NOTE: The following information is for State use only. It will be transmitted to the State EOC using the "ring-down" telephone circuit.

Item 11 - Recommended Offsite Protective Actions Are:

☐ None

☐ Shelter-in-Place: ____Mile radius and ____Miles downwind in following sectors

_____ , and all remaining Protective Action Zones listen to an EAS station

☐ Evacuate: ___Mile radius and ___Miles downwind in following sectors:

_____, and all remaining Protective Action Zones listen to an EAS station

☐ Beyond 10 mile EPZ

☐ Evacuate Area: ____ Centerline in degrees ____ Distance in Miles ____ Width in Feet

☐ Shelter in Place: ____ Centerline in degrees ____ Distance in Miles ____ Width in Feet

☐ Potassium Iodide: Recommend Implementation of Potassium Iodide (KI) strategies for general public. The projected dose at the site boundary is equal to or greater than 5 Rem Thyroid Committed Dose Equivalent.

Item 12 - Update Schedule: ☐ 60 minute; ☐ Other: _____

This is (North Anna/Surry Power Station) ☐ Control Room ☐ TSC ☐ LEOF ☐ CEOF out at _____ (24 Hr. Time) on ___/___/____ (Date)

Message Received By: _____; Forwarded To: _____

DEM Form No. STATEROE
Effective: May 17, 2007

Tab B to Appendix 4

VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

REPORT OF PROTECTIVE ACTION DECISION

DELIVER BY [ ] INSTAPHONE [ ] TELEPHONE [ ] VCIN [ ] FAX [ ] OTHER_____

READ BOLD TYPE ● READ BOLD TYPE ● READ BOLD TYPE:

"THIS IS [ ] VIRGINIA EMERGENCY OPERATIONS CENTER [ ] OTHER LOCATION:_____
THIS IS A REPORT OF PROTECTIVE ACTIONS. "STAND BY FOR A ROLL CALL FOLLOWED BY AN EMERGENCY MESSAGE. USE THE YELLOW 'REPORT OF PROTECTIVE ACTION DECISION' TO COPY THIS MESSAGE." [ ] *CHECK THIS BOX WHEN VERIFIED BY ROLL CALL*

NAPS: [ ] CAROLINE CO. [ ] HANOVER CO. [ ] LOUISA CO. [ ] ORANGE CO. [ ] SPOTSYLVANIA CO.
SPS: [ ] ISLE OF WIGHT [ ] JAMES CITY CO. [ ] NEWPORT NEWS CITY [ ] SURRY CO. [ ] WILLIAMSBURG CITY [ ] YORK CO
[ ] CHARLES CITY CO. [ ] HAMPTON CITY [ ] NEW KENT COUNTY [ ] POQUOSON CITY

"THE EMERGENCY MESSAGE IS AS FOLLOWS:

ITEM 1. **"THE GOVERNOR DETERMINED AT _____ ON ____/_____/_____ THAT PROTECTIVE ACTIONS OR**
(24 hr. time) (date)
ADDITIONAL PROTECTIVE MEASURES ARE NECESSARY FOR CERTAIN AREAS AROUND:
[ ] NORTH ANNA POWER STATION/ [ ] SURRY POWER STATION

ITEM 2. **A STATE OF EMERGENCY WAS DECLARED BY THE GOVERNOR AT _____ON ____/_____/_____.**
(24 hr. time) (date)

ITEM 3. **THE SIREN SYSTEM AND EAS WILL BE ACTIVATED IMMEDIATELY FOLLOWING THIS REPORT.**
[ ] YES [ ] NO

ITEM 4. **IMPLEMENT PRIMARY ROUTE ALERTING IMMEDIATELY!**
[ ] YES [ ] NO

ITEM 5. **EVACUATE** [ ] YES [ ] NO. *GO TO ITEM 9.*

ITEM 6. **LOCAL GOVERNMENTS AFFECTED BY EVACUATION:**_____
_____

ITEM 7. **PROTECTIVE ACTION ZONES TO BE EVACUATED** (identify by numbered zones)_____
_____

ITEM 8. **SHELTER** (IN PLACE) [ ] YES [ ] NO

ITEM 9. **LOCAL GOVERNMENTS AFFECTED BY SHELTERING:**_____
_____

ITEM 10. **PROTECTIVE ACTION ZONES TO BE SHELTERED:**_____
_____

ITEMS WILL BE REPEATED IF NECESSARY FOLLOWING SIREN SYSTEM ACTIVATION.

