Notice of Proposed Rule Making
"Factors Considered in Site Evaluation for
Power and Test Reactors"

<u>DATE</u>	<u>ORGANIZATION</u>
June	
1. 4	<u>Arkansas State Board of Health</u>
2. 2	<u>Kaiser Engineers</u>
3. 4	<u>Alaska Department of Health</u>
4. 8	<u>Commissioner of Health, City of New York</u>
5. 5.	<u>Tennessee Dept. of Public Health</u>
6. 9	<u>AEC Div. of Research - No comment</u>
7. 10	<u>AEC Office of Special Projects - No Comment</u>
8. 8	<u>Massachusetts Institute of Technology</u>
9. 9	<u>The Babcock and Wilcox Company</u>
10. 9	<u>Ebasco Services</u>
11. 9	<u>Iowa State Department of Health</u>
12. 4	<u>The Martin Company</u>
13. 10	<u>Consolidated Edison Co. of N. Y., Inc.</u>
14. 5	<u>Montana State Board of Health</u>
15. 9	<u>Stone and Webster Engineering Corp.</u>
16. 5	<u>Michigan Department of Health</u>
17. 10	<u>Consumers Public Power District</u>
18. 11	<u>Idaho Department of Health</u>
19. 12	<u>California Department of Health</u>
20. 15	<u>New York Shipbuilding Corporation</u>
21. 11	<u>Tampa Electric Company</u>

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		June	
22.	12		Pickard-Warren-Lowe Associates
23.	11		Worcester Polytechnic Institute
24.	10		Missouri Division of Health
25.	12		John P. Gallagher and Associates
26.	11		Puerto Rico Water Resources Authority
27.	12		Los Angeles Department of Water and Power
28.	17		University of Cincinnati
29.	19		Pacific Gas and Electric Company
30.	22		American Public Power Association
31.	16		Pennsylvania Power & Light Company
32.	16		Alco Products
33.	16		American Nuclear Society
34.	18		California Department of Fish and Game
35.	23		Dept. HEW - PHS
36.	22		Kentucky Department of Health
37.	23		General Electric Company

TABULATION OF COMMENTS

Notice of Proposed Rule Making

GENERAL

Alaska

Suggests grouping basic specifications for waste control facilities in accordance with reactor type as model criteria for design. Says this would preclude development of a reactor at any proposed sites based on unfavorable initial site investigations.

Tennessee

Says formalization of criteria seems most desirable. Suggests desirability for determining probability characteristics and magnitude of unplanned release, and magnitude and characteristics of planned releases from reactor under consideration as starting point in selection of site.

City of N. Y.

Received impression of flexibility with only definite rule that proposed reactor in relation to chosen site must be reasonably safe in judgment of AEC. Hopes that City will have chance to comment when proposed sites may have significance on health and safety of people of New York City.

M I T

"Regrets" that a subject so unsettled and controversial should have been published under heading of "Notice of Proposed Rule Making" - says it gives more of an official and regulatory character than perhaps was intended. Prefers general account of philosophy of site selection to set of criteria which seeks to be as specific as the notice.

Ebasco

Believes publication of well defined set of rules to be of considerable value - but proposed rules too vague and indefinite for any positive guidance. Questions whether issuance of (proposed) rules would serve any useful purpose. Rules should convey that approval of site will be based on sound judgment considering all pertinent factors. Proposed rules limit free exercise of judgment. Object to implication that site might be approved in early phases and later found unacceptable. Should be made clear that no approval will be granted and construction permit issued unless every reason to believe that facility can be made to operate safely. Applicant should be granted specifically qualified approval clearly putting him on notice that he is responsible for proof of safety prior to final operating approval. All ideas covered are already mentioned in Sec. 50.34 with possible exception of population density and distribution. States that proposed rules emphasize site and environs and ignore other two aspects which determine suitability, i.e. characteristics of facility and safeguard features incorporated in it. Says prospective licensee selects site for economic reasons and balances cost of safeguard provisions against added cost and inconvenience of more isolated site, and AEC must similarly evaluate all factors to determine whether overall hazard is acceptable. Says definitive standards probably not practical because of complex interplay of

many factors concerned. Some guide to important factors and probable relative weights to be applied would be welcomed by industry. Questions if such a guide should have force of formal regulations. However, do not feel that proposed rules should be issued unless definitive standards can be cited.

