

April 18, 1979

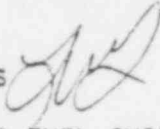
UNITED STATES
NUCLEAR REGULATORY COMMISSION

SECY-79-278

CONSENT CALENDAR ITEM

For: The Commissioners

From: William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Thru: Executive Director for Operations 

Subject: PHYSICAL PROTECTION OF IRRADIATED FUEL SHIPMENTS

Purpose: To obtain Commission approval of proposed amendments to 10 CFR Part 73 that would require physical protection of irradiated fuel shipments.

Category: This paper covers a major issue requiring Commission action.

Background: By memoranda of June 14, 1978 (SECY-78-311) and November 9, 1978 (SECY-78-311A), the staff (i) informed the Commission of the status of the urban transportation safeguards study, and (ii) advised that with respect to the physical protection of shipments of spent fuel, no immediate regulatory action was considered necessary.

Upon further review NMSS has revised its judgment and now believes that, pending the completion of confirmatory research, (see Enclosure A for proposed research program) certain interim safeguards measures should be applied to spent fuel shipments. The primary objective of these measures is the avoidance of sabotage in areas of high population density.

Contact:
Donald J. Kasun
42-74010

342-277-7907120-466

Discussion:

In previous staff documents, (NUREG-0194 Calculations of Radiological Consequences from Sabotage of Shipping Casks for Spent Fuel and High-Level Waste, February 1977; NUREG-0170, FES on the Transportation of Radioactive Material by Air and Other Modes, December 1977), the staff estimated the health effects of a radiological release in a non-urban area resulting from a high-explosive assault on a spent fuel cask. In June of 1978, Sandia completed and published a study "Transport of Radionuclides in Urban Environs: A Working Draft Assessment"(SAND-77-1927) which included a chapter on sabotage of spent fuel in urban transport. A summary of consequence estimations contained in these documents for both rural and urban areas is attached at Enclosure B. Both the staff and Sandia postulated essentially the same release fractions - 100 percent noble gasses, 1 percent solids as respirable material and about 1 percent cesium - resulting from a high-explosive breach of the cask.

Although the number of fatalities estimated by Sandia for areas of very large population densities would normally call into question the need for the application of safeguards, NMSS originally concluded that without additional substantiation of how both the fuel and the casks would respond to breaching explosives, immediate regulatory action could not be supported.

However, the extended timeframe of the confirmatory research program outlined in Enclosure A has raised the question of whether the potential risk, as presented by the Sandia study, could be accepted over such a long period. Even though the likelihood of a sabotage attack on a spent fuel shipment is considered to be low and the difficulty of breaching a cask and dispersing radioactive material is considered to be great, NMSS now believes that, in order to protect health and to minimize danger to life and property (Sections 161b and 161i(3) of the Atomic Energy Act of 1954, as amended), it is prudent and desirable to require certain interim safeguards measures for spent fuel shipments until the results of the research program are available. (Note that the staff conclusion in NUREG-0170 that shipments of spent fuel do not constitute a threat to the public health and safety is still valid for non-urban areas.)

Discussion:
(continued)

Protection Measures

The requirements recommended by the staff (Enclosure C) are designed to mitigate the possibility of sabotage in areas of high population density, as follows:

- A. Route planning (requiring approval by the NRC) to avoid, where possible, heavily populated areas.
- B. Measures to facilitate rapid LLEA response,
 - equipping transport vehicles with radiotelephones and CB radios,
 - liaison with police forces along the routes.
- C. Measures to reduce chances of hijacking and movement of shipment to high density areas,
 - immobilization of vehicle,
 - use of at least two escorts or drivers specifically trained in physical protection and radiological emergencies,
 - non-stop shipments where possible and special precautions if stops are necessary.
- D. Development of procedures for coping with threats and emergencies.

These measures, while providing a capability that response forces can be summoned in a timely manner, will not necessarily prevent an armed group from attacking the cask in place (or in the extreme case from diverting the shipment to another location). On balance, the staff believes that considering the difficulty of breaching a spent fuel cask and pulverizing the spent fuel, and the absence of information confirming any identifiable threat to such shipments, these measures provide a reasonable level of protection. The focus of concern is on possible successful acts of sabotage in densely populated urban areas. Because of the possibility that spent fuel shipments could be hijacked and moved from low population areas to high population areas, the interim requirements apply to all shipments even though the planned shipment route may not pass through densely populated urban areas. In those instances when shipments must pass through or near an area of high population density, additional measures such as armed guards or local police escorts may be necessary.

)
Discussion:
(continued)

Impact on Industry

It is estimated that in CY 1979 there will be about 220 shipments of irradiated fuel, 160 from domestic power reactors and 60 from foreign nonpower reactor sources (6 by rail, the remainder by truck). Five licensees and five routes are involved (Enclosure D).

The Tri-State Motor Vehicle Company and the Home Transportation Company are expected to be the carriers for most road shipments. Based on discussions with representatives of both carriers as well as with licensee personnel, it is estimated that shipment costs will be about double the present \$1.25 per mile rate. This amounts to an increase of approximately \$200,000 per year for the forecasted annual number of shipments.

Comparability with Department of Energy (DOE) Requirements

In February of this year the DOE Office of Safeguards and Security issued in effective form Order No. DOE 5632.2, "Physical Protection of Special Nuclear Materials." We understand that it is the intent of this directive to require protection of irradiated SNM in transit, but at a reduced level. The staff has not been able to determine how this directive is being implemented.

