SPENT FUEL TRANSPORTATION ROUTING PLAN

FOR TRANSHIPMENT FROM

SURRY NUCLEAR POWER STATION,

UNITS 1 AND 2

TO

NORTH ANNA NUCLEAR POWER STATION,

UNITS 1 AND 2

VIRGINIA ELECTRIC AND POWER COMPANY

JUNE, 1982

10CFR 2.790

PREFACE

Vepco proposes to ship spent nuclear fuel by truck from the Surry Nuclear Power Station, Units 1 and 2 to the North Anna Nuclear Power Station, Units 1 and 2. This Spent Fuel Transportation Routing Plan is compiled in accordance with 10 CFR 73.37 and NUREG-0561, Physical Protection of Shipments of Irradiated Reactor Fuel. This plan provides details of the routes proposed by Vepco for such shipments and other general information. The other information includes a cargo description, anticipated schedule and planned physical protection arrangements. Once approved by the Nuclear Regulatory Commission, this plan will become one element of Vepco's program for making safe spent fuel shipments.

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CHAPTER 1.0

CARGO DESCRIPTION

1.1 Quantity and Type of Fuel

The maximum number of spent fuel assemblies covered by this Spent Fuel Transportation Routing Plan shall be 500 fuel assemblies. Each spent fuel assembly to be shipped will have been discharged from the reactor at least two years. Each PWR assembly averages 1,570 lbs. with an approximate length of 162 inches.

1.2 Casks for Shipment of Spent Fuel

Shipments will be made using the TN-8L truck spent fuel cask which is described in NRC Certificate of Compliance No. 9015 or the NLI 1/2 truck cask which is described in the NRC Certificate of Compliance No. 9010. One (1) or up to three (3) Surry spent fuel assemblies will be transported at a time depending upon which cask is used.

1.3 Loaded Weight of Trailers

The loaded weight of the truck and trailer with the TN-8L is approximately 108,000 lbs. The loaded weight of the truck and trailer with the NLI 1/2 is approximately 80,000 lbs.

CHAPTER 2.0

ANTICIPATED SCHEDULE FOR SHIPMENT OF SURRY SPENT FUEL

2.1 Number of Shipments

The 500 fuel assemblies in Chapter 1.1 can be shipped in 167 shipments using the TN-8L three-element cask or 500 shipments using the NLI 1/2 single-element cask.

2.2 Approximate Duration of Each Shipment

Estimated elapsed highway time per shipment from Surry Units 1 and 2 to North Anna Units 1 and 2 is approximately 3½ to 4½ hours in duration depending on the route used and the truck speed.

2.3 Proposed Begin and End Dates

Shipments are tentatively scheduled to begin in December, 1983 and end by July, 1989.

CHAPTER 3.0

ROUTES

3.1 Origin and Destination

The spent fuel to be shipped originates from the Surry Units 1 and 2 spent fuel pool located in Surry County, Virginia, approximately ten miles northeast of Surry, Virginia.

The destination of the Surry spent fuel shipments shall be the North Anna Units 1 and 2 spent fuel pool located in Louisa County, Virginia, approximately five miles northeast of Mineral, Virginia.

3.2 Route Overviews

Route Overviews with mileage and elapsed time information for each route segment are in Tables 1, 2, 3, 4 & 5. Elapsed time information is based on 45 mph for interstate highways and 35 mph for all others.

