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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of

POWER AUTHORITY OF THE STATE  
OF NEW YORK

(Greene County Nuclear Power  
Plant)

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}  
}  
Docket No. 50-549

NRC STAFF MOTION FOR SUMMARY DISPOSITION

The U. S. Nuclear Regulatory Commission Staff (Staff) moves that the following contentions,:

Security

Greene County Stipulated Contention I.A

External Flooding

Citizens to Preserve the Hudson Valley Stipulated Contention I.B.1'

Aircraft Impact Hazard

Columbia County Survival Committee - Reuter Stipulated Contention 5.a

admitted as matters in controversy in the above-captioned proceeding, be dismissed pursuant to 10 CFR §2.749 for want of a genuine issue of material

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<sup>1/</sup> fact. The Staff believes that the attached affidavits, together with Intervenor's responses to discovery, demonstrate that there is no factual basis for these contentions and thus that, relative to the above-mentioned contentions, there are no genuine issues of material fact to be adjudicated at the hearing. Accordingly, the Atomic Safety and Licensing Board (the Board) should dismiss these contentions as a matter of law.

#### SUMMARY DISPOSITION PROCEDURES

The procedures relating to motions for summary disposition are found in 10 CFR 2.749. These procedures are analogous to those in rule 56 of the Federal Rules of Civil Procedure, which relate to motions for summary judgment. Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB 182, 6 AEC 210, 217 (1974). Both the Commission and the Appeal Board have encouraged the use of summary disposition to resolve tenuous issues raised in the intervention process. Northern States Power Co. (Prairie Island Nuclear Generating Station, Units 1 and 2), CLI 73-12, 6 AEC 241, 242 (1973); Mississippi Power & Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB 130, 6 AEC 423, 424-25 (1973). The Appeal Board has explained that a motion for summary disposition "enables the court to go beyond the complaint itself and to determine, on the basis of extrinsic matter such as affidavits submitted by one or more of the parties, whether

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<sup>1/</sup> Although the Staff stipulated to some of the contentions in question in this motion, it explicitly reserved all procedural rights, which includes the right to move for summary disposition pursuant to 10 CFR 2.749. See e.g. "Stipulation Entered Into Between Intervenor Greene County, et al., Applicant, and NRC Staff", filed November 22, 1976.

there is warrant for an evidentiary trial, i.e., whether there is 'a genuine issue as to any material fact' bearing upon the claim or claims as to which summary disposition is sought." Alabama Power Co., supra.

In light of this standard, and for the reasons set forth below, the Staff urges the Board to grant this motion for summary disposition. If the Board finds itself unable to grant summary disposition on all contentions addressed in this motion, then summary disposition should be granted on those contentions (or portions of contentions)<sup>2/</sup> as to which the Board is satisfied that there are no genuine issues of material fact to be heard.

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<sup>2/</sup> Under 10 CFR §2.749 the Board may summarily dispose of some portions of contentions, while declining to dispose of other portions. See, e.g., Public Service Company of Oklahoma (Black Fox Station, Units 1 and 2), LBP-77-46, 6 NRC 167, 178-79 (1977).

Greene County, Stipulated Contention I.A

"I. The Preliminary Safety Analysis Report ("PSAR") prepared by the Applicant does not provide reasonable assurance, as required by 10 CFR §§50.35 and 50.40 that (a) the health and safety of the public will not be endangered, and (b) the Applicant is financially qualified to engage in the proposed activities in accordance with the Commission's regulations in the following respects:

A. The Applicant has not demonstrated that the proposed site is suitable from the point of view of complying with the security requirements of Part 73 of 10 CFR due to the easy access to the site from the Hudson River and the resulting exposed nature.<sup>3</sup> /

A. Statement Of Material Facts As To Which There Is No Genuine Issue To Be Heard

1. In its Preliminary Safety Analysis Report, Applicant has provided for a physical barrier to be constructed around the entire perimeter of the plant.

(PSAR site plan Figure 1.2-3).

2. The Applicant has committed in its supplemental testimony to provide an outer and inner barrier around the whole perimeter of the plant.

