



Coalition for Nuclear Power Plant Postponement

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June 19, 1979

U. S. Nuclear Regulatory Commission
Secretary of the Commission
Washington, D. C. 20555

Attention: Docketing and Service Branch

Gentlemen:



Request for Public Comment
Study of Nuclear Power Plant
Construction During Adjudication

The revision of 10 CFR 2.764, the "immediate effectiveness rule," which provides that construction permit can be issued on the basis of an initial decision of the Atomic Safety and Licensing Board even though that decision is subject to further review of the Commission, is long overdue.

You state, "If each viewpoint on the rule is presented fully by these comments, the committee will be able to formulate its recommendation to the Commission with confidence that it has taken into account a fair balance of all viewpoints." My ability to share this confidence will depend on the selection of the panel by the study group. I hereby request that the name of Dr. Chauncey Kepford (433 Orlando Avenue, State College, Pa. 16807, telephone number 814-237-3900) be placed in nomination. His qualifications are public knowledge.

Let me state at the onset that I find it astounding that questions 1 through 8 are applicable to citizens anywhere in the country, considering that this government has consistently refused funding for intervenors. Equally astounding is the tenacity of intervenors to want to participate in a game in which the cards are stacked and the victor is declared before the game is played to its conclusion.

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Case in point:

Three Mile Island II was licensed in violation of NEPA.

- a) The Commission has conceded that Table S-3 "Summary of the Environmental Considerations for the Uranium Fuel Cycle 10 CFR 51.2" is grossly in error.
- b) Revision of Table S-3 leaves the cost benefit analysis demanded by NEPA Section 102(2c) open.
- c) Further hearings on a valid safety issue were raised by the intervenors, and hearings were set for April 4, 1979 (which were cancelled since TMI already experienced the Accident), after operating license was granted and the plant was already in commercial operation.

In the TMI case, the predestined victor had already left the game before it was played to its conclusion. What possible purpose could the hearings on April 4 have achieved but to give the illusion of participation by the public? Running out of funds and left hanging before the U. S. Court of Appeals, the predestined loser in this game, Dr. Chauncey Kepford, gave vent to his frustrations in testimony before the House Interior and Insular Affairs Subcommittee on Energy and the Environment on June 5, 1979, as follows:

"We must now ask what justification there can be, under either NEPA or the Atomic Energy Act, for this administrative approval procedure which allows a major federal action--the license to operate--prior to completion of review of issues which, in one environmental instance, may decisively tip the cost-benefit analysis against the reactor and, in the other, may equally decisively determine that the safety-related risk is too great to permit operation."

The Commission's disregard of the necessity for revision of Table S-3 and its ability to break the law (NEPA) by continuing to grant licenses without impunity has a long history:

- a) Prof. Robert O. Pohl was the first scientist to address the question of long-term emissions from uranium mill tailings in 1976. This was brought to light during GESMO and Table S-3 hearings on behalf of the Sierra Club.

- b) After the circulation of a preprint of Prof. Pohl's paper in 1975, the New England Coalition on Nuclear Pollution petitioned the Commission for a revision of Table S-3. The Commission has still not acted on the NECNP petition. When the D. C. Court of Appeals directed the Commission to review Table S-3 regarding the back end of the nuclear fuel cycle, and the Commission called for rule-making proceedings, it specifically stated that mill tailings not be considered.
- c) During the hearings on TMI, Dr. Kepford conservatively calculated the health effects from Radon 222 to be 1.2 million future deaths from cancer for each reactor year that TMI II (and any other reactor) operates. This was acknowledged as correct by NRC's Dr. Gotchy in sworn testimony. Consequently, in the now-famous memo from Walter H. Jordan of the ASLBP to Dr. James R. Yore, Chairman of the Atomic Safety and Licensing Board, we find the admission that the health effects from Radon 222 have been underestimated by a factor of 100,000. In a rare moment of honesty and humanness, Dr. Jordan states, "It is very difficult to argue that deaths to future generations are unimportant."

However, all this honesty is to no avail while the Commission proceeds with "business as usual."