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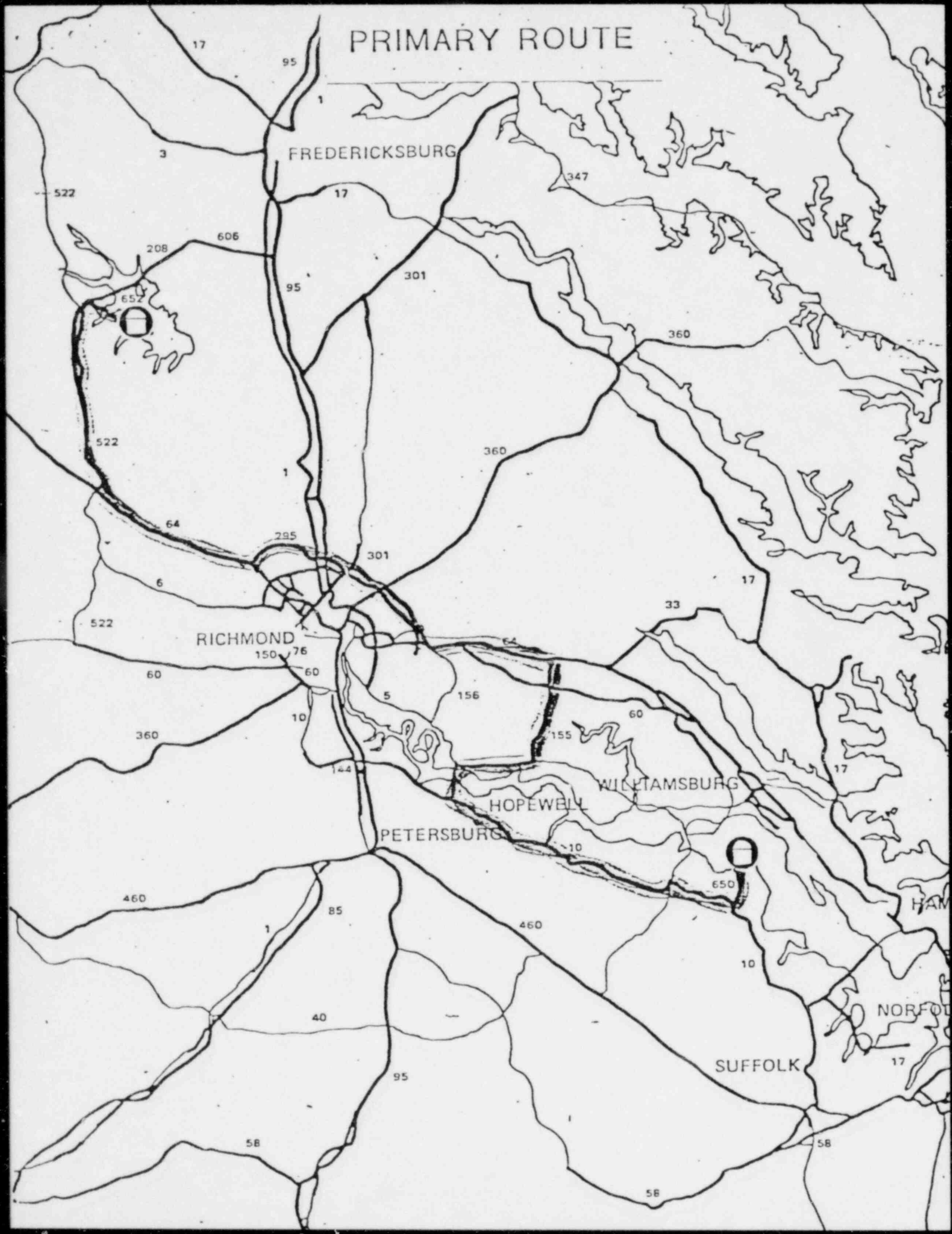
TABLE 1

PRIMARY ROUTE

Route No.	Mileage	Elapsed Time(min.)	Comments
650 South	5.9	7.8	Virginia Secondary Highway
10 West	34.5	59.1	Virginia Primary Highway
156 North	4.2	7.2	Virginia Primary Highway; Crosses Benjamin Harrison Bridge
5 East	9.3	15.9	Virginia Primary Highway
155 North	11.1	19.0	Virginia Primary Highway
Interstate 64 West	12.8	17.1	Rest Area
Interstate 295 West	26.0	34.7	
Interstate 64 West	20.0	26.7	Rest Area
522 North	27.0	46.3	U.S. Primary Highway
208 East	2.0	3.4	Virginia Primary Highway
652 South	4.0	6.9	Virginia Secondary Highway
700 East	1.0	2.0	Virginia Secondary Highway
North Anna Access Road	1.0	2.0	
Total	158.8 miles	248.1 mins. (4 hrs., 8.1 min.)	


PRIMARY ROUTE
FREDERICKSBURG
RICHMOND
PETERSBURG
HOPEWELL
WILLIAMSBURG
SUFFOLK
17
95
1
3
522
606
208
652
301
347
360
64
295
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33
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76
60
5
156
155
144
10
650
460
85
40
58

TABLE 2

ALTERNATE ROUTE A

Route No.	Mileage	Elapsed Time(min.)	Comments
650 South	5.9	7.8	Virginia Secondary Highway
10 West	34.5	59.1	Virginia Primary Highway
156 North	4.2	7.2	Virginia Primary Highway; Crosses Benjamin Harrison Bridge
5 East	9.3	15.9	Virginia Primary Highway
155 North	11.1	19.0	Virginia Primary Highway
Interstate 64 West	12.8	17.1	Rest Area
Interstate 295 West	17.0	22.7	
Interstate 95 North	34.0	45.3	Rest Area
606 West	6.0	10.3	Virginia Secondary Highway
208 West	17.0	29.1	Virginia Primary Highway
652 South	4.0	6.9	Virginia Secondary Highway
700 East	1.0	2.0	Virginia Secondary Highway
North Anna Access Road	1.0	2.0	
Totals	157.8 miles	244.4 mins. (4 hrs., 4.4 min.)	

