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Docket Nos.: 50-443
and 50-444

Mr. T. Landry
U.S. Environmental Protection Agency
J. F. Kennedy Federal Building
Boston, Massachusetts 02203

Dear Mr. Landry:

Subject: Seabrook DES Comments Regarding the Preliminary Draft NPDES

Reference: USEPA letter, L. A. Sutton to F. J. Miraglia, dated July 7, 1982

Thank you for your comments on the Seabrook Draft Environmental Statement and your offer to assist the NRC staff in responding to comments concerning the NPDES, per the referenced letter.

Comments concerning the NPDES have been received from the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce (Enclosure 1) and the Seacoast Anti-Pollution League (SAPL)(Enclosure 2). Please review these enclosures and forward your comments on the NPDES-related matters to this office by August 11, 1982.

The Seabrook Project Manager, Mr. L. Wheeler (301/492-7792), is available to respond to any of your concerns regarding this action.

Your cooperation and assistance in the preparation of the Final Environmental Statement is appreciated.

Sincerely,

Original Signed By:

Frank J. Miraglia, Chief
Licensing Branch No. 3
Division of Licensing

2 Enclosures:
As stated

cc: J. Lehr

OFFICE	LB#3: DL	LB#3: DL					
SURNAME	LWheeler:cz	FMiraglia					
DATE	07/20/82	07/20/82					

ENCLOSURE 1

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Washington, D.C. 20230

OFFICE OF THE ADMINISTRATOR

July 6, 1982

Mr. Louis L. Wheeler
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Wheeler:

This is in reference to your draft environmental impact statement entitled "Seabrook Station, Units 1 and 2." The enclosed comments from the National Oceanic and Atmospheric Administration are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving three copies of the final environmental impact statement.

Sincerely,

Thomas E. Bigford for

Joyce M. Wood
Director
Office of Ecology and Conservation

Enclosure:

Memo from : Andrew Robertson
Office of Marine Pollution Assessment

Ruth Rehfus
National Marine Fisheries Service

C002 B

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Services Division
Habitat Protection Branch
7 Pleasant Street
Gloucester, MA 01930

June 30, 1982

TO: PP/EC - Joyce M. Wood, Director
Office of Ecology and Conservation

FROM: F/NER54 - Ruth Reiffus

SUBJECT: NMFS's Review of the DES related to the Operation of Seabrook Station, Units 1 and 2 - DEIS Control No. #8205.13

Attached is our response as requested in your memo of May 27, 1982, concerning our review of the above subject.

Background Information

This Draft Environmental Statement (#8205.13) is an updated assessment of environmental impacts associated with the operation of the Seabrook Station 1 and 2. We commented on the first assessment in DEIS #7404.54 on June 28, 1974. Since that time, changes in plant design and operation have been instituted which will minimize impacts on fisheries resources and associated habitats. Therefore, we have no comments.

Attachment

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
OFFICE OF MARINE POLLUTION ASSESSMENT
Rockville, Maryland 20852

Date: June 30, 1982

To: PP/EC - Joyce Wood

From: for D/MP - Andrew Robertson Jon Butler

Subject: Draft Environmental Statement (DES) related to the operation of Seabrook Station Units 1 and 2

Subject draft environmental statement has been reviewed. The following review comments are restricted to matters pertaining only to the marine environment, and only those that have not been addressed in earlier documents (such as Final Environmental Statement -- Construction Phase):

1. The applicant should provide the reference minimum detectable oxidant residual (page 4-11).

2. There appears to be some confusion between the DES and the preliminary draft NPDES Permit as regards specification of the form of the biocide to be used: the DES indicates sodium hypochlorite solution (page 4-10), while the preliminary draft NPDES Permit just states chlorine (page H-2).

3. The "Chemicals added to discharge," Table 4.3 (page 4-10) should be included in the monitoring program.

4. Figure 4.8 (page 4-20) is confusing in that the mean temperatures don't "match up," one end with the other (December and January). They should be approximately the same, unless the mode of plotting is accomplished in a manner not readily understood.

5. "The addition of chlorine to the station cooling waters will likely result in several organic and inorganic halogenated compounds being discharged to the waters of the Gulf of Maine" (page 52). Initial studies of chlorination (at several levels) effects on waters that are to be used for cooling, as a function of season, temperature, ammonia content, pH, etc. should be conducted. The resulting data should be used to answer the questions and points raised (about the kind and amounts of chlorination products) on pages 5-2 through 5-5, obviating the need to extrapolate other data.

6. The approach of 5. above could also be used to provide "a more precise estimate" of residual oxidant concentration (addressed on page 5-4).

7. The reasons for the many of the differences in parameters for monitoring requirements for outfalls (pages H-9 and beyond) aren't readily apparent. For those discharging similar wastes, the requirements should be similar.

8. Monitoring parameter requirements should be based, at least in part, on the results of actions associated with 3., 5. and 6. above.

ENCLOSURE 2

LAW OFFICES
OF
ROBERT A. BACKUS
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MANCHESTER, N H 03105

ROBERT A BACKUS
JOHN P SHEA
ELIZABETH CAZDEN
H JONATHAN MEYER

AREA CODE 603
668-7272

July 1, 1982

Mr. Louis L. Wheeler, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

RE: NUREG-0895
"Draft Environmental Statement Related to
the Operation of Seabrook Station, Units 1 and 2"

Dear Mr. Wheeler:

I am enclosing a series of comments on the Draft Environmental Impact Statement on behalf of the Seacoast Anti-Pollution League.

These comments consist of the following:

1. Comments of Dr. Richard L. Kaufmann, Professor of Physics at the University of New Hampshire, dated June 20, 1982.

2. Comments of Dr. Thomas Najarian of the Boston University School of Medicine dated June 15, 1982.

3. Comments of the Seacoast Anti-Pollution League executed by Jane Doughty, SAPL Field Director, June 28, 1982.

4. Miscellaneous comments, dated May 26, 1982 on behalf of the Seacoast Anti-Pollution League.

Very truly yours,

Robert A. Backus

RAB/sld
Enc.

