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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

COMMENT TO THE COMMISSION  
ON  
ADVANCE NOTICE OF RULEMAKING

Dated July 29, 1980  
Docket No. 80-136

and

REPORT OF THE SITING POLICY TASK FORCE (NUREG-0625)

Issued August, 1979

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The New York Public Interest Research Group, Inc. (NYPIRG) is a not-for-profit, nonpartisan research and advocacy organization established, directed and supported by New York State college and university students. NYPIRG's staff of lawyers, researchers, scientists and organizers works with students and other citizens, developing citizenship skills and shaping public policy. Consumer protection, higher education, energy, fiscal responsibility, political reform and social justice are NYPIRG's principal areas of concern.

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The New York Public Interest Research Group, Inc. (NYPIRG) has read the Report of the Siting Policy Task Force (NUREG 0625) as well as the Advance Notice of Rulemaking, and submits the following comments. (We shall refer to the first as the Report, the second as the Notice.)

It is appropriate that the Commission is now undertaking serious and fundamental reconsideration of the extremely important issue of the siting of nuclear reactors. It, neglect has led to such egregious locations as those of Indian Point and Zion in densely populated areas, several plants in California on or near active faults, and Shoreham threatening Long Island's sole source of water. The Report of the Siting Task Force has many good and useful features, some of which have been strengthened by the suggestions of the ACRS.

As to the Commission's five statements of intent (Notice, p. 3), we are in general agreement with the first four. The fifth, while initially making a good point (that siting criteria are matters of national policy), proceeds to a completely illogical conclusion. No doubt the political intention was not to interfere with the internal affairs of other nations, but the reservation of Commissioners Gilinsky and Bradford seems to us extremely well taken.

"We do not think that this reference to the adequacy or inadequacy of siting criteria employed by other countries should be included in this notice. Since the NRC has neither jurisdiction over foreign siting criteria nor any familiarity with foreign sites, these comments are purely gratuitous. Addressing this issue in the context of a rulemaking on domestic siting can only serve to raise questions about the Commission's willingness to temper its protection of the U.S. public so as to accommodate foreign nuclear programs."

The statement to which the two Commissioners were objecting in effect says that if other nations wish to subject their citizens to greater peril than the U.S. does, then those foreign citizens are, in the opinion of the Commission,

satisfactorily protected. If in fact the NRC ends up by giving U.S. citizens better protection than is afforded certain other people, no one will suppose that it was done for the purpose of shaming foreign governments; and if it motivates them to improve their own citizens' safety, the effect will be a net gain for humanity.

Item A: The Task Force's goals. The first two goals impress us as self-evidently valuable and desirable. Any possible objections to the first goal -- to separate site approval from plant design -- have been adequately met by the first two statements of intent (discussed above). Under only one condition would it make sense to allow modifications in design to compensate for siting deficiencies (e.g., large populations): if it were certain that the release of radionuclides has been made impossible. In the real world, that can never happen. And no matter how small the calculated probability of a radiological release, the absolute consequences at a site within 100 miles of a metropolis, for example, would be so ghastly that the risk cannot be run. It is difficult to overstress the misguidedness of the past policy of disregarding Class 9 accidents and the prudence of the second goal. In this connection, we find the Report valuable in reviewing (on its page 10) the past dependence of siting policy on the concept of "maximum credible accident". In retrospect, what seems incredible is the fact that Class 9 accidents were officially classified as "not credible", so that their (assumedly small) probabilities were arbitrarily set equal to zero. The social irresponsibility of that decision is highlighted by the fact, stressed by Director Saul Levine in his commentary, "that WASH-1400 estimates that the risk (probability x consequences) appears to be larger for accidents that are lower in probability than DEAs." That is to say, leaving aside the many deficiencies of WASH-1400,

which resulted in its serious underestimation of the probability of accidents, if we accept that report at face value, and along with it the debatable proposition that the consequences of an accident should be scaled down by its likelihood, its calculation still leads to the conclusion that Class 9 accidents are the ones posing the most serious risks. Yet, in the face of this conclusion, they were ignored as long as possible -- until Three Mile Island.

