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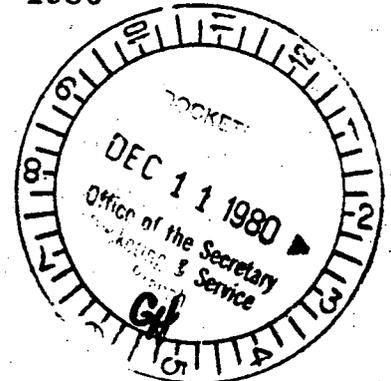
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September 26, 1980

Commissioners:

John F. Ahearne, Chairman  
Peter A. Bradford  
Victor Gilinsky  
Joseph M. Hendrie  
U.S. Nuclear Regulatory Commission  
1717 H Street N.W.  
Washington, D.C. 20006



Dear Sirs:

In accordance with your order of May 30, 1980, an informal proceeding is under way to define the scope of the forthcoming adjudication by a special Atomic Safety and Licensing Board considering the petition of the Union of Concerned Scientists, and the criteria to be used by the Commission in reaching decisions on Indian Point. A transcript of your Discussion on Indian Point July 25, 1980 has enabled us to follow the initial stage of that informal proceeding.

The positions you are about to take will have a decisive effect upon the outcome of the hearings, conceivably making it impossible for the plaintiff to obtain the relief sought, regardless of what goes on at the hearings themselves. We shall try to demonstrate below just how we believe your present deliberations could so decisively predetermine the outcome of the Indian Point proceedings, and to bring to your attention several issues we hope you will consider at this time.

## Comparative vs. Absolute Criteria.

In his opening remarks at the July 25 meeting, Chairman Ahearne referred to the need for "a set of criteria that the board might use for decision criteria, or that we might use" (p. 2 of the transcript). It is our understanding that the ASLB is not to make decisions, but to gather information and compile a record of evidence. The Commission has stated that it is reserving final decisions to itself.

In the July 25 meeting Commissioner Hendrie formulated "the proposition before us" as follows: "whether the risks associated with the IP units are out of line with the range of risks that are there at the run of operating sites" (p. 5). If you allow that to stand as the statement of the hearings' purpose, the scope of the proceeding will be drastically and most inappropriately narrowed. Behind that seemingly fair formulation lies a series of

assumptions foreclosing inquiry into a number of the most important issues that lie before us.

First is the assumption that the average run of operating reactors are "safe enough." Mr. Hendrie makes it explicit that in his opinion, "the run of operating plants are probably overall at an acceptable level. ...the general band is at an approximately acceptable level on an absolute scale..." (pp. 29-30, emphasis added). He admits that he has reached this conclusion "on no grounds other than sort of intuition and judgmental grounds of our deliberations, calculations, and so on." We suspect that part of his judgmental grounds is the argument that the majority of operating plants seem to be more or less accepted by most of the people living nearby.

We wish to remind the Commission, however, that when existing plants were licensed, it was under a set of assumptions that no longer hold: primarily, that only design basis accidents were "credible" and needed to be considered. Under that and the related assumption that accidents requiring simultaneous failure of several systems could be ignored as too improbable, the level of risk implicitly approved by the public as tolerable was much smaller than is now known to be the case.

Two of the lessons of TMI were that accidents more grave than design basis can and do occur, and that this one did involve simultaneous multiple failure of unrelated system components. Since then, the Commission has taken a most necessary step of facing reality: "Class 9" is about to be abolished because it served as a wastebasket in which to conceal everything unpleasant and threatening. Serious accidents, with release of radionuclides to the surrounding environment -- some because of simultaneous multiple failures -- are now deemed credible.

The public has not yet caught up with the facts, however; many people continue to believe the utilities' reassurances that nuclear power is "clean and safe," not to mention the equally controversial claims that it is "cheap and necessary." We simply do not know whether the public would accept nuclear power if they had a more accurate understanding of the human costs actually being paid and the enormous consequences a serious accident would entail.

