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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUN 15 1979

Christina L. Rathkopf
Executive Secretary
Department of Energy
Office of the Executive Secretary
Room 7 A 185
Forrestal Building
1000 Independence Avenue
Washington, D. C. 20585

Dear Ms. Rathkopf:

The attached letter from Mr. Huntington was referred to the Nuclear Regulatory Commission for direct response. However, in reviewing Mr. Huntington's letter we find the questions posed by him do not fall within the purview of the Commission's authority to regulate nuclear power plants. Therefore the Commission's staff is not in a position to appropriately respond to him.

While the Commission does not consider in its licensing actions the possibility of national strategic threats that may be directed against nuclear power plants, it does provide for emergency planning and physical security at its licensed facilities. To that extent we can provide you with the additional information attached in Enclosures A and B concerning emergency plans and physical security provisions at licensed nuclear power plants.

Should you require further information or clarification on these matters please do not hesitate to contact me at (301) 492-7014.

Sincerely,

A handwritten signature in dark ink, appearing to read "James R. Miller".

James R. Miller, Assistant Director
for Reactor Safeguards
Division of Operating Reactors
Office of Nuclear Reactor Regulation

Enclosures: As stated

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POOR ORIGINAL

MORGAN GURDON HUNTINGTON
WOODFIELD ROAD
GALESVILLE, MARYLAND 20765

April 25, 1979

National Security Council
Washington, D. C. 20506

Gentlemen: Our Present and Inviting Vulnerability to One-Shot Attack
From Nationally Unidentifiable Near-Eastern Groups

The attached letter dated August 19, 1973 was personally delivered to the addressee and the content was presented by me in some detail. No reply or comment has been received. As a public service, I repeat.

In my opinion, the situation which I described five years ago is now immediately critical and demands corrective action. The Arab world is in turmoil. Sympathizers with the Palestinian Arabs are many. These sympathizers are resourceful and fully capable of acquiring missile-launching submarines from the major powers.

Our surface-emplaced nuclear power plants at full fission product inventories present uniquely effective targets for submarine-launched missiles equipped with conventional high explosive warheads. Particularly attractive to the Palestinians might be those near the largest Jewish City in the World, New York City.

Perhaps you will comment: Two conventional warhead missile salvos launched some eight hours apart, could effectively demolish any nuclear plant within range, freely dispersing fumes of the post fission melt-down.

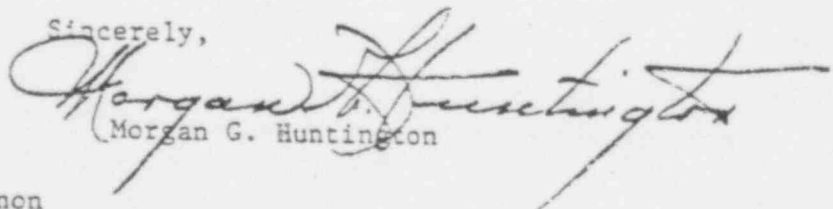
How does the National Security Council view the potential effect upon the military defense of Continental United States if the following nuclear power plants were simultaneously demolished at full fission product inventory?

- 1) The nuclear reactors thirty miles up-wind from Times Square.
- 2) The nuclear power reactors immediately west of Chicago. (Perhaps not in range?)
- 3) The Calvert Cliffs nuclear plant 40 miles from the Nation's Capital.
- 4) The VEPCO nuclear power plants near Surrey, Virginia.

Have you perfected plans for evacuating 75 million people? Where shall you put them?

Two enclosures.

Sincerely,


Morgan G. Huntington

cc: The Honorable Howard Cannon
The Honorable Marjorie S. Holt

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MORGAN GURDON HUNTINGTON
WOODFIELD ROAD
GALESVILLE, MARYLAND 20765

August 19, 1973

Dr. David Elliott
Senior Staff Member for Scientific Affairs
National Security Council
Washington, D. C. 20506

Dear Dr. Elliott: ABANDONMENT OF THE NATIONAL SECURITY


The Honorable Marjorie S. Holt, my Representative in Congress, has requested an appointment for me with General Brent Scowcroft, Military Assistant to the President. I understand that my August 20 presentation to you, as summarized below, is preliminary to my meeting General Scowcroft.