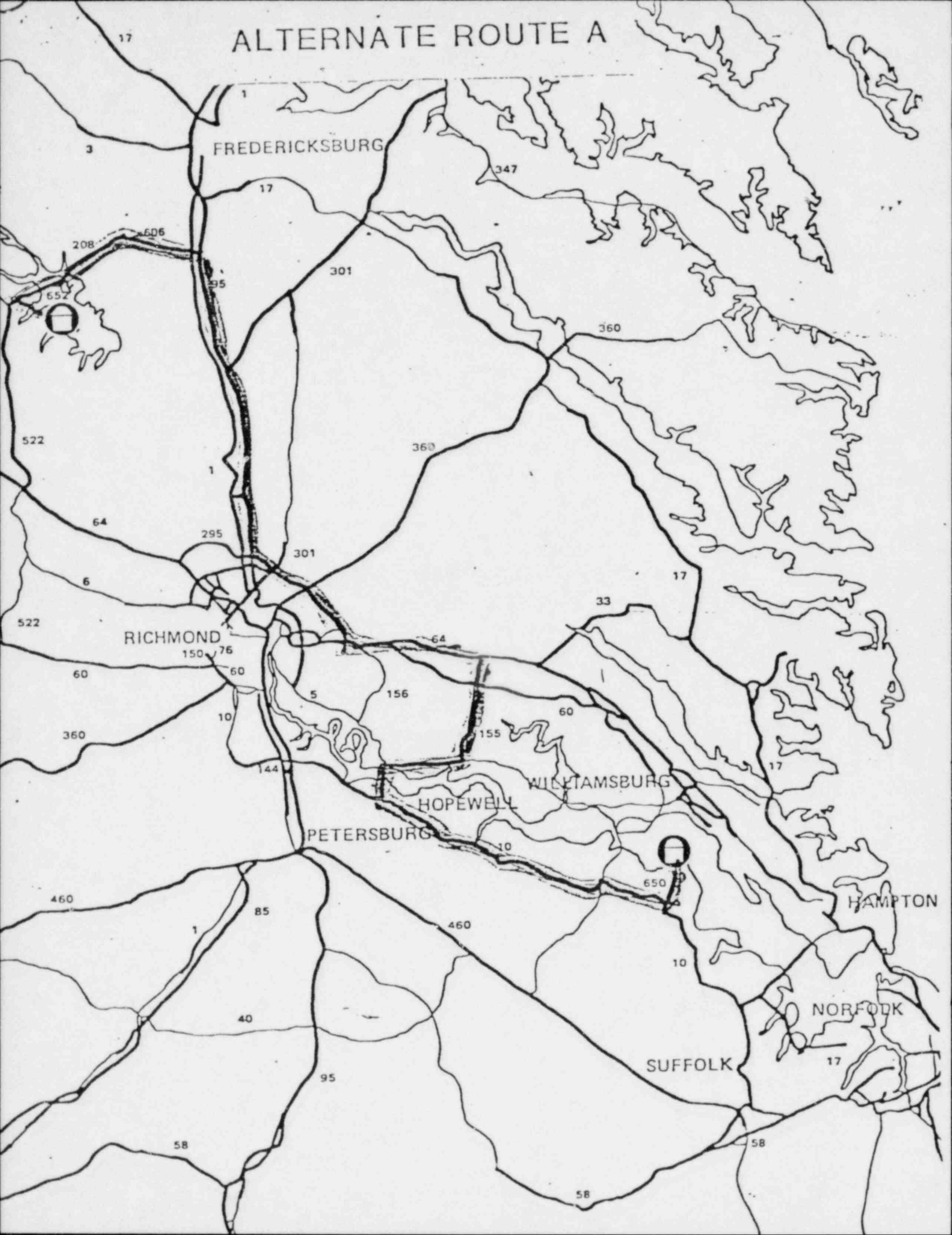
ALTERNATE ROUTE A
FREDERICKSBURG
RICHMOND
HOPEWELL
PETERSBURG
WILLIAMSBURG
HAMPTON
NORFOLK
SUFFOLK
17
1
3
347
208
606
95
301
652
360
522
64
295
6
33
150
76
60
5
156
155
10
144
650
460
85
40
58

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TABLE 3

ALTERNATE ROUTE B

Route No.	Mileage	Elapsed Time(mins.)	Comments
650 South	5.90	7.8	Virginia Secondary Highway
10 West	45.0	77.1	Virginia Primary Highway
Interstate 95 North	61.0	81.3	Toll Road (two toll booths); Passes through the heavily populated Richmond area
606 West	6.0	10.3	Virginia Secondary Highway
208 West	17.0	29.1	Virginia Primary Highway
652 South	4.0	6.9	Virginia Secondary Highway
700 East	1.0	2.0	Virginia Secondary Highway
North Anna Access Road	1.0	2.0	
Total	140.9 miles	216.5 mins. (3 hrs., 36.5 min.)	