"THIS IS [ ] VIRGINIA EMERGENCY OPERATIONS CENTER [ ] OTHER LOCATION:_____

OUT AT _____
(date and 24 hr. time)

PLEASE ENSURE THAT THIS MESSAGE IS PASSED TO YOUR COORDINATOR OF EMERGENCY SERVICES AS SOON AS RECEIVED.

MESSAGE RECEIVED BY:_____TITLE/POSITION:_____TIME:_____
(24 hr. time)

TIME MESSAGE PASSED TO LOCAL COORDINATOR (OR REPRESENTATIVE)_____

MESSAGE AUTHORIZED BY:_____AT_____ON ____/_____/_____
(24 hr. time) (date)

JUNE 2005

Tab C to Appendix 4

Message No.:_____ *Report of Radiological Conditions-*
For Station Use Only) *For Use By Commonwealth of Virginia*

Message:
This is □ North Anna Power Station □ Control Room, □ TSC, □ LEOF, □ CEOF □ Surry Power Station
I have a Report of Radiological Conditions. 1.

□ Waterborne;
□ Surface Spill.

1.a. Physical form of release is: □ Gas; □ Liquid; □ Solid; □ Unknown
1.b. Chemical form of release is: □ Inert Noble Gas □ Radioiodines; □ Unknown.
□ Specifically:_____

2. Release: □ began at_____(24-hr. time);
□ is estimated to begin at_____(24-hr. time).

3. Release duration: □ was_____hours;
□ is estimated to be_____hours.

4. Time between reactor shutdown and beginning of release □ was_____hours;
□ not applicable

5. Wind direction is from_____; wind speed is_____ mph; Stability Class is_____;
Time of meteorological conditions:_____(24-hr. time)

6. Temperature is _____degrees F:
Precipitation form: □ None; □ Rain; □ Sleet; □ Snow; □ Other_____

7. The gross release rate is: □_____Ci/sec Noble Gas;
□_____Ci/sec Iodines;
□_____Ci/sec Particulates;
□ Unknown_____

8. Actual Deep Dose Equivalent (DDE) field measurement at Site Boundary is:
□ _____ R/hr; □ Unknown

9. Projections based on: □ sample taken at _____(24-hr. time) are: □ Unknown
□ monitor reading at _____(24-hr. time) □ As follows:

		Site Boundary	2 Miles	5 Miles	10 Miles
PAG Dose	TEDE 4-day, Rem	Rem	Rem	Rem	Rem
	Thy CDE, Rem	Rem	Rem	Rem	Rem
Dose Rate	TEDE, Rem/hr	Rem/hr	Rem/hr	Rem/hr	Rem/hr
	Thy CDE, Rem/hr	Rem/hr	Rem/hr	Rem/hr	Rem/hr
	DDE, Rem/hr	Rem/hr	Rem/hr	Rem/hr	Rem/hr
Ratio	TEDE/DDE				

10. Remarks

This is (name)_____/Emergency Communicator.
This is □ North Anna Power Station □ Control Room, □ TSC, □ LEOF, □ CEOF out at _____on ___/___/___
□ Surry Power Station (24-hr. time) (date)

Message received by:_____; Forwarded to:_____.

Tab D to Appendix 4

VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

REPORT OF KI DECISION AND ADMINISTRATION

TRANSMISSION VIA VEOC:
___VCIN ___FAX ___RADNET ___RACES ___OTHER:_____
(IDENTIFY)

MEMORANDUM

TO: LOCAL HEALTH DIRECTOR

THROUGH: LOCAL GOVERNMENT EMERGENCY SERVICES COORDINATOR

FROM: _____
(NAME OF HEALTH COMMISSIONER OR PERSON REPRESENTING THIS OFFICIAL)
OFFICE OF THE COMMISSIONER OF HEALTH
VIRGINIA DEPARTMENT OF HEALTH