Iowa

Suggests consideration be given to surrounding farming land use because of possible hazards from contamination of food crops.

The Martin Co.

Feels that a number of issues raised in notice would be detrimental to Martin's efforts in process heat reactor field which is designed for industrial usage. Requests process heat reactors be excluded from any regulation for power and test reactors because they say PHR is neither.

Con Ed of N.Y.

Interprets the notice to mean that no final decision has been made as to adoption of site criteria at this time. States that it seems impracticable, unwise and damaging to sound evolution of reactor technology to establish quantitative criteria by regulation since nuclear power still in experimental stage, no reactor type has been declared suitable for commercial licensing under Sec. 103 of Act and nuclear engineers have not agreed on types most promising. May be possible to establish quantitative criteria later when experimental phase of technology has ended, but too soon now. Search by Commission for standards on location as well as on design specifications is admirable but connotes knowledge and experience which do not yet exist. To fix general standards prematurely is to incorporate into a particular regulatory process inadequate information and experience and thereby handicap sound development.

Montana

Recognizes that site must be dependent upon type of reactor to be installed and that various points developed under B, C, D, E and F would vary. From Montana's standpoint various situations which have been raised appear to be highly important and inclusive.

Stone & Webster

Agree, in general, with the idea of making these rules, since there has been some chaos because of the lack of them.

Michigan

State that factors are general in character and apparently intended to be instructional rather than regulatory. Mentions possibility that it would be good practice for AEC to clear with State on sites because of possibility that State may not approve of site and initiate injunctive proceedings.

Consumers Public
Power District

Interprets statement of factors to be intended for general considerations with no intention to convert the general objectives to fixed rules applicable to all future reactors. Each of considerations outlined are basically sound from standpoint of general policy statement but would need augmenting with detailed considerations for specific site. Until reactor operating experience gained would seem preferable to issue same information as policy statement of ACRS rather than publish as Commission rules.

Idaho

Feels that items would be essential parts of over-all consideration for reactor locations. Believes additional considerations may be of importance including land uses and type of commercial activity, particularly with respect to food production and processing in area. Feels that public health competence and local public health knowledge would be essential to any evaluation of this type.

California

Concurs in general with factors but notes no mention of proximity of agricultural operations which is of considerable importance in Calif. Advises there are 7 depts. of State Gov't. in Calif. having important interest in environmental factors who not only have legal responsibility but also possess large amounts of information which should be taken into account. Strongly urge that State agencies be given opportunity to participate in initial review of environmental factors for each proposed site.

New York Ship
Building Corp.

Criteria are too restrictive with respect to ships. Notes that ship-board reactors have not been specifically excluded and suggests that rule change apply only to fixed location reactors.

Tampa Electric

Factors appear broad enough to encompass any type of reactor and yet be useful as a guide in evaluating safety aspects of reactor site. The FWCNG, in considering several possible sites for its proposed plant, has been guided by factors essentially as described in notice.

Richard-Warren-
Lowe & Assoc.

Says important to emphasize primary objective is not to establish site isolation criteria, but rather to insure that reactor performance keeps radiation exposure hazards to public within prescribed mpc standards. Proposal takes opposite approach with requirements stated in such a way as to make them appear as objectives in themselves. Rather than issue a regulation recommends: (a) preparation of guidance materials dealing with hazards analysis, site evaluation and related technologies which are designed to assist in determination of proper engineering and scientific data and of methods of analysis and interpretation; (b) after extensive experience consider issuance of regulation expressing intended effect of present safeguards reviews which would deal with insuring that actual reactor performance will be within stated limits of radiation exposure to the public for normal operation as well as accident conditions.

Worcester
Polytechnic
Inst.

States that proposed rules seriously effects the low power training reactor on Worcester's campus. Says that proposal apparently does not take into consideration the possibility of locating a low power reactor on the campus in proximity to other buildings.

Missouri

Says that proposal appears congruous with current thought and covers well the areas that would influence most of the consequences of a reactor incident. Is encouraged that AEC is continuing to accept the responsibility of making as sure as possible that the tools of the Atomic Age are handled in a way that the health and safety of the people will be preserved.