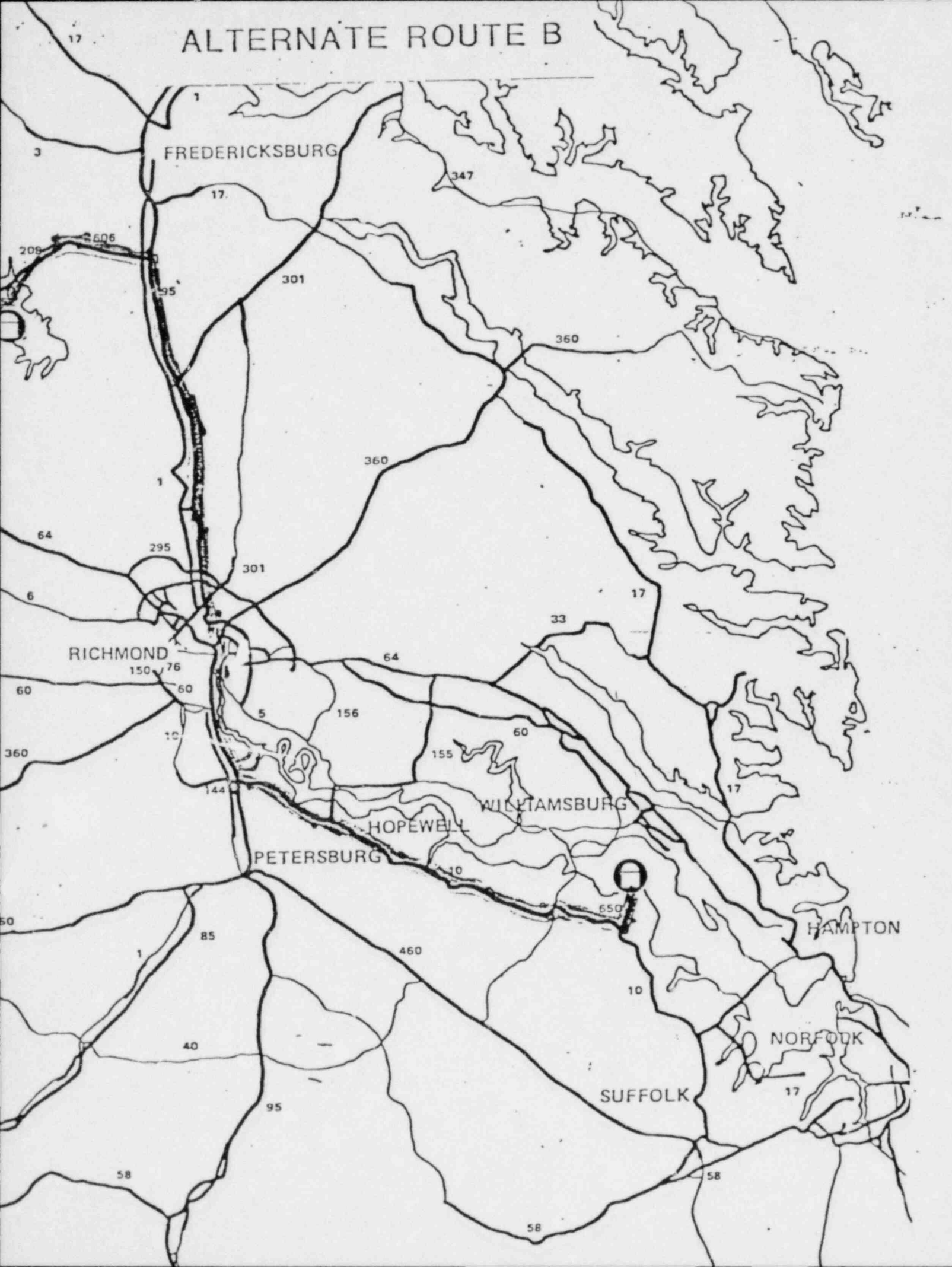

ALTERNATE ROUTE B
FREDERICKSBURG
RICHMOND
PETERSBURG
HOPEWELL
WILLIAMSBURG
HAMPTON
NORFOLK
SUFFOLK
17
1
3
347
606
209
95
301
360
64
295
6
33
150
76
60
5
156
155
144
10
650
85
460
40
58

TABLE 4

ALTERNATE ROUTE C

Route No.	Mileage	Elapsed Time(mins.)	Comments
650 South	5.9	7.8	Virginia Secondary Highway
10 West	45.0	77.1	Virginia Primary Highway
Interstate 95 North	17.0	22.7	Toll Road (two toll booths); Passes through the heavily populated Richmond area.
Interstate 64 West	31.0	41.3	Rest Area
522 North	27.0	46.3	U. S. Primary Highway
208 East	2.0	3.4	Virginia Primary Highway
652 South	4.0	6.9	Virginia Secondary Highway
700 East	1.0	2.0	Virginia Secondary Highway
North Anna Access Road	1.0	2.0	
Totals	133.9 miles	209.5 mins. (3 hrs., 29.5 min.)	