We wish to support, with all the vigor at our command, the importance and indeed the necessity of the NRC's post-TMI position of considering Class 9 accidents in all contexts where public health and safety are at issue.

We have strong and fundamental objections to the third goal, however, except for its first sentence. (Indeed, later parts of the paragraph are inconsistent with and contradictory to that sentence.) To minimize risk means to make it as small as possible, not 'as small as is politically expedient' or 'small enough to prevent a public outcry while still not so expensive as to outrage the utilities.' The Task Force proposes to define "minimal" as larger in some regions of the country than in others. On page 44 of their Report, this extraordinary proposal is discussed and justified in just two paragraphs (half a page)!

The Task Force starts by noting that a stringent set of siting criteria applied uniformly to the whole nation would "tend to restrict the supply of nuclear-generated electric power to large segments of the population." But, they argue, "if electric generating capacity is needed, it will be provided" and if not from nuclear fuel, probably from coal. And, "the overall risks from coal-generated electricity might (sic) be greater than nuclear." Thus, they consider it "likely" that limiting the use of nuclear "would not result in any decrease" in overall societal risk. Note how quickly the relative prudence

of "might" gives way, as the possible becomes the probable -- all without benefit of evidence, data or references. Truly a remarkably unconvincing argument, particularly to anyone who knows the current status of the evidence of this issue. As Director H. K. Shapar points out in his incisive comments, "The premise that nuclear power generation is no more damaging to health and the environment than coal-fired generation is highly controversial." It makes the assumption that high-sulfur coal will be burned and by the most polluting methods, and takes into account all the known hazards of producing coal while ignoring those of producing uranium.\* Specifically, it overlooks or drastically underestimates the cumulative, millenia-long effects of radioactive tailings and back-end wastes. And it does not mention the fact that the worst accident possible at a coal-fired plant can have only a tiny fraction of the disastrous effects of possible nuclear accidents.

The Task Force argues that a uniform national policy "would be unnecessarily inequitable since most of the social, ecological, and health and safety costs of nuclear-generated electric power would be borne by the small portion of our society residing in remote areas, whereas the benefits of any nuclear power plants so sited would be received by the large portion of society in less remote areas that use the electricity." For the same amount of social benefit, it is supposedly more morally defensible to endanger much larger numbers of persons! The Task Force drops the matter there, but by raising the issue of who gets the benefits, who pays the costs, and who bears the risk, they have

\*It was misleading to pretend that coal is the only alternative. Once we give up the implicit assumption that energy must be supplied in traditional, wasteful ways with a heavy dependence on large centralized electrical generating stations, then many more sustainable alternatives become possible.

opened a Pandora's box. Regardless of siting, when only about 15% of the nation's electricity is nuclear in origin and from fewer than 70 operating reactors, only a small minority of consumers are getting the presumed benefits of the power; but all taxpayers are paying to operate the NRC, FEMA, and all other branches of national and local government that serve the nuclear electric industry. All are paying taxes to fund the billions of dollars that have been poured into R & D for this industry annually for decades, and for hidden subsidies like federal enrichment of uranium. And who gets that other, more obvious benefit, the profits from the sale of nuclear power? A privileged few who risk only their investment capital -- hardly the kind of risk that the NRC is legally obligated to consider and minimize.

Evidently, the Task Force began with the silent premise that we must 'preserve the nuclear option' for all sectors of our society, as a self-evident good. Secondly, health and safety must be protected as much as is feasible or practical, though one mustn't get too idealistic about such matters. In adopting such a set of priorities, the Task Force was merely following hallowed precedent at the NRC and the AEC before it. It is the same mentality that refused to find serious accidents credible, even though the insurance industry, entrusted with evaluating risks and cushioning them financially, has never been willing to underwrite nuclear power more than a token amount.