B001

19 Oyster River Road
Durham, NH 03824
June 20, 1982

Mr. Louis L. Wheeler, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

COMMENTS REGARDING NUREG-0895 "DRAFT ENVIRONMENTAL STATEMENT RELATED TO THE OPERATION OF SEABROOK STATION, UNITS 1 AND 2"

I noted several possible environmental problems that appear to be treated inadequately in the report. I feel that these issues should be clarified before issuance of an operating license. The following comments are grouped into three categories: biocide usage, impacts of the uranium fuel cycle, and miscellaneous comments.

BIOCIDE USAGE

1. Since this is probably the most significant change since issuance of the Final Environmental Statement -- Construction Phase (FES-CP), I find it surprising that there is no mention of biocide usage in the report's Summary and Conclusions (pages v to viii).

2. The first paragraph on page 4-10 (section 4.2.5) states that the staff recommended that the maximum concentration of residual oxidant at the diffuser outlet should be limited to a maximum of 0.1 mg/l during the infrequent "shock chlorination" treatments that were originally planned. The present report recommends a maximum of 0.2 mg/l for what is called continuous "low level chlorinations". Why should the residual oxidant concentration for "low level" chlorination exceed the residual concentration during "shock" chlorination? I would

expect this new low level chlorination limit to be much less than the previous limit. Was some error found in the data used in the staff's previous recommendation?

3. I think that the question of the possible natural concentration of chlorine and bromine residues by marine organisms should be addressed if continuous chlorination is to be considered. It is especially important to see if significant levels could build up anywhere in the human food chain.

4. Table 4.3 (page 4-10 section 4.2.5) and the last paragraph on page 5-2 (section 5.3.1) are confusing and may be inconsistent. Section 5.3.1 states that 848 lb/hr of equivalent chlorine will be injected continuously for at least half the year, and perhaps all year. This continuous injection rate for even half a year, with nothing at all during the other half, would total 3.7×10^6 lb of equivalent chlorine. The estimate in Table 4.3 is only 5.5×10^5 lb. I also feel that chlorine injection should be stated in gallons of 6% sodium hypochlorite solution (ordinary household bleach) as well as in terms of equivalent pounds of chlorine. The proposal states that sodium hypochlorite actually will be used (concentration unstated) and this is a much more familiar substance to most of the public than is chlorine gas. I think that this chlorine usage should also be compared to the total current chlorine use in New Hampshire or some other surrounding region so that its effect on the environment can be more easily assessed. It sounds to me as if the continuous injection of sodium hypochlorite may result in a major change in the region's chlorine use, and that the public should be notified in terms that can easily be understood.

5. I feel that the cost of backflushing, as originally proposed, should be compared with the cost of chlorine injection so that it is possible to compare the excess cost of backflushing with the environmental consequences of continuous chlorination.

URANIUM FUEL CYCLE

The entire Appendix C is very confusing. At times it seems intended to obscure the significance of radiation releases. A few specific comments follow:

1. The figure 0.00002 % used in paragraph 3 page C-3 and paragraph 1 page C-7 incorrectly suggests that radiation releases from the fuel cycle are completely negligible. It compares normal releases associated with one reactor operating for one year to the background radiation received by the entire U.S. population in 100 years. Using this line of reasoning, one would conclude that coal burning doesn't contribute significantly to acid rain, cars to smog, or cigarettes to cancer. For example, the exhaust from one car operating for one year won't contribute significantly to the 100-year average air pollution levels in this country. With respect to radiation levels, the total effect of 100 or perhaps 1000 reactors operating for 100 years should be compared to the 100-year background dose.

2. It seems inconsistent to state that natural radon-222 will produce 300,000 lung cancer fatalities in 100 years (paragraph 2 page C-6) while all naturally occurring terrestrial and cosmic ray sources together produce a total of only 400,000 fatalities from all types of cancer in 100 years.

3. Ignoring all radioactive waste releases seems unrealistic (section C.6, last paragraph on page C-7). There are certainly releases currently taking place from radioactive wastes.

4. The stabilization process seems to be very important in reducing radon-222 releases from tailings several hundred fold for hundreds of years (Table C-1 and paragraph 2 page C-5). What is this process? Has it been done to the piles of tailings that now are sitting around?

MISCELLANEOUS COMMENTS

1. Table 6.1 (page 6-2) suggests that a reduction in the cost of electricity will be a large benefit. However, Public Service Company of New Hampshire claims that the cost of electricity will increase substantially when Seabrook comes on line. I do not believe there should be any suggestion that there will be a net economic benefit to the public outside of the immediate Seabrook area if Seabrook Station increases the cost of electricity to the customer.

2. Table 6.1 (page 6-2) notes an increase of 600 permanent jobs as a benefit. The cost section should also list the loss of permanent jobs when other power plants throughout the region served by Seabrook are closed. The table certainly suggests that nuclear power generation is more labor intensive than our present generating system. I believe that just the opposite is true.

3. I feel that sampling once per season or twice per year of any three commercially and recreationally important species of fish and invertibrates is inadequate (Table 5.6 page 5-33). Species that tend to concentrate various radioactive elements, such as iodine, should be specified and the monitoring frequency should be increased substantially. Special isotopic tests could also be specified for species that concentrate a given element. It also is important to consider whether any species spend a good deal of time near the discharge diffuser.

4. Table 5.7 on pages 5-36 and 5-37 mentions an instantaneous power level of 3425 MWt, but does not specify how long this level has been maintained. Is this for a new fuel assembly, for one that is nearly ready to be replaced, or some kind of mean?

