



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

OCT 5 1978

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MEMORANDUM FOR: B. Grimes, Assistant Director for Engineering and Projects,  
DOR

FROM: L. Barrett, Section Leader, Environmental Evaluation Branch,  
DOR

THRU: G. Knighton, Chief, Environmental Evaluation Branch *gmk*

SUBJECT: MEETING WITH OSWEGO COUNTY (NY) LEGISLATURE ENERGY  
FACILITIES COMMITTEE

The Oswego County Legislature Energy Facilities Committee requested that the NRC staff appear before the Committee to address various general issues, e.g., waste management, decommissioning, radiation standards, and specific issues on the proposed installation of a radioactive waste incinerator at the Nine Mile Point Nuclear Facility. These requests were made in letters from the Committee to H. Denton, NRX, and T. Elsasser, State Liaison Officer, Region I, in letters dated July 19, 1978 and August 8, 1978, respectively. This meeting was held on September 21, 1978 in Oswego with the NRC staff represented by T. Elsasser, OSP (Region 1) and B. Grimes and L. Barrett, DOR. The agenda for the meeting was provided by the Committee and is attached. The meeting was attended by approximately 80 people with press and television coverage.

The Committee was very concerned with the safety and environmental impact of nuclear power because of the anticipated concentration of up to six power reactors in the Oswego vicinity. Additionally, they were very concerned with the proposed installation of a first-of-a-kind radioactive waste incinerator by Niagara Mohawk Power Corporation at Nine Mile Point. They asked numerous questions regarding the administrative and technical procedures to be taken by the NRC in its review of the Niagara Mohawk proposed incinerator. They were especially interested in what opportunities were available to have their input on the matter considered and the mechanics of intervention.

We responded to their general questions informing them of the NRC positions on the various generic issues, e.g., waste management, radiation standards, and accident risks. In responding to questions on the incinerator, we informed them of the following:

- 1) The Niagara Mohawk request for approval would be treated as a 10 CFR Part 50 license amendment.
- 2) The staff was presently evaluating the submittal to determine if pre-noticing was appropriate. The decision to pre-notice or post-notice would be

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made in the next few weeks. Mr. Deyle, Senior Planner, requested that he be informed if the decision was not to pre-notice. He was told he would be notified.

- 3) Niagara Mohawk would be allowed to start construction of the incinerator at their own financial risk, without the radiological safety review being complete as long as the staff determined that construction activities did not have a significant environmental impact. They could not operate the incinerator with radioactive materials, however, until our safety review was satisfactorily complete and approval granted.

The Committee requested to be kept informed of the general progress of the MRC's action on the proposed incinerator. The Committee appeared satisfied with the verbal responses (the meeting was taped by the Committee) to questions in their August 8, 1978 letter such that they did not request formal written responses.

Subsequent to the meeting the Committee prepared a summary of the meeting. A copy of this document is attached for information.

LS/  
Lake H. Barrett, Section Leader  
Environmental Evaluation Branch  
Division of Operating Reactors

Enclosure:  
As stated

## ENERGY FACILITIES COMMITTEE

Summary - Session with U.S.  
Nuclear Regulatory Commission

September 21, 1978

Committee Members Present: Jim Best, Chairman; Bob Jones, John Coakley,  
Herb VanSchaack, Ed Frawley

County Staff: Bob Deyle, George Brower

U.S. N.R.C.: Brian Grimes, Assistant Director, Division of Operating  
Reactors; Lake Barrett, Project Supervisor, Environmental Evaluation  
Branch; Thomas Elsasser, State Liaison Officer, Region 1.

### I. Background on Role and Structure of NRC (Grimes)

A. Role - to evaluate safety and environmental impacts of nuclear  
reactors and all aspects of the nuclear fuel cycle

#### B. Structure and Staffing

1. Independent commission of 5 members
2. Support staff of about 2500
3. Division of Operating Reactors - staff of 180 solely  
concerned with regulation of operating nuclear reactors
4. Environmental Evaluation Branch - concerned with radio-  
active waste disposal systems of all operating nuclear  
power plants
5. Regional Offices (Region 1 Office is in King of Prussia, Pa.) -  
provide inspection teams to evaluate individual nuclear facility  
conformance with license technical specifications.