It would be quite intolerable to establish criteria by which the ASLB could rule out of order the argument that Indian Point is unacceptable because an accident there could cause the death of hundreds of thousands of Americans and the loss of tens of billions of dollars, on the grounds that other nuclear plants pose similar dangers.

In order to reassure Con Edison and PASNY that they are not being held to an intolerably idiosyncratic standard, you can assure them that the criteria adopted in this case will be applied generically, as indeed they must be. The utilities must understand that it is a wholly new ball game, and that it is necessary to start somewhere; it is only reasonable to begin applying more stringent new standards at the site where by all odds the largest number of

people are at hazard. Indeed, in anticipation of the Indian Point utilities' appeals that they are being discriminated against, the Commission should make this point explicit as soon and as clearly as possible: Indian Point is not the only one, just the first. And the Commissioners should also state that instead of comparing Indian Point to other plants, it is their intent that it will be the other way around: Once the Commission has decided what new and absolute standards are to be applied to Indian Point, other plants will then be held to these standards

Critique of "Risk" as a Criterion.

There are serious difficulties with the concept of risk and its computation as defined by NRC in the past (consequences x probabilities). First, the formula assumes that it is possible to state "consequences" in the form of a single number. In fact, however, the NRC's own documents usually specify at least the following effects of any given accident: numbers of prompt deaths, numbers of radiation illnesses, numbers of latent cancer deaths, and numbers of genetic effects or genetic deaths; plus property damage. This listing is seriously inadequate because it wholly neglects many other life-shortening effects of radiation. Exposed persons may be expected to be more vulnerable to infection and to all types of disease. If it is difficult to furnish actual morbidity rates in support of this theoretically derived conclusion, that is only because of the inexcusable lack of adequate research on the health effects of low-level radiation in this country, and on the populations who have been deliberately or otherwise exposed. It may be too late to collect satisfactory data on people exposed to atmospheric bomb-test fallout (though of course this should be attempted), but it is not too late to start doing the necessary research on all workers occupationally subjected to ionizing radiation. It is not only possible, but morally imperative to keep careful cumulative records of their lifetime exposures and body burdens of radionuclides, and to compare their health records over the rest of their lives with control subjects who receive only normal background exposure.

It would be useful to collapse the data on prompt deaths, latent cancer deaths, and miscellaneous injuries and illnesses by computing a total life-shortening effect on an exposed population in terms of person-years taken off normal life expectancy. This approach still omits the great cost in human suffering from non-lethal traumas, physical and psychological.

We reject the conventional risk formula for a second major reason: the probability of a serious accident cannot be determined precisely enough to be usable. The NRC's Task Force on Interim Operation seems to have disregarded this consequence of the last re-evaluation of the Reactor Safety Study. The Task Force did implicitly concede that no competent person in the field is willing to defend those seemingly precise numbers with which the RSS characterizes the great improbability claimed for any serious accident. Moreover, the RSS figures admittedly do not include several important classes of possible causes of accidents, since there is no

known way of estimating their probabilities (e.g., psychotically or politically motivated sabotage). We can be certain that they underestimate the likelihood of disaster, but we cannot say by how much. Therefore, there is no rational way that these probabilities can be used to compare reactors at different sites.

Finally, let us restate succinctly an objection to "risk" which we and others have expressed repeatedly: past a certain level of consequences, an avoidable danger becomes intolerable no matter how low its probability. Suppose an inventor were to present us tomorrow with a new energy source, cheap and inexhaustible as dirt and as versatile as oil, with the one drawback: that the process of producing it has a tiny, tiny chance of completely destroying the earth. Only the imprudent would urge its acceptance, and those would mainly be people who saw a way of getting rich by exploiting it. (In large enough amounts, money seems to anesthetize some people to dangers of no matter what size.)

### The Burden of Proof.

Some parts of the transcript of the July 25 meeting suggest that the Commission has a realistic and sophisticated grasp of the trickiness of carrying out risk comparisons.\* Nevertheless, Commissioner Hendrie seemed undeterred from going ahead with his original idea of comparing the "risk" at Indian Point with that posed "at the run of operating sites." We wish to point out one way in which his formulation subtly forecloses another question, that of the burden of proof. Nowhere in the final ten pages of the transcript, which deals with this matter, does there appear to be any recognition that Mr. Hendrie's way of formulating the criterion puts the burden of proof on the plaintiff, the Union of Concerned Scientists.