5. Page 5-42 (section 5.9.4.4) states that the fuel handling building and spent fuel storage pool will be kept

under reduced pressure only during fuel handling operations, so that accidental releases will be filtered before escaping. Many chemistry buildings at universities have such systems operating continuously. Why isn't this required at Seabrook Station? The cost of running fans continuously is not very high. It also would be easier to monitor accidental releases or the slow escape of reaction products from damaged rods if all gasses passed through a single air outlet.

6. As is mentioned in the comments on Uranium Fuel Cycle, references to the impact of radiation releases are frequently compared to the background dose of all people in the U.S. This doesn't make any sense to me. I think that comparisons should all be to the background radiation received by residents in various zones (Low Population Zone, Emergency Planning Zone, etc.) near the plant. It may be meaningful to compare normal and potential releases from all operating and planned nuclear power stations with the total background radiation received by the U.S. population.

7. The overall probability of some type of melt through (about 5×10^{-5} per reactor year) and of a severe atmospheric release (8×10^{-6}) seem low to me (Table 5.9 on page 5-49). The TMI accident occurred after only 500 reactor years of commercial operation and involved some core melting, but no melt through. The above figures assume that only one in 40 accidents of the severity of TMI will involve melt through and one in 250 will involve a large atmospheric release. I feel that some specific numerical indication of the uncertainty of these figures should be included. Are they estimated to be accurate to within a factor of 2? a factor of 10?

8. The dose estimates for class 9 accidents are based on the assumption that evacuation will begin one hour after the

accident and that everyone will be at least ten miles from the reactor 4½ hours later. Section 5.9.4.5(2) (last paragraph on page 5-51) states that, "Early evacuation within and early relocation of people from outside the plume exposure pathway EPZ (see Appendix F) and other protective actions as mentioned above are considered as essential sequels to serious nuclear reactor accidents involving significant release of radioactivity to the atmosphere." Does this mean that a workable plan to evacuate everyone in the specified time period is essential to the issuance of an operating license? Will adverse conditions (such as storms or heavy snow) be included in any plans?

Sincerely,

Richard L. Kaufmann
Professor of Physics
Demeritt Hall
University of New Hampshire
Durham, NH 03824

COMMENTS OF
DR. THOMAS NAJARIAN
18 MANNIX CIRCLE
BELMONT, MASSACHUSETTS 02178

June 15, 1982

1. On page 5-22, second paragraph: Doses of radiation to the general public beyond 80 kilometers from the plant are ignored because the dose rates under normal operation are presumed to be less than 1 millirem per year. Although these doses from any one plant would be small, if a substantial portion of the world's electricity were to be generated by 1,000 megawatt fission reactors, then the U.S. could have over 1,000 such plants and the whole world over 10,000 such plants in the future (approximately 50 years from now). Since each nuclear plant contributes to the word-wide dose commitment, then one cannot derive much comfort from the fact that any one nuclear plant would give less than 1 millirem per year to the world's population. (i.e. at 0.1 millirem per year, with 10,000 plants world-wide, each person in the world could receive as much as 1,000 millirems per year exposure.) Since wars, sabotage, accidents like Three Mile Island and worse accidents are likely to occur, the actual world-wide dose commitment would likely be even higher with this many reactors in operation.

2. On pages 5-23 and 5-25, I disagree with the estimate of the cancer effects of radiation from reacots and nuclear bombs that are given in BEIR I, II and III. I believe that the effects of radiation as measured from such sources as reactors are in the order of 10-20 times greater than the BEIR report estimate. Further requirements of my own study of nuclear workers at the Portsmouth Naval Shipyard also shows a dose response relationship for leukemias and lymphomors that would indicate a 10-20 fold greater risk

from exposure to nuclear materials than the risk estimates of 135 potential deaths per million-person-rems.

COMMENTS FOR THE SEACOAST ANTI-POLLUTION LEAGUE ON THE DRAFT ENVIRONMENTAL STATEMENT RELATED TO THE OPERATION OF SEABROOK STATION, UNITS 1 AND 2
Docket Nos. 50-443 and 50-444
Public Service Company of New Hampshire, et. al.

The Seacoast Anti-Pollution League (SAPL) finds the Draft Environmental Statement (DES) for Seabrook Units 1 and 2 a highly unacceptable document. The Seabrook nuclear plant should never be issued a license based upon such inadequate information. Rather than elucidating the environmental impacts of operation of the Seabrook reactors on the coastal environment, this document obfuscates and evades a full description of the potential impacts.

SAPL maintains that licensing of the Seabrook reactor units would be contrary to the requirements of the National Environmental Policy Act of 1969 for the following reasons: 1) The Seabrook reactor units would pose a significant risk to health and safety of the populace in the seacoast region. 2) The potential adverse environmental impacts of the project are avoidable since the need for power does not exist for the near future and alternative measures such as conservation could obviate the need for this additional generating capacity and in a more environmentally benign fashion deal with the problem of energy supply. 3) The potential long-term ill effects of the project (i.e. radioactive waste disposal problems and contamination of the seacoast with radionuclides) more than counterbalance any short-term benefit. The creation of radioactive material on the seacoast irreversibly and irretrievably commits resources to the solution of the problem of the ultimate location of the wastes generated by the plant and to

the decommissioning of the reactor itself.

"Risk" and Class 9 Accidents

In the abstract on page iii of this DES, it is stated that, "The risk associated with accidental radiation exposure is very low." On page vii in item n, it says:

> The environmental risks of accidents, assuming protective action is taken, is of the same order of magnitude as the risk from normal operation, although accidents have a potential for early fatalities and economic costs not associated with normal operations. The risk of early fatality is small in comparison with the risk of early fatality from other human activities.