John P. Gallagher Believes that adoption of amendment would nullify civilian reactor program and prejudice future position of large industrial concerns, municipal utilities and district heating companies; it would place civilian reactor program directly in hands of a few large utilities whose geographic position permitted reactor location as outlined. Amendment would preclude nuclear powered vessels from coming within 20 miles of any town or city. Also would be same question regarding nuclear powered aircraft. Says proposed amendment would nullify judgment and discretion of HEB & ACRS; would close door to use for space heat.

Puerto Rico States that the factors appear very suitable for general application but believes it desirable if no specific numbers are used.

Los Angeles Contemplated formulation step in right direction but does not prescribe requirements for achieving final operating approval. Quotes sentence "The fact that a particular site - - - deemed acceptable for a proposed reactor facility - - - does not determine that the reactor will eventually be given approval - - -" and says is not encouraging to utilities contemplating nuclear power. Although final operating approval is not assured in case of conventional plants until construction completed there is assurance that compliance with codes and approved plans will result in final approval. Indicates need for ground rules for achieving operating approval to avoid undue risk involved in purchase of large acreage for nuclear plant. Recommends establishing ground rules for at least such proven reactor types as boiling and pressurized water concepts to define and limit such conditions as worst accident, exclusion area, distances from population centers, and environmental considerations.

University of Cincinnati Recommends reconsideration. Feels proposed rules are unreasonable restrictions impossible to apply realistically. Publication of these restrictions would re-enforce the public objections to and suspicions of reactor projects being placed in the community which do not fall into the classification of test or power.

Pacific Gas and Electric Because of the wide variation in environmental conditions and reactor characteristics questions advisability whether the criteria should be as specific as those set forth. In view of these wide variations each site will have to be judged on its own merits, so it appears desirable to frame criteria in as general terms as possible. Otherwise some potential sites may be automatically disqualified whereas a detailed study might show them to be eminently satisfactory.

American Public
Power Association

Recognizes that nuclear power technology is still in highly developmental stage and that Commission must be conservative in evaluating safety of sites and reactor designs. Suggests present case by case approach as most suitable at present for what is still a developing technology. Recommends issuance of only broad and general guiding principles in respect to site safety factors at this time and continuing case by case approach to the problem. Indicates hope that reasonably specific general standards and codes can be gradually developed before economic power reactors as such guidance will be needed by utility industry in its planning. Suggests early preliminary site evaluation by AEC rather than postponing such evaluation until plans for such a project are well advanced. In development of standards urge Commission to consider possible impact on various types of utility systems in addition to assuring health and safety needs.

Pennsylvania Power
& Light Company

States that problem is to establish reasonable assurance that there will be no hazards to the public, thus minimum distances and maximum offsite population densities presuppose a minimum hazard irrespective of type of reactor, its design and safeguards. PP&L does not believe this is so. Believes it desirable to formulate and publish general site selection guides but undesirable to designate distances, etc.

Alco Products

Concurs in general philosophy and approach.

American Nuclear
Society

Asks for extension of time for commenting of at least 90 days. Says that proposed rule has raised number of questions which need further study.

California Dept. of
Fish and Game

Points out that the statement "the potential radiative effluents therefrom, - - - -, will not create undue hazard to the health and safety of the public," is limiting to direct effects on the public and does not include effects on resources. Requests serious consideration be given to effects on natural resources and that following clause be added to last sentence of 1st paragraph of Section a. General: "nor the continued normal use of the natural fish, game and wildlife resources of such area." Request AEC to consult state agencies well in advance of site planning before giving a "go ahead" signal. Many legal, technical and environmental conditions known to state agencies that very often cannot be determined from formal report or would be missed by even best qualified consulting firms. If state agencies are consulted much valuable local knowledge could be gained and considerable misunderstanding and misdirected effort avoided.

General Electric
Company

Extremely happy to see the start of written regulations in the reactor safety field. Intends to participate in AIF meeting on June 30, thus hopes further comments will be accepted based on better understanding as a result of the meeting. Understands that the specific numbers used may be subject of some critical comment.