Case in point:

To extricate itself, the Commission now produced NUREG-0511, Volumes I and II, Generic Environmental Impact Statement on Uranium Milling, April 1979, while it continues to make a mockery of NEPA.

Case in point:

Public Electric & Gas Co. et. al., Hope Creek Generating Station Docket 50-354, 50-355, U. S. Nuclear Regulatory Commission, before the Atomic Safety and Licensing Board "Licensees' answer to motion to consolidate proceedings to receive new evidence with regard to Radon releases and associated health effects." "... It must be considered that at least for Hope Creek and Peach Bottom proceedings the Appeal Boards have already considered whether the cost benefit balance for the facility or unit in question tips or might tip in favor of abandonment of the facility, in light of the interim fuel cycle rule. Parties were invited to comment on that question. There were no substantive comments received in the Peach Bottom proceedings, and the only comment received in the

Hope Creek proceedings was rejected by the Appeal Board as well beyond the question at issue." Again the rules of the game prevailed, and construction of Hope Creek, now 12 percent completed, continues at a vigorous pace. Indeed "Construction during Adjudication" while intervenors wait on the sideline until the millions invested weigh heavily against them. Even at this moment the Commission is considering to grant an operating license for Salem II (on the same site) without revision of Table S-3 and therefore in violation of NEPA.

To further complicate matters, the Commission is now in litigation concerning the expansion of the spent fuel facility for Salem I. Reasonable men would assume that the licensing for Salem II and construction of Hope Creek should be halted until the waste problem is solved at least for these sites--and for all sites until NUREG-0511 is brought to its ultimate conclusion.

Anything short of that enables the Commission to operate as a "fourth branch of the Government" unhindered by laws and governed only by rules of its own making. This is brought about by the fact that courts labor under the delusion that the Joint Committee on Atomic Energy is still alive. In case after case, the courts find themselves bewildered as to their jurisdiction (constitutionality of Price-Anderson, Honicker vs. Hendrie, and others) and dump the matter back to the Legislative Branch.

Overworked and understaffed legislators have not the foggiest notion of what is contained in NUREG-0511, for example, and it has been my experience that any attempt to get a legislator to come to grips with the enormous problems facing the nuclear industry and the American people in connection with that industry is met with total incredulity.

The Executive Branch (until the creation of the IRC by President Carter) stood--and still stands--aloof in the hope that the band-aids applied will hold back the hemorrhage and keep it from bursting forth until after the next election.

The Executive Branch, the Legislature, and the Judiciary concocted the mixture which fertilized the ground upon which the NRC can operate by its own rules.

In the past seven years I have spent thousands of dollars from my meager personal funds, traveled thousands of miles, filed interventions (Hope Creek and Salem), and prepared numerous pieces of testimony. Time and time again I have attended and participated in hearings which I witnessed the heavy-handed rules of the NRC in action. It is for this reason that I see a new game, with a

new branch of government--the FIRST branch--namely the people. The American people are beginning to take their rightful place endowed them by the framer of the Constitution. Deceived by the Executive, let down by the Judiciary, and ignored by the Legislature, they will take to the streets and nuclear power will become our domestic Vietnam. They will not stop until this government of the people, for the people, and by the people will respond to their demand for no more nukes.

Sincerely,

Frieda Berryhill
Chairman

cc:
Chairman Hendrie
Commissioners:
Bradford
Kennedy
Ahearne
Gilisky
Senator William V. Roth
Senator Joseph R. Biden
Rep. Thomas Evans

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Citizens Are Helpless

On June 20, the radiation releases of the Peach Bottom Nuclear Power Plant were 6 percent above "permissible limits" which reached 16 percent on June 21.

This has been going on for a long time. Ever since the plant started operating it has contaminated the milk and cheese in the area. Extensive hearings were held by the Nuclear Regulatory Commission. I have obtained a good portion of the transcript of these hearings, which I submitted to the News-Journal papers at the time. Finally, the NRC inspection report of April 78 (Docket 50-277) states as follows: "Plant radiation levels have been increasing with time. Design and staffing of plant appear to have not been capable of handling this change. Management has been slow to take large step changes to correct problems."