1. Now that nuclear power plants have been strategically emplaced near our major cities and defense bases, we cannot negotiate from a position of military strength, no matter how overwhelming our offensive capability might become.
2. The presence of operating nuclear power reactors near our large cities presages a wartime population loss so great that the military defense of the United States has become meaningless. By the selective destruction of a few nuclear plants at full fission product inventory, an enemy could cause a population loss of such magnitude that capitulation would be automatic. ---America can now safely withstand no surprise attack whatever.
3. Each large nuclear reactor at full fission product inventory contains radioactive poisons vastly greater in lethal potential than the world total of chemical warfare poisons. After running at full power for several months, interference with the heat removal system will inevitably result in the uncontrollable fuming meltdown of the critical array and the core vessel. Breaching of the containment shell would permit the dispersal of fission product fume. ---According to the WALL STREET JOURNAL and to the WASHINGTON POST of August 17, the Atomic Energy Commission estimates that "an unlikely accident" would kill outright upwards of five million.
4. The standard-text recitation of nuclear power promoters that "... electricity from uranium is incomparably clean, altogether safe, much cheaper than energy derived from coal, --and with low-cost fuel in great abundance ...", is proven to be untrue in all respects. All uranium available to the United States (including all that producible up to five times current cost) converted to electric energy by commercialized technology, would supplement our fossil fuels by perhaps one-half of one percent.
5. "Fast neutron" systems, because of their fantastically high power density and inherent uncontrollability at full fission product inventory, are thermodynamically and mechanically impossible of commercialization.

*Hoover and no
reaction 8/25/79*

Hopefully, you will immediately investigate the validity of my presentation. Finding my statements irrefutable, may I expect that steps will be taken to effectively inform the President of this imminent national peril? ---At your request, I shall make myself available to expedite the investigation.