### II. Disposal of Spent Nuclear Fuel (Elsasser)

A. Status of Federal Government's efforts to develop retrievable  
geologic storage and terminal geologic disposal facilities

#### 1. Agency roles

- a. Federal Department of Energy (DOE) has responsibility for  
developing storage and disposal facilities for spent nuclear  
fuel
- b. NRC evaluates public health and safety impacts of specific  
proposals; NRC provides:

- i. Standards by which to evaluate license applications
- ii. Tools to measure compliance with those standards

2. Basic goal

- a. DOE is pursuing development of deep geologic disposal sites from which wastes and spent fuel would be retrievable for only a few tens of years, and for health or safety reasons only.
- b. NRC staff not aware of any DOE effort to develop retrievable geologic storage facilities.

3. Federal Policy

- a. President Carter appointed an interagency task force on nuclear waste in Spring 1978 to formulate federal government program for radioactive waste disposal.
- b. Draft report is now being reviewed by federal agencies.
- c. Report is due to be published in mid-October 1978 and should provide more direction on many as yet unanswered questions.

4. Status of DOE F            ) Develop Deep Geologic Disposal Site

- a. NRC expects to receive license application from DOE sometime in late 1979 for a prototype deep geologic disposal facility: WIPP - Waste Isolation Pilot Plant.
- b. Facility will be located near Carlsbad, N.M. and will be demonstration project for disposal of high-level military wastes and transuranic wastes.
- c. Not known yet whether this pilot program will also handle spent nuclear fuel.
- d. George Brower asked if other sites were being evaluated since he had read that problems of water infiltration had been encountered at Carlsbad. Elsasser answered that another acceptable site is located near Hanford, Washington in a basalt formation (igneous rock of volcanic origin).

B. Estimated Need for Away-From-Reactor Water Basin Storage During Interim Prior to Operation of Geologic Disposal Facility

- 1. DOE also has responsibility for developing these facilities which will probably be similar in design to the spent fuel storage pools already on-site at nuclear power plants.

2. DOE will probably be responsible for the interim storage facilities.

3. Projected Need

- a. DOE expects deep geologic disposal facility to be operational sometime between 1988 and 1993.
- b. By 1984 some nuclear power plants will have reached capacity of their spent fuel storage pools and interim storage facilities are predicted to be necessary for 1400 metric tons of spent fuel.
- c. By 1988 up to 3900 metric tons of spent fuel are predicted to require away-from-reactor storage facilities and by 1993 the amount is estimated at 8600 metric tons.
- d. DOE estimates the need for one 5000-metric ton facility to cover needs through 1989 when anticipated need is 4600 metric tons.
- e. If geologic disposal facility is not ready until 1993, a second 5000-metric ton interim storage facility will be needed after 1989.
- f. These estimates assume the utilities will use compact spent fuel storage arrangements in on-site spent fuel storage pools, but that they will maintain room in those pools for complete removal of the active fuel core.
- g. However, utilities are not required by regulations to maintain the spare capacity for the active core. But there are economic incentives to do so.

4. Probable Location

- a. Decision of which of two available options to follow in handling spent fuel may have some effect on decision of where to locate interim storage facility(s). Two options are:
  - i. reprocess spent fuel and concentrate wastes
  - ii. do not reprocess, and dispose of entire spent fuel assembly
- b. No particular reason why facility should be located near geologic disposal facility, but most probably location would be somewhere along east coast where greatest concentration of reactors is.
- c. The Tennessee Valley Authority (TVA) has publically expressed interest in constructing and operating an interim storage facility for the DOE.

5. Transfer of Ownership of Spent Fuel

- a. DOE will decide at what time federal government should take possession of spent fuel.
- b. Most cost-effective procedure appears to be for utilities to store spent fuel rods on site until capacity of their storage facilities is reached.

6. Progress - DOE is awaiting passage of enabling legislation by Congress for construction and operation of away-from-reactor storage facilities which will fulfill previously announced federal policy of accepting spent fuel from utilities for a one-time storage and disposal fee.

C. Regulations Which Will Apply to Utility Participation in Federal Government Waste Disposal Program (Grimes)

1. Apparently no law is being contemplated that will require utilities to participate in government's waste disposal program. Mr. Grimes had no idea who would have jurisdiction to do so.
2. NRC standards governing storage of spent fuel will not be relaxed as storage capacities of spent fuel storage pools are reached.
3. NRC criteria governing amount of spent fuel that can be stored are based on health and safety impacts only. No economic considerations are made.
4. There is no specific limit by weight, volume, or curies to the amount of spent fuel that can be stored on site.
5. Each request for expanding capacity is evaluated on a site basis in terms of accident potential, radiation release, worker exposure, etc.
6. Existing regulations cover expansion of capacity using existing storage pools. New regulations are being developed to cover construction and operation of new on-site storage facilities.