Coordination with the Department of Transportation (DOT)

The DOT staff, after a preliminary review, has not voiced any objections to this proposed rule. The net result of NRC issuing this rule would be to simplify a proposed rule DOT has under consideration relative to the routing of radioactive materials. The application of routing restrictions by the NRC for safeguards purposes would enable the scope of DOT rule to be limited to normal and accident conditions.

Impact of Action on Other Activities

- A The proposed final environmental statement on away from reactor spent fuel storage, supporting proposed Part 72, may have to be revised to include the ONMSS position on the need for interim safeguards as reflected in the proposed rule change. It may be necessary to reserve the final conclusion on this issue until the research program is completed.

Discussion:
(continued)

- B. Table S-4 in 10 CFR Part 51, does not include consideration of sabotage of spent fuel shipments. Accordingly, while S-4 itself is not affected and is still applicable to normal shipment and health effects, the consequences of sabotage in transportation may be accepted as a valid contention in ongoing reactor licensing proceedings and subject to adjudication on a case-by-case basis. The recommended rule will give credence to contentions that the risks of spent fuel sabotage are significant. The staff will be required to judge the acceptability of these risks and support their judgement in pending cases where the risk is relevant.

Implementation

The proposed rule would become effective 30 days after publication in the Federal Register. The licensee would be given an additional period of 60 days after the effective date to implement the requirements that involve equipment modifications and training.

Value/Impact

Complete data is presently unavailable upon which to base a value/impact statement. At the same time it is believed important to expedite the issuance of this rule change in the interest of the public health and safety. Since this proposed rulemaking is considered to be an interim action, the preparation of a detailed value/impact assessment is being deferred pending the outcome of confirmation research and any long-term actions that might result therefrom.

NRC Resources

The amendments proposed in this paper would impact NRC resources as follows:

1. Five routes covering about 3,000 miles would have to be surveyed and contacts made with local police organizations. An analysis of each route with respect to population distributions and shipment data as well as the development of a route plan will be required for each of the five routes. This effort will require an estimated 0.3 man-years and \$5,000 in travel funds.

Discussion:
(continued)

2. Advance notifications for an estimated 200 shipments per year will have to be received, logged and reviewed. This will require about 0.2 man-years of effort annually.
3. Resources required for inspection activities will be forwarded by the Office of Inspection and Enforcement at a later date.

Guidance

Since only three carriers and five licensees will be involved with spent fuel shipments in this calendar year, guidance will be furnished by the staff on an individual case-by-case basis.

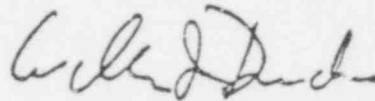
Recommendation: That the Commission:

1. Approve the amendments set forth in Enclosure "C" for publication in final form in the Federal Register.
2. Note that the amendments would become effective 30 days after publication in the Federal Register. The licensees would be given an additional period of 60 days to implement requirements involving equipment modification and training.
3. Note that concurrent with the publication of these amendments in final form, the public will be given 45 days in which to comment on the rule.
4. Note that the appropriate Congressional committees will be notified of this Commission action.
5. Note that neither an Environmental Impact Statement nor a Negative Declaration is required in accordance with 10 CFR 51.5(d)(3) because the proposed amendments are not significant from the standpoint of environmental impact.
6. Note that the preparation of a value/impact assessment is being deferred pending the completion of confirmatory research and an assessment of the need for any long-term actions.
7. Note a public announcement such as at Enclosure "E" will be issued when the amendments are filed with the Office of the Federal Register.

Coordination: ELD has no legal objection. IP concurs subject to inclusion of the information at Enclosure F. SA concurs that the measures being prepared are reasonable and prudent, but believes they should be implemented by order or license condition (Enclosure G). IE & NRR do not feel a case has been made for physical security requirements for this type shipment; if physical security is required, then consideration should be given to providing security for other types of shipments. IE & NRR do agree that all efforts should be made to minimize shipments thru heavily populated areas (see Enclosures H & I). EDO is forwarding the paper in view of the urgency expressed by NMSS despite the lack of discussion of alternates or detailed value impact.

Scheduling: For consideration at an early policy session.

Sunshine Act Recommendation: It is recommended that this paper be considered in an open meeting. The Executive Director for Operations concurs in this recommendation.



William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Enclosures:

- "A" - Proposed Research Program
- "B" - Consequence Estimations
- "C" - Federal Register Notice
- "D" - Shipments
- "E" - Public Announcement
- "F" - IP Comments
- "G" - SD Comments
- "H" - IE Comments - to be forwarded under separate cover
- "I" - NRR Comments - to be forwarded under separate cover

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Wednesday, May 2, 1979.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT April 26, 1979, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for affirmation at an Open Meeting during the Week of May 7, 1979. Please refer to the appropriate Weekly Commission Schedule, when published, for a specific date and time.