(Cherico testimony, p. 7).

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<sup>3</sup> Although the prefatory language of Greene County, Stipulated Contention I raises the issue of the Applicant's financial qualification, we have concluded that this language refers only to part B of the contention. We do not view contention I.A as raising a financial qualifications issue.



3. Applicant has also committed in its testimony to install an electronic intrusion detection system, and closed-circuit television cameras between the two barriers. (Cherico testimony, p. 7).

4. In addition, Applicant has testified that there will be roads and foot paths for vehicular and foot patrols, and adequate illumination to allow continuous surveillance of the fence line by security forces. (Cherico testimony, p. 7)

5. There will be no unprotected access route to the plant from the Hudson River. (Gaitanis testimony, p. 2, filed November 8, 1978).

B. Argument

As demonstrated by the attached affidavit of Michael J. Gaitanis, Greene County, Stipulated Contention I.A is an appropriate contention for summary disposition and dismissal. Intervenor seems to contend that, because of the easy access to the plant from the Hudson River, the plant does not comply with security requirements of 10 CFR Part 73. On February 24, 1977 the Commission published new requirements for the physical protection of nuclear power plants against acts of sabotage in 10 CFR §73.55. This new rule does not require a demonstration of compliance by applicants for construction permits in the initial application. Demonstration of compliance with 10 CFR §73.55 is not required until the operating license stage of a proceeding. Under 10 CFR §50.34(a)(4) the PSAR must contain "a preliminary analysis and evaluation of the design and performance of structures, systems, and components of the facility with the objective of

assessing the risk to public health and safety resulting from operation of the facility<sup>4</sup>. This has been interpreted by Regulatory Guide 1.17 to necessitate the inclusion in the PSAR of a general discussion of measures to be taken to protect the vital equipment.

In light of this interpretation of 10 CFR §§73.55 and 50.34, interrogatories were propounded by the NRC Staff in order to learn the specific basis for and nature of the contention. Intervenor never answered these interrogatories. Intervenor has made no attempt to point out any specific ways in which Applicant has allegedly violated the provisions of 10 CFR Part 73.

Applicant in its Preliminary Safety Analysis Report (PSAR) stated that a physical barrier would be erected around the entire perimeter of the plant. Applicant's witness later testified that this outer barrier would be supplemented by another barrier in the form of a fence 50 feet in from the first, and that an electronic intrusion detection system and closed-circuit television cameras would be installed between the two barriers.

<sup>4/</sup>  
Testimony of Phillip J. Cherico, p. 7. Mr. Cherico also testified that the perimeter would be sufficiently lit to allow continuous surveillance, and that the fence line would be monitored by foot and vehicular security patrols. Finally, Applicant's witness pointed out that, since the plant is set back from the river, anyone arriving by water would still have to make a final approach to the plant via land and thus through the barriers to be erected by Applicant. The NRC Staff evaluated Applicant's PSAR and supplemental testimony, and found that there was no unprotected access

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<sup>4/</sup> Applicant has informed the parties that Mr. Mario Maltese is replacing Mr. Cherico as the sponsor of this testimony. Letter to Board dated November 8, 1978.

route to the Hudson River. Gaitanis affidavit, paragraph 10. Intervenor has made no attempt to challenge this finding. The Staff also found that a satisfactory planning base was described by the Applicant upon which a complete security program could be developed to demonstrate compliance with 10 CFR §73.55 and to provide an acceptable level of physical protection to the site at the appropriate time. (SER §13.6, p. 13-6).

C. Conclusion with Respect to Greene County, Stipulated Contention I.A

As demonstrated above, no genuine issue of material fact remains to be resolved concerning the accessibility of the plant from the Hudson River, which forms the subject for Greene County, Stipulated Contention I.A. Therefore, the Licensing Board should find for the Staff as a matter of law and grant summary disposition and dismissal of Greene County, Stipulated Contention I.A.