III. Proposed Radwaste Volume Reduction Incinerator (Mostly Barrett)

A. Background Information

1. High-level versus low-level wastes
  - a. High-level wastes: include military wastes and spent nuclear fuel. Characterized by long half-lives (tens of thousands of years).

- b. Low-level wastes have shorter half-lives (tens of years long) and only require several hundred years to decay to safe levels. Include air filters, resins from water filters, and contaminated clothing.
- c. Historically low-level wastes have been disposed of in shallow trenches 10 - 30 feet deep.
- d. Trans-Uranic wastes are a separate category. None are included in low-level wastes. Are a product of fuel reprocessing.

2. Situation -

- a. Has become increasingly expensive to handle, transport, and dispose of low-level wastes, in part because of large volumes.
- b. Technological experience in calcination of liquid wastes has already been obtained through incineration of high-level wastes at national testing facility in Idaho.
- c. Proposed radwaste volume reduction incinerator would reduce volumes of low-level wastes and reduce rate at which low-level waste disposal sites are filled up.
- d. Possible problems which require evaluation are potential for accidents and release of radioactivity.
- e. Radioactive substances involved
  - i. Particulate matter such as isotopes of Cesium and Cobalt.
  - ii. Semi-gaseous material such as isotopes of Iodine.

3. Barrett summarized major functions and components of system as designed by Newport News Industrial Corporation

B. NRC Review of Newport News Industrial Corporation's Topical Report

1. Topical Report (Generic) Review Process

- a. Vendor who develops a nuclear facility such as a new reactor or, as here, a waste incinerator, may submit technical information on the basic design to the NRC for a safety analysis.
- b. Specific utilities can then reference the technical information in the generic report when making an application for a site-specific use of such a facility.

- c. A copy of a summary of the NRC Topical Report Program is on file at the County Planning Board offices.
  2. NRC is presently reviewing health and safety aspects of generic design which include analysis of radioactive effluents, potential accidents that could result in radioactive releases, occupational radiation exposure, fire protection, and security.
  3. Analysis of radwaste incinerator's interphase with an existing system, for example an operating power reactor, would be done in the course of reviewing a specific operating license application.
  4. Once NRC has concluded its safety analysis of the generic report, will issue a letter saying they approve the report. The utilities may reference the report in specific license applications.
  5. NRC has sent several rounds of questions to Newport News Industrial Corporation and has required testing of the prototype system, located in Idaho, with radioactive tracer materials.
  6. NRC believes use of tracers and very sensitive monitors will provide adequate evaluation of the system's capacity to remove radioactive substances from the gaseous effluents as claimed in the generic report.
    - a. Monitors for tracer study will be more sensitive than those used in regular operational monitoring of the system.
    - b. NRC can extrapolate from tracer study results to determine decontamination efficiency with actual radioactive wastes.
- C. NRC Review of Niagara Mohawk's Application for a Permit to Install and Operate a Radwaste Incinerator at Nine Mile One (mostly Grimes)
1. Sequence of events to date
    - a. NRC sent letter to NiMo in July 1978 reminding them that a specific application would be required to install and operate a radwaste incinerator.
    - b. NiMo sent a letter to NRC dated September 1, 1978, requesting permission to install and operate such a facility in compliance with 10 CFR 20.305.
  2. NRC Procedure
    - a. Will review NiMo application as if it were an application

for a license amendment under 10 CFR 50 and will follow Part 50 procedures.