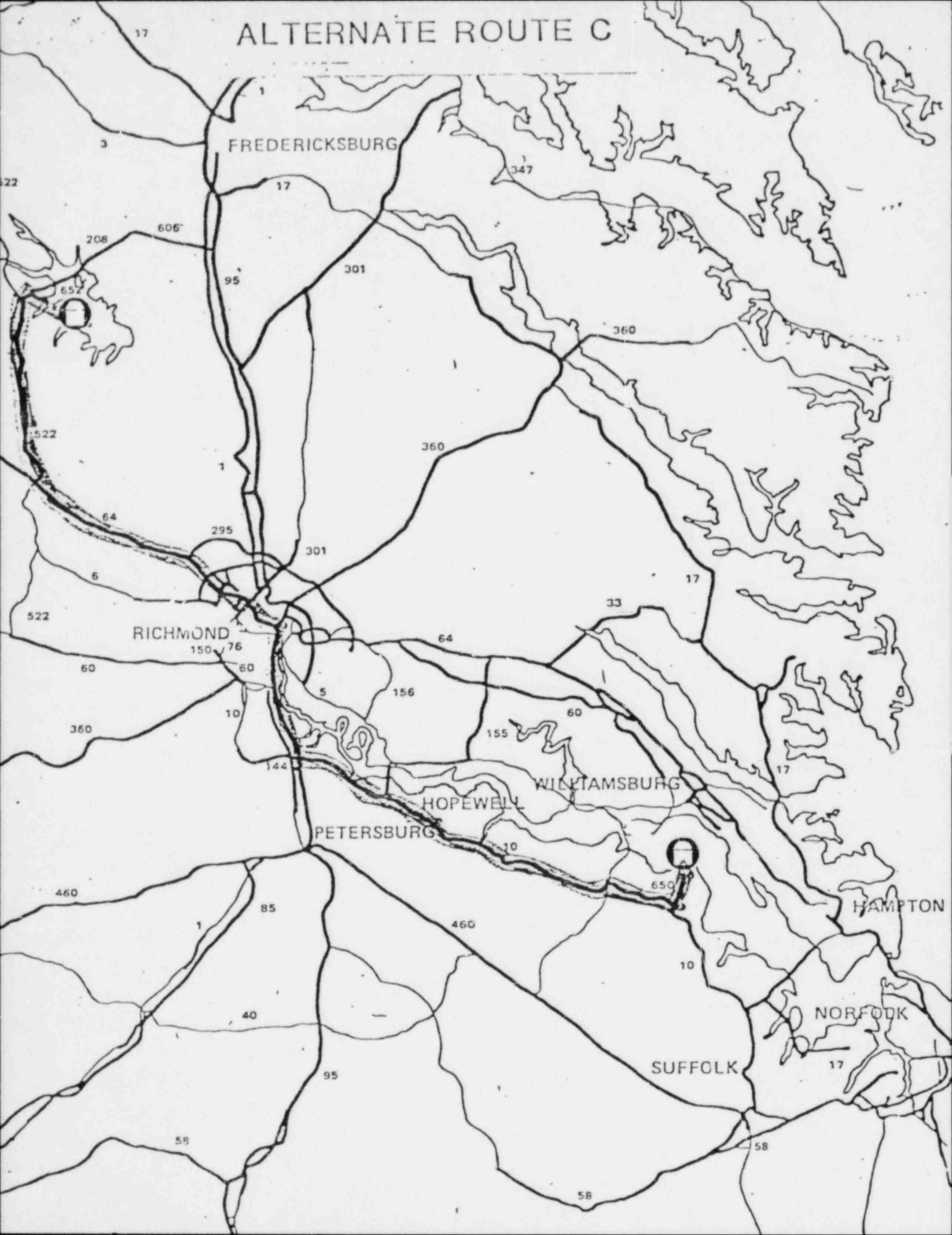
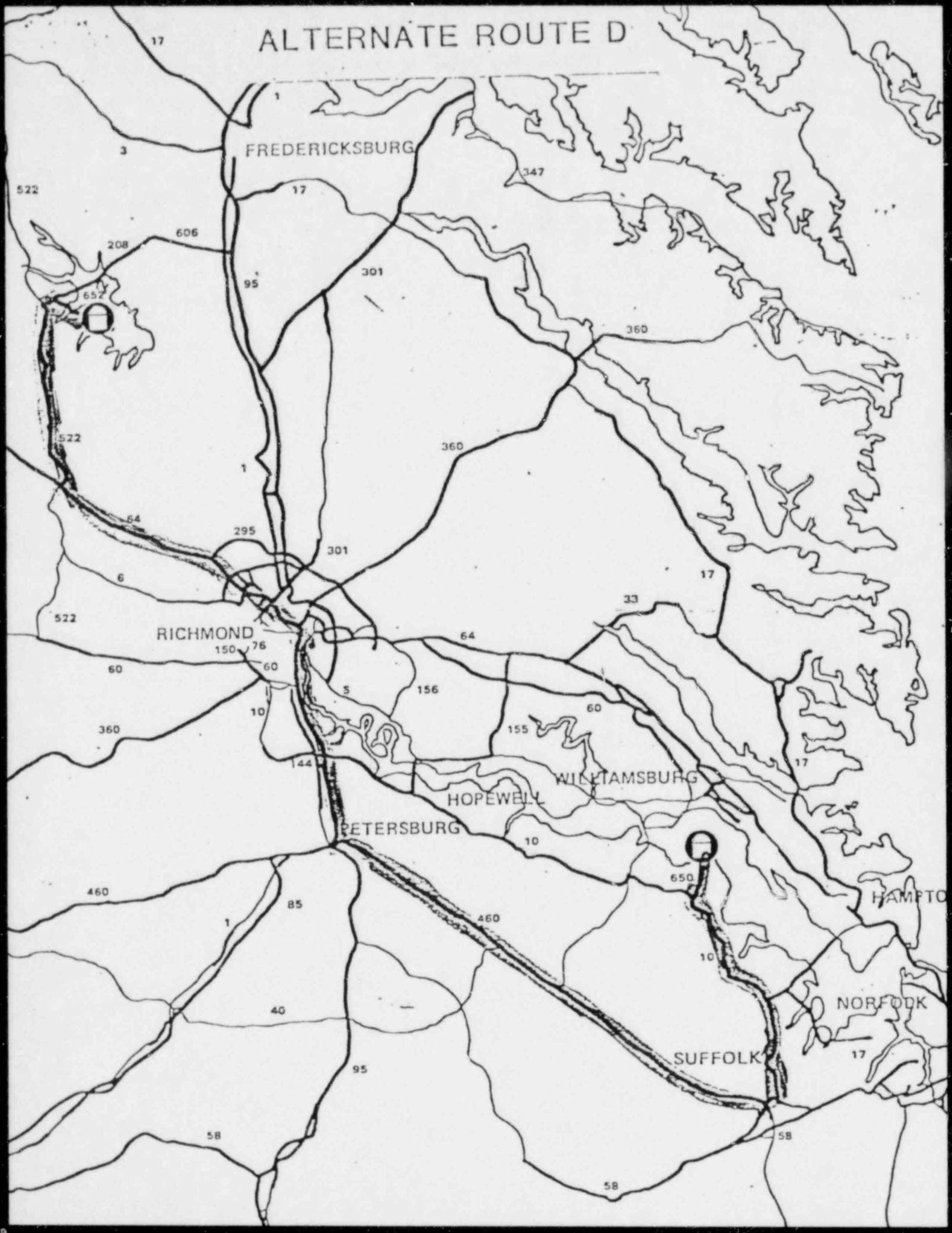