Citizens to Preserve the Hudson Valley, Stipulated Contention I.B.1

"1. The Preliminary Safety Analysis Report ("PSAR") prepared by the Applicant does not provide reasonable assurance, as required by 10 CFR §§50.35 and 50.40 that (a) the health and safety of the public will not be endangered, and (b) the Applicant is financially qualified to engage in the proposed activities in accordance with the Commission's regulations in the following respects:

8. The PSAR is deficient with regard to its description and analysis of the following design features or principal safety considerations as required by 10 CFR §50.34:

1. Plant design with respect to external flooding phenomena."<sup>5/</sup>

A. Statement Of Material Facts As To Which There Is No Genuine Issue To Be Heard

1. The Greene County Nuclear Power Plant will be located at an elevation of 30 feet, mean sea level (msl).
2. The maximum flood level on the Hudson River will be 28.5 feet msl.
3. The occurrence of probable maximum precipitation in the area is estimated to result in a maximum water level of 30.2 feet msl, which was used by the Applicant as the controlling design basis flood elevation for external flooding.
4. The Applicant has committed in the PSAR to protect from flooding all safety related systems and components required for safe shutdown or for mitigation of the consequences of an accident by locating them in seismic

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5/ Although the prefatory language of Citizens to Preserve the Hudson Valley, Stipulated Contention I questions the Applicant's financial qualifications, we have concluded that this language refers only to Citizens to Preserve the Hudson Valley, Stipulated Contention I.C. We do not view contention I.B as raising a financial qualifications issue.



Category I buildings with all access to these structures being six inches above plant grade (30.5 feet msl).

5. All construction joints which may be required to resist water pressure will have water stops.

6. Applicant has represented that penetrations of the service water lines of the annulus building will be sealed to prevent in-leakage.

7. Applicant has also represented that the annulus and containment structures will have a continuous waterproof membrane below grade. In addition any potential in-leakage due to cracks in the annulus building walls or leaking water stops will be collected in sumps and pumped out.

#### B. Argument

As demonstrated by the attached affidavits of Gale Turi and Marcus Greenberg, Citizens to Preserve the Hudson Valley (CPHV), Stipulated Contention I.B.1 is an appropriate contention for summary disposition and dismissal.

Intervenors contend generally that the PSAR is deficient in its description and analysis of plant design with respect to external flooding phenomena.

When asked by interrogatory to clarify this contention and provide a basis for it, Intervenors CPHV answered that the wrong design basis was used under Regulatory Guide 1.59. Staff interrogatory to CPHV S.I.B.1-1.

Intervenor argues that the flood level should have been investigated assuming a combination of a probable maximum flood, seismic failure of

dams, and a probable maximum hurricane at the Battery. CPHV made no attempt to establish that the design features to which the Applicant is committed, such as the use of water stops in joints subject to water pressure, and the use of a waterproof membrane on the annulus and containment structures, would be inadequate to protect the facility from external flooding.

The Staff independently evaluated Applicant's estimated flood level and Applicant's maximum water level, considering probable maximum precipitation in the area. The Staff used Regulatory Guide 1.59, Revision 2, to conduct its analysis. The American National Standards Institute (ANSI) Standard N170-1976, "Standards for Determining Design Basis Flooding at Nuclear Power Sites"--has been incorporated into this Regulatory Guide by Appendix A. This standard contains criteria for determining a probable maximum flood on streams, and for determining probable maximum surges and seiches on estuaries and coastal areas on oceans and large lakes. Turi, paras. 5-6. Using the criteria in the ANSI standard, five combinations of events having an effect on flooding were considered. Turi Testimony at 2-3. Three of these combinations have as one component one of the severe events mentioned by CPHV. The probable maximum flood, probable maximum hurricane, and seismic failure of dams are each individually considered to be design basis events. The combination of these three independent events is too remote to be considered in determining the maximum flood level at the site. Further, the storms producing a probable maximum flood and a probable maximum hurricane are meteorologically incompatible at this site. Turi, para. 7. Therefore, Regulatory Guide 1.59, Revision 2, can in no way be read to require consideration by either Staff or Applicant of the combination proposed by Intervenor CPHV.