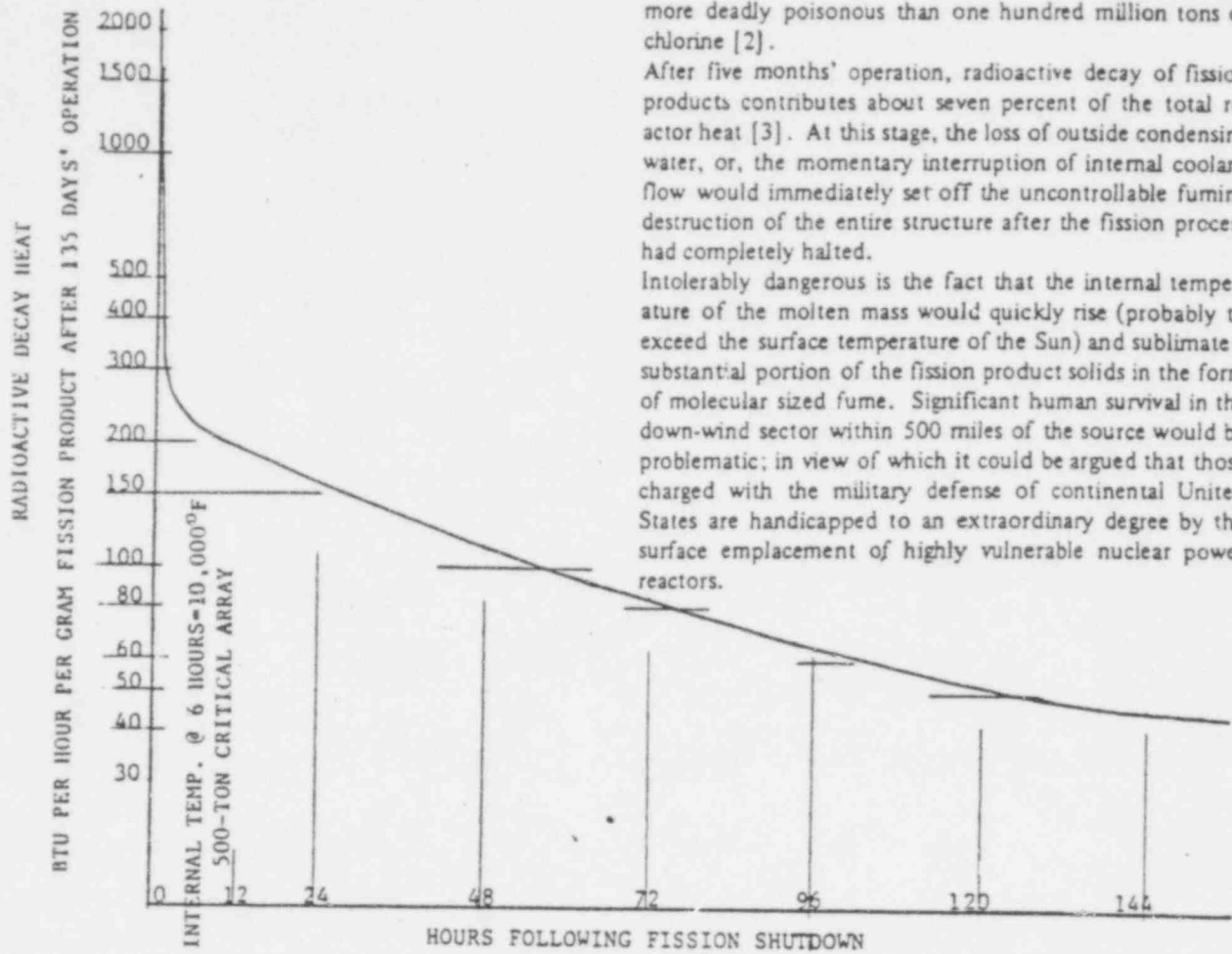
Sincerely,


Morgan G. Huntington

POOR ORIGINAL

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THE SELF-DESTRUCTION OF A NUCLEAR POWER REACTOR: POST FISSION MELTDOWN PRECIPITATED BY LOSS OF OUTSIDE CONDENSING WATER, OR, BY MOMENTARY INTERRUPTION OF INTERNAL COOLANT FLOW



Large nuclear power reactors, such as those nearing completion forty miles from Washington, accumulate about one ton of radioactive poisons during the year [1]. The lethally poisonous potential of each full fission product inventory is comparable to a billion and a half tons of chlorine gas. In large reactors, the strontium-90 alone is more deadly poisonous than one hundred million tons of chlorine [2].

After five months' operation, radioactive decay of fission products contributes about seven percent of the total reactor heat [3]. At this stage, the loss of outside condensing water, or, the momentary interruption of internal coolant flow would immediately set off the uncontrollable fuming destruction of the entire structure after the fission process had completely halted.

Intolerably dangerous is the fact that the internal temperature of the molten mass would quickly rise (probably to exceed the surface temperature of the Sun) and sublimate a substantial portion of the fission product solids in the form of molecular sized fume. Significant human survival in the down-wind sector within 500 miles of the source would be problematic; in view of which it could be argued that those charged with the military defense of continental United States are handicapped to an extraordinary degree by the surface emplacement of highly vulnerable nuclear power reactors.

150,000 square miles would immediately become uninhabitable. This is about three times the area of the triangle between Richmond, Pittsburgh and New York City."

"Discounting the likelihood that any foreign power will seize the existing Trojan Horse opportunity to take us over, what Agency is officially charged with preventing an attempted overthrow of Government by Kamikaze-type militants? Who in the Federal Government is specifically responsible for guarding nuclear plants against all acts of sabotage?"

"There are several rather simple ways in which an operating reactor can be caused to uncontrollably self-destruct, other than by nuclear excursion. For example, after several months at full power, sabotaging either the primary or the secondary heat removal system will result in immediate fuel pin swelling, rupture and massive melting, followed within the hour by thermal destruction of the core vessel itself."

"So long as we tolerate these huge, highly vulnerable nuclear plants near our important cities, -and some of our best vested interests are completing two of these delicate monsters forty miles from our Nation's Capital, -we cannot

negotiate from a position of military strength, no matter how overpowering our weapons delivery system might become. -Does anyone really believe that the Iron Curtain World does not observe our remarkable progress in self-entrapment?"