DISTRIBUTION:

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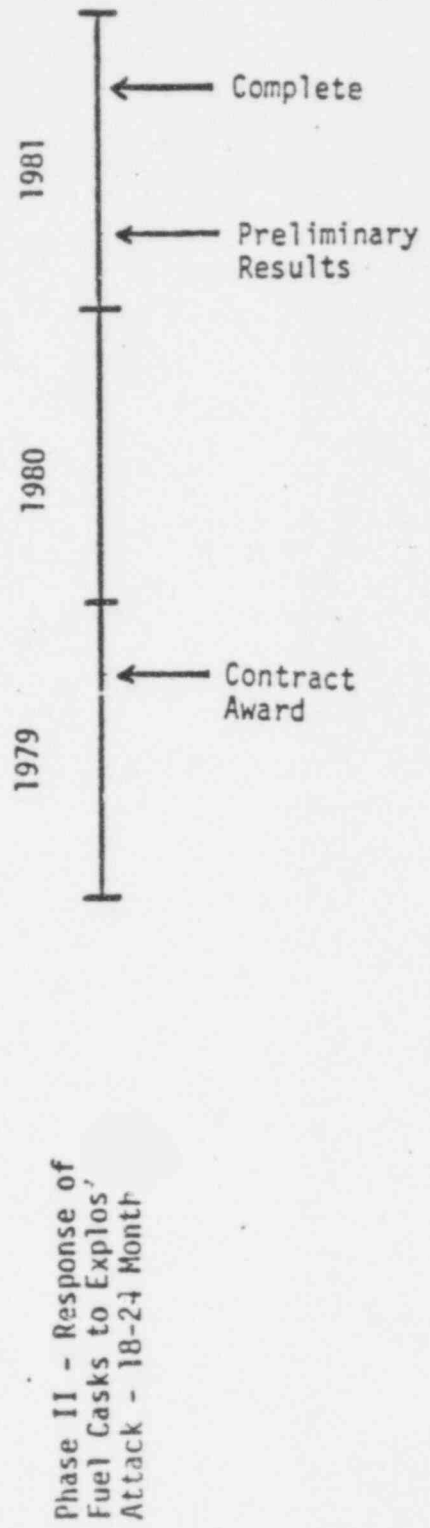
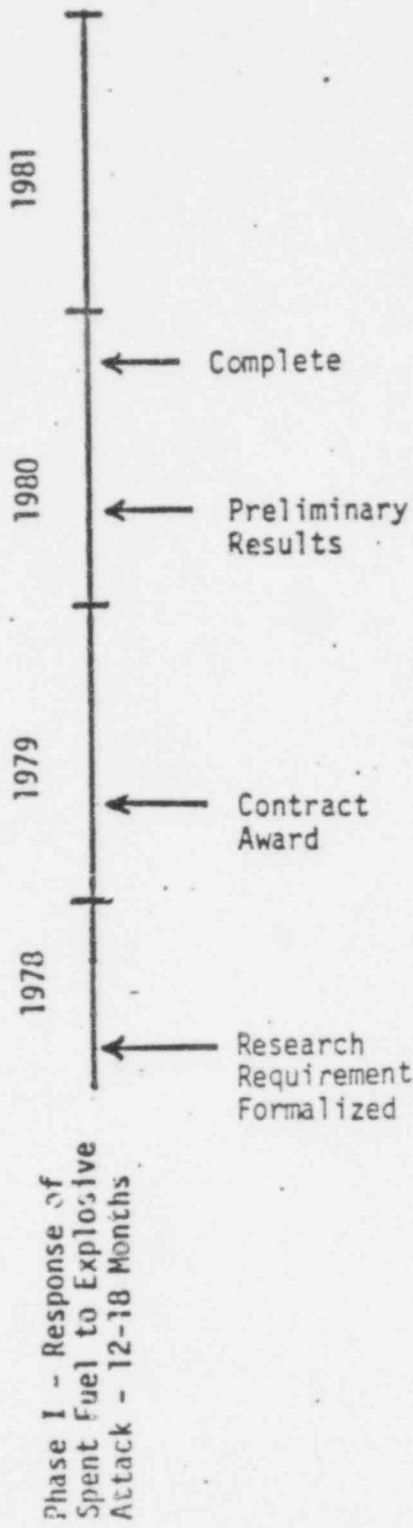
ENCLOSURE A

342 285

PROPOSED

RESEARCH PROGRAM

VULNERABILITY OF SPENT FUEL IN TRANSIT TO MALEVOLENT ATTACK



ENCLOSURE B

342 287

SUMMARY OF CONSEQUENCE ESTIMATES

<u>Source</u>	<u>Population Density</u>	<u>Early Fatalities</u>	<u>Early Morbidities</u>	<u>Latent Cancer Fatalities</u>
3 element truck cask	2,000 p/mi ²	0.4/6.3	Not Calculated	220/270
3 element truck cask	42,000 to 115,000 p/mi ²	26/44	1,000/1,500	450/550
10 element rail cask	42,000 to 115,000 p/mi ²	130/1,200	660/7,600	1,600/7,500

342 288

Notes: The first numbers represent average values. The second numbers are maximum values.
 Assumed release: 100 percent noble gasses, 1.6 percent cesium, 1 percent solids as respirable material.

ENCLOSURE C

342 289

ENCLOSURE C

Title 10 - Energy

CHAPTER I - NUCLEAR REGULATORY COMMISSION

PART 73 - PHYSICAL PROTECTION OF PLANTS AND MATERIALS

Physical Protection of Irradiated Reactor Fuel in Transit

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Interim final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission has decided to establish requirements for protection of spent fuel in transit. A recent study suggests that the sabotage of spent fuel shipments has the potential for producing serious radiological consequences in areas of high population density. It will be some time before confirmatory research relative to the estimated consequences resulting from a successful act of sabotage on spent fuel can be completed. In the meantime the Commission believes that interim requirements for the protection of such shipments should be issued immediately. This rule is subject to reconsideration or revision based on public comments received subsequent to its publication.