The Staff reviewed Applicant's commitments concerning the measures to be taken to protect those areas below plant grade from flooding. They were found to be in compliance with 10 CFR § 50.34, even taking into account that, were the probable maximum precipitation to occur in the area, there could be a temporary water depth on the site of 2.7 inches above plant grade (30.2 ft. msl). Intervenor CPHV has not challenged this finding.

C. Conclusion with Respect to Citizens to Preserve the Hudson Valley Stipulated Contention I.B.1.

As demonstrated above, no genuine issues of material fact remain to be resolved concerning either the design basis used to determine the maximum flood level, or the adequacy of the description of flood protection measures, which are the subjects of CPHV stipulated contention I.B.1. Therefore, the Licensing Board should find for the Staff as a matter of law and grant summary disposition and dismissal of this contention.



COLUMBIA COUNTY SURVIVAL COMMITTEE AND  
ARTHUR L. REUTER, STIPULATED CONTENTION 5A

The site is unsuitable by reason of its lying in an air corridor for international air travel. The Hudson River is a regular corridor for international air travel. Moreover, the Cementon site is in the flight pattern for practice runs from Westover (Mass.) Air Force Base. It is obviously exposed to particular hazard.

A. Material Facts as to Which There is No Genuine Issue to be Heard

1. There are no significant airports or airstrips within 5 miles of the site. The nearest unpaved airstrip is located 8 miles from the site. The nearest public airport is 11 miles from the site. None of these airports are situated in close enough proximity to constitute an identifiable hazard to the site. (Read Supplemental Testimony, p. 1, line 19 - 23, p. 2, line 1 - 7).
2. A letter of Agreement is in effect between the FAA and DOD which restricts military traffic to designated volume of airspace. Under this agreement, the nearest military practice activity is 53 miles to the north-east of the site. (Read Supplemental Testimony, p. 2, line 8 - 17).
3. There are no present or proposed flying activities originating at Westover Air Force Base which would involve flights over, or within ten miles of, the Greene County site. (Read Supplemental Testimony, p. 2, line 18 - 20, Attachment A-1).
4. A Memorandum of Understanding exists between the DOD and NRC to prevent training missions from approaching operating nuclear power plants. (Read Supplemental Testimony, p. 2, line 21 - 23, p. 3, line 1 - 4).



10. The Staff calculated an accidental crash rate in U.S. Jet Routes of  $5 \times 10^{-11}$  per plane mile. If one includes acts of sabotage and accidents that are not likely to occur while aircraft are in Jet Routes (e.g., accidents associated with take-offs and landings), a rate of  $3 \times 10^{-10}$  per plane-mile can be obtained. This rate was assumed to be  $5 \times 10^{-10}$  per plane-mile in order conservatively to encompass statistical fluctuations due to small numbers of observations. (Read Supplemental Testimony, p. 6, lines 2 - 9.

11. When considered with the plant area and assumed crash angle distribution contained in the Standard Review Plan, on the order of a million overflights per year would be required to reach the Staff's criterion of  $10^{-7}$  events per year for consideration as a design basis accident. Since the entire U.S. air carrier fleet numbers fewer than 2,500 aircraft, it is extremely difficult to project such traffic density over one given segment of the Jet Route System. (Read Supplemental Testimony, p. 6, lines 9 - 16).

#### B. Argument

The Intervenor's contention is that the proposed Greene County site is "exposed to particular hazard" and is, therefore, unsuitable because (1) it lies in air corridor for international air travel; (2) the Hudson River is a regular corridor for international air travel; and (3) the Cementon site is in the flight pattern for practice runs from Westover (Mass.) Air-Force Base.

5. The nearest Federal Airway, V 489, passes six (6) miles to the east of the site. Federal Airway V 270 passes seven (7) miles to the north of the site. These airways intersect nine (9) miles from the site. (Read Supplemental Testimony, p. 3, line 8 - 16).

6. By the criteria in Standard Review Plan 3.5.1.6, Federal Airways further than four nautical miles away from a nuclear power plant site do not constitute an identifiable hazard. (Read Supplemental Testimony, p. 3, line 23, p. 4, line 1, 2).