It should be recognized that the UCS is laboring under an inherent handicap, necessarily bearing the burden of proof, as long as the basic question is formulated in a comparative fashion. If instead, the Commission adopts an absolute standard, then the situation is simple: either Indian Point meets a specified criterion of minimal acceptability or it does not. Moreover, the burden of proof may be laid on either party, with this formulation, or left unspecified. We strongly urge that the Commission adopt such an absolute standard, and that it be expressed in terms of consequences of worst-case accidents, not "risk."

\* We note, also, the following from p. 5 of the draft "Memorandum and Order" denying the request for interim suspension -- not affirmed and still reversible, we hope:

"Risk estimates of this sort necessarily involve wide uncertainties, as the Task Force emphasized. The large uncertainties in absolute values of risk estimates generally introduce wide uncertainty bands in comparisons."

The Criteria: Individual and/or Societal Risk, a Faulty Distinction.

A reading of the Commission's July 25 discussion on this matter, convinces us that though there is a valid distinction to be made, the dichotomy individual vs. societal risk does not capture it. At times, it seems that the Commissioners are talking past one another because all assume a common understanding of what the terms mean, yet few definitions are offered, and these contain contradictions.

Consider individual risk. Mr. Hendrie begins with something close to a definition: "whether the risks to an individual who lives in the Indian Point vicinity are substantially greater than the range of risk to individuals around other sites..." (p. 6). He goes on to speak about societal risk, voicing his "aversion to those integrations which go out over great distances, and then result in adding up very small exposures to very large numbers of people." It seems clear, therefore, that individual risk for him is the risk to a single person (not further specified) living near a nuclear plant, and societal risk is (or includes) an integration or summation of the risks to everyone endangered by a plant. Moreover, he restricts risk to "radiation exposure." (See below for our objection on this last point.)

An inconsistency appears on p. 7, when Mr. Hendrie says: "you would not care to go with just the societal one and say we don't care about the individuals. It is just whether society as a whole --" Here he is interrupted; but he is clearly thinking about some dangers to society as a whole, not to individuals whether taken singly or summated. Surely there is no contradiction between individual and societal if the latter is defined as the total risk to individuals! Indeed, with that definition, the individual risk criterion contains no information not contained in the societal, which in no way is an antithesis to it but rather a needed supplement.

It would be impossible to choose which individual to focus on and make that choice in a democratic or scientific manner. Should the criterion individual be male or female (and if the latter, pregnant or not)? Adult, child, infant, or fetus? In the prime of health or ailing in some way? Living in a well-sealed brick house with a basement, or in a shack that would afford little useful shelter against radiation? Living in a sparsely populated area with easy egress or on a densely populated island with few exits? Living at what distance from the plant? These and other relevant questions all bear importantly on the dosage of radiation this hapless individual would receive in case of a release, and on his/her vulnerability. There is no way a single individual, no matter how carefully or randomly chosen, can represent the distribution of all people actually endangered. The only way you can show that you "care about the individuals," as Mr. Hendrie put it, is to include all of them; for only when everyone is included is no one individual ignored.

Indeed, it is difficult to imagine how the individual risk criterion, as originally formulated by Commissioner Hendrie, can be

defended except as a device to avoid accepting appropriate responsibility for individual persons -- especially those living in crowded surroundings.

The dichotomy, individual vs. societal risk, falsely implies that it is possible to consider an individual as having a reality separate from and unaffected by his/her surroundings (including such factors as geography, topography, and the number of other individuals competing for space and mobility in the aftermath of an accident). In the event of a serious accident, an individual 35 miles north of Indian Point and one 35 miles south would face different levels of danger even if exposed to the same amount of radiation, for the inhabitant of New York City would have a good deal more to contend with than his/her country cousin .