SUBJECT: AUTHORIZATION TO DIRECT THE ADMINISTRATION AND IMPLEMENTATION OF POTASSIUM IODIDE-THYROID GLAND PROTECTIVE MEASURES FOR THE GENERAL PUBLIC AND EMERGENCY WORKERS

TIME: _____

DATE: _____

BASED ON PROJECTED/ACTUAL RELEASES OF RADIATION TO THE ENVIRONMENT AS A RESULT OF THE

RADIOLOGICAL EMERGENCY AT THE _____
(NAME OF FACILITY OR LOCATION)

I, THE HEALTH COMMISSIONER FOR THE COMMONWEALTH OF VIRGINIA, HEREBY AUTHORIZE LOCAL HEALTH DIRECTOR(S) IN THE AFFECTED LOCAL AREAS IDENTIFIED BELOW TO RECOMMEND THAT POTASSIUM IODIDE (KI) BE TAKEN BY THE GENERAL PUBLIC AND EMERGENCY WORKERS RESIDING OR WORKING WITHIN THE 10-MILE EMERGENCY PLANNING ZONE OF

_____.
(NAME OF FACILITY OR LOCATION)

THIS RECOMENDATION INCLUDES THE GENERAL PUBLIC AND EMERGENCY WORKERS IN THE FOLLOWING LOCAL GOVERNMENTS:

_____

_____

_____

THIS ORDER APPLIES TO FIELD TEAM PERSONNEL AND EMERGENCY WORKERS IN EOCs AND IN OTHER FACILITIES LOCATED WITHIN THE 10-MILE EMERGENCY PLANNING ZONE OF _____.
(NAME OF FACILITY OR LOCATION)

THE GENERAL PUBLIC SHOULD TAKE THE KI DOSEAGE IN ACCORDANCE WITH THE STATE AND LOCAL RADIOLOGICAL EMERGENCY RESPONSE PLANS FOR KI ADMINISTRATION AND AS DIRECTED BY HEALTH DEPARTMENT PERSONNEL. WHEN USED EFFECTIVELY, KI CAN BLOCK THE UPTAKE OF RADIOIODINES BY THE THYROID GLAND.

EMERGENCY WORKERS SHOULD TAKE ONE KI TABLET DAILY NOT TO EXCEED ONE TABLET PER DAY UP TO TEN DAYS. WHEN USED EFFECTIVELY, KI CAN BLOCK THE UPTAKE OF RADIOIODINES BY THE THYROID GLAND.

THE COMMISSIONER OF HEALTH WILL MODIFY OR TERMINATE THIS ORDER BASED ON THE SEVERITY OR MITIGATION OF THIS RADIATION ACCIDENT.

Effective 6/1/04

Tab E to Appendix 4

Notification Report Form
North Anna Hydroelectric Dam Project

[ ] Actual Event [ ] Drill / Exercise Message

Message:
"This is the North Anna Power Station Control Room. Standby for an emergency message about the North Anna Dam. Please use the Notification Report Form North Anna Hydroelectric Dam Project to record the information to be transmitted. Please repeat your location as it is called."

[ ] Caroline County [ ] Hanover County [ ] Spotsylvania County
[ ] Louisa County [ ] Orange County [ ] King William County (*contacted via land-line telephone*)
[ ] Virginia EOC

Item 1: Name of Caller:_____
Title:_____

Item 2: The Emergency Classification is:
[ ] Class 1 Emergency – Failure is Imminent or has Occurred
[ ] Class 2 Emergency – Potentially Hazardous Situation is Developing
[ ] Emergency Terminated

Item 3: The emergency was declared at_____(24 hr. time) on ____/____/____ (Date)

Item 4: Condition of Dam:
[ ] Stable
[ ] Worsening
[ ] Failed

Item 5: Lake level is:_____feet and [ ] increasing, [ ] decreasing, [ ] stable

Item 6: Description of event:_____
_____
_____

Item 7: Emergency Response Actions Underway at Dam:
[ ] None
[ ] Station Emergency Personnel Called In_____
[ ] Requesting State Assistance_____
[ ] Requesting Local Assistance_____
[ ] Other _____

Item 8: Downstream Flood Warning Notifications:
[ ] have been made
[ ] will be made

Item 9: Telephone No. where additional information can be obtained:(__)_____

"Please acknowledge receipt of this message by repeating your location as it is called."