SAPL maintains that these statements about low risk are technically indefensible. Probabilistic risk assessment is rife with uncertainty. The probabilistic risk assessment which served as the basis for parts of this DES still employed techniques which were developed in the preparation of the Reactor Safety Study (RSS) (DES, p. 5-47). A review group headed by Dr. Harold Lewis of the University of California at Santa Barbara criticized, in some cases severely, various calculational techniques in the RSS and concluded that the error bounds on accident probabilities were greatly understated in the report. A January 19, 1979 NRC news release said in part the following of the Commission's policy statement on the RSS:

> It accepts the Review Group Report's conclusion that absolute values of the risks presented by WASH-1400 should not be used uncritically either <u>in the regulatory process</u> or for public policy purposes and has taken and will continue to take steps to assure that any such use in the past will be corrected as appropriate. In particular, in light of the Review Group's conclusions on accident probabilities, the Commission does not regard as reliable the Reactor Safety Study's numerical estimate of the overall risk of reactor accident. (SAPL's emphasis added)

The probabilistic risk assessment techniques since the RSS have not been that substantially improved. Yet, the NRC staff is claiming that

based upon their assessment of risk, "the net socioeconomic effects of the project will be beneficial" and the reactors ought to be licensed. However, the staff has absolved itself from responsibility for considering the probabilities of events more severe than the design bases for natural phenomena or sabotage because such probability assessment "is beyond the state-of-the-art" (DES, p. 5-48). This self-granted absolution does not change the fact that such risks do indeed exist. The net socioeconomic effects of the project will most assuredly not be beneficial if a Class 9 accident does occur; it cannot be stated with any degree of certainty that one will not occur at Seabrook.

In calculating the consequences of accidents at Seabrook, the quantitative characteristics of the evacuation model used for the Seabrook site are estimates made by the staff based upon evacuation time estimates prepared by the applicant (DES, p. 5-51 and Appendix F). SAPL challenges the applicant's evacuation time estimates as being too low.

In discussing the dose and health impacts of atmospheric releases (DES, pp. 5-52 through 5-58) the consequences of all the accident sequences and release categories are weighted by their alleged probabilities of occurrence (see also DES, Table 5.9). This is unacceptable. The consequence data ought to be presented clearly without this weighting since, as has been stated above, the probabilities calculated are highly questionable.

Even if such probabilistic weighting were to be allowed, the way it has been done here tends to be misleading. The calculations of

numbers of persons receiving radiological exposure were performed on a per-reactor-year basis. Since the reactor is intended to operate for 30-40 years, probabilities ought to reflect the whole time span.

When the staff suggests (DES, p. 5-58) that population doses in Figure 5.5 be compared with the annual average dose to the population within 80 km of the Seabrook site resulting from natural background radiation of 390,000 person rems, they are deliberately engaging in obfuscation and an attempt to minimize public perception of the gravity of this additional radiation exposure. Radiation exposure from nuclear accidents does not displace exposure from natural background sources, it is added to such exposure. Furthermore, the exposure is not evenly distributed over the whole population. Certain individuals in an accident sequence could be subjected to very high exposure levels. Averaging the exposure over a large population tends to disguise this fact.

On page 5-58, paragraph 2, it states that all of the early fatalities would be expected to occur within a 7 mile radius. This might not be the case should a rainout of radionuclides occur beyond that radius. Page 4-26, paragraph 1 states that a study by the National Climactic Center indicates that about 26 thunderstorms can be expected to occur each year in the vicinity of the Seabrook site, with the most frequent in June, July and August, the months of the heaviest beach use. Meteorological data from June 1982 provides clear proof that rainfall is not a rare occurrence in the seacoast region.

The whole discussion of risk beginning on p. 5-64 is meaningless, based as it is upon the uncertain probability estimates. Relevant

information about radiation sickness and the symptoms thereof which might be suffered by masses of the population is not even discussed. Many people might see this as a risk to be avoided. The statement that the accident risks are comparable to those for normal operation points up how flimsy and ludicrous the staff definition of risk is in this context.

The impact of a serious meltdown at one reactor unit was not examined for its impact on achievement and maintenance of a safe shutdown of the other unit. The impact of a serious accident on the monitoring and maintenance of the spent fuel storage ought also to have been examined.

The consequences of a Class 9 accident at Seabrook could be devastating in human health, economic and land use terms. The staff conceded (p. 5-60) that the costs of such an accident could exceed several billion dollars, but claimed that there is less than one chance in a hundred million per reactor-year that such a loss could occur. SAPL has no confidence in any of the probability estimates advanced in this Draft Environmental Statement. When the potential human and economic costs of an accident are so astronomical, it makes sense to err on the side of caution. In short, these reactors ought not be licensed.

Dose Assessment Calculations

The information given in Appendix D on routine radiation exposure to the population is wholly inadequate. Too many assumptions and calculations upon which the data are based are buried. All of the

assumptions ought to be elucidated and all the calculations ought to be provided for review. For example, in Table D.2 the word "nearest" is defined as that type of location where the highest radiation dose is expected to occur from all appropriate pathways. What does the word "appropriate" mean in this context? What assumptions are employed in calculating where the highest radiation dose is expected? How were the doses calculated? Many other questions arise. Is it safe to assume, because there is no mention of them with the exception of Np-239, that no transuranics will be released to the environment? In Table D.3, what is the rationale for the skin dose calculations being limited to only the exposure from the noble gases? In Table D.6, doses shown are supposedly for the age group and organ that results in the highest cumulative dose for the location. How are these determinations made and upon what basis? The data in Appendix D could be totally meaningless and it is quite impossible to discern, given the dirth of information, whether or not this is the case.

SAPL objects to the manner in which the individual dose commitment is calculated (pages 5-20 and 5-21). Many individuals might choose to live near a nuclear plant for all of the years of its operation. By taking only one year (the 15th) out of the reactor's life span and calculating the total dose the individual would receive over a 50-year period from that one year of exposure, the true picture is greatly distorted. What is important is the individual's lifetime dose commitment. Worst case data ought to be provided by calculating what the individual would be exposed to from the reactor's entire lifetime of

operation, including the last years when radiation emissions could be expected to be greatest.