At the time when the Atomic Energy Act was passed, Congress assumed that the benefits of the peacetime uses of the atom would be huge and the social costs minimal, the dangers easily controllable. They therefore charged the AEC with promoting and regulating atomic energy, secondarily specifying that it should be done without unduly endangering the American people.

Since the abolition of the AEC and the division of its responsibilities

(with DOE), the NRC has been charged in the plainest of words with protecting the health and safety of the public. Today there is reason to believe that it may be impossible to have a viable nuclear electrical industry and to safeguard the public. That possibility seems unthinkable to NRC staff people. They act as if it is unquestionable that there must be nuclear electricity -- the protection afforded workers and the general public can therefore be only as good as is attainable under that limiting condition. (Somehow the conflict of interest for NRC people must eventually be addressed.)

We are hopeful that as a result of the warning provided by the accident at Three Mile Island, a shift is now occurring in the United States to the priorities specified in the current law: first, protecting the public health and safety, and then allowing the development of nuclear energy, but only to the extent possible under that restriction. This shift is evident in the recognition that new and stringent siting policies are necessary for atomic power plants.

If there are regions of the country where the nuclear power option is incompatible with public health and safety (because of high and dense population, e.g., Indian Point; or seismic activity, e.g., Rancho Seco; dependence on a sole-source aquifer, e.g., Shoreham; or other such characteristics), the NRC's siting regulations must not shrink from prohibiting reactors there.

In light of the above arguments, NYPIRG rejects as wholly unacceptable the Task Force position that, "Siting requirements, <sup>should be</sup> stringent enough to limit the residual risk of reactor operation but not so stringent as to eliminate the nuclear option from large regions of the country." This position outrageously contradicts the initial statement of goal 3: "To require that sites selected will minimize the risk from energy generation."

To come back to the Notice, we concur with one of the ACRS comments on goals (p. 4): it would be highly desirable if the NRC would develop a coherent, general safety policy. The Commissioners have often made it plain that they keenly feel the lack of such a policy, and it is not at all obvious who should logically develop it. Certainly the public should be maximally involved in an advise-and-consent role in the work of hammering out such a policy.

The centerpiece of a revised general safety policy must be a change from "risk" to "consequences" as the criterion. By such a criterion, light water reactors of the types currently used in the United States, and shielded in the general fashion that prevails, presently wholly unacceptable dangers to this nation. For too long, the whole NRC has taken it as an article of faith that, as the Task Force expressed it, "there is and always will be a very small likelihood of having accidents with offsite consequences greater than those for which the plant was designed" (emphasis added; p. 43 n.). That is, by stressing probabilities and keeping them tiny by failing to consider any possible causes of accidents that could not be easily quantified, staff and Commissioners alike have managed to convince themselves and much of the public that nothing bad could ever happen. For at least a while, Three Mile Island cracked the hermetic seals keeping out awareness that the atomic business was more dangerous than any other in which mankind has ever dabbled, and by many orders of magnitude.

"I think Three Mile Island has had a profound effect on me, and on the organization, and all the members of the staff. We now realize that accidents can happen. I think that before Three Mile Island, we sort of thought that accidents really could not happen, and that therefore, we didn't take the sort



of emergency precautions, and take all the extraordinary actions that maybe you should."

-- Harold Denton, Director  
Nuclear Reactor Regulation  
at meeting with a group of citizens  
from the Indian Point region,  
January 22, 1980  
Bethesda, Maryland

It is time to recognize that it was fallacious to discount possible consequences by their low probabilities, if the consequences pass a certain threshold of acceptability.

At the extreme, the argument is easy enough to grasp. Our society can tolerate various dangerous industries which together kill 2,000 workers per year, even though cumulated over 100,000 years the death toll would equal the nation's current population. But an industry that could kill all 200,000,000 of our inhabitants in one year would be intolerable and unacceptable, even though the probability of that event was only .000001. In terms of the usual formula, the risk in both cases is 2,000 fatalities per year if one performs the usual risk multiplication. Past a certain threshold (considerably less than 200 million fatalities), our society could not recover, and no prudent nation would take such a risk.