ALTERNATE ROUTE C
FREDERICKSBURG
RICHMOND
PETERSBURG
HOPEWELL
WILLIAMSBURG
HAMPTON
NORFOLK
SUFFOLK
17
1
3
522
606
208
95
301
360
64
295
6
33
150
76
60
5
156
10
155
144
460
85
40
58
347
652
650

TABLE 5

ALTERNATE ROUTE D

Route No.	Mileage	Elapsed Time (mins.)	Comments
650 South	5.9	7.8	Virginia Secondary Highway
10 East	25.0	42.9	Virginia Primary Highway
58, 460 West	2.0	2.7	U. S. Primary Highway
460 West	50.0	66.7	U.S. Primary Highway; Passes through the heavily populated Petersburg-Colonial Heights area.
Interstate 95 North	28.0	37.3	Toll Road (three toll booths); Passes through the heavily populated areas of Richmond and Petersburg-Colonial Heights.
Interstate 64 West	31.0	41.3	Rest Area
522 North	27.0	46.3	U.S. Primary Highway
208 East	2.0	3.4	Virginia Primary Highway
652 South	4.0	6.9	Virginia Secondary Highway
700 East	1.0	2.0	Virginia Secondary Highway
North Anna Access Road	1.0	2.0	
Totals	176.9 miles	259.3 mins. (4 hrs., 19.3 min.)	


ALTERNATE ROUTE D
FREDERICKSBURG
RICHMOND
PETERSBURG
HOPEWELL
WILLIAMSBURG
SUFFOLK
NORFOLK
HAMPTO
17
1
3
522
606
208
95
301
652
360
64
295
6
33
150
76
60
5
156
155
10
44
460
85
40
58
347

CHAPTER 4.0

ARRANGEMENTS WITH LAW ENFORCEMENT AGENCIES (LEA)

Initial arrangements will be made by the Nuclear Regulatory Commission (NRC) with law enforcement a ncies (LEA) along the shipment routes for their response to an emergency or a (all for assistance.

Specific information including LEA identification, jurisdiction, response center, LEA telephone numbers, monitored CB radic channels, and any communication dead spots will be included in Chapter 3.0, Routes. This information shall be provided to carriers making shipments. In addition, drivers and escorts shall be instructed in and provided with procedures for use of available communications and for contacting LEA's.

In order to provide current information, a spot check of LEA telephone numbers shall be conducted periodically. If it becomes necessary to detour from the approved route out of the listed LEA jurisdiction, an immediate determination of new LEA points of contact along the route shall be made in accordance with the appropriate procedure developed under Chapter 12.0, Procedures for Coping with Threats and Safeguards Emergencies.

CHAPTER 5.0

ADVANCE NOTIFICATION PRIOR TO SHIPMENT

5.1 NRC-OIE Region II

Pursuant to 10 CFR 73.72, the Director of the Nuclear Regulatory Commission Office of Inspection and Enforcement (NRC-OIE), Region II and the Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards (NRC/ONMSS), shall be notified of spent fuel shipments at least seven days in advance of the shipping date. For a series of shipments, a shipment itinerary may be submitted. NRC/OIE and NRC/ONMSS shall be notified of deviations from the itinerary at least seven days prior to the shipment date, if possible.

The following information shall be furnished in the advance notice: shipper, receiver, carrier(s), estimated date and time of departure and arrival, transfer point(s) and mode(s) of shipment.