[ ] Caroline County [ ] Hanover County [ ] Spotsylvania County
[ ] Louisa County [ ] Orange County [ ] King William County (*contacted via land-line telephone*)
[ ] Virginia EOC
This is the North Anna Power Station Control Room out at_____(24 hr. time) on ____/____/____ (Date)

Message Received By:_____Forwarded To:_____

4/1/06

Tab F to Appendix 4
SIREN ALERTING SYSTEM

1. A siren system is employed to alert the public within 10 miles of a nuclear power station. Primary route alerting is in place to notify those areas that are not covered by sirens. The system was designed to meet the objectives for area coverage in the times prescribed by Appendix 3, NUREG-0654/FEMA-REP-1.

   a. Alert 100% of the population within 5 miles of the station in 15 minutes.

   b. Alert 100% of the population within 10 miles of the station within 45 minutes.

2. The sirens were installed and are maintained by Dominion. They were placed on the highest ground suitable, adjacent to an existing electrical service, accessible to easements, on major transportation routes, and with due consideration to dwelling concentrations. Individual sirens were positioned to provide the following area of coverage.

Signal, decibels (dB)	**Area**	**Range (feet)**
Greater than 60	Rural (less than 2,000 persons per square mile)	10,000
Greater than 70	Residential (more than 2,000 persons per square mile	5,000

   Acoustic Technology, Inc. of Boston performed a siren system design analysis of the North Anna and Surry Early Warning Systems. The design analysis is based on a field survey that measured the average daytime ambient background noise levels throughout the EPZ. Siren output levels were then determined by measuring the acoustic levels at a distance of 100 feet from a representative number of sirens. These sound levels were then utilized to determine the area coverage of the individual sirens installed by Dominion. The system coverage was determined by constructing sound pressure level contours of 60 dB and 70 dB on a topographic map of the 10-mile EPZ. These contours depict those areas around each power station that the siren level exceeds an average measured outdoor daytime ambient sound level by 10 dB, the criteria established in NUREG-0654/FEMA-REP-1 as acceptable area coverage.

3. The sirens are radio-controlled and are placed on permanent wooden poles about 41 feet above ground. The signal to alert the public consists of four-three-minute activations of the sirens. One-minute intervals of silence separate the activations. On hearing the signal, the public has been instructed to turn to their local Emergency Alert System (EAS) radio and television stations (See Appendix 10, Communications, for activation of EAS system). There are 68 sirens within 10 miles of the Surry Power Station and 68 sirens within 10 miles of the North Anna Power Station.

Tab F to Appendix 4 (continued)
SIREN ALERTING SYSTEM

4. Activation of the siren system is the responsibility of the local government assigned as the Primary activation point. In the event the State cannot be reached for any reason, local governments may request the primary or alternate activation point to activate the system if the situation warrants. The aforementioned activation locations are staffed 24 hours a day. The locations are as follows:

	Surry Power Station	**North Anna Power Station**
Primary	Surry County 911 Dispatch Center	Louisa County Communications Center
Alternate	James City County Emergency Communications Center	Spotsylvania County Communications Center (911 Center)
Alternate	Virginia EOC	Virginia EOC

If activation of the sirens is required, the Virginia EOC, based on the Governor's direction, will direct the primary activation point to activate the siren system. The signal will be transmitted over an assigned frequency to each siren's decoder. The decoder will then start the siren, through a timer, and will produce a steady signal for a period of three minutes. This procedure will be repeated four times to cause the sirens to be sounded for fifteen minutes.

5. The sirens will be tested individually or as a system in accordance with the following schedule:

a. Cancel Test. These tests will be conducted at least twice monthly at each site unless one is substituted with a full activation test. The cancel test should not be audible.

b. "Growl" Test. Conducted as needed in conjunction with maintenance and repair of individual sirens. The siren may produce a low level sound, but generally, the public will not hear it.

c . Full Activation Test. The siren systems will be activated for three minutes. These tests will be conducted at least quarterly at the Surry Power Station and quarterly at the North Anna Power Station. Public information announcements will be made prior to the tests.