Radiological Monitoring

SAPL objects to the fact that adequate baseline studies for radiological exposure were not initiated from 3-4 years prior to the plant's proposed operation. The applicant states that the pre-operational program has been implemented for at least 2 years before the proposed date of initial criticality of Unit 1. As outlined in the DES, it appears that this program has been inadequate. The operational program also appears inadequate. Sampling frequencies are insufficient and sampling locations are too few. There are problems of lack of information, e.g. where is the population center having the highest calculated annual average ground level D/Q? How far from the reactors is it? What assumptions were used in calculating that this is the site of the highest D/Q?

Meteorology

The meteorological data given in this DES is grossly insufficient. Given the tremendous impact of meteorological conditions on plume deposition rates, this lack of information is inexcusable.

The Site and Evacuation

The most absurd statement in the whole document is the following which appears on page vii and again with slightly different wording on page 5-71: "There are no special or unique characteristics of the site and environs that would warrant requiring special-accident mitigating

features." SAPL finds it difficult to believe that the NRC staff has had the unmitigated gall to make this claim. The siting of the Seabrook reactors is in such proximity to the resort beaches that it makes a travesty of the NRC's alleged commitment to remote siting. No direct reference to remote siting ever occurs in this document. It appears that the NRC Interim Policy Statement of June 13, 1980 (45 FR 40101) has been forgotten, though as recently as February 1982 it was claimed in NUREG-0880 that the Commission continues to emphasize remote siting (NUREG-0880, Safety Goals for Nuclear Power Plants: A Discussion Paper, p. xiv). The proximity of the beaches and the high population densities on the beaches and in the beach towns <u>are special and unique characteristics of this site</u>. No adroit manipulations of the LPZ radius to cause it to equal the distance to the beaches when multiplied by 1 and 1/3 changes the fact that there are too many people in too small an area with too restrictive a road network to allow a safe evacuation and truly adequate protection of the public health and safety.

The staff estimates that the population density within approximately 2 miles of the plant will be 1150/mi^2 by the year 2025 (p. 5-44). By that point in time, the reactor structures themselves will be becoming dangerously radioactive. Reactor parts will have begun to degrade, e.g. the reactor pressure vessel will have embrittled to some degree, the steam generator tubing will have begun to corrode, and other components will have weakened with age. Under these conditions, the likelihood of an accidental occurrence will be increased. This set of

circumstances, i.e. an extremely dense population juxtaposed with a wear-ridden reactor, must not be allowed to arise. Even under present-day population density conditions, operation of the reactors at Seabrook is foolhardy. The staff's estimate of the 1983 permanent population for the 16-km (10 mi) area around the station is 99,900. Added to that on a peak summer weekend day could be, according to staff estimates, as many as 130,998 transients. This would equal a total of 230,898 within the 10 mi EPZ (pages 4-30 to 4-34).

SAPL finds it objectionable that in this environmental report there is no map showing the position of the road network serving the beaches relative to the position of the reactors. Evacuees from Seabrook and Hampton beaches would need to move in a direction that is generally westerly and toward the reactors in order to be able to evacuate the area. Surely this, too, should be seen as a "special or unique" characteristic of the site.

SAPL finds flaws in the assumptions in the evacuation and early health effects models as described in Appendix F. A few examples of questions that arise are as follows: How can it properly be assumed that the evacuees will receive no further radiation exposure at the end of the travel distance when the distance selected for these calculations is 15 miles? Why is there no consideration of the consequences of a rainout of radionuclides from the plume? How can the duration of evacuation, upon which the economic costs were calculated, be assumed to be only one week? Once again, SAPL objects to the beclouding of the consequence data with probabilistic risk assessment assumptions.

Reactor Safety

On page 5-70, the staff says:

> It should also be noted that the Three Mile Island accident has resulted in a very comprehensive evaluation of reactor accidents like that one, by a significant number of investigative groups both within NRC and outside of it. Actions to improve the safety of nuclear power plants have come out of these investigations, including those from the President's Commission on the Accident at Three Mile Island, and NRC staff investigations and task forces.

These statements give the impression that sufficient progress has been made in improving the safety of reactor operation. For the record, SAPL would like to call attention to John Emschwiller's article "Many Nuclear-Plant Perils Remain Three Years After Three Mile Island" from the Wall Street Journal of February 26, 1982. The follow up by the NRC on the post-TMI recommendations made by the various investigative bodies has not been as good as could be reasonably expected and in certain specific instances has been outright abysmal.

Offsite and Onsite Radiation Exposure

SAPL will be interested to see the detailed breakdown of the integrated dose to the construction workers still working on Unit 2 while Unit 1 is operating that is to be presented in the Final Safety Analysis Report (p. 5-23). This exposure to this number of people is a matter of great concern. (The circumstance of construction workers onsite in the vicinity of an operating reactor also raises questions of sabotage prevention and plant security.)

Because there is still such intense debate within the scientific community about the health effects resulting from low-level radiation exposure, SAPL believes that the NRC should err on the side of

conservatism and employ "relative risk" or whatever models yield the highest cancer mortality risk estimates in assessing the health effects resulting from both offsite and occupational radiation exposure as a result of normal operation of the Seabrook reactors. The uncertainties about low-level radiation effects make operation of the Seabrook reactors in effect a massive health experiment on a human population.

SAPL believes that Table 5.4 which compares incidence of job-related mortalities ought to extend to cover comparative incidences of job-related cancers and genetic defects as well.