EXCLUSION DISTANCE

- M I T Deplores selection of specific minimum distances for exclusion radii. Thinks value of $\frac{1}{2}$ mile for "any power or test reactor" or $\frac{1}{2}$ to $\frac{3}{4}$ mile for "large power reactors" are much greater than necessarily required for reactors of proved type with adequate containment. Thinks publication of these specific numbers, even in tentative regulation, will make it difficult for Commission to approve lower values at a lower time.
- Babcock & Wilcox Suggests it may not be desirable at this time to establish fixed exclusion areas. Believes plant designer should be free to select optimum combination of containment and exclusion area which will protect the public under particular conditions associated with proposed installation. Doubts if experience presently available to warrant determining optimum exclusion area.
- ENBasco Questions statement of arbitrary quasi-quantitative exclusion distances because of possible interpretation as firm restrictions.
- The Martin Co. Objects to exclusion area principle because PWR must be located close to plant utilizing the heat.
- Tampa Electric Feels it better to avoid citing distances since they tend to become fixed in public mind despite words of flexibility used in connection with them.
- University of Cincinnati States that exclusion areas are so large that institutions or industries of moderate size may be prevented from participating in test reactor program.
- Pacific Gas and Electric While an exclusion area is probably desirable for test or experimental reactor questions whether such areas should be required for proven reactors. Seems particularly undesirable to specify radii because of variations in environmental conditions and reactor characteristics.
- Pennsylvania Power & Light Company Although opposed to idea of designating distances, if they are to be retained some exception should be made for the part of distance included by river adjacent to plant since economy requires location close to adequate cooling water.
- California Dept. of Fish and Game Points out that minimum exclusion radius of one-half to three-fourths mile for large power reactors on coastal sites. Would eliminate large sections of bay bottom and coastal area from access by public. Says that Article 1 Section 25 of Constitution of State of Calif. would be in conflict with granting an exclusion area under complete control of licensee where such area would fall upon public land or waters. Points out that water transport and biological uptake does not restrict itself to arbitrarily established distance. Says that criteria for site selection should include preservation of natural resources as well as right of public to use public lands.

General Electric
Company

It is not clear how proposed exclusion area requirements may be planned for future in view of variety of persuasive reasons for placing large reactors close to bodies of water.

Population Density

Arkansas

Suggests need for stronger statement regarding location (particularly upwind) with respect to population centers because people are involved.

Kaiser Engineers

Believes that citing of distance from population centers places an additional stumbling block on development of nuclear power. Suggest establishing maximum number of people who might receive an overexposure from Maximum Credible Accident to allow determination of optimum combination of exclusion zone, distance from populated areas, containment features, inherent safety features, etc.

Tennessee

Suggests providing mechanism in proposed rules which will utilize best information as to likely trend of population density, and land and water use. Believes official agencies below Federal level can provide most reliable estimate of these future conditions and are also in a position to influence conditions of the future to those used as basis of site selection.

MIT

Opposes citing of distances from population centers. Says literal translation would preclude construction of power reactors where they would do most good economically - requirement may be necessary for unproved type reactors having inadequate containment, but need not be so restrictive for well-contained reactors. Prefers more highly qualified statement such as "other things being equal, it is desirable to locate reactors outside of densely populated areas. When purpose served necessitates construction close to or within town or city, it is essential to provide dependable containment and other safeguards against escape of radioactivity."

Babcock and Wilcox

Agrees that other things being equal is desirable to locate away from centers of population. Agrees also with implication that test reactors may present greater possibility of hazardous release. Suggests it may be desirable for a rule forbidding operation of high power test reactors in vicinity of cities or towns; but such a rule would be unnecessarily restrictive applied to power reactors.

Ebasco

Questions statement of distances to large cities. Points out that large city and large reactor is not defined.

The Martin Company

Objects to statement "nearness to factories is discouraged" because this would exclude PER from logical market.

Con.Ed. of New York

Operating life of reactor might run 20 - 30 years. Populations expand rapidly and no assurance could be given that any requirement of population density which could be satisfied in 1959 could also be satisfied in 1969. Applicant would have no

control over population movement or decisions to construct airfields or factories in vicinity of reactor already in operation. Raises question of reactor located on water viz. control of area.