The nuclear industry, we urgently affirm, is already past such a threshold. The often-quoted consequences of the worst accident considered in the Reactor Safety Study, for example, are simply not conceivably tolerable. Even if it were free, a thousand megawatts of electricity for a couple of decades is nowhere nearly enough of a benefit to counterbalance the prompt deaths, latent cancers, property loss, genetic damage, and health effects which would occur in the event of a serious accident.

If the Commission rejects this argument, that the consequences of a Class 9 accident in any but the most naturally protected site (which may well be

underground) are simply unacceptable for America, then they must settle on a specific threshold of acceptability and announce it publicly. We doubt the political expediency of committing the NRC to the proposition that, in order to let the marginally useful nuclear utilities proceed, the nation must be ready ~~to~~ tolerate X thousands of cancer deaths, Y thousands of genetic deaths and deformities, and Z billions of uncompensated property loss. We insist, however, that if the Commission is going to subject the American people to these perils, they be forthright about it and allow public debate to settle the issue of whether these costs are tolerable. Indeed, it is impossible to reach definite positions on many of the issues raised in the present Notice unless there is agreement on such threshold values. Consider, for example, Additional Question 5 Relative to Item B (p. 6): there is no way to decide how to specify acceptable population densities until we know how many people the utilities are to be allowed to kill in order to have a profitable business.

In case our positions on the Additional Questions Relative to Item A are not evident enough:

1. Site approval should be independent of plant design.
2. Siting decisions should be based on considerations of risk for all available options -- not merely a nuclear plant at alternative sites, but also other ways of meeting the need for energy (e.g., building hydroelectric plants or investing in energy efficiency); and the criterion should be a balancing of benefits against all negative consequences to the entire population affected.
3. Criteria for sites should be nationally uniform. If, however, the decision is made to adopt the Task Force's recommendation, the regions must be at least multi-state in size. The regions of the country that are linked together by power grids come to mind as possible units to use for this purpose.

Item B: What are called Alternatives A and B are not in any proper sense alternatives, but mutually supplementary approaches to a problem. The Task Force's recommendation 1 makes four points, none of which are addressed in B, the three-tier approach of which could easily enough be adapted to the former. We believe that it might be worth while to do so.

When it comes down to the problem of choosing precise values -- and if that is not done sensibly, the whole approach becomes worthless-- we are not impressed by the Task Force's work. It is striking that on page 47 of the Report they recommend .5 mile as the fixed minimum exclusion distance, only vaguely alluding to "past staff review experience"; whereas on page 11 they had noted that "A distance of 1 mile would be required if one were to use the TID-14844 approach" which in general they seem to consider reasonable. It is also striking that "The TID-14844 distance would be 19 miles" for the old-fashioned EPZ of a sample reactor (Midland), but the Task Force pulls out of the air an emergency planning distance of 10 miles -- doubtless influenced by the recent NRC decision to adopt a 10-mile EPZ. That at least had some semblance of a rational basis in the charts and computations of NUREG-0396. If one studies those carefully, however, it is evident that the 10- and 50-mile sizes of the EPZs were choices of desperation or of cynicism, inspired by the same reverse priorities that make saving lives secondary to saving the nuclear industry. For, in the event of any of various Class 9 accidents, even if everyone is magically whisked out of the 1-mile circle around such a nuclear plant as Zion, there will still be thousands of deaths from cancer and tens of thousands of genetic injuries. Apparently that won't matter, however, because it will be impossible to prove that these excess deaths were caused by the accident; the zones were chosen mainly in terms of the shapes of curves of prompt (and thus traceable) deaths -- effects, moreover, on hypothetical healthy adults, which

therefore ignore birth defects, or illnesses and deaths of fetuses and infants.