7. An aircraft in distress within V 489 would be expected to attempt to land at an airport at least 20 kms from the site on routes not leading toward the site. (Read Supplemental Testimony, p. 4, line 3 - 6).

8. The Jet Route System is above the Federal Airway System. J 37 is above V 489 and it could be termed a "corridor for international air travel." The Jet Route System is a part of the U.S. domestic air traffic control structure, and is regulated by the FAA without regard for the nationality of the aircraft being controlled. (Read Supplemental Testimony, p. 4, line 18 - 23, p. 5, line 1, 2).

9. The normal air routes between New York City and Europe pass over the Long Island Sound about 100 miles southeast of the site. Air traffic from Europe to New York may approach from the north along J 37. The exact route would depend on many factors. (Read Supplemental Testimony, p. 5, line 3 - 16).



The Staff posed interrogatories to CCSC to explore the meaning of, and bases for, Contention 5A.<sup>6/</sup> CCSC's responses were of little use to the Staff, as they relied solely on "personal observation" of aircraft by members of CCSC.<sup>7/</sup> Thus, for example, the response to Interrogatory S.5.a-4 indicated that CCSC's assertion that commercial and military flights pose a "particular hazard" to the proposed facility is based exclusively on observation by CCSC members of "numerous daily overflights." CCSC also commented, it is not clear whether based on personal observation or not, that "occasionally one airplane falls down". The answer to Interrogatory S.5.a-3 did clarify that CCSC had no basis for its assertion that the proposed site "is in the flight pattern for practice runs from Westover (Mass.) Airforce Base".

In its review of the site, the Staff has used the criterion that the site would be unacceptable (unsuitable) if reasonable assurance could not be established that the public will not be exposed to an undue hazard as a result of an airplane crash into the proposed nuclear facility. The Staff has utilized its standard methodology for determining whether a site is exposed to an unacceptably high risk from an airplane crash. This criterion and methodology were recently reviewed and approved by the Appeal Board.<sup>8/</sup>

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- <sup>6/</sup> NRC Staff Interrogatories to, and Request for the Production of Documents from, Arthur L. Reuter and the Columbia County Survival Committee, October 2, 1978.
- <sup>7/</sup> Columbia County Survival Committee's Responses to NRC Staff Interrogatories, November 1, 1978.
- <sup>8/</sup> Metropolitan Edison Co. (Three Mile Island, Unit 2) (hereafter "TMI"), 8 NRC 9 at 25-28 (July 1978). Unlike this case, a substantial commercial airport was located in proximity to the TMI site and questions arose there as to the probability analysis for heavy airplane crashes. 8 NRC 28.

The Staff's methodology for determining risk to a nuclear plant from an airplane crash is succinctly set forth in TMI (at 8 NRC 25, 26) and in the Standard Review Plan (NUREG-75/087, § 5.1.6). In summary, the Staff is of the opinion that most nuclear facilities need not be designed to withstand crashes because the likelihood of a plane crash which might affect a facility is exceedingly low. See: TMI at 25; SRP §3.5.1.6 para. II. 2. As one gets closer to an airport, the probability of an airplane crash rises. TMI, 8 NRC 26, fn. 28. Determination of whether a specific aircraft crash analysis would have to be conducted would turn upon the proximity of the airport and the number of flights into it. TMI, 8 NRC 26. If it is determined that the probability of a crash is less  $1 \times 10^{-7}$  (i.e., less than one chance in 10 million) per year, "such events are deemed by the Staff to be of sufficiently low likelihood that their effects may be ignored, even though the consequences of such a crash may exceed those in 10 CFR Part 100. Standard Review Plan (NUREG-75/087), §3.5.1.6 (fn. omitted)." TMI, 8 NRC 26. The use of  $10^{-7}$  as an acceptable criteria for determining whether special design features are required has been approved by the Appeal Board. See: Long Island Lighting Company (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831 845-46 (1973); Public Service Electric and Gas Company (Hope Creek Generating Station, Units 1 and 2), ALAB-429, 6 NRC 229, 234 (1977).

In the instant case, the affidavit of Dr. Read (as summarized in the "statement of material facts") supports the following conclusions, which have not been contradicted by CCSC either in affirmative testimony or in its answers to interrogatories.