Tab F to Appendix 4 (continued)
SIREN ALERTING SYSTEM

6. In the event of an accident at a nuclear power station, the facility operator will notify local governments within 10 miles of the station and the Virginia EOC of the incident through the "insta-phone" system. If conditions deteriorate and protective actions are required- the Governor may order sheltering or an evacuation of the threatened public. This may require activating the siren system and releasing information through EAS. To the extent possible, messages will be pre-positioned with the EAS station, coordination effected with applicable political subdivisions, and the emergency response organization in place before the sirens are activated. See note at paragraph II.B.3.b for exception.

7. See Attachment 1 for siren locations and numbers for Surry Power Station. There are 68 early warning sirens placed in the 10-mile Emergency Planning Zone for Surry. See Attachment 2 for siren locations and numbers for North Anna Power Station. There are 68 early warning sirens placed in the 10-mile EPZ for North Anna.

Attachment 1 to Tab F to Appendix 4
Surry Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
Isle of Wight County	
25A*	End of Fort Huger Drive (Rt. 676), 1.6 miles north of the intersection of Colonial Trail East (Rt. 10) and Fort Huger Drive (Rt. 676).
30	Northside of Colonial Trail East (Rt. 10) across from Gravel Neck Baptist Church. (in yard of home with box #471).
31	Eastside of Burwells Bay Road (Rt. 621), 3.0 miles south of the intersection of Colonial Trail East (Rt. 10) and Burwells Bay Road (Rt. 621), and 0.4 miles north of the intersection of Burwells Bay Road (Rt. 621) and Moonlight Road (Rt. 627). (in the yard of house with box # 798).
33	Eastside of Clifton Lane, north of Old Stage Highway (Rt. 10 Business), 0.4 miles east of the west end intersection of Old Stage Road (Rt. 10 Business) and Route 10 (Bypass).
James City County	
2*	News Road (Rt. 613) 1.4 miles from intersection of News Road (Rt. 613) and Centerville Road (Rt. 614) and 1.8 miles from the intersection of News Road (Rt. 613) and Ironbound Road (Rt. 615).
5*	2968 John Tyler Highway (Route 5), 0.7 miles north of intersection of John Tyler Highway (Rt. 5) and Centerville Road (Rt. 614).
8	On service road (parallel to Jamestown Road (Rt. 31) , 3.3 miles south of Rt. 199) south of a sign advertising the First Settler's Campground of Williamsburg.
9	Immediately north of road to Williamsburg Winery, 0.3 miles east of 2639 Lake Powell Road.
10*	South side of Pocahontas Trail (Rt. 60), at the James City County Elementary School and Community Center.
35	Eastside of Ironbound Road (Rt. 615), 0.25 miles north of the intersection of John Tyler Highway (Rt. 5) Ironbound Road (Rt. 615).
36*	Ironbound Road (Rt. 615) at the Williamsburg District Office

Attachment 1 to Tab F to Appendix 4
Surry Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
39*	Near Busch Properties Maintenance Building in the parking lot at Francis Thacker Road and Mounts Bay Road on the westside of Mounts Bay Road, 1.4 miles south of Intersection of Mounts Bay Road and Route 199.
49*	Mounts Bay Recreation Center off of Sarah Goody Road. Access is from Burbridge Road off of Mounts Bay Road in Kingsmill.
50*	Behind John Jefferson Square Office Buildings, accessed from Kingsmill Road via Merrimac Trail (Rt. 143).
51*	Behind 580 Francis Thacker Road in Kingsmill, accessed via Thomas Bransby/Fairfax Way off of Mounts Bay Road on tee # 11 of golf course.
52*	At pumping station (#LS33) west of Jamestown Road (Rt 31), south of Richneck Road and north of Lake Powell.
53	At the pumping station off of Pasbehegh Drive in First Colony Subdivision between The Maine (accessed from Greensprings Road(Rt. 614) and John Rolfe Lane (accessed from John Tyler Highway (Rt. 5).
54*	Immediately southeast of James City County Fire Station # 2. Station is located on Pocahontas Trail (Rt. 60) 2.3 miles south of intersection of Pocahontas Trail (Rt. 60) and Route 199.
55	South of pumping station at end of Hempstead Road in Windsor Forest Subdivision. Access Hempstead Road from Sheffield Road south of Long Hill Road (Rt. 612), 0.3 miles east of Lafayette High School.
61*	East side of Treasure Island Road, 300 yards south of the intersection of Treasure Island Road and Lake Powell Road.
62*	End of Neck-of Land Road at Pumping Station on the right.
63*	Located behind Recreation Center/pool off of Warehams Pond Road east of Kingsmill Road.