"Nationally, an estimated ten million voters already suspect the gross technical error in promoting nuclear energy as "clean, safe and cheap." The number of concerned voters is increasing rapidly with the belated dissemination of factual information."

MORGAN GURDON HUNTINGTON
Woodfield Road
Galesville, Maryland 20765

References

- [1] Etherington, H., (ed.), *Nuclear Engineering Handbook*, 1st ed., Section 11, p. 25. McGraw-Hill Book Company, Inc., New York, 1958.
- [2] Ibid. Section 8, p. 77.
- [3] Ibid. Section 8, p. 80.

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Correspondence

POOR ORIGINAL

Comment on "Atomic Power: Fallacies and Facts"¹

In my opinion we Americans owe a debt of gratitude to Adolph J. Ackerman for his masterful analysis and to the editor for his courage and integrity in publishing such an important paper.

Having appreciatively read Ackerman's bold and forthright article, I am impelled to offer a few paragraphs excerpted from various letters which I have written over the years to leaders in our government and in industry:

"Again, I express concern for our Country's safety. Fortunately for all of us, an important sector of the voting public is becoming aware of the catastrophic potential of large nuclear reactors. As now designed and surface-emplaced, these nuclear plants are, quite literally, Trojan horses of the most effective sort the World has seen."

"Contrary to what is often implied by those who would justify the promotion of a crash nuclear-electric program, America's reserve of coal is amply sufficient to supply energy needs until well beyond the year 2100. Certainly, Americans face no shortage of solid fuels during the present century or within the next."

The announced program for 85 million kilowatts of nuclear-electric capacity implies the uranium oxide consumption rate of about 4.4 net tons an hour, including ultimate reprocessing of spent fuel. Judging from the Bureau of Mines Information Circular 8501, all domestic uranium producible for less than five times present cost will reach exhaustion within a decade and the grade of uranium "ore" will then drop by a factor of nearly one hundred. At this point, by light water technology, our fossil fuel energy reserve will have been supplemented by about one percent. Remaining unresolved is the critical problem of procuring the huge inventory of uranium-235 which is essential to implement a meaningful thorium cycle."

"Were I asked to write the scenario for catastrophic revolution, I should begin by recommending precisely what has already been accomplished. —To ensure certain success in destroying the present order, I should first arrange for the emplacement of giant repositories of radiological poisons at each of our major population centers, whereupon, instant radiological warfare (pages 464-5 of AEC's 1964 THE EFFECTS OF NUCLEAR WEAPONS) in its most devilish mode could be imposed at will upon the surrounding populations. —What a fantastically wild picture of human panic is conjured up by imagining the demolition of the nuclear reactors already constructed thirty miles up wind from Times Square!"

"Each large nuclear power reactor at full fission product inventory contains greater toxic potential than all of the chemical warfare poisons yet manufactured. If the fission product content of a single power reactor were loosed over the surroundings as the result of melt-down upon loss of condensing water or upon interruption of internal coolant flow, the Atomic Energy Commission estimates that some

¹ A. J. Ackerman, *IEEE Trans. Aerospace and Electronic Systems*, vol. AES-8, pp. 576-582, September 1972.

Manuscript received March 15, 1973.

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EMERGENCY PLANS

The standards and criteria established by the Commission for the evaluation of proposed nuclear power plants include provisions for substantial conservatism in design and operating safety margins. Through the licensing and inspection processes these are implemented in the design, construction, and operation of nuclear power plants such that their operation should pose no undue risk to the public health and safety.

Nevertheless, the NRC recognizes that emergencies can arise in the operation of nuclear power plants, and has, therefore, taken steps to assure the establishment of an acceptable state of preparedness to cope with emergency situations.

In 1962, the Atomic Energy Commission published its Reactor Site Criteria in 10 CFR Part 100. One of these criteria references a need for consideration of establishing a capability for taking protective measures, in the event of a serious accident, on behalf of the public within a region called the Low Population Zone. The scope and extent of advance planning for such measures, e.g., evacuation of persons or instructions to take shelter on a timely basis, is explicitly identified (§100.3 (b)) as one of the factors to be considered in determining an adequate Low Population Zone.