On page 5-25, the risk of potential fatal cancers in the exposed work-force population at Seabrook and the risk of potential genetic disorders in all future generations of this work-force population is estimated by multiplying the annual plant-worker-population dose by the risk estimators. This is not a fair assessment of risk since the plant-worker-population will be exposed for more than one year if the reactors operate as long as planned. According to the figures presented, there will surely be several genetic disorders as a consequence of the operation of the Seabrook reactors for their proposed life-spans. It is not clear whether these data are for one or both reactors. It appears that they are for one, and if so the health consequence data ought to be doubled. SAPL questions the annual plant-worker-population dose cited and also questions the risk estimators.

Fission Product Characteristics

Table 5.7 (pages 5-36 and 5-37) is unclear because it does not specify when in the reactor's life-span this inventory of radionuclides

exists. For the fairest indication of the most severe accident potential, data ought to be provided for that point in time when the largest inventories of radionuclides exist.

Data should also be provided on the inventories of radionuclides that will be present in the spent fuel that will result from operation of the Seabrook reactors over their proposed lifetimes in order to give an indication of the depth of the waste disposal problem that they will create. SAPL requests to know what guarantees there are that the Pu-239 will be successfully isolated from the biosphere for the requisite quarter of a million years. Who or what agency will assume responsibility for this waste disposal?

Uranium Fuel Cycle

The assessment of the impacts of the uranium fuel cycle in Appendix C is inadequate largely because of the grave uncertainties surrounding plans for long-term disposal of radioactive wastes. Fortunately, the U.S. Court of Appeals has realized that the NRC's guidelines are "arbitrary" violations of the law and Table S-3, on which this assessment was based, has been ruled invalid. Again, Appendix C minimizes the health hazards of the nuclear fuel cycle by averaging exposures over the entire U.S. population, disregarding that fact that certain individuals will be put at a very much higher risk level. Future generations ad infinitum will bear the risk of inheriting the genes which might be damaged by these higher exposure levels.

Again, the fact that background radiation exposure will kill

large numbers of people over time is no justification for adding to that number. The number of deaths per reference reactor year (RRY) times the number of years each reactor will operate times the number of operating reactors yields a multiplicity of unnecessary deaths attributable to the nuclear program in the U.S. and throughout the world. SAPL objects to the fact that there is no mention of ailments that might be caused by radiation exposure that cause human suffering but which do not result in fatalities, e.g. non-fatal cancers, coronary disease, premature aging. These are impacts of the uranium fuel cycle as much as are the fatalities.

Socioeconomic Impacts

The analysis of the socioeconomic impacts of operating Seabrook Station (pp. 5-13 to 5-17)is highly inadequate. Ridiculous in the extreme is the claim that there will be no significant changes in the use of water-oriented recreational facilities attributable to the location of the reactors. This claim is based largely on a study conducted by the NRC staff in the spring of 1976, prior to the Three Mile Island accident. Though there are supposed to have been update interviews, their extent is not described. The 10 other reactor sites at which people were surveyed for the staff study do not have the evacuation problems unique to the Seabrook area. Many beach users in the Seabrook area are acutely aware of the problems of egress from the area and beach use may very well drop off due to fear once the reactors go on line. The staff ought to do a study on the New Hampshire coast before it claims that beach businesses will not be

harmed.

Biocide Usage

The continuous low level chlorination of the circulating water system proposed by PSNH in its NPDES permit application is a matter of great concern to SAPL. The potential for damage to aquatic biota and the marine environment requires that these measures be thoroughly scrutinized before they are allowed to be implemented. Information is lacking. For example, what will the booster dose oxidant concentrations be?

Other

To make two other brief comments, SAPL finds it interesting that PSNH is claiming that the Unit 2 reactor is 25% complete when a phone inquiry to the company headquarters in Manchester on February 11, 1982 elicited a completion estimate for Unit 2 of 10%. Either there has been a phenomenal construction rate or the two estimates were based on varying criteria. SAPL would be interested to know what percentage of the actual physical facility is completed.

SAPL disagrees with the staff's conclusion that consideration for alternative locations for structures located in the floodplain is "neither required nor practicable." Licensing of the plant ought to await data on floods specific to the town of Seabrook.

In conclusion, SAPL feels that this Draft Environmental Statement is very incomplete, very confusing and unnecessarily unclear in many sections. Seemingly deliberately, it obscures the reader's perception

of the potential deleterious impacts of the Seabrook project. SAPL is convinced that the licensing of the Seabrook project would be directly contrary to the requirements of the National Environmental Policy Act of 1969. SAPL recommends that seabrook Station Units 1 and 2 not be licensed to operate.

Respectfully submitted,

BY: Jane Doughty
Jane Doughty
SAPL Field Director

June 28, 1982

MISCELLANEOUS COMMENTS
ON BEHALF OF
SEACOAST ANTI-POLLUTION LEAGUE

May 26, 1982

Comments on the Staff's Conclusions are as follows:

6.1(3) The proposed course of action should include complete stoppage of the plant while analysis occurs-especially where adverse impacts are unavoidable (6.1) Stoppage would prevent compounding of impacts.

6.4 The proposed continuous chlorine injection plan, not approved at this time, was not included. Assessment of damages and consideration of mitigative measures should be included.

Also another factor listed is: Adverse non-radiological health effects-water quality changes. No impact status is listed. Continuous chlorine injection as discussed above was not included in this analysis either.

4.2.5 (p.4-10 -4-11) Since these assessments and studies have not been made or completed, the cost-benefit analysis is inadequate. The factors used do not reflect the impact of chlorine injection.

b. Alteration of land for the plant and its associated transmission lines has been significant. An assessment of the original proposed impacts and actual impacts would be necessary to provide a basis for the Staff's conclusion. The Staff equates necessary with insignificance. The two are not the same.

c. 5.3.3 does not exist. 5.3.2 addresses hydrologic alterations and floodplain effects. The Staff cites that the <u>only</u> direct effect of the site on the floodplain is the removal of a small amount of habitat below the 10 foot contour shown in figure 5.1. This should be checked for verification and for potential of that area to erode or be impacted in the future.

e. At the outset, a claim of no impact (adverse or not) is suspect and arguable. The real issue is how severe the degree of adverse impact is. 5.5.11 cites 4.1 and 5.1 of ER-OL.