It is difficult to compute consequences when we are all still basically dependent on the old RSS, WASH-1400 for our numbers. It should be a matter of high priority to have that study done by a new team that includes critics as well as supporters of the nuclear industry, and in a way that takes seriously the various scientific critiques of the old one. In particular, some effort must be made to estimate all known possible sources of accidents, including those originating in many kinds of human error and malevolence, and those of external origin. Since external (and sometimes internal) sources are largely site-specific, consequences of Class 9 accidents should be computed separately for each site.

This may be the place to raise one of our fundamental criticisms of the Task Force's Report -- its failure to include underground siting. Indeed, it is remarkable that subsurface siting is not alluded to even indirectly, anywhere in either the Report or the Notice! Some experts have proposed restricting nuclear power generation to underground sites. Without having made a study of this topic, we believe that the prima facie case for subsurface siting is reasonable enough to warrant its serious consideration, particularly when one gives due weight to Class 9 accidents. Quite possibly underground siting would prove too expensive to permit nuclear electricity to compete with other sources, but that is not the NRC's concern. The Commission's task is to regulate the industry so as to safeguard the public health and safety; if that can be done only by making it prohibitively costly, then society through the Congress must accept that fact and reconsider entirely our commitment to nuclear development.

As to the ACRS comments, we agree that consideration should be given to the number of reactors at a site, but also to the total pre-existing condition

of danger at a site from all other licensed reactors within 200 miles. A recent Task Force report (paraphrased in Docket Nos. 50-247, 50-286, p. 6) noted that "Latent cancers . . . are dominated by the population within about a 200-mile radius of the plant." As Fig. 1-16 on p. I-46 of NUREG-0396 shows, in the event of an atmospheric release from a PWR, 20% of unprotected individuals would get 25-rem does to their thyroids even at 200 miles, a very dangerous dose for an infant or fetus. The probability of infantile thyroid cancer, no doubt small from any one plant, increases considerably when one integrates the risks from all reactors in a region, considering routine (including "unplanned") emissions as well as "accidental" ones. Indeed, we believe that if this point of view is taken seriously, the northeastern part of the United States is already greatly oversaturated with nuclear stations and urgently needs for at least those posing the greatest societal threat to be shut down and decommissioned.

The remaining specific issues raised in the Notice are, in our judgment, premature and impossible to consider seriously without resolution of the basic questions we have discussed above.

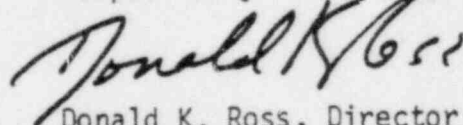
The decision to take seriously the consequences of Class 9 accidents has indeed brought the NRC to a major turning point. Now there is no more pretending; too many people are aware that the agencies charged with protecting the public have been accepting the fiction that serious accidents are not "credible" because they are supposed to be as rare as the fall of huge meteorites on metropolitan centers. It will not be easy for the Commissioners to act as they must on the logical consequences for siting policy of facing the unpleasant realities of nuclear power. There will be protests from the utilities, litigation, and political pressure from a large part of the country's industrial, financial and business community. The great majority of this country's citizens will support

and be grateful for a decision to protect their health and safety, however, particularly when they learn of the true extent of the dangers. NYPIRG and many other organizations concerned with the public interest will do all in their power to back the Commission up if it adopts a tough, stringent, nationwide siting policy.

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SUMMARY: NYPIRG agrees with the first four statements of intent, but endorses the Gilinsky-Bradford critique of intent 5. We specially commend the separation of site approval and plant design, and the consideration of all possible accidents -- including those beyond design basis ("Class 9") in the evaluation of sites and in all other aspects of nuclear policy. Siting policy should be national, not regional, all reactors being held to stringent absolute standards of public health and safety, which standards must be applied to already licensed reactors as well as those currently being considered. The Report is criticized for not considering underground siting. NRC must adopt a coherent general safety policy stated in terms of total health effects from routine operations and consequences of worst-case accidents, unweighted by speculative assessments of probabilities.

Respectfully submitted,



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