#### Recommended Criteria: Consequences of Serious Accidents.

Once the misleading assumption is abandoned that only two criteria are needed -- one to take account of the individual and another to take account of society -- it becomes apparent that we must consider several types of negative consequences of serious nuclear accidents:

Health consequences. First must come effects on the health and safety of individual persons. This is actually a complex and multiple criterion even if several measures are combined into an index of total life-shortening; an estimate of suffering, and one or more indices of genetic effects are also necessary.

Monetary consequences. The medical care assumed by the above will be enormous, but perhaps the main monetary cost will be property losses. They must include estimated costs of decontaminating reclaimable lands and buildings; and the value of products lost over the entire expected recovery time in areas that cannot be reclaimed.

Institutional consequences. This last miscellaneous category comprises first, qualitative statements of expected impact on social institutions in the affected region -- local, national, and international, not forgetting the effect upon the United Nations and the international community of any accident affecting New York City. Secondly, it would include what Commissioner Bradford was talking about when he noted: "There might easily be some areas [left uninhabitable] that would mean an awful lot more to the country than others" (p. 12).

We thoroughly agree with Chairman Ahearne that it will be necessary to consider these criteria not only quantitatively but qualitatively. Some can and should be numerically measured; others cannot, but must not be omitted or neglected for that reason.

#### Scope of the Hearings.

We request you to review our previous comments (as part of the Citizens' Task Force on Interim Shutdown of Indian Point) on the kinds of questions the ASLB should address; for your convenience, we attach a copy. We wish to add just a few further thoughts.

On the matter of the economic consequences of closing down Indian Point: We believe it essential that the Commission protect itself from the kind of pressure that Governor Carey exerted behind the scenes on the issue of interim suspension. The Commissioners must not leave themselves open to the charge that they bowed to such political pressure in neglect of the interest of public safety. In the days to come, the utilities and their political friends can be expected to bring every available kind of influence to bear on the Commission, state and local officials, the media, and the public -- backed up by onesided figures and arguments on economic and related grounds (especially the alleged consequences of increased dependence on OPEC oil, the threatened flight of business from New York, and the predicted increases in utility bills). The Commission needs to make its position clear and unambiguous on these matters; it must either explicitly include them in the questions to be investigated by the ASLB -- though of secondary importance to issues of public health and safety -- or else it must explicitly exclude them as irrelevant and out of order. And if economic issues are to be excluded, they must be excluded behind the scenes as well.

### Interim Operations.

The more one thinks about the tasks ahead of the Commission and the ASLB, the more apparent it is that to do the job right will take a long time. NYPIRG and other Indian Point critics now find ourselves in a terrible bind. We want the hearings to be broad in scope so that we may raise all the issues that concern us; we want them to be thorough and to tackle the problems in depth, as they must. Yet, with the plants running, we feel endangered and thus eager for a speedy conclusion. We realize, also, that the utilities have the means to extend the proceedings indefinitely (appeals and delays, court moves, etc. -- all at the customers' expense). "The Interim" could be a very long time!

It is unfair and illogical that the people living around Indian Point must remain in jeopardy during the pendency of the adjudication while the Commission decides (at its usual "glacial speed") if we are "safe enough." It is intolerable to contemplate the possibility that Indian Point might cause a disaster at the very time when the Board was hearing the evidence that it should be shut down. If in the end it is proved that the UCS was right in its major contentions -- and we hope that the proof will come by words and figures, not by an actual accident -- your decision to let both reactors go ahead and function as usual will have turned out to be a grave mistake. We appeal to you to reconsider.

We urge you not to accept Commissioner Bradford's suggestion (in a radio interview) that Governor Carey may be considered the voice of New York State. A poll recently published in the New York Times reveals that he does not have the support of even a bare majority of the citizens; in fact there was a higher percentage who said they would vote against him than would vote for him if the election were held tomorrow.

Finally, with respect to the need for Indian Point, may we remind you that a DOE assessment of supply and reliability indicated that the loss of Indian Point power could present a problem only during the summer period of peak use.