1. The site is not exposed to an unacceptable risk from aircraft activity at any airport in its vicinity or from overflights in Federal Airways.
2. The site is not exposed to an unacceptable risk from any present, or potential future, military aircraft activity.
3. The site is not exposed to an unacceptable hazard from flights in the international Jet Route System.

C. Conclusion With Respect to Columbia County Survival Committee and Arthur L. Reuter, Stipulated Contention 5A

As demonstrated above, no genuine issues of material fact remain to be resolved concerning the suitability of the proposed site with regard to aircraft activity near the site. Accordingly, the Board should find for the Staff as a matter of law and grant summary disposition and dismissal of CCSC-Reuter Stipulated Contention 5A.

Respectfully submitted,

*Stephen H. Lewis*

Stephen H. Lewis  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 4th day of December, 1978.

*Stephen H. Lewis*

for Barry H. Smith  
Counsel for NRC Staff

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

POWER AUTHORITY OF THE STATE  
OF NEW YORK

(Greene County Nuclear Power  
Plant)

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Docket No. 50-549

AFFIDAVIT OF MICHAEL J. GAITANIS  
IN SUPPORT OF MOTION FOR SUMMARY DISPOSITION

I, Michael J. Gaitanis, being first duly sworn, do depose and state:

1. I am a Reactor Safeguard Analyst, Reactor Safeguard Licensing Branch, Division of Operating Reactors, Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555.
2. I have prepared the statement of professional qualifications attached hereto.
3. As part of my duties, I participated in the review of the application of the Power Authority of the State of New York for a construction permit to build the Greene County Nuclear Power Plant, which is the subject of the above-captioned proceeding.

4. This affidavit addresses Greene County, Stipulated Contention I.A, which states:

"I. The Preliminary Safety Analysis Report ("PSAR") prepared by the Applicant does not provide reasonable assurance, as required by 10 CFR §§50.35 and 50.40 that (a) the health and safety of the public will not be endangered, and (b) the Applicant is financially qualified to engage in the proposed activities in accordance with the Commission's regulations in the following respects:

A. The Applicant has not demonstrated that the proposed site is suitable from the point of view of complying with the security requirements of Part 73 of 10 CFR due to the easy access to the site from the Hudson River and the resulting exposed nature."

5. I have reviewed Applicant's Preliminary Safety Analysis Report and have found that it provides for a physical barrier to be installed around the entire perimeter of the plant. (PSAR site plan Figure 1.2-3).
6. Since the plant is set back from the Hudson River, persons arriving by water will still have to make a final approach to the plant by land.
7. I have also independently reviewed Applicant's supplemental testimony and found that Applicant has committed to provide a second physical barrier 50 feet closer to the site. (Cherico testimony, p. 7).
8. Applicant has also committed to install lighting along the fence line, and electronic intrusion detection systems and closed-circuit television cameras between the two barriers. (Cherico testimony, p. 7).
9. There will be no unprotected access route to the plant from the Hudson River. (Gaitanis testimony, p. 2, filed November 8, 1978).



CONCLUSION

10. On the basis of the above, I conclude that the Applicant has committed to adequate design provisions for prevention of physical access to the plant from the Hudson River.

I hereby certify that the following information is true and correct to the best of my knowledge and belief.

Michael J. Gaitanys  
Michael J. Gaitanys

Subscribed and sworn to  
before me this 15<sup>th</sup> day of  
December, 1978.

Marilyn J. Jallensten  
Notary Public

My Commission expires July 1, 1982.



Michael J. Gaitanis  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission

PROFESSIONAL QUALIFICATIONS

I am a Reactor Safeguards Analyst in the Reactor Safeguards Licensing Branch, Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission. I am responsible for the technical aspects of safeguards reviews of plant physical protection systems and plans associated with licensing actions related to commercial nuclear reactors used to generate electric power.