NRC/OIE and NRC/ONMSS shall also be notified by telephone seven days in advance of the shipping date that a written notice has been sent and shall be notified by telephone of any changes to the shipment itinerary prior to the shipment date.

5.2 Commonwealth of Virginia

Pursuant to 10 CFR 73.37 (f) and Title 44, Chapter 3.3, Section 44-146.30, Code of Virginia, the Coordinator of the Office of Emergency and Energy Services shall be notified of spent fuel shipments at least seven days in advance of the shipping date. For a series of shipments, a shipment itinerary may be submitted.

The following information shall be furnished in the advance notice: shipper, receiver, carrier(s), a description of the shipment, routes to be used, estimated date and time of departure and arrival and a statement that schedule information must be protected in accordance with 10 CFR 73.21.

CHAPTER 6.0

COMMUNICATIONS

Escorts shall utilize the communications network described in Sections 6.1, 6.2 and 6.3 to contact the Communications Control Center at least every two (2) hours during the shipment. All communications equipment shall be tested before each shipment begins in accordance with the appropriate written procedure.

6.1 Communications Equipment for Transport Vehicle

The spent fuel transport vehicle shall be provided with a two-way radio telephone and a Citizens Band (CB) radio. Antennaes for both the radio telephone (RT) and CB shall be installed on the vehicle. The availability of CB monitoring and the designation of channels monitored by the LEA shall be provided in the route overview, Chapter 3.0, Route. Also, any segments of a transportation route where radio telephone communications may be marginal or ineffective shall be shown in the route overview.

6.2 Communications Equipment for Escorts Vehicles

Each escort vehicle shall be provided a CB radio to enable communications between an escort vehicle and the transport vehicle.

6.3 Communications Control Center

The Vepco General Office building located at One James River Plaza, Richmond, Virginia shall be the Communications Control Center (CCC). The CCC shall be manned continuously while a shipment is enroute and shall be equipped to receive communications from the transport vehicle by RT and telephone. The CCC operator shall maintain a log of the status reports received from the transport vehicle. The CCC operator shall have a copy of the route overview for the shipment. Also, the CCC operator shall have communications capability with designated Vepco management individual(s), who shall be available during

shipment. The CCC operator shall notify this designated individual(s) should a safeguards emergency arise. In turn, the designated management individual(s) shall notify the appropriate agencies. The CCC operators shall be permitted to carry out other work assignments while the shipment is enroute, provided the work does not interfere with prompt response to an incoming message.

CHAPTER 7.0

IMMOBILIZATION OF TRANSPORT VEHICLE

A general description of the immobilization device shall be provided as details become available. The immobilization device shall meet the criteria outlined in NUREG-0561.

Details on the use of the immobilization device shall be addressed in written procedures.

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CHAPTER 8.0

REQUIREMENTS FOR ESCORTS AND DRIVERS

8.1 Shipments Outside Heavily Populated Areas

Shipments outside heavily populated areas shall require the transport vehicle to be occupied by at least one driver and one other individual who shall serve as an escort or one driver and a separate vehicle occupied by at least two escorts.

8.2 Shipments Through Heavily Populated Areas

Shipments through heavily populated areas shall require the transport vehicle to be occupied by at least two individuals, one of whom shall serve as an escort, and to be led by a separate vehicle occupied by at least one armed escort and to be trailed by a third vehicle occupied by at least one armed escort. Escorts and drivers, as required in Sections 8.1 and 8.2, shall be trained in accordance with Chapter 9, Training.

8.3 Identified Heavily Populated Areas

Shipments through the urban areas of Richmond, Virginia and Petersburg-Colonial Heights, Virginia shall be made in accordance with Section 8.2 as required for shipments through heavily populated areas. Alternate Routes B, C and D pass through Richmond, Virginia, and Alternate Route D also passes through Petersburg-Colonial Heights, Virginia.

CHAPTER 9.0

TRAINING

9.1 Unarmed Escorts

Unarmed escorts shall be trained utilizing a plan written in accordance with Appendix D of 10 CFR Part 73. The course length shall depend on the background and experience of the individuals selected to be the escorts. Training shall include a method of evaluating the results of the instruction or level of knowledge of the study material.

9.2 Armed Escorts

Armed escorts, in addition to the requirements of Section 9.1, shall be trained in accordance with a weapons training and qualification program equivalent to Appendix B of 10 CFR Part 73.

9.3 Drivers

Drivers shall know how and under what circumstances the vehicle should be immobilized, the role of the escorts, and use of communications equipment. In addition, drivers shall be briefed on routing requirements, detours, and other security procedures. Drivers shall also be provided updated information on route conditions including special precautions for specific route segments if necessary.

9.4 Regulations and Transportation Emergency Response Plan

Drivers and escorts shall be briefed on applicable regulations governing spent fuel shipments in addition to the Vepco Transportation Emergency Response Plan.

CHAPTER 10.0

ESCORT EQUIPMENT

The escort shall be provided the necessary equipment to effectively discharge his assigned duties.