Montana

Recognizes that minimum distance which must be considered could best be developed by "your agency" (AEC) or some other group familiar with reactors.

Stone and Webster

Locating large reactors 10 - 20 miles from large cities might cause serious hardships. May give a sense of security but point requires careful review because economics of nuclear power are going to be adversely affected by such a rule. One advantage of nuclear power plant is that it might be located closer to load center because of lack of dependence on railroad for shipment of coal. Isolation requirement might work against this advantage.

California

Believes it important to consider the potential of early development of subdivisions in presently rural areas.

Tampa Electric

Should avoid citing distances because they tend to become fixed in public mind despite words of flexibility used in connection with them. No indication that improvement in design and safety as well as accumulated safety experience may reduce distances mentioned.

John P. Gallagher

If large reactors are to be required to locate 10 - 20 miles from large cities provision must be made for retention of this original status. With this as a basis for site selection questions whether there would be any development of power reactors as acquisition or control of such a zone would place reactor in non-competitive position.

Puerto Rico

Says that the 10 - 20 mile distance requirement from population centers would rule out large power reactors for islands such as Puerto Rico. Suggests second sentence in paragraph "c" be changed to read "It is usually desirable that the reactor should be several miles distant from the nearest town or city, although this requirement may be reduced depending on the existence of other attenuating factors. For large reactors a specific distance from the nearest city may be required, this to be determined after a careful evaluation of the proposed installation."

University of Cincinnati

Says development of nuclear power stations at existing generation stations will be severely handicapped because they are located near population centers and waterways. Low population density in surrounding areas cannot be maintained by reactor operating company. Use of adjacent lands cannot be controlled by reactor operators. Remoteness of reactor facility to arterial highways, air fields and factories cannot be maintained by reactor operator. Nearness to these facilities may be significant advantage. Proposal is contradictory to development of nuclear propulsion systems for ships, locomotives and aircraft.

American Public Power
Association

APPA seriously concerned over language used in paragraph "C" saying it could result in restricting use of nuclear power stations to a relatively few large utility systems. Could delimit very seriously nuclear power generation by municipally owned and other utilities serving areas of limited size. Believes adoption would mean that term "usually desirable" when applied to the distance numbers would result in the numbers becoming the rule and would encourage public to look askance at any large reactor proposed for location closer than the distances cited. Most municipal generating systems locate in or adjacent to city limits because of economy and sometimes because of specific legal requirements. Cites PRDC plant as being in category of large reactor being located 7.5 miles from Monroe with 20,000 and 5 miles from resorts with about 4,000 population. Also the NASA and Piqua reactors are used as examples that with appropriate design and containment it is possible to build safely in locations less isolated than suggested by language in paragraph C. Therefore it is inappropriate for a regulation to prescribe rather specific distances since necessary degree of isolation would seem to depend on specifics of reactor design and containment and other site conditions. The paragraph would preclude or limit drastically use of industrial process heat reactors; and logically, nuclear powered ships would be handicapped.

California Dept. of Fish
and Game

Says that continued use of areas remote from human population that supply fish, wildlife, natural resources and recreation should be protected since such areas are basic to society's needs. Have very heavy seasonal use of nearly all suitable areas by public. Remoteness of location and resident population density can't be only basis for consideration.

HYDROLOGY AND GEOLOGY

Alaska

Suggests need for definitive criteria for design specifications for waste disposal facilities based on hydrological and geological studies because safe handling, storage and disposal of wastes depend on extensive investigations.,

California Dept. of
Fish and Game

Stresses importance of resources of watercourses.

General Electric
Company

Questions the statement regarding protection of ground water courses by deposits of relatively impermeable soils. Says in many cases it may be desirable to select sites with permeable soil to permit advantage to be taken of waste disposal capability of the soil. Refers to Hanford experience in this respect.

SEISMOLOGICAL

Pacific Gas and
Electric

Strict application could eliminate many desirable locations. Says structures can be built adjacent or near to earthquake faults to withstand severe shocks without failure. Know of no severe damage to structures in California for which designer took earthquake forces into consideration. If prohibition against location on a fault be included at all suggests it be limited to location of the reactor and its auxiliaries.