4.1 address construction impact and not operational impact.

5.1 addresses operational impacts including:

5.1 Effects of Operation of Heat Dissipation System.

5.1.1 Effluent Limitations and Water Quality Standards - Federal Thermal Criteria. (FWPCA §316) considerations of backflushing are made here. If chlorine injection is to be used instead of backflushing; this factor should be reassessed.

5.1.1.2 N.H. Thermal Criteria (RSA 149:8-III supp. and section 401 FWPCA, the NHWSPCC certified and granted a permit in 1974 based on backflushing, not chlorine injection. This factor must be reassessed.

5.1.2 Physical Effects.

5.1.3 Biological Effects- were discussed in Summary document 9 and the applicant states the information remains unchanged. --Chlorine injection requires reassessment of this factor.

5.1.4 Chlorine injection should be reassessed here if there is an increased impact due to chlorine/heat interaction.

5.6 The Staff requested the National Marine Fisheries Service, U.S. Dept. of Commerce to provide information on end. and thr. species. The NMFS concluded that station operation will not affect shortnose sturgeon or the habitat of offshore whales and sea turtles (App. G)

One glaring omission from the Staff report is consideration of information requested and received from the Fish and Wildlife Service, Dept. of Interior, Concord, NH office. The F&WS report stated-App. G-1,2 that refuges for the perigrine falcon lie within the 50 mile radius of Seabrook; that bald eagles are regularly reported within 50 miles of the plant and use the coastal route during migration. The F&WS is "concerned about the potential electrocution of birds as a result of this project. To the extent possible, new transmission facilities should be designed and constructed so as to prevent electrocution of raptors, such as the peregrine falcon and bald eagle."

Two plant species, proposed for listing as endangered or threatened (45 FR No. 178, P 59909, Sept. 11, 1980 and 45 FR No. 209, p. 70949, Oct. 27, 1980) which occur within 50 miles of the plant are:

- the small whorled pogonia (Isotria meleoloides)

- the silverling (Paronychia argyrocoma var albimontana

The F&WS recommends the NRC Staff contact:

Carol Smith
Audubon Society of New Hampshire
3 Silk Farm Road
Concord, NH 03301

A wildflower group - The N.H. Wildflower Society
c/o Ann Doak

might also be of help.

The stated F&WS concern and Staff conclusion of no adverse impact are in conflict. The Staff's conclusion should reflect the "concern" for two endangered species. The staff, in sec. 5.5.1.1, cites sec. 4.4.4.1 which does not exist. sec. 4.3.5.1 does address endangered and threatened species and does cite the F & WS "concern" in App. G. However the citing of a letter and thorough consideration via a study are two different considerations.

g. The new proposal for continuous chlorine injection is not mentioned nor considered in the Staff conclusions.

Section 2n(5) of the Permit (Construction Permit Stage) for pollution discharge. The permit, sec. n.5 requires continuous monitoring; yet continuous monitoring is not part of the applicant's environmental report, see sec. 6.2 ER-OL for response to Staff request, see sec. 6.2 of Feb. 82, revision. Continual monitoring of continuous chlorine injection should be stated in the ER-OL.

Reevaluation of impacts is necessary since the impacts assessed at the construction permit stage were due to intermittent chlorine injection, not continual.

h. The ER-OL sec. 2.6 stated that the Cedar Swamp crossing is now rerouted so that the transmission lines will not traverse the area. A local Conservation Commission member or Historical Society member may have information on unresolved archeological or historical issues.

i. Data available at the construction stage, plus additional data, discussed in DES 5.8 form the basis of the Staff's conclusion. New data includes:

1) -effects on the local economy (i.e. 3-5% of Seabrook Station employees will be local residents-station positions require unique skills "who may not reside in the local area.)

-The staff stated that indirect jobs (supplying the site) and induced jobs (created by consumer spending increase) would result.

It is difficult to see how increased consumer speing will benefit the local economy, if 3-5% of those employed will be local residents. How much increased spending will be induced is a question when 359 employees will operate the plant. About 18 of those employees will be local residents. Seabrook is readily accessible from Boston, Portsmouth, Portland, the non-resident employees may not all move to the Town of Seabrook. Even if they did an additional 341 residents may not have a significant impact on the economy. In fact the impact may be greater on the local towns to provide services--homes, schools, etc.

2) Tax Benefits - A note to make here concerning local economy"benefits". The PSNH has applied for tax exempt status for those "pollution control" devices it claims qualify for property tax exemptions. If exemption is granted, this will have a negative effect on the Towns of Seabrook and Hampton.

3) Effects of Operating the Station on the Local Economy. Beach user avoidance and tourism impacts were based in part on mid-1970's data. Since the accident at TMI, and recent Court decision requiring assessment of psychological stress on the TMI population, a more recent assessment is warranted. The Staff does have a recent indicator of potential problems but chose to ignore it in their considerations. A December 2, 1981 public meeting disclosed local business fear of reduced tourism and beach use, rumors that Station problems would add to business losses, and that a Class 9 accident, a real possibility, would leave the area permanently affected. The meeting provides an official record of local concern more current than 1975 surveys, yet the Staff gives the latter greater weight. The Staff mentions briefly, p. 5-15 that early interviews were updated as recently as Feb. 1981, yet neglects to state the conclusions of those 1981 interviews; it assumes confirmation of earlier interviews. The Staff qualified their conclusion by stating, p. 5-16 that conclusive evidence of

beachgoer behavior is not available. Surely enough indicators of a problem and local concern are present to negate the staff's conclusion that operation will be beneficial.

j. This conclusion is related to conclusion i. but attempts to deal with beach attendance/losses. Where (i) concluded that operation of the plant would benefit social-economic factors; (j) concludes that the location, not operation, will not result in large or measurable losses to beach attendance or economy. Location is an issue but is dependent on the operation of a plant sited near a beach. The same comments in (i) apply to (j)'s conclusion regarding operation. Conclusion (j) as stated is meaningless.

k. Two assumptions are made by the Staff here.