I received a Bachelor of Science degree in Chemistry from the Pennsylvania State University in 1948. Industrial Management was studied at the University of Tennessee, 1955-1956, and Electronics at the Knoxville School of Electronics, 1961-1964. Other educational background includes:

1. Oak Ridge National Laboratory (prior to 1962)
    - a. Radiochemistry
    - b. Reactor Shielding
    - c. Statistics
  2. Short courses related specifically to safeguards at
    - a. Georgia Institute of Technology - Management and Economics of Nuclear Fuels (1971)
    - b. American Society for Industrial Security - Public Utilities Security (1974)
    - c. Defense Industrial Security Institute - Industrial Facilities Protection for Privately Owned and Privately Operated Facilities (1975)
    - d. George Washington University - Introduction to Fault Tree Analysis (1976) - Application of Systems Analysis Methods to Security Control Programs (1976)
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From 1948 to 1951 I was employed as a chemist by Linde Air Products Company and Koppers Company, Inc.

From February 1951 to August 1964 I was employed by Union Carbide Corp., Nuclear Division at the Oak Ridge National Laboratory in a number of technical and supervisory positions. I was involved in the analytical chemistry of a number of irradiated fuel reprocessing systems such as Purex, Thorex, and Volatility. I was associated with the high radiation Level Analytical Facility, the Homogeneous Reactor (#1), the Molten Salt Reactor, the processing of plutonium and recovery of americium.

From August 1964 to July 1967 I was employed as the Plant Manager of the Quehanna Facility by the Martin Co. I was responsible for the safe, secure, and productive operation of personnel and facilities in producing radioactive fuels from Strontium-90 for thermo-electric generators.

From July 1967 to present I have been employed by the Atomic Energy Commission and the Nuclear Regulatory Commission. From 1967 to 1972 I was employed as an Isotope Fuel Specialist and then a Technical Manager by the Division of Space Nuclear Systems providing program direction and budgetary guidance in the production of heat sources for radioisotope thermoelectric generators for space missions such as Apollo and Pioneer.



From 1972 to 1978 I was employed as an Operations Analyst and Reactor Protection Specialist by the Directorate of Standards Development. There I was responsible for recommending, administering technical programs, and participating in studies directed at providing the basis for new material protection guidelines, criteria, standards and regulations. In this capacity I have been the Task Leader for the development and preparation of the following guides for publication:

<u>Regulatory Guide</u>	<u>Title</u>
1.17	Protection of Nuclear Power Plants Against Industrial Sabotage
5.10	Selection and Use of Pressure-Sensitive Seals on Containers for Onsite Storage of Special Nuclear Material
5.12	General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials
5.15	Security Seals for the Protection and Control of Special Nuclear Material

In addition, I was one of four team leaders responsible for implementation of 10 CFR Part 73.50, "Requirements for physical protection of licensed activities," and §73.60, "Additional requirements for the physical protection of special nuclear material at fixed sites." Further I was the Task Leader responsible for developing and preparing for publication in the Federal Register the regulations for the physical protection of nuclear power reactors 10 CFR Part §73.55. From May 1977 to May 1978 as a loanee from Standards Development to NRR and from May 1978 to the present as a



Reactor Safeguards Analyst, I have been the lead reviewer for physical security plans submitted by eight power reactor's licensees to meet the requirements of §73.55 at their sites.

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
POWER AUTHORITY OF THE STATE	)	Docket No. 50-549
OF NEW YORK	)	
	)	
(Greene County Nuclear Power	)	
Plant)	)	

AFFIDAVIT OF GALE TURI

I, Gale Turi, being first duly sworn, do depose and state:

1. I am a Hydraulic Engineer in the Hydrologic Engineering Section, Hydrology-Meteorology Branch, Division of Site Safety and Environmental Analysis, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555.
2. As part of my duties I participated in the review of the application of the Power Authority of the State of New York for a construction permit to build Greene County Nuclear Power Plant, which is the subject of the above-captioned proceeding.