CHAPTER 11.0

SHIPMENT LOG

The escort in the transport vehicle and the CCC operator shall maintain a written log of the shipment. At the conclusion of a trip, these logs will be transmitted to the Manager of Nuclear Fuel, Fuel Resources Department. Trip logs shall be maintained for at least one (1) year and made available for review by authorized NRC personnel.

Specific information required in the shipment log shall be addressed in the appropriate procedure.

CHAPTER 12.0

PROCEDURES FOR COPING WITH THREATS AND SAFEGUARDS EMERGENCIES

Procedures shall be written to address the following areas:

A. Security Enroute
B. Communications
C. Radiological Considerations
D. Response to Contingencies
E. Response to Threats

Particular emphasis shall be given to the following specific areas:

A. Calling for Assistance
B. Use of Immobilization Features
C. Reporting Accidents
D. Procedures at Stops or Layovers.

Instructions, as required by 10 CFR 73.37 (b) (3), shall be included in the above procedures to ensure that each driver and escort knows what actions are required upon the detection of abnormal presence of unauthorized persons, vehicles in the vicinity of the shipment, or upon detection of a deliberately induced situation that has the potential for damaging the shipment. These instructions shall address in particular;

(i) determination of whether or not a threat exists;

(ii) assessment of the extent of the threat, if any;

(iii) informing law enforcement agencies of the threat and requesting assistance; and

(iv) implementation of procedures developed for coping with circumstances that threaten deliberate damage to a spent fuel shipment and with other safeguards emergencies.

In addition, both escorts and licensee management personnel shall be familiar with the requirements for reporting safeguards events in accordance with 10 CFR 73.71, and licensee management shall report to the NRC/OIE Region II office any event(s) identified by written procedures as "reportable".

Enclosure (2)

DISTRIBUTION:

DOCKET/50-280	SGMT
Case File/50-280	NMSS
LLBush	RFonner
Region II	LCRouse
CRHillman	DWeiss
PDR	SGagner

July 28, 1982

SGMT:CRH
50-280

Virginia Electric and Power Company
ATTN.: Mr. R. H. Leasburg, Vice President
Nuclear Operations
Richmond, Virginia 23261

Gentlemen:

This is in regard to your request for approval of routes to be used for transport of spent reactor fuel as contained in your letter of July 13, 1982.

The routes requested in your letter are judged to meet the regulatory requirements in accordance with 10 CFR 73.37 for shipments of spent fuel and are approved.

Please note that assuring highway safety is the responsibility of the licensee and carrier and our approval is not intended to provide relief in this regard. Furthermore, the approval does not guarantee that there will be no local or state legislation applicable to the route that restricts or prohibits the movement of radioactive material.

During seasonal periods when inclement weather with accompanying hazardous road conditions can occur with short notice, the appropriate state police should be contacted with regard to road conditions before a shipment commences.

The initial arrangements with law enforcement agencies along the routes, as required by 10 CFR 73.37(a)(2), have been completed by the NRC staff. Data relating to these arrangements and route strip charts will be furnished at a later date due to the long lead time before the first shipment. The data will be updated prior to the first shipment to assure currency.

This information is to be incorporated into your shipment plan and provided to your carrier along with instructions regarding its use.

Please note that the notification requirements of 10 CFR 73.37(f) and 73.72 for each shipment still apply.

Should you require additional information or have questions concerning this matter, please contact Charles Hillman of my staff (301-427-4186).

Sincerely,

/s/

Theodore S. Sherr, Chief
Material Transfer SG Licensing Banch
Division of Safeguards, NMSS

8208250483
05000280500R PDR/LPDR

OFFICE	SGMT	SGMT	SGMT				
SURNAME	CRHillman/p	CKNielsen	TSSherr				
DATE	7/28/82	7/28/82	7/28/82				

Enclosure 1

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

R. H. LEASBURG
VICE PRESIDENT
NUCLEAR OPERATIONS

July 13, 1982

Mr. Robert F. Bernett
Director, Division of Safeguards
Office of Nuclear Material Safety and
Safeguards
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No.: 423
FRD/BHW: bjc

Docket Nos.: 50-280
50-281
50-338
50-339
License Nos.: DPR-32
DPR-37
NPF-4
NPF-7

Dear Mr. Bernett:

SPENT FUEL SHIPPING ROUTE APPROVAL

Enclosed for your approval is the Virginia Electric and Power Company (Vepco) Spent Fuel Transportation Routing Plan. This Plan, for spent fuel shipments between Vepco's Surry Power Station, Units 1 and 2 and North Anna Power Station, Units 1 and 2, is submitted for approval in accordance with 10 CFR 73.37.

If you have any questions, please contact Mr. B. H. Wakeman at (804) 771-4141.

Very truly yours,

R. H. Leasburg

Enclosure

cc: Mr. R. A. Clark, Chief, Operating Reactors Branch No. 3, Division of Licensing
Mr. S. A. Varga, Chief, Operating Reactors Branch No. 1, Division of Licensing
Mr. J. P. O'Reilly, Regional Administrator, OIE Region II
Mr. C. R. Price, Virginia State Board of Health