Hundreds of such burps, spills, leaks and unexpected migration of radioactive poisons take place across the country every year. Always they are accompanied with the same statement: "The amount released poses no danger to public health." Trust us, they say. But don't forget that these are the same people who planted 50,000 coconut trees on Bikini Island, returned the natives with great fanfare only to find that Bikini "was unfit for human habitation and may remain so for decades."

"No problem," they say. After all, by the time the cancers start showing up 10 years from now, as

they do around other nuclear installations, they'll simply deny it.

Concerned about the recent leaks, people have called me to ask what can be done about this. My answer is absolutely nothing. Citizens have the fabulous privilege of "intervening" in licensing hearings. Out of non-existent citizens funds they can hire a lawyer while the tax-funded NRC brings out armies of lawyers who are at their beck and call. Intervenors in the Operating License Hearings for Three Mile Island were scheduled to be heard on April 4, 1979, after the plant was three months in operation. These hearings were canceled because the plant had already undergone the accident. What possible purpose could the hearings in April have served other than to give the appearance that the public has a say in the matter? There is not a shred of evidence that citizens' interventions have ever accomplished anything.

All else failing, citizens can go to the courts, which are then assured by the same government lawyers that this is a matter for the legislative and not the judiciary branch of government.

Frederick Douglass, one of the most distinguished leaders of his time said: "Find out just what people will submit to, and you have found out the exact amount of injustice and wrong which will be imposed upon them."

Frieda Berryhill,
Chairman, Coalition for Nuclear
Power Plant Postponement
Heritage Park

Meltdown expected

Since the accident at Three Mile Island, the press has been accused of hysteria. However, the 800-page transcript of the meeting of the Nuclear Regulatory Commission on March 30 reveals that the situation during the TMI emergency was worse than the public was led to believe.

Yet despite its belated awakening to the issues of nuclear power, the press missed or ignored one of the biggest items coming out of the whole TMI affair.

The industry trade paper called "Inside D.O.E." (Department of Energy) of May 18, reports on testimony by DOE Deputy Secretary John O'Leary before DOE's environmental advisory committee as follows:

"Deputy Secretary John O'Leary admitted last week that he and other federal officials had assumed since 1973 that a core meltdown in a nuclear power plant would occur within ten years and that he found the benign nature of the Three Mile Island accident surprising."

Mr. O'Leary, a former director of licensing for the Atomic Energy Commission, told the committee that he and other AEC officials had been taught that a meltdown would take place once the cooling system in a nuclear reactor malfunctioned to the extent that the one at TMI did.

Considering that a core meltdown, according to government reports (not anti-nuclear rantings) could kill thousands of people instantly, injure hundreds of thousands and render uninhabitable an area the size of Pennsylvania, it seems incredible that the government is ready to play this kind of Russian roulette with its citizens without their knowledge and consent.

FRIEDA BERRYHILL
Chairman, Coalition for
Nuclear Power Plant Postponement
Heritage Park



SPEECHES

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S-7-79

THE NUCLEAR OPTION: DID IT JUMP OR WAS IT PUSHED?

Remarks By
Commissioner Peter A. Bradford
U.S. Nuclear Regulatory Commission
Before The
NARUC Annual Regulatory Studies Program
East Lansing, Michigan

August 2, 1979

I want to set the tone for this talk with reference to an advertisement that is extraordinary on several levels. It ran two full pages in last Tuesday's Wall Street Journal and featured nuclear physicist Edward Teller proclaiming himself "the only casualty of Three Mile Island." His claim was that his recent heart attack was brought on by working 20-hour days to refute the post-Three Mile Island anti-nuclear arguments of Jane Fonda and Ralph Nader. Dr. Teller's appearance was sponsored by Dresser Industries. His words in the ad state that the abiding lesson of Three Mile Island was that nuclear power plants were even safer than the experts believed and would be safer still in the future. The ad concludes by inviting readers who want to know more about Dresser Industries to write and ask. Had Doctor Teller asked beforehand, he would have learned, and could have informed his readers (as the ad did not), that Dresser Industries had manufactured the relief valve that malfunctioned and stuck open during the accident sequence at Three Mile Island.