Attachment 1 to Tab F to Appendix 4
Surry Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
Newport News	
14A	Northside of Warwick Blvd. (Rt. 60) at the intersection of Warwick Blvd. (Rt. 60) and Dozier Road behind the Junction Lounge.
15	Eastside of Fort Eustis Blvd. (Rt. 105) 1.3 miles north of intersection of Fort Eustis Blvd. (Rt. 105) and Jefferson Ave. (Rt. 143) . In the parking lot of the Oliver C. Greenwood Elementary School.
21*	Southside of McKinley Drive in Stoneybrook subdivision in Denbigh near 107 McKinley Drive. Access from Warwick Blvd. via Snidow Blvd. and Lakeshore Drive.
21A*	Northeast of intersection of Moyer Road and Shannon Drive adjacent to R. O. Nelson Elementary School.
22*	Located at McIntosh Elementary School at the corner of Jefferson Avenue and Richneck Road.
22A	Eastside of Old Courthouse Way, north of Denbigh Blvd. and south of Warwick Blvd. between the Gunbox and Millerhouse Square Apartments.
26	460 Colony Road, 1.9 miles west of intersection of Colony Road and Warwick Blvd.
34*	Eastside of Shields Road approximately 0.2 miles south of Industrial Park Road and 0.6 miles north of intersection with Richneck Road in the parking lot of Carter Machinery Company Inc.
41	Intersection of Jefferson Avenue (Rt. 143) and Yorktown Road (Rt. 238) adjacent to the Virginia Power Substation.
42	In rear of parking lot at Lee Hall Elementary School.
43	North of Everett Drive, 0.2 miles from intersection of Holloway Road and Lucas Creek Road. Access from Lucas Creek Road is 0.8 miles south of its intersection with Colony Road.
46*	Tyner Drive, off Richneck Road at Richneck Elementary School.

Attachment 1 to Tab F to Appendix 4
Surry Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
58	Reservoir Elementary School on Reservoir Road half way between Industrial Park Drive and Warwick Blvd. (Rt. 60).
64*	Located on Ft. Eustis at Taylor Ave. in the fenced area of Bldg. 2744, adjacent to Bldg. 2749.
Surry County	
12*	Swanns Point Road (Rt. 610), 0.1 miles east of intersection of Swanns Point Road (Rt. 610) and Southwark Road (Rt. 618).
13	Southside of Swannns Point Road (Rt. 610) about 2.5 miles east of the intersection of Swanns Point Road (Rt. 610) and Southwark Road (Rt. 618).
14*	Behind mansion house in Chippokes State Park.
16	0.2 miles south of Lebanon Road (Rt. 626) approximately 1.4 miles west of intersection of Colonial Trail East (Rt. 10), Rolfe Highway (Rt. 31), and Lebanon Road (Rt. 626).
17	Eastside of Rolfe Highway (Rt. 31) about 0.8 miles north of the intersection of Colonial Trail East (Rt. 10) and Rolfe Highway (Rt. 31).
18*	Southside of Colbham Wharf Road (Rt. 636) about 0.1 miles north of intersection of Colbham Wharf Road (Rt. 636) and Poplar Lawn Road (Rt. 637).
19*	Eastside of Chippokes Farm Road (Rt. 633), 1.6 miles north of Colonial Trail East (Rt. 10) and Chippokes Farm Road (Rt. 633), and 0.2 miles south of intersection of Chippokes Farm Road (Rt. 633) and Highgate Road (Rt. 634).
20*	Eastside of Hog Island Road (Rt 650), 4.0 miles north of intersection of Colonial Trail East (Rt. 10) and Hog Island Road (Rt. 650).
23	Westside of Rolfe Highway (Rt. 31), 1.5 miles south of intersection of Colonial Trail East (Rt. 10) and Rolfe Highway (Rt. 31) and immediately north of the intersection of Rolfe Highway (Rt. 31) and Rocky Bottom Road (Rt. 622).