EFFECTIVE DATE: Thirty (30) days after publication in the Federal Register.

DATE: Comment period expires (45 days after publication)

ADDRESSES: Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC. 20555,

ATTENTION: Docketing and Service Branch.

342 290-1-

Enclosure "C"

FOR FURTHER INFORMATION CONTACT: Mr. Donald J. Kasun, Physical Security Licensing Branch, Division of Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC. 20555, Phone - 301-427-4010.

SUPPLEMENTARY INFORMATION: The U.S. Nuclear Regulatory Commission is amending 10 CFR 73 of its regulations to provide interim requirements for the protection of spent fuel in transit. This amendment is being published in effective form without benefit of public comment in the interest of the public health and safety.

Previous studies (NUREG-0194, Calculations of Radiological Consequences from Sabotage of Shipping Casks for Spent Fuel and High-Level Waste, February 1977; NUREG-0170, FES on the Transportation of Radioactive Material by Air and Other Modes, December 1977), estimated the health effects of a radiological release in a non-urban area resulting from a high-explosive assault on a spent fuel cask. The estimated risks were not considered so substantive as to warrant regulatory action. A subsequent study by Sandia Laboratories includes a chapter on the sabotage of spent fuel in urban areas of high population density (SAND-77-1927, Transport of Radionuclides in Urban Environs: A Working Draft Assessment). This study suggests that the sabotage of spent fuel shipments has the potential for producing serious radiological consequences in areas of high population density. The Commission has concluded that, in order to protect health and to minimize danger to life and property (Sections 161b and 161i(3) of the Atomic Energy Act of 1954, as amended), it is prudent and desirable to require certain interim safeguards measures for spent fuel shipments. The interim rule would be in effect until the results of confirmatory research are available and analyzed.

The focus of concern is on possible successful acts of sabotage in densely populated urban areas. Because of the possibility that spent fuel shipments could be hijacked and moved from low population areas to high population areas, the interim requirements apply to all shipments even though the planned shipment route may not pass through densely populated urban areas.

Prior to publication of this rule, informal contact was made with the carriers primarily involved in spent fuel shipments as well as with a sampling of licensee personnel, and their comments are known to the staff. It was ascertained that the imposition of these requirements would probably double the cost per mile for these shipments for an increase of approximately \$200,000 per year for the estimated 200 annual shipments involved.

Because spent fuel shipments are on-going and the time of sabotage can not be predicted, the Commission is of the opinion that time is of the essence in this matter, and that health and safety considerations override the necessity for public comment before issuance of an effective rule. Accordingly, the Commission, for good cause, finds that notice and public procedure are unnecessary and contrary to the public interest.

Although this rule is being published in effective form without a prior public comment period, the public is invited to submit its views and comments. After reviewing these views and comments, the Commission may reconsider or modify the interim rule as it deems necessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 73, is published as a document subject to codification.

1. Section 73.1 of 10 CFR Part 73 is amended by adding a new paragraph (b)(5) as follows:

§ 73.1 Purpose and Scope

* * * * *

(b)(5) This part also applies to shipments of irradiated reactor fuel of any quantity which has a total external radiation dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding.

2. A new § 73.37 is added to 10 CFR Part 73 to read as follows:

§ 73.37 Requirements for Physical Protection of Irradiated Reactor Fuel in Transit.

(a) GENERAL REQUIREMENTS - Each licensee who transports or delivers to a carrier for transport irradiated reactor fuel in any amount that is exempt from the requirements of § 73.30 through 73.36 in accordance with § 73.6 shall make arrangements to assure that:

(1) The Nuclear Regulatory Commission is notified in advance of each shipment in accordance with § 73.72 of this Part, and that NRC has approved the route in advance of the shipment,

(2) arrangements have been made with law enforcement agencies along the route of shipments for their response to an emergency or a call for assistance,

(3) the route is planned to avoid, where practicable, heavily populated areas,

(4) the shipment is scheduled where practicable without any intermediate stops except for refueling and obtaining provisions, and that at all stops at least one individual maintains surveillance of the transport vehicle,

(5) individuals serving as escorts have successfully completed a training program in accordance with Appendix D of this Part,

(6) procedures for coping with threats and safeguards emergencies have been developed.

(b) SHIPMENTS BY ROAD - For shipments by road, the licensee shall make arrangements to assure that:

(1) Each shipment is accompanied by (i) at least one driver and one escort in the transport vehicle, or (ii) at least one driver in the transport vehicle and two escorts in a separate vehicle,

(2) the transport or separate vehicle is equipped with a radiotelephone and CB radio or approved equal communications equipment and that calls are made at least every 2 hours to a designated location to advise of the status of the shipment,

(3) the transport vehicle is equipped with features that permit immobilization of the cab or the cargo-carrying portion of the vehicle.

(c) SHIPMENTS BY RAIL - For shipments by rail the licensee shall assure that:

(1) Each shipment is accompanied by at least two escorts in the shipment car or in a separate car that will permit observation of the shipment car,

(2) two-way voice communication capability is available and that calls are made at least every 2 hours to a designated location to advise of the status of the shipment,

(3) at least two escorts maintain visual surveillance of the shipment car during periods when the train is stopped on sidings or in rail yards.

(d) If it is not possible to avoid heavily populated areas, the Commission may require, depending on individual circumstances of the shipment, additional protective measures.

(e) A period of 60 days from the effective date of the rule is allowed for the implementation of requirements that involve equipment modification or training.