It would be interesting to trace this tendency to give testimony sought by his sponsors back through Teller's career to the Oppenheimer case, where his troubled and equivocal condemnation was a matter of evidence on the side of those who were to terminate Oppenheimer's security clearance as a member of the Government's nuclear program. Such a tracing is beyond the scope of tonight's purposes, the extraordinary monument to the most vehement supporter of nuclear power in the sense on the object of his advertisement and potentially embarrassing facts of his life.

The ad also illustrates the general public are concerned with the safety of nuclear power, after the Three Mile Island accident. As far as the general public are concerned, the assessment. As a result, either had no strong support to support it and the criticisms and claims of the various industry. The balance point of the industry shifted in a direction less favorable to nuclear power, especially when the issue is phrased in terms of whether citizens are prepared to live with a nuclear power plant in their town. The Department of Energy has been prepared to revive interest in its legislative to expedite nuclear power plant siting and licensing. Under Secretary of Energy has stated several times that no responsible industry would order a nuclear power plant today. The self-fulfilling element, accurate though it is, has led an industry that remembers a time in the past when the Atomic Energy Commission was predicting that nuclear power plants by the end of the century would be a reality while feeling that some commitments to nuclear power is necessary to ensure our energy future. The industry omitted nuclear power plants from the features of his proposed Energy Mobilization Plan.

My own perception of the consequences of the Three Mile Island accident is that it is something as many I have seen. We have many such accidents ahead of us before I will be satisfied that we know where we are to know about the cause, diagnosis and treatment of the accident. Nevertheless, the fact that we are to be found tonight is that the accident is not a unique or watershed or cataclysmic event in terms of nuclear history that it may have been in terms of public perception. The last four years have been a continuous nuclear watershed of which Three Mile Island is only the most visible manifestation. The accident is of a type with several others in the last four years.

events which, taken as part of a pattern, are trying quite hard to tell us something about some pitfalls of regulatory agencies in general and nuclear regulation in particular. The backdrop for my thesis, stated generally, is that all regulatory agencies waiver between their civic textbook mission to protect some form of the public interest and a far more unfortunate function of forming a gauzy illusion of protection across conduct the public would not tolerate if it did not think that it was being protected by the regulators.

I want to be clear at this point that I am not talking only about the Nuclear Regulatory Commission or about health and safety regulation. I was for six years a member of a State Public Utilities Commission, and many of the pitfalls of the NRC are pitfalls to the state agencies as well. If economic regulatory failures were conducive to single large accidents of the Three Mile Island sort, they would long ago have produced their share of evacuations and deaths.

The essential element, it seems to me, in any regulatory system that reassures more than it regulates is that it have an immense capacity for self-delusion. Let me describe some of the elements of that capacity and leave it to you to decide whether they look familiar.

First, the agency's role must be heavily reactive and defined largely in terms of cases brought to it by those whom it regulates. It is helpful in this context if the relevant legislature and press have a strong tendency to evaluate the agency largely in terms of permits issued and rate cases processed.

Second, the agency's budget must be a tiny fraction (less than one percent) of the gross revenues of those whom it regulates. As a general rule, the total salaries of the Commissioners should not equal much more than half of the salary of the chief executive of the largest regulated entity.

Third, regulation should be on an "audit" basis, examining only a small fraction of the total number of accounts or plant designs or operating practices of the regulated entities.

Fourth, the system should deal with its critics more or less the way the tar baby dealt with B'r'er Rabbit. It should have an almost infinite capacity for repressive tolerance, the extending of exquisite procedural courtesy to participants who are never, in fact, allowed to get their hands on anything vital. This can be expected to frustrate critics to a point at which they become obsessed or shrill or demagogic or a little crazy. Then, of course, their arguments are more easily dismissed as obsessed, shrill, demagogic, or crazy, especially if others who had these characteristics all along have at some point been attracted into the fray.