- b. According to Grimes the "...exact legal language may be amendment to the license which refers to an approval under Part 20, or it may be some changes to the technical specifications in addition to those words, but procedurally we will handle it as if it were a license amendment under 10 CFR Part 50."
  - c. NRC will probably request information from Niagara Mohawk in addition to that already contained in Final Safety Analysis Report for Nine Mile Unit One. NRC will make use of information in the Topical Report, but will probably need some site-specific data as well.
  - d. NRC has not yet determined need for modification of existing technical specifications or for additional "tech specs."
    - i. NRC may require additional monitors for gaseous effluents.
    - ii. Even though NiMo is proposing additional gaseous effluent monitors, these would not be covered by tech specs unless NRC determines they are necessary for health and safety reasons.
    - iii. Emissions from radwaste incinerator would have to be within the existing limits set for the Nine Mile One site boundary.
  - e. NRC maintains that careful review of topical report and results of tracer study on prototype incinerator in Idaho will be adequate review to assure system will function properly with actual radioactive wastes.
  - f. NRC can deny application if analysis of worst possible accident situations indicates too great a risk to public health and safety.
  - g. Review of Topical Report need not be complete before NRC acts on NiMo application, NRC can obtain needed information during specific site review process.
  - h. NRC will publish its safety analysis of the application.
3. Focus of NRC Review - two major areas
- a. Public health and safety impacts
  - b. Environmental impacts

#### 4. Opportunities for Public and County Participation

##### a. Participation in technical meetings

- i. After NRC receives complete application will schedule meetings with NiMo to discuss additional technical questions.
- ii. Public can attend these meetings to express concerns and ask questions.
- iii. NRC would try to hold some of these meetings locally to facilitate public participation.

##### b. Pre-noticed Opportunity for Public Hearing

- i. NRC may decide to pre-notice its decision to grant NiMo permission to operate the facility.
- ii. If NRC does so, will issue notice in Federal Register which would allow 30 days for public request for hearing.
- iii. In order for hearing to be held some party with standing must present a contention concerning a relevant technical issue which is not adequately addressed.
- iv. If someone intervenes with contention, County, other municipality, or State may intervene without contention and have right to cross examine.
- v. Hearing would be conducted by independent hearing board (one legal and two technical members).
- vi. Would hear testimony by NRC staff, licensee, and intervenors.
- vii. Licensee could not begin action until hearing completed.

##### c. Petition for Public Hearing Under Atomic Energy Act

- i. This procedure may be followed at anytime.
- ii. Petitioner must show standing and have relevant contention(s).
- iii. NRC staff would review petition and also decide whether or not action can proceed before conclusion of hearing.

- d. All correspondence between NRC and Niagara Mohawk is available to public and should be filed in the Public Document Room. Proprietary information can be made available to participants in a public hearing if one is held.

5. NRC's Present Position on Public Hearing

- a. Has not decided yet whether or not to pre-notice, should decide within next two weeks.
- b. Main criterion for this decision is whether or not "significant hazards considerations" are involved.
- c. For example, if proposed action would significantly increase likelihood of an accident, or consequences of an accident, NRC would probably pre-notice.
- d. "Accident" includes any occurrence that would result in a radioactive release significantly greater than normal releases.
- e. Public interest is also a factor in this decision.

6. Public Awareness of NRC Decision Not to Pre-Notice

- a. Normally public would not get advanced notice if NRC decided not to pre-notice.
- b. Public would have to petition under Atomic Energy Act after NRC announced in Federal Register that application had already been approved.
- c. In this particular case Grimes promised to keep Oswego County informed of NRC decision regarding pre-notice.

7. Limits to storage of incinerator ash on site -

- a. As with spent fuel storage, there is no specific limit to weight, volume, or curies of ash that could be stored on site.
- b. Determination of any limit would be based on amount of radiation released to outside environment and level of worker exposure.

D. Level of Regulation and Monitoring to be Enacted to Ensure Safe Operation of Radwaste Incinerator at Nine Mile Point (Barrett)

1. Barrett summarized monitoring systems which will be part of the proposed radwaste incinerator system:
  - a. Monitor gaseous effluent prior to discharge into reactor stack.
  - b. Existing stack monitor system.
  - c. Monitors for radwaste building ventilation system.
2. Nine Mile Point Unit One must continue to meet existing standards for radiation levels at the site boundary. No change in these.