3. A new Appendix D is added to 10 CFR Part 73 to read as follows:

Appendix D - Physical Protection of Irradiated Reactor Fuel in Transit, Training Program Subject Schedule

Pursuant to the provision of 73.37 of 10 CFR Part 73, each licensee who transports or delivers to a carrier for transport irradiated reactor fuel is required to assure that individuals used as shipment escorts have completed a training program. The subjects that are to be included in this training program are as follows:

Security Enroute

- Route planning and selection
- Vehicle operation
- Procedures at stops
- Detours and use of alternate routes

Communications

- Equipment operation
- Status reporting
- Contacts with law enforcement units
- Communications Discipline
- Procedures for reporting incidents

Radiological Considerations

- Description of the radioactive cargo
- Function and characteristics of the shipping casks
- Radiation hazards
- Federal, State and local ordinances relative to the shipment
of radioactive materials
- Responsible agencies

Response to Contingencies

- Accidents
- Severe weather conditions
- Vehicle breakdown

Response to Contingencies (continued)

- Communications problems
- Radioactive "spills"
- Use of special equipment (flares, emergency lighting, etc.)

Response to Threats

- Reporting
- Calling for assistance
- Use of immobilization features
- Hostage situations
- Avoiding suspicious situations.

EFFECTIVE DATE: (30 days after publication in FR)

(Sec. 53, 161b, 161i, Pub. Law 83-703, 68 Stat 948, Pub. Law 93-377, 88 Stat 475; Sec. 201, Pub. Law 93-438, 88 Stat 1242-1243, Pub. Law 94-79, 89 Stat 413 (42 U.S.C. 2073, 2201, 5841).)

Dated at Washington, D.C. this _____ day of _____, 1979.

For the Nuclear Regulatory Commission.

Samuel J. Chilk
Secretary of the Commission

ENCLOSURE D

342 298

TRANSPORTATION OF SPENT FUEL
ANTICIPATED SHIPMENTS - CY 1979

- Portsmouth, Virginia to Savannah River -60 truck shipments @ about 400 miles each
- Seneca, South Carolina (Oconee) to Terrell, North Carolina (McGuire) 100 truck shipments @ about 175 miles each
- Hartsville, South Carolina (Robinson) to Southport, North Carolina (Brunswick) - 6 rail shipments @ about 125 miles each
- Genoa, Wisconsin (LaCrosse) to Morris, Illinois - 6 truck shipments @ about 250 miles each
- San Clemente, California (San Onofre) to Morris, Illinois - 50 truck shipments @ about 2,250 miles each.

Enclosure 0

ENCLOSURE E

342 300

ENCLOSURE E

NRC AMENDS REGULATIONS ON PROTECTION OF NUCLEAR MATERIALS

The Nuclear Regulatory Commission is amending its regulations to provide for the physical protection of spent fuel in transit.

Prior to this time, shipments of spent fuel were specifically exempt from the physical protection requirement of 10 CFR Part 73 because of the inherent sabotage protection afforded by the heavy construction of shipping containers (casks) and the theft protection resulting from the high-radiation levels of the irradiated fuel. Recent studies have indicated that, although it would be very difficult to breach a cask and disperse significant amounts of radioactive material in the atmosphere, an attack by high explosives has the potential for producing serious radiological consequences in areas of high population densities. Pending the outcome of a research program designed to substantiate the analytical findings, the Commission has decided that interim safeguards measures should be applied to shipments of irradiated reactor fuel. The primary objective of these measures is the prevention of an act of sabotage in or near an area of high population density. The requirements include route planning to avoid heavily populated areas, measures to facilitate rapid response from law enforcement units along the route, and special precautions to prevent diversion of the shipment to densely populated areas.

This amendment to Part 73 will become effective 30 days after publication in the Federal Register except that an additional 60-day period will be allowed for equipment modification and training of escorts.

Interested parties are invited to submit comments on the rule change within the next 45 days.

ENCLOSURE F

342 303

IP COMMENTS

PHYSICAL PROTECTION OF IRRADIATED FUEL SHIPMENTS

IP concurs in the Commission Paper subject to inclusion of the following:

IP believes that the proposed physical protection measures for irradiated fuel shipments would be comparable to or exceed the levels recommended in INFCIRC/225/Rev. 1 for Category II materials. As all irradiated fuel (irradiated at 100 rem per hour or more at three feet) is either Category II or III material, the proposed new section 73.37 would resolve the ambiguity in physical security assurances which the U.S. has provided other countries regarding physical protection of spent fuel. [This ambiguity was discussed in the OPE analysis of the Category II and III Rule (March 16 memo from Al Kenneke to the Commissioners regarding SECY-79-38).]

ENCLOSURE G

342 305

SD COMMENTS

PHYSICAL PROTECTION OF IRRADIATED FUEL SHIPMENTS

I agree that interim measures are appropriate to the protection of spent fuel shipments until the results of confirmatory research are complete. I consider the measures you propose to be reasonable and prudent at this time. I do not concur that they should be published as an effective rule, but believe they should be implemented by order or license condition.