Fifth, almost a corollary of the preceding point, intervenor funding of any substantial sort is to be avoided like the plague. Discovery and cross-examination must, of course, be allowed on some occasions, but the occasions can be limited and the examining boards must be constantly reminded of the need to keep the issues narrowly defined and the proceedings moving along. Furthermore, troublesome participants can sometimes be excluded entirely in the manner of the restrictions placed on the General Services Administration a few years ago when its interventions in state embarrassing questions from other forums can sometimes be avoided by preemptive legislation such as that which denies the states any role in setting the standards for the radioactive exposures that their citizens will face. Proceedings themselves can often be selectively embarked upon under regulatory frameworks that allow citizen petitions to languish for years while imposing firm deadlines on rate cases and licensing actions.

Sixth, the enforcement system must be a relatively benign one with only the most distant possibility of a truly severe penalty. Infractions or testimony that tend to mislead the regulatory agency in ways short of outright perjury are dealt with, if at all, under a lenient point system or with fines that bear only a trivial comparison to annual revenues unless the violator is unlucky enough to be quite small. Jail sentences should be available almost exclusively to those who disclose proprietary or classified or otherwise restricted information.

Seventh, though it is not essential, it is very helpful to have the system re-enforced by courts which defer copiously to agency expertise in the face of challenges from citizens groups, but which bow with equal fervor to management discretion or prerogatives in the face of challenges to the agency from the regulated entities. Should a Commissioner

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be overly rambunctious in publicly questioning the system -- it works in particular instances, he can (as Chairman Pertachuk of the Federal Trade Commission recently was) be ordered to disqualify himself from further proceedings, though I think one would search a long time to find a case in which a Commissioner had been disqualified for speech giving glowing praise of a regulated technology. *ua!*

Eighth, research programs that would actually test the validity of the underpinnings and hypotheses of the regulatory system are rarely, if ever, undertaken. This is ostensibly because they would be too costly. Policy evaluation offices are avoided, or hamstrung, or told what not to evaluate.

Ninth, it can also be expected that the regulated industries will utter frequent expressions of anguish at the toughness of the regulatory regime under which they labor. In this, they do run the risks of the boy who cried wolf in the event that they are ever face-to-face with a regulatory injustice so great that it outweighs the otherwise obvious advantages of the system I am describing. In fairness, one must acknowledge that this sometimes happens for regulation rarely encourages innovation, and an imaginative company will sometimes get stifled.

Tenth, the semantics that surround such a process are obviously critical to maintaining the illusions. Accidents become incidents; citizens become protest groups; ambiguous situations are held to offer "no evidence" of wrongdoing; parent holding company stockholders seek close identification with the widows and orphans who own stock in raising the bills of the many more who do not. Transfer payments from consumers or from subsidiaries to parents are labeled "taxes" for ratesetting purposes even when none of it actually goes to the Government. The efficiencies of the free enterprise system are constantly invoked despite the presence of only half of the competition--competition for capital--faced by companies which must deal in true free enterprise and compete with other suppliers of the same product for customers as well as financing. *X*

As I have said, the fundamental characteristic of this system is its capacity for self-delusion, for without an almost obsessive need not to know what is really going on in the dollar flows or piping systems or atoms and molecules that are being regulated, it would be almost unthinkable for the people who come and go every two or three or five years at the top of regulatory agencies not to start making some troublesome and disruptive decisions. As long as those at the top can be made to focus largely on timetables, they will impose the same duty on the people who staff the agency, with the result that research or investigation that might discover real flaws is subtly discouraged unless a threat of clear wrongdoing or danger or public exposure can be established. *X*

As a few of you may remember, I began this talk on the subject of Three Mile Island and why I did not think it was so unique an event from the standpoint of nuclear regulation, nor even regulation in general as it seems right now. Among other things, it illustrates that regulation is fallible and needs all the help it can get. Regulators should never convince themselves or anyone else differently.

As I have suggested, I think that economic regulation has more forgiving consequences of self-delusion than scientific or technical regulation. It is less likely that rates that are either too high or too low will have clear consequences allocable to the agency or the individuals that made a particular decision. The same is not true of an agency that makes a safety decision that goes awry. It can expect to be subjected to numerous evaluations and inquiries when the chickens come home to roost, though the Three Mile Island case reveals a paradoxical side effect in that as long as the agency succeeds in remaining essential to the solution to the problem whose creation it has presided over, it may experience substantial increases in the budget and the stature of some of the divisions most closely related to the accident.