3. Thus no changes are proposed to the existing monitoring system, although, as indicated in C.2.d.i. above, NRC may develop tech specs for the off-gas system monitors proposed by NiMo.
4. NRC policy on radiation releases
  - a. In addition to actual standards, NRC policy requires that radioactive releases be kept as low as reasonably achievable.
  - b. Determination of "reasonably achievable" includes economic considerations.
5. Standard is no greater than 5 millirem per year (mrem/yr) for a person standing at the site boundary.
6. Perspective on radiation standard
  - a. National average background radiation level - 125 mrem/yr.
  - b. Cross-country airline flight exposure - 3 - 5 mrem
  - c. Brick house exposure - 25 mrem/yr
  - d. Colorado background level - 225 mrem/yr (higher altitude and bedrock composition).
  - e. Chest x-ray - 100 mrem.
  - f. Fluoroscopic exam - 20,000 mrem/minute

#### E. Environmental Analysis (Grimes)

1. This will be site specific. Evidently no environmental review is done on the Topical Report.
2. If environmental impact of proposed facility in NiMo's application is found to be significant by the NRC, an Environmental Impact Statement (EIS) will be prepared.
3. Generally such facilities are not found to have a significant environmental impact, in which case the NRC files a negative declaration and prepares an "environmental impact appraisal" which quantifies the impacts and states why they were determined not to be significant.
4. If public hearing is held after pre-notice, the EIS or the negative declaration can be a subject of the hearing, also true if public hearing held after petition under the Atomic Energy Act.

5. If no public hearing held otherwise, negative declaration would be filed at time of final NRC approval and could then be the basis for a petition for public hearing under the Atomic Energy Act.
6. NRC indicated would keep Oswego County informed of its decision on a negative declaration.

F. Time Table for Review of NiMo Application

1. If NRC finds no significant problems with NiMo application, could have radwaste incinerator in operation by late 1980 (Barrett).
2. Any construction begun by NiMo before final NRC approval is done at NiMo's own risk. (Grimes)

G. NRC - NiMo Meeting of September 19, 1978 in Bethesda, Md.

1. Mr. Grimes maintained that NiMo first requested the meeting on Friday, September 15, indicating they wished to convene it prior to NRC's September 21 meeting with the Energy Facilities Committee.
2. Grimes indicated NiMo requested the meeting to discuss technical questions on the radwaste incinerator and to provide the NRC staff with their views on the questions submitted in advance to the NRC by the Energy Facilities Committee.
3. Grimes said the NRC requested the meeting be held in Bethesda because of the large number of NRC staff required to attend.
4. NRC (Elsasser) notified Deyle of the meeting on Friday, September 15.
5. Evidently, NiMo maintains they did not specifically request the meeting timing or location ...

IV. Who Made the Initial Decision that Nuclear Fission Was a Safe Means of Producing Electric Power (Elsasser)

A. Who Made the Decision?

1. U.S. Congress in Atomic Energy Act of 1946 and 1954

2. 1946 Act established the Atomic Energy Commission (AEC) to put control of military application of atomic energy into civilian hands.
  3. 1954 Act as amended provided for peaceful uses of atomic energy. Quote Section 1: "Atomic energy is capable of application for peaceful as well as military purposes. It is therefore declared to be the policy of the United States that ... development, use, and control of atomic energy shall be directed so as to make the maximum contribution to general welfare."
- B. Question of Safety of Nuclear Fission Never Directly Addressed by Congress
1. Question implicitly addressed since Congress authorized AEC to issue commercial nuclear power plant licenses.
  2. Section 103 of Atomic Energy Act says: "The Commission is authorized to issue licenses to persons applying therefor to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, process, use, import, or export under the terms of the agreement for cooperation . . ."
  3. This authorization was transferred to NRC in Energy Reorganization Act of 1974.

V. Monitoring of Radiation Releases From Multiple Reactors (Barrett)

A. NRC Regulations

1. These apply to individual reactors' site boundaries
2. Thus at Nine Mile Point monitoring and technical specifications are separate for Nine Mile Unit One and the Fitzpatrick plant.

B. EPA Regulations

1. EPA also has regulations that apply to the general public rather than at the site boundary specifically (see VI below)
2. EPA's regulations apply to the entire uranium fuel cycle including mining, milling, fuel manufacture, energy production, fuel reprocessing, and waste disposal.
3. EPA regulations cover effluents and direct radiation.
4. NRC actually implements the EPA regulations.