ENCLOSURE G

342 306

NEED FOR PHYSICAL PROTECTION

BASED ON SANDIA STUDY (SAND-77-1927)

- STUDY SUGGESTS SABOTAGE COULD PRODUCE SERIOUS RADIOLOGICAL CONSEQUENCES IN DENSELY POPULATED AREA
- STAFF UNABLE TO CONFIRM OR REFUTE ESTIMATED CONSEQUENCES
- OTHER SANDIA REPORT ESTABLISHES CASK CAN BE BREACHED BY HIGH EXPLOSIVES
- UNCERTAINTIES RELATED TO AMOUNT OF SOLID RADIOACTIVE MATERIAL THAT COULD BE DISPERSED INTO ATMOSPHERE
- RESEARCH PROGRAM UNDERWAY TO RESOLVE UNCERTAINTIES
- PRUDENCE DICTATES NEED TO APPLY INTERIM PROTECTIVE MEASURES

342 307

SUMMARY OF CONSEQUENCE ESTIMATES

<u>Source</u>	<u>Population Density</u>	<u>Early Fatalities</u>	<u>Early Morbidities</u>	<u>Latent Cancer Fatalities</u>
3 element truck cask	2,000 p/mi ²	0.4/6.3	Not Calculated	220/270
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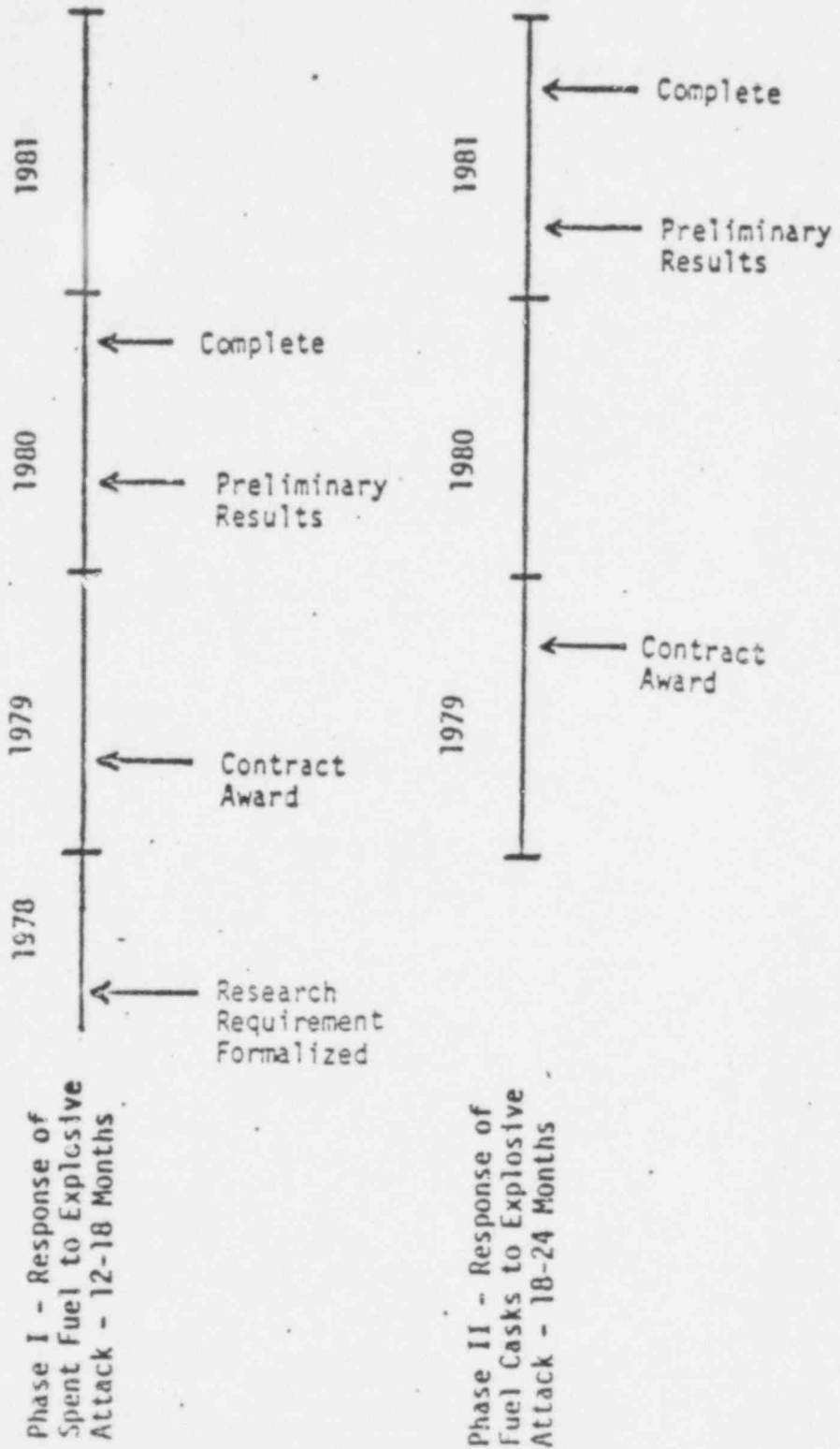
Notes: The first numbers represent average values. The second numbers are maximum values.

Assumed release: 100 percent noble gasses, 1.6 percent cesium, 1 percent solids as respirable material.