"During the other months of the year, CON ED and PASNY will have sufficient available capacity on their own systems and from transfers from other areas to provide reliable electric service."

--- Appendix C, p. C-4, Report of the Task Force on Interim Operation of Indian Point

This past summer, Indian Point Unit 3 was down during a period of record peak demand in its service area. There was no interruption of service and the New York City subway system kept running. During the same period, there was a statewide record peak demand while 5 major generating units -- 3 of them nuclear -- were down, with no service interruption.

### Conclusions.

During the past couple of months, there have been several disturbing developments in connection with Indian Point. The lack of adequate security remains scandalous. The lead story in the September 10-16, 1980 issue of the Village Voice, "Crashing Indian Point...or, How I Could Have Brought the World to Its Knees," highlighted the ease with which their reporter gained access to ground and buildings at the plant. PASNY immediately announced yet another shift in security management, but we wonder if it is only a matter of time until one of the periodic terrorist threats against Indian Point is carried out.

A disquieting scenario seems to be unfolding with respect to "Denton's Decision" of February, 1980, which leads us to believe that the ground we critics may have gained when you ordered the forthcoming adjudication, we may be losing at the plant and with NRR. Last week, for example, Con Edison announced that on October 17 they will be submitting their plan for the dismantling of Unit 1 . . . in the year 2006 ("or perhaps as late as 2036")! (What will the "cost/benefit analysis" look like for our children?) We are informed that certain NRR staff members who have known that this was how Con Ed would be "complying" with the Director's order for decommissioning, find the plan quite reasonable.

Furthermore, there is growing indication that shortly Mr. Denton will decide that the "long term modifications under consideration" by his staff are unnecessary after all. In a series of staff/utility meetings to consider major fixes (core catchers, filtered containment venting, etc.), the utilities have been arguing that the Director was wrong in February and that the "risk" at Indian Point is actually much less than elsewhere. They have already produced one risk assessment study purporting to show this, and another larger one is scheduled for release any day. We are told that Mr. Denton will make his

decisions after he has studied this report, and that there is a good chance he will not require any major new design safeguards.

And while all of this is going on between the utilities and the staff, Con Edison is conducting a very expensive, hardhitting local TV campaign involving inflammatory ads which suggest that we face a choice between nuclear power (along with coal and conservation) and war with OPEC countries for oil.

Many local individuals and groups are beginning to wonder if the deck is hopelessly stacked against the public interest. It is difficult to feel reassured that the Commission is now serious about protecting the health and safety of those of us living near Indian Point when we note that (1) you've decided against suspension; (2) you have yet to decide on guidelines for the ASLB or set any time table for the adjudication (a full year has elapsed since the UCS filed its petition, with no relief in sight); (3) NRR continues to be lenient with the utilities in every major area; and (4) the date for compliance with new emergency planning rules has been moved back to April 30, 1981.

\* \* \* \* \*

At this juncture, it is essential that you restore public confidence in the Commission by taking the following steps:

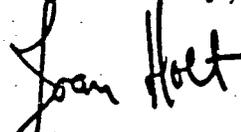
1. Order the immediate suspension of Units 2 and 3 in the interest of public safety. We are sure that it lies within the competence of your legal staff to spell out your specific authority to put protection of the public ahead of protection of the Indian Point licenses.

2. Define the criteria for your decisions on Indian Point in terms of the consequences of worst-case accidents, not comparative "risks."

3. Delineate the scope of the Indian Point hearings broadly enough so that testimony on all relevant issues will be allowed: suitability of the site; plant design matters, specific and generic; on and off site health and safety issues, including worker safety and emergency response capability within and beyond the 10 mile EPZ (explicitly to include New York City); range of possible accidents beyond design basis (including those of external origin) and their consequences; and, secondarily, matters relating to need and economic impact insofar as these affect public health and safety.

Aware that our written statements frequently reach you only in a highly condensed format, we respectfully request the opportunity to meet with you -- formally or informally -- in order to present our views more fully in person.

Respectfully,



Joan Holt, Project Director

September 26, 1980