VI. Low-Level Radiation and Exposure Standards (Barrett)

A. Extent to which Biological Effects of Low-Level Are Being Re-Evaluated.

1. Quite a bit, but not directly by NRC
2. President has appointed interagency task force headed by HEW to examine biological effects of low-level radiation; includes DOE, Bureau of Radiological Health, NRC.
3. National Academy of Sciences also has special committee on biological effects of ionizing radiation (BEIR Committee) which is examining historical data on worker exposures in naval shipyards while working on naval atomic reactors
4. The Goffin and Tamplen report on biological effects of radiation was reviewed by BEIR Committee and discounted. Therefore NRC took no action on that study's findings. (Grimes)
5. The Mankuso study has not yet been reviewed by the BEIR Committee, and NRC action awaits that review. (Grimes)

B. Likelihood of Change in Standards

1. National Resources Defense Council has petitioned NRC to lower radiation industry worker exposure standards to 500 mrem/yr.
2. NRC staff has recommended hearings on this and related issues; no action as yet.
3. Present NRC standard is no more than 3000 mrem/quarter or no more than 12,000 mrem/yr. NRC staff has recommended that limit be reduced to 5000 mrem/year.
4. Average industry worker exposure is presently 700 mrem/yr.
5. NRC site boundary limit is 5 mrem/yr for gaseous emissions and 3 mrem/yr for liquid emissions.
6. EPA limit is 25 mrem/yr from all sources in the uranium fuel cycle.
7. Site boundary levels are function of prevailing wind direction and other site conditions, therefore unlikely that any one person would receive maximum 5 mrem/yr from more than one reactor.

## VII. Risk of Major Accident (Grimes)

### A. Risk of Major Accident at an Individual Nuclear Power Plant

1. Risk usually defined to include probability and consequences of major accident.
2. According to Grimes, the recent WASH-1400 Reactor Safety Study (October 1975) is the best study available on reactor accident risks.
3. WASH-1400 says not likely to have a major accident at any individual reactor site anymore often than once every 20,000 reactor-years.
4. Have been many criticisms of WASH-1400, especially of its applicability to other reactors, since model is based on only 2 reactors which were taken as representative of all nuclear power reactors.
5. However, on basis of nuclear power plant safety history in the U.S. and abroad, likelihood of a major accident with major off-site consequences is very slight.

### B. By What Amount is Risk Increased by Additional Plants in a Relatively Small Geographic Area

1. If assume identical plant on same site, risk is doubled by addition of second plant, but this depends on what particular consequences are being evaluated.
2. For a given individual this exact doubling does not apply since person cannot be equi-distant from two reactors under the same conditions.
3. Study of feasibility of energy park concept indicates that risk does not continue proportionately beyond 10 reactors because of degree of physical separation of plants on outer edges of park.

### C. Level at Which Increased Risk Becomes Unacceptable

1. Risk from as many as four or five plants at a single site is well within the acceptable range.
2. Energy Park study has evaluated acceptability of as many as 40 reactors on one site.

3. Copy of Nuclear Energy Center Site Survey - 1975, Summary and Conclusions is on file at County Planning Board Offices.

VIII. Decommissioning of Nuclear Power Plants (mainly Elsasser)

A. Status of NRC Efforts to Set Standards for Decommissioning Procedures

1. These are covered in March 1978 NRC document (NUREG 0436) titled "Plans for Reevaluation of NRC Policy on Decommissioning of Nuclear Facilities." A copy is on file at the County Planning Board offices.
2. Also on file are copies of reports on procedures for decommissioning a Pressurized Water Reactor and a Fuel Reprocessing Plant.
3. Summary of NRC's intended review of its decommissioning policy (Federal Register Vol. 43, No. 49, Monday, March 13, 1978):
  - a. Need for more definitive decommissioning criteria beyond those already covered by NRC regulations.
  - b. Form of these criteria:
    - i. Potential exposures to individuals
    - ii. Numerical contamination units
    - iii. Other
  - c. Need for detailed decommissioning plans prior to licensing
  - d. Need for funding or other surety arrangements prior to licensing
  - e. Acceptable criteria for residual levels of radioactivity on materials to be released for unrestricted use.
  - f. Acceptable length of time for mothballing prior to decommissioning
  - g. Extension of decommissioning criteria to non-radioactive structures, buildings, and components.
4. Procedures for NRC review of decommissioning policy:
  - a. Regional workshops in August 1978 and July 1979 to get states' views.
  - b. Actual rule-making not scheduled until November 1979