Attachment 1 to Tab F to Appendix 4
Surry Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
24	Southside of Chapel Bottom Road (Rt. 632), 1.0 mile east of intersection of Colonial Trail East (Rt. 10) and Chapel Bottom Road (Rt. 632) and 0.4 miles west of Intersection of Golden Hill Road (Rt. 616) and Chapel Bottom Road (Rt. 632).
25*	Hog Island Road (Rt. 650), 0.2 miles northeast of intersection of Hog Island Road (Rt. 650) and White Marsh Road (Rt. 617).
27*	Westside of Hog Island Road (Rt. 650), 0.5 miles south intersection of Colonial Trail East (Rt. 10) and Hog Island Road (Rt. 650).
28	Northside of Beechland Road (Rt 626) (approximately 50 feet from road at a sharp bend), 2.2 miles west of intersection of White Marsh Road (Rt. 617) and Beechland Road (Rt. 626) and 1.2 miles East of intersection of Golden Hill Road (Rt. 616) and Beechland Road (Rt.
29	Eastside of White Marsh Road (Rt. 617), 3.0 miles south of intersection of Colonial Trail East (Rt. 10) and White Marsh Road (Rt. 617) and 2.5 miles north of intersection of White Marsh Road (Rt. 617) and Beechland Road (Rt. 626).
32	Along a dirt road on the north side of Jones Mill Swamp Road (Rt.626), 1.5 miles east of intersection of White Marsh Road (Rt. 617) and Jones Mill Swamp Road (Rt. 626), and 1.1 miles west of the intersection of Burwells Bay Rd.(Rt. 621) and Jones Mill Swamp Road (Rt. 626).
44*	Westside of Rolfe Highway (Rt. 31), 0.3 miles south of the intersection of Rolfe Highway (Rt. 31) and Pleasant Point Road (Rt. 637).
45	Eastside of Rolfe Highway (Rt. 31), 0.5 miles south of Colonial Trail East (Rt. 10) and Rolfe Highway (Rt. 31).
59*	On dirt road just west of Bacons Castle on Bacons Castle Trail (Rt. 617) between Colonial Trail East (Rt. 10) and Hog Island Road (Rt. 650)
60*	Located on westside of Chestnut Farm Road at intersection with Alliance Road (Rt. 634) between Poplar Lawn Road (Rt. 637) and Chippokes Park Road (Rt. 665).

Attachment 1 to Tab F to Appendix 4
Surry Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
Williamsburg	
3*	Located on transmission right of way off of Merrimac Trail (Rt. 143) at the Williamsburg Church of Christ.
6*	Southeast of intersection of Jamestown Road (Rt. 31) and Route 199 behind 7/11 store.
37	Behind and between 255 Richmond Road and 630 Prince George Street near Williamsburg Baptist Church.
38*	Northeast corner of intersection of Henry St. (Rt. 132) and Route 199.
56	Northeast end of inside loop formed by Rolfe Road. Access Rolfe Road from Jamestown Road (Rt 31), 0.7miles northeast of Walsingham Academy.
57*	West of Quarterpath Road in Quarterpath Park (Ballfield # 1) less than 0.1 miles south of access to Quarterpath Road from Pocahontas Trail (Rt. 60), 1.5 miles west of intersection Pocahontas Trail.
York County	
1	East side of Richmond Road (Rt. 60) 0.6 miles west of the intersection of Richmond Road (Rt. 60) and Ironbound Road (Rt. 615), in parking lot of 7-11 store.
4	Northeast end of Queens Creek Road 0.7 miles from Penniman Road. 433 Queens Creek Road.
7*	Northeast of intersection of Merrimac Trail (Rt. 143) and Government Road on corner of Government Road and Creedmoor Court.
11*	East side of Old Williamsburg Road (Rt. 238), in town of Lackey at the James E. Brown Park behind the Administration Building.
40*	On Route F671, immediately southeast of intersection of Route F671 and Jefferson Avenue (Rt.143) near and southeast of Busch Water Tower.
47	Queens Lake East (Rt. 716) on hill above Queens Lake Marina.
48	Front of Waller Mill Elementary School, 0.6 miles north of intersection of Waller Mill Road Rt. 713) and Route 60 Bypass

NOTE: The * along with the highlighted area indicate this siren as being an electronic siren.