PROPOSED

RESEARCH PROGRAM

VULNERABILITY OF SPENT FUEL IN TRANSIT TO MALEVOLENT ATTACK



PROPOSED RESEARCH PROGRAM

PHASE I

- RESPONSE OF "HOT" FUEL, FRAGMENTATION AND PARTICLE SIZE DISTRIBUTION, TO SHAPED CHARGE ATTACK
- AIMED AT BOUNDING THE WORST CASE
- 12 - 16 MONTHS BEFORE RESULTS WILL BE KNOWN

PHASE II

- RESPONSE OF VARIOUS CASKS TO DIFFERENT MODES OF ATTACK
- 20 - 24 MONTHS BEFORE RESULTS ARE KNOWN

OBJECTIVES OF PROTECTION PROGRAM

- o PREVENT SABOTAGE OF A SHIPMENT IN OR NEAR A DENSELY POPULATED AREA
- o PROVIDE DETERRENCE, DETECTION AND RESPONSE TO ACTS OF SABOTAGE ALONG THE ROUTE

PROPOSED PROTECTION MEASURES

- o ROUTE PLANNING TO AVOID HEAVILY POPULATED AREAS
 - NRC APPROVAL REQUIRED
 - ADDITIONAL MEASURES IF SHIPMENT MUST TRANSIT POPULATED AREA
- o IMMOBILIZATION OF VEHICLE
- o COMMUNICATIONS AND LIAISON WITH LOCAL POLICE
- o AT LEAST TWO INDIVIDUALS WITH THE SHIPMENT, CONSTANT SURVEILLANCE OF VEHICLE
- o ESCORT TRAINING AND PROCEDURE FOR COPING WITH SAFEGUARDS EMERGENCIES

ROUTE OVERVIEW
VIRGINIA (NORTHERN HALF)

EMERGENCY PHONE NUMBER: Area Code (703)

LIXINGTON
SP 291-254R
(800) 542-5959
(After 5 pm)

STAUNTON
SP 885-2142
(800) 552-0962

HARRISONBURG
SP 434-8593
(800) 552-0962
(After 5 pm)

WOODSTOCK
S 459-4071
911

WINCHESTER
SP 869-2000
(800) 572-2260
(After 5 pm)



Comm: MT, CH 9/19

MT, CH 19

MT, CH 9
 CH 9/19

MT, CH 19, R

CH 19/9, R

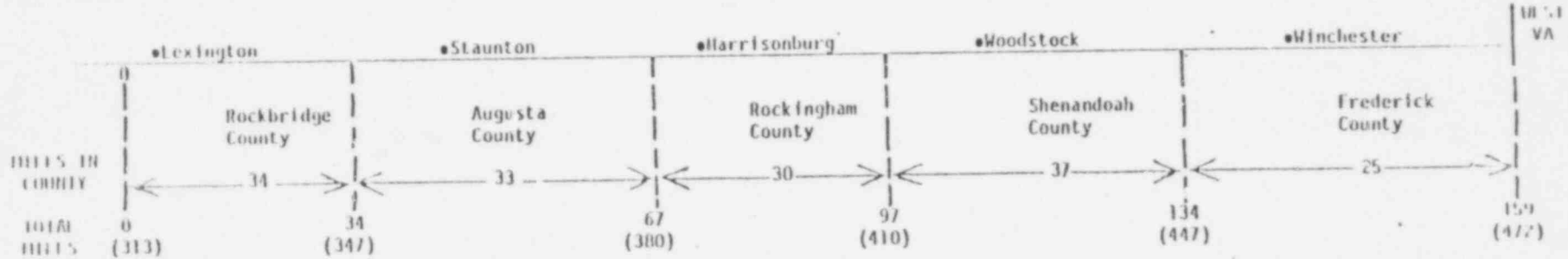
LEA: SP

SP

SP

S

SP



- KEY**
- LEA Response Center
 - HP/SP Highway Patrol/State Police
 - S Sheriff
 - CP City Police
 - CB Radio Monitored (Base)
 - CB Radio Monitored (Car)
 - CH/No. Channel Monitored
 - R React Group
 - MT Radiotelephone (Usable)

ROAD TRANSPORTATION ROUTE - OAK RIDGE, TN TO ODGENSBURG, NY

1. Tenn 62/162 East to Interstate 40.
2. Interstate 40 East to intersection of Interstate 81.
3. Interstate 81 Northeast to Watertown, New York.
4. NY State Route 37 North to Ogdensburg, NY (Johnstown Bridge).