In 1970, the Atomic Energy Commission published its requirements for plans to cope with emergencies in 10 CFR Part 50. These requirements, taken in conjunction with the referenced portion of the Reactor Site Criteria mentioned above, represent current NRC policy with regard to emergency planning that must be undertaken prior to issuance of a nuclear power plant operating license. At the construction permit phase, elements of preliminary planning are required as set forth in Appendix E (II) to Part 50, while at the operating license stage, the elements of substantive planning are required as set forth also in Appendix E (III, IV) to Part 50. It is important to note that while many of the planning elements identified in Appendix E are directed specifically to radiation emergencies, the scope of Appendix E has generally been understood as also having applicability to situations which have the potential for becoming radiation emergencies, e.g., fires, floods, and hurricanes. Accordingly, under appropriate circumstances, emergency planning might be required to encompass areas beyond the Low Population Zone to adequately protect the health and safety of the public.

Emergency plans are reviewed by the NRC staff and are frequently modified and improved by the utility as a result of this process. At the conclusion of each review, the staff's findings are published in the Safety Evaluation Report for each proposed licensing action. Before a plant is licensed to operate, the staff must find that these plans provide reasonable assurance that appropriate measures can and will be taken in the event of an emergency to protect public health and safety and prevent damage to property.

A continuing NRC inspection program is carried out to assure that each licensee maintains a satisfactory state of preparedness to effectively implement their plans. These emergency preparedness site inspections are conducted on an annual basis and are divided among four major areas: coordination with offsite agencies, written implementing procedures, equipment and facilities, and test exercises or drills. Each of these areas is covered thoroughly and more than one site visit is frequently required to complete the inspection.

SAFEGUARDS AND SECURITY AT NUCLEAR POWER PLANTS

The NRC's reactor safeguards program is directed primarily toward the physical protection of nuclear power plants against acts of sabotage which could result in releases of radioactive materials in amounts sufficient to represent a hazard to the public health and safety. To minimize the risk from such acts, security plans have been required by the staff as part of the safety review of operating license applications since the late 1960's. In November 1973, the Commission (then the Atomic Energy Commission) explicitly incorporated into its rules a requirement for physical security plans to be submitted as part of the application to operate a nuclear power plant.

At that time, the Commission's regulatory staff had published guidance to applicants and licensees which set forth what it considered to be necessary elements of an adequate physical security program for the protection of nuclear power plants. This guidance, in the form of Regulatory Guide 1.17, dated June 1973, supplemented and generally endorsed an industry standard which had been prepared, viz., The American National Standards Institute document entitled, "Industrial Security for Nuclear Power Plants," designated as ANSI N18.17-1973. It is this guide and this standard which generally set the level of protection required at operating nuclear power plants through 1976.

Studies have indicated that the characteristics of nuclear power plants required for safety also make the release of radioactivity by acts of sabotage extremely difficult. The Commission is aware, however, of increased public concern for the potential consequences of acts of willful destruction. It has therefore, considered it necessary and prudent to codify additional requirements for the physical protection of licensed nuclear power plants. These requirements have been set forth in Paragraph 73.55 of Title 10 of the Code of Federal Regulations, published on February 24, 1977. These regulations specify a postulated threat level to be assumed in the design and evaluation of physical security systems for nuclear power plants. In addition, Paragraph 73.55 specifies detailed requirements which include a physical security organization, a response force of nominally 10 armed responders, access controls, the protection of the plant's vital equipment by at least two barriers, intrusion detection systems, a bullet-resisting central alarm station backed-up by a secondary alarm station, lighting of the protected area, redundant capability to communicate off-site law enforcement agencies, and other details of an effective security system.

As published on February 24, 1977, these regulations were required to be fully implemented for all operating power reactors by August 23, 1978. On August 7, 1978 the Commission amended its regulations granting a one-time extension of the full implementation of Paragraph 73.55 to February 23, 1979.

The Commission will continue to review the kind and degree of sabotage threat and the vulnerabilities of reactors to such threats. Should such future reviews indicate a need for different levels of protection, the Commission would consider such changes. This continuing reactor safeguards program is judged to be adequate to provide high confidence that no undue risk to public health and safety will arise from willful acts directed at operating nuclear power plants.

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