1) that 7.6% growth is due to in moving operating workers,

2) that inmovers will settle in N.H. towns near the site.

There are problems with the conclusion and assumptions. First, once Seabrook Unit 1, and Unit 2 are completed (Unit 2 is scheduled for operation in 1986) - the large construction staff will not be needed. It cannot be assumed that new construction work of the Seabrook magnitude will keep those people in the vacinity . Second the conclusion is clearly only applicable to 1985, implying recognition of construction growth. Third, a recent N. H. Times article on Growth (April 1982) indicated that N.H. especially the southern tier is not growing, nor is it expected to grow. The small number of persons required to staff the operating plant may not settle in New Hampshire but commute just as easily from Boston, etc.

l. 5.9.3.2 is the radiological impact on humans section, which follows several lengthy sections on radiation pathways and exposure and occupational exposure.

This conclusion is based on doses calculated in App. D of FES and App. I of 10 CFR 50. The highest radiation dose to a maximally exposed individual is used, but disclaimed as overestimation: a real individual would not receive these doses.

An expert should examine these bases and examine the dosage and exposure likely in a Class 9 accident. The

Staff may have not calculated Class 9 accident exposure in this conclusion. (App. I, 10 CFR 50: Numerical Guides for Design Objectives and Limiting Conditions for Operation).

Class 9 radioactive effluents and wastes should be examined here.

The dosage studied is annual total body exposure; not specific dosage impacts from normal operations. Normal operation of a plant may give rise to vented effluents with significant one-time body impacts; not seen as significant when averaged over a year.

m. The last paragraph of 5.9.4.4(2) addresses offsite activities. The staff states they examined these activities but cites no studies or data to support their conclusion. Perhaps the staff relies on generic studies and not site-specific ones.

n. Section 5.9.46 is a conclusory section based on previous sections (5.9.4 Environmental Impact of Postulated Accidents)

Comments:

- The staff states that the Applicant's analysis of accidents in the ER-OL "generally meet[s]" the guidance of the Interim Policy (6/13/80). The Applicants accident analysis should specifically meet all requirements.

- Plant accidents were considered independently by the Staff. (5.9.4.1). The Staff used generic criteria (10 CFR 20, 10 CFR 50, Appendix I) to evaluate normal release limits. Fission product characteristics were determined to have a low frequency but are still credible events. (p. 5-35)

- Exposure pathways and accident consequences (p.5-39) were considered "very much dependent upon the weather conditions at the time." (p.5-39) The range of variability of wind direction, pathways and concentrations do not support the conclusion that accident risk is the same as operation risk. The variables outside of the utilities control are greater in accident consequences.

- The staff relies on the NAS BEIR III Report (1980) to determine health effect estimates. This study should be analyzed. The Staff uses the study to estimate whole-body radiation and low-level exposures.

- The staff admits, p. 5-40 that the Accident experience base is not large enough to permit reliable quantitive statistical inference. Given this admission, the staff concludes that the experience base suggests that significant environmental impacts caused by accidents are very unlikely to occur over time periods of a few decades. (p. 5-40) This conclusion is merely staff opinion, since there is no adequate quantitative base.

- The Staff addressed design features in Section 5.9.44 (1). The engineered safety features (ESF) are relied on to prevent accidents and environmental impacts. However, ESF are not to be relied on completely as accident mitigation measures as the Rogovin Report concludes.

- The uniqueness of the site is the most glaring omission from the staff conclusion. The egress routes are mentioned briefly, but the limitations they present are not noted (p.5-43). The large summer beach population is noted but treated as a weighted average. This weighted average treatment ignores the reality of a summer population near 200,000 which will be impacted. Averaging is highly irresponsible.

- Emergency Preparedness is addressed on (p.5-44). The staff cites 10 CFR 50.47 and two standards to be met: a plume exposure pathway of a 10 mile radius, and an ingestion exposure pathway of 50 miles. Beach evacuation times will be considered (p.5-45). The NRC has consistently stated that evacuation times are not required by statute; yet they state here that the staff will consider time frames. What is actually occurring is consideration of time frames without prestated time standards to evaluate the considerations. This is arbitrary.

- The staff combined"scaling-factors" for various pathways, beach usage, fish catch to estimate population dose. An expert should evaluate these scaling factors. Also, the staff relied on other ocean-based plants to make their conclusion as to risk at Seabrook. The Staff determination that the site is not unique is incorrect.

- Staff probabilistic and risk assessment are also suspect as they continue to be based on Wash 1400 and NUREG/CR-4000, both pre-TMI assessments.

o. The staffs conclusions are invalid. The District of Columbia, Court of Appeals recently held that the Table S-3 standards were invalid for omitting certain risk factors. The D.C. Circuit holding demands a revised set of standards and new review of the Applicant be made.

5. The law office received the DES on May 21, 1982. The Staff states the DES was available in April (22, 23?) 1982 and that 45 days are allowed for public comment (June 6). The April availability date does not correspond with the cover date-May 1982. Furthermore actual notice did not occur until late May. A July 6 deadline for comments is not justified.

6. a. Table S-3 was not evaluated correctly as noted above. Construction should stop while the NRC revised Table S-3, and the Applicant complies with the revised Table.

b. The continuous chlorine proposal should also generate a specific proposal for continuous chlorine monitoring as discussed above.

c. Add--and the applicant shall cease operations while the problem is analyzed.