Attachment 1 to Tab F to Appendix 4
North Anna Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
Caroline County	
36*	On SR 679, approximately 2.2 miles South of intersection of SR 679 and SR 738, turn right at SR 669, proceed to SR 698, approximately 0.1 mile, turn left on to gravel road, siren on right approximately 100 yards.
Hanover County	
41*	From Green Bay Crossward intersection of SR 715 and SR 658, East on SR 715, approximately 1.0 mile, siren on left in trees, approximately 75 yards from power line.
Spotsylvania County	
1*	From intersection SR 601, Lawyers Road, and SR 612, Stubbs Bridge Road, proceed North on SR 612. Approximately 2.8 miles to siren on left side on road just South of transmission lines.
2*	From intersection of SR 612, Stubbs Bridge Road, and SR 606, Post Oak, take SR 612, and proceed approximately 2.0 miles. Siren on right side of road across from a large log house, and 0.5 miles from telephone microwave tower.
3*	Intersection of SR 601, Lawyers Road, and SR 652, Belmont Road, at Dr. Powell's Tomb Stone, South East on SR 601 past SR 664 approximately 1.3 miles. Siren on left side of road.
4*	From Post Oak Farm, at intersection of SR 652 and SR 653 turn right and proceed West on SR 606 for approximately 1.3 miles. Siren on right side of road.
5*	From intersection of SR 652, Belmont Road, and SR 653, Orange Spring Road, turn right and proceed approximately 1.0 mile to intersection of SR 653 and SR 687, Shirley Road. Turn left on SR 653. Siren on right side of road approximately 0.1 mile.
6*	From intersection of SR 612 and SR 606, Post Oak Road, take SR 606 Southeast for approximately 2.4 miles. Siren on right side of road in yard
68*	On route 614, South of route 601, 100 feet past Billman Road.

Attachment 1 to Tab F to Appendix 4 (continued)
North Anna Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
7*	From intersection of SR 612 and SR 601 proceed on SR 601 South East for approximately 2.4 miles. Turn left on SR 643 on a gravel road for approximately 0.3 miles. Siren is located on the left.
8*	From Post Oak Farm, proceed on SR 208 South 2.3 miles to SR 701. Turn Left on SR 701, which is a dirt road. Proceed approximately 0.5 miles. The siren will be on the right side of the road in front of house.
9*	At Saddlewood development from intersection of SR 648 and SR 208. Proceed 0.9 miles east on SR 648. Siren on left of SR 648 at house.
10*	Left on SR 612, approximately 1.0 mile North of Louisa-Spotsylvania County line at North Anna River on SR 522. Proceed approximately 1.2 miles to Woodberry Farm. Siren is located on the left.
11*	Northeast on SR 612, Stubbs Bridge Road, from intersection of SR 612 and SR 719, approximately 1.7 miles. Siren in yard next to trailer at intersection of Childs Cove Road and Stubbs Bridge Road.
12*	Right on SR 612, Stubbs Bridge Road, from North on SR 522, turn right approximately 0.9 miles from intersection at Kirk O'Cliff Church. Proceed approximately 0.6 miles across cattle bridge. Siren is on the right side of road.
13*	SR 208 next to Livingston School.
14*	On SR 738, 2.3 miles East on intersection of SR 657 and SR 738 on left of road in driveway entrance through a white fence.
15*	From SR 208 at Hairfield's Store, turn West on to SR 655, approximately 0.6 mile to siren on left side of road at Box 1145, near small brick house.
18*	On SR 601 North of intersection of SR 601 and 614 0.9 mile at intersection of SR 601 and SR 689.
19*	From intersection of SR 601 and SR 614, 2.8 miles East on SR 614 at a gravel road intersection.

Attachment 1 to Tab F to Appendix 4 (continued)
North Anna Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
20*	From intersection of SR 605 and SR 738, North on SR 605 0.6 mile, turn on to SR 678, proceed 1.7 miles to dirt road on right. Siren on