3. The statement which follows concerns Citizens to Preserve the Hudson Valley stipulated Contention I.B.1, which states:

I. The Preliminary Safety Analysis Report ("PSAR") prepared by the Applicant does not provide reasonable assurance, as required by 10 CFR §§50.35 and 50.40 that (a) the health and safety of the public will not be endangered, and (b) the Applicant is financially qualified to engage in the proposed activities in accordance with the Commission's regulations in the following respects:

B. The PSAR is deficient with regard to its description and analysis of the following design features or principal safety considerations as required by 10 CFR §50.35:

1. Plant design with respect to external flooding phenomena.

4. I hereby adopt my testimony concerning this contention filed on November 8, 1978, in its entirety as part of this affidavit. I also incorporate into this affidavit the statement of professional qualifications which I prepared with my testimony. I shall here add several pertinent comments.
5. In doing my analysis I followed Regulatory Guide 1.53, which, in Appendix A incorporates the American National Standards Institute Standard No. 170-1976 - Standards For Determining Design Basis Flooding At Power Reactor Sites.



6. This standard contains criteria for determining the probable maximum flood on streams, and the probable maximum surges and seiches at estuaries and coastal areas on oceans and large lakes.
7. The probable maximum flood, probable maximum hurricane, and seismic failure of dams are each individually considered to be design basis events. The combination of these three independent events is too remote to be considered in determining the maximum flood level at the site. Further, the storms producing a probable maximum flood and a probable maximum hurricane are meteorologically incompatible at this site.

#### Conclusion

8. I find that, under the criteria established in Reg Guide 1.59, applicant's estimated maximum flood level of 28.5 feet msl and the maximum water level of 30.2 feet considering probable maximum precipitation on the site are acceptable.

I hereby certify that the following information is true and correct to  
the best of my knowledge and belief.

Gale Turi  
Gale Turi

Subscribed and sworn to before me  
this 4<sup>TH</sup> day of DECEMBER, 1978.

Nadine C. Liden  
Notary Public

My Commission expires July 1, 1982

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

POWER AUTHORITY OF THE STATE  
OF NEW YORK

(Greene County Nuclear Power  
Plant)

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Docket No. 50-549

AFFIDAVIT OF MARCUS GREENBERG

I, Marcus Greenberg, being first duly sworn, do depose and state:

1. I am a Systems Engineer, Auxiliary Systems Branch, Division of System Safety, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555.
2. As part of my duties I participated in the review of the application of the Power Authority of the State of New York for a construction permit to build the Greene County Nuclear Power Plant, which is the subject of the above-captioned proceeding.



3. This affidavit concerns Citizens to Preserve the Hudson Valley stipulated Contention I.B.1, which states:

I. The Preliminary Safety Analysis Report ("PSAR") prepared by the Applicant does not provide reasonable assurance, as required by 10 CFR §§50.35 and 50.40 that (a) the health and safety of the public will not be endangered, and (b) the Applicant is financially qualified to engage in the proposed activities in accordance with the Commission's regulations in the following respects:

B. The PSAR is deficient with regard to its description and analysis of the following design features or principal safety considerations as required by 10 CFR §50.35:

1. Plant design with respect to external flooding phenomena.

4. I hereby incorporate into this affidavit my testimony and professional qualifications filed on November 8, 1978, in their entirety.

I hereby certify that the following information is true and correct to the best of my knowledge and belief.

Marcus Greenberg  
Marcus Greenberg

Subscribed and sworn to before  
me this 4<sup>TH</sup> day of  
DECEMBER, 1978.

Nadine C. Lides  
Notary Public

My Commission expires July 1, 1982

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Docket No. 50-549

AFFIDAVIT OF JACQUES B. J. READ

I hereby certify that the above statements are true and correct to the best of my knowledge and belief.

My Commission expires: July 1, 1982

Jacques B. J. Read



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

POWER AUTHORITY OF THE STATE OF  
NEW YORK

(Greene County Nuclear Power Plant))

Docket No. 50-549

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF MOTION FOR SUMMARY DISPOSITION, in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 4th day of December, 1978.

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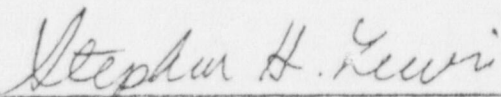
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Stephen H. Lewis  
Counsel for NRC Staff