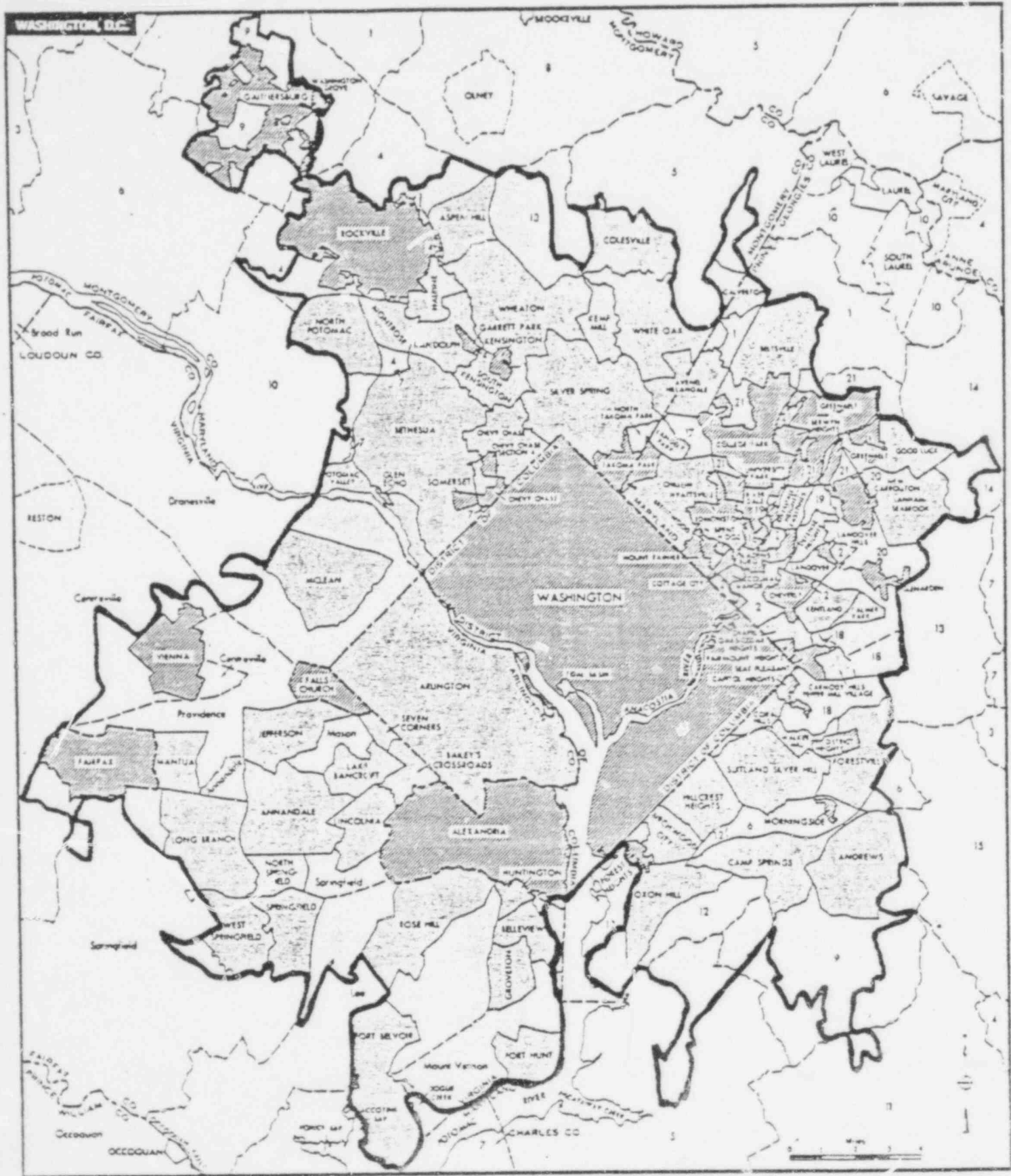
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3-3

APPENDIX 3-A

ADDITIONAL MEASURES FOR TRANSIT OF EMBARGOED AREAS

- o PROTECTION BY AN ARMED ESCORT (LOCAL POLICE OR PRIVATE GUARDS)
- o NONSTOP MOVEMENT THROUGH THE AREA
- o TRAVEL ON INTERSTATE OR MAJOR HIGHWAYS

BU 5



COMPONENTS OF URBANIZED AREA		BOUNDARY SYMBOLS	
	Incorporated Place		State
	Unincorporated Place		County
	Unincorporated Area		Major Road Division
			Incorporated Place
			Unincorporated Place Curves Urbanized Area

POOR ORIGINAL
 ALL SHADES AREAS ARE EMBARGOED

IMPLEMENTATION POSSIBILITIES

ALTERNATIVE I - NORMAL RULEMAKING

- o PERMITS WIDESCALE PUBLIC PARTICIPATION
- o EXPERIENCE INDICATES 6 - 9 MONTHS REQUIRED

ALTERNATIVE II - ORDER TO AMEND LICENSE (OR LICENSE CONDITIONS)

- o NO CLEAR-CUT AUTHORITY BETWEEN NMSS AND NRR
- o ADMINISTRATIVE BURDEN
- o NO PUBLIC PARTICIPATION

ALTERNATIVE III - RULEMAKING WITHOUT PRIOR PUBLIC COMMENT

- o EFFECTIVE 30 DAYS AFTER PUBLICATION
- o CONCURRENT PUBLIC COMMENT
- o MODIFICATION OF RULE BASED ON PUBLIC COMMENT

INDUSTRY OBJECTIONS

- o OBJECTION TO PUBLISHING RULE BEFORE PUBLIC COMMENT PERIOD
- o NO DEMONSTRATED NEED FOR SAFEGUARDS
- o GUIDANCE NEEDED TO IMPLEMENT RULE

IMPACTS

- o APPROXIMATELY 200 ANNUAL SHIPMENTS, BY LESS THAN 10 LICENSEES, OVER LESS THAN 10 ROUTES
- o DOUBLE PER MILE RATE - ANNUAL INCREASE OF ABOUT \$200,000
- o DOT DOES NOT OBJECT TO THIS ACTION. WOULD SIMPLIFY A PROPOSED RULE DOT HAS UNDER CONSIDERATION
- o DOE OFFICE OF SAFEGUARDS AND SECURITY SUPPORTS SAFEGUARDS FOR IRRADIATED FUEL SHIPMENTS
- o WILL REQUIRE ABOUT 1/2 MAN-YEAR OF STAFF EFFORT IN ADDITION TO IE RESOURCES

342
320

IMPLEMENTATION

- o RULE WOULD BECOME EFFECTIVE 30 DAYS AFTER PUBLICATION IN FEDERAL REGISTER
- o ADDITIONAL 60-DAY PERIOD FOR IMPLEMENTATION OF TRAINING AND EQUIPMENT MODIFICATION
- o CONCURRENT PUBLIC COMMENT PERIOD