The basic reason that Three Mile Island does not seem to me to be unique in nuclear history is that the last five years have seen several major re-evaluations of propositions that once seemed to be the underpinnings of nuclear development and that are now shown to contain clear elements of self-delusion. Three Mile Island is far and away the most highly publicized of these, but it is of the same sort. Let me give you some others: First, for years the Atoms for Peace program numbered among its basic assumptions the propositions that there would be no overlap between peaceful and military nuclear applications. However, in 1974 India detonated an atomic weapon using plutonium from a Canadian research reactor moderated at least in part by U.S. heavy water, supplied under the Atoms for Peace program. More recently, Pakistan has been the subject of much speculation to the effect that it is developing a bomb based on uranium enrichment plans taken by a Pakistani from a European facility. In the aftermath, many concluded that the barriers between a nuclear weapons program and peaceful nuclear uses were nowhere near as high or as thick as had been thought.

to a plutonium-based fuel cycle, which was also based at one time or another on some self-delusions about the relationship between reprocessing and waste management, the economics of reprocessing, the usefulness of reactor grade plutonium in a weapons program, and the measures essential to an effective system of international safeguards came to a halt in this country and are under intense scrutiny elsewhere in the world. The consequence of all this--aside from the idle facilities at West Valley and Barnwell--is the two-year International Fuel Cycle evaluation which will conclude early next year an investigation of ways to be more certain that nuclear power can indeed be divorced from nuclear weaponry.

Second, for a time in the 1950's it was claimed that "nuclear power would be too cheap to meter." Even after this delusion failed, the industry and the Atomic Energy Commission continued to base their assessments of the probable costs of the very large units now under construction on the marginally relevant experience derived from building much smaller units in more favorable times. It was on this basis, coupled with a dramatic misforecasting of demand, that the AEC was able to say with a straight face that a thousand reactors would be needed by the end of the century. There is no central proceeding now underway to reevaluate nuclear economics, but the reevaluation continues nonetheless before many state commissions in many different guises. Total electric demand in the Year 2000 is now seen to be less than the AEC was forecasting for nuclear power alone, and the boom and bust cycle this has created is especially difficult for an industry requiring large amounts of capital and long lead times.

Third, it was said, as recently as four or five years ago, that "waste is the greatest non-problem in history." However, following the aborting of the AEC's non-solution to this non-problem at Lyons, Kansas and following the decision in California, Wisconsin, and elsewhere to avoid further commitments to nuclear power until this non-problem is solved, the Federal Government has just spent two years reviewing and revamping the fundamental basis for its approach to the waste question in the form of President Carter's Interagency Review Group on Waste Management. Furthermore, the U.S. Court of Appeals has recently concluded that it would like the Nuclear Regulatory Commission to conduct a proceeding into some aspects of its confidence that wastes can be safely handled at and away from reactor sites at the point in time in which the reactor themselves begin to be decommissioned. *A!*

Fourth, for many years it was believed that exposure to radioactivity below a certain level need not be carefully guarded against and some nuclear safety regulation rested on that assumption. While the proposition is still being debated as to very low levels of radiation, it has been discarded now as a responsible basis for the protection of the public. The grim consequences of its application to weapons testing near certain towns in Utah are still becoming public, and it is argued though not proven that it has led to increased cancer fatalities among certain classes of nuclear workers as well. The entire subject of low-level radiation has also been under extensive review within the Carter Administration and various proposals for interagency coordination and decisionmaking on this subject had been about to come from Secretary Califano a couple of weeks ago. I am not sure where they are now.