5. NRC's major concerns
    - a. Standards for acceptable levels of radiation after decommissioning
    - b. Permissible modes of decommissioning
      - i. Mothballing and guarding
      - ii. Entombment
      - iii. Dismantling
    - c. Funding of decommissioning
  6. Experience with decommissioning (Grimes)
    - a. Since 1960 have decommissioned, by various methods, 5 licensed nuclear power reactors, 4 demonstration reactors, and 6 licensed test reactors.
    - b. However, no commercial reactors of the size of those at Nine Mile Point have been decommissioned.
    - c. Major difference is volume of material to be handled.
    - d. All radioactive material involved in decommissioning, once fuel elements are removed, emits only low-level radioactivity.
  7. Availability of adequate space for disposal of dismantled nuclear facilities
    - a. Elsasser indicated there is not presently adequate space for the dismantled pieces of reactors to be disposed of
    - b. Barrett clarified this statement by saying that there is adequate space at federal government facilities, but that under present procedures, commercial low-level waste is disposed of by commercial enterprise, and they presently lack adequate space for dismantled reactor parts.
- B. Standards That Would Apply If A Utility Chose to Upgrade a Nuclear Power Plant at the End of its Useful Life (Grimes)
1. Would have to meet standards for health, safety, and environmental impacts in effect at that time.
  2. At present no utilities are faced with this situation, although two reactors have been shut-down because of inability to meet current safety standards.
  3. Key problem in evaluating economic feasibility of rehabilitating a nuclear reactor is the condition of the reactor pressure vessel.

- a. At 30+ years vessel becomes brittle because of radiation damage.
  - b. Becomes necessary to either replace the vessel or anneal it by heating
4. Turbine generators also are expensive to replace and have limited lifespan.
  5. May also prove to be more economical to produce electricity by some other means by the time this decision must be made.

#### IX. Cooling Towers (Barrett)

- A. EPA is the agency that requires use of cooling towers under the Clean Water Act.
- B. NRC evaluates environmental impact of cooling towers in its evaluation of total environmental impact of a proposed nuclear power plant.

#### X. Price Anderson Act (Elsasser)

##### A. How Was the Liability Limit Determined?

1. 1956 legislative history of the Act indicates that members of the Joint Committee on Atomic Energy were concerned that provision of unlimited liability could have a severe impact on the federal budget.
2. Therefore they set \$ 500 million as the limit to the federal government's part of the indemnity. This coupled with \$ 60 million in insurance gave the total maximum coverage of \$ 560 million.
3. According to Elsasser: "This figure appears to be based on collective judgment that this amount was adequate to cover the maximum conceivable damages that could result from a nuclear incident at that time."
4. In 1965 and 1975 when Act was before Congress for renewal this upper limit was not changed. However in 1975 the system of funding was changed.

##### B. Present Funding Structure

1. Now most of funds used to pay public liability claims will come from the private sector, and ultimately the federal government will not hold any specific liability.

2. Insurance indemnity was increased in 1975 from \$ 60 million to \$ 140 million.
3. In addition, each operating reactor is indemnified for \$ 5 million and federal government covers the difference to maintain total coverage of \$ 560 million.
4. As number of operating reactors increases from present level of 68 to 84, government share will decrease to zero.
5. Beyond 84 operating reactors, the limit of liability will be extended by \$ 5 million for each additional operating reactor.
6. At present there are approximately 140 nuclear reactors under construction.

C. Other Means Available to Public to Cover Losses

1. Maximum claims predicted in WASH-1400 exceed \$ 560 million (Grimes).
2. However, Act provides for Congressional review and action where \$ 560 million limit is expended (Elsasser)
3. No other nuclear accident insurance is available other than coverage provided by health and life insurance policies

XI. Additional Subjects

A. Use of Carbon-Steel Tanks for High-Level Waste Storage at Hanford - In Response to Question from Brower

1. Carbon-steel tanks were built instead of more corrosion-resistant stainless steel because of economic considerations and material shortages at the time, end of World War II. (Barrett).
2. Borings around the tanks indicate no off-site migration where leaks have occurred (Grimes).

B. NRC Accountability - In Response to Question From VanSchaack:

Grimes indicated he feels responsible to U.S. citizens as their expert representatives.

C. Transportation Accidents - In Response to Questions from Deyle (Barrett)

1. NRC does analyze potential transportation accidents involving nuclear fuel and radioactive wastes.
2. Waste containers are designed to withstand conditions of worst-possible accident situation.
3. Both U.S. Department of Transportation (DoT) and NRC have regulations governing transport and have done environmental impact statements on those regulations.
4. However these regulations apply at both ends of transportation process. No specific permit given to carry radioactive substances (DoT permits are exclusionary), and no actual list of radioactive substance transporters.
5. (Jay Dunkleberger of the N.Y. State Energy Office indicated after the meeting that there is some regulation at the state level.)