Fifth, on the subject of reactor safety itself, the classic self-delusion is probably in the Executive Summary of the Rasmussen Report, wherein it is stated that a citizen is as likely to be killed by a meteorite as by an accident at a nuclear power plant. Three years later, the Nuclear Regulatory Commission withdrew any endorsement from the Executive Summary and noted that the report itself had significantly understated the uncertainties involved in its conclusions. In fact, whether or not a member of the public is ever directly and provably killed by an accident involving radioactivity at a nuclear power plant, the Nuclear Regulatory Commission's own studies assume that some deaths will result from the radiation involved in the nuclear fuel cycle. These studies tend also to indicate that there are more deaths involved with an equivalent amount of coal-fired generation than with nuclear power, but this is rather a different claim than saying that meteorites are as dangerous. Thus, the subject of reactor safety was thrown open to reassessment even before Three Mile Island, though it is clear that the reassessment will now be far more urgently undertaken than would otherwise have been the case.

In short, and to oversimplify somewhat, the crumbling of these delusions has precipitated at least two different crises for nuclear energy. I have already alluded to the first--that is that an industry which by its nature requires a good deal of long-run stability and predictability has instead undergone a history of very rapid growth in size and expectations, followed by a dramatic and precipitous slowdown accompanied by an expensive need to backfit safety requirements. If the industry could have taken the orders that will actually have occurred between 1960 and 1985 in slightly increasing increments with suitable variations as to size and reactor type and with complete and early attention of the sort that the National Environmental Policy Act now mandates to the problems of the fuel cycle, low-level radiation, and proliferation, perhaps the industry (and certainly our electrical supply situation) would be in better shape today.

It may be argued that a new technology cannot be developed and commercialized in so orderly a manner, but the potential hazards inherent in nuclear power, if they had been better studied and disclosed years ago, might usefully have tempered the exuberance with which the industry and the Atomic Energy Commission made commitments that the technology was not ready to live up to.

The second crisis has more to do with public confidence. It is clearly related to the first, but it rests more on the way in which a public already shaken in its confidence in the relationship between Government and large industries (or simply in its confidence in large Government agencies) necessarily reacts to the crumbling of the various optimismes that were once urged on them by those to whom it assigned the task of regulating nuclear power. This crisis is clearest at Three Mile Island, where people who do not consider themselves radical in any sense of the word are determined that two power plants which many of them either accepted or actively supported should not be allowed to operate again. It is reflected also in polls that show 50-60% of the American public is prepared to accept nuclear power, but not if the plant is to be built in their community. There is obviously not a complete identity between those who favor nuclear power and those who do not want it near them, but the percentages are so large that a sizeable overlap must exist.

I know of no easy set of remedies to reform regulatory agencies away from the ways in which they mislead themselves and the public. The industries that seem always to have the greatest influence over the way the agencies conduct themselves will inevitably be more interested in a favorable result in the next rate case or licensing proceeding than in a regulatory process whose creditability may guarantee them a greater long-run stability. There are, of course, people in the industry who understand this point, but they have never been a large group and have certainly never dominated industry policymaking which has tended instead toward the protection of the lowest common denominator.

The great difficulty is that strong regulation is a chain that must be strong at every link. The basic legislation must confer the necessary powers. The budget must suffice. The licensing or rate case reviews must go deep enough to have a reasonable chance of detecting error. The inspection or auditing process must do the same and must be backed by an enforcement system that deters even unintentional deviation from the established standards, which must themselves have been set rigorously. It does no good to compensate for a weak link in inspection by strengthening licensing, for the proposition that no chain is weaker than its strongest link is no truer in regulation than in engineering, though there are some who find assurances of reactor safety or regulatory soundness by just such a process of pointing vehemently at the strongest links.

Because a sound regulatory system is so like a chain, reform cannot lie solely in expedited licensing measures or in energy superagencies or in tighter limits on state rate case and licensing proceedings, though these are the measures most often proposed at the federal and state levels. Unless they are balanced by a willingness to set up a process that is capable of saying "no" when "no" is the right answer, and that is capable of giving an effective voice and a sensitive ear to the various concerns of those who raise objections, and that tries in parallel with its individual licensing and rate case proceedings to be coherently aware of the long-term environmental and economic effects of its actions, I think that these measures are a road to stalemate, disillusionment, and probably some local violence. It doesn't have to be that way, of course, but it will be if we allow ourselves to be lulled into believing anything remotely like the proposition that Edward Teller is the only casualty of Three Mile Island.

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