**X. Local Government Participation in NRC Actions**

**A. NRC Presentation in Response to Question 16**

**B. Additional Questions from the Committee and Staff**

**XI. Additional Questions from the Committee and Staff**

**Observers:** Please note that this is a legislative committee meeting. You are most welcome to observe the proceedings, but participation is limited to members of the committee, the planning staff, and the representatives of the N.B.C.

AGENDA

Energy Facilities Committee  
Meeting With  
U.S. Nuclear Regulatory Commission

September 21, 1978

- I. Disposal of Spent Nuclear Fuel
  - A. NRC Presentations in Response to Questions 1-3
  - B. Additional Questions from the Committee and Staff
- II. Proposed Radwaste Volume Reduction Incinerator
  - A. NRC Presentations in Response to Questions 4-7
  - B. Additional Questions from the Committee and Staff
- III. Nuclear Fission as a Source of Electric Power
  - A. NRC Presentation in Response to Question 8
  - B. Additional Questions from the Committee and Staff
- IV. Monitoring of Radiation Releases
  - A. NRC Presentation in Response to Question 9
  - B. Additional Questions from the Committee and Staff
- V. Low-level Radiation and Exposure Standards
  - A. NRC Presentation in Response to Question 10
  - B. Additional Questions from the Committee and Staff
- VI. Risk of Major Accident
  - A. NRC Presentation in Response to Question 11
  - B. Additional Questions from the Committee and Staff
- VII. Decommissioning
  - A. NRC Presentations in Response to Questions 12-13
  - B. Additional Questions from the Committee and Staff
- VIII. Cooling Towers
  - A. NRC Presentation in Response to Question 14
  - B. Additional Questions from the Committee and Staff
- IX. Price Anderson Act
  - A. NRC Presentation in Response to Question 15
  - B. Additional Questions from the Committee and Staff

## QUESTIONS

1. What is the status of the Federal Government's efforts to develop retrievable geologic storage and terminal geologic disposal facilities?
2. What is the estimated need for away-from-reactor water basin storage during the interim prior to operation of the geologic storage and disposal facilities?
3. What regulations will be applied to nuclear power utilities governing on-site storage of spent fuel and participation in the Federal Government's storage and disposal programs?
4. What are the status and scope of the NRC's review of Newport News Industrial Corporation's topical report on the R.W.R.-1<sup>TM</sup> radwaste volume reduction incinerator?
5. What procedure will be followed by the NRC in reviewing Niagara Mohawk's application for a license amendment to install and operate such an incinerator at Nine Mile Point?
6. What level of regulation and monitoring will be enacted to ensure safe operation of such a facility at Nine Mile Point?
7. What is the scope of the review of the topical report in relation to N.E.P.A.?
8. Who made the initial decision that nuclear fission was a safe means of producing electric power? What were the major factors in that decision?
9. Are NRC standards and regulations governing the monitoring of radiation releases from nuclear power plants specifically designed to account for the cumulative effects of multiple reactors in the area, such as the shoreline of Lake Ontario in Cayuga and Oswego Counties.
10. To what extent are the biological effects of low-level radiation being re-evaluated? Is there any likelihood that exposure limits for nuclear industry workers and the general public will be reduced from their present levels of 5000 mrem/yr and 500 mrem/yr?
11. What is the risk of a major accident occurring at an individual nuclear power plant? By what amount is that risk increased for a given geographic area the size of Oswego County by the addition of a second plant? How much is the risk increased by the addition of the third, fourth, fifth, etc.? At what level does this increased use become unacceptable?

12. What is the status of the NRC's efforts to set standards for procedures in decommissioning of commercial nuclear reactors?
13. What standards would apply to a utility if it wanted to consider upgrading and rehabilitating a plant at the end of its initial operating license period?
14. Is the U.S. E.P.A. the sole Federal agency responsible for requiring the use of cooling towers at specific power plants?
15. How was the liability limit of the Price Anderson Act determined? Are there any other means available to the public for protection against the losses which might be experienced in the event of a major nuclear power plant accident?
16. Can a county or other local municipality intervene in an NRC proceeding without contentions, e.g. as where a utility applies for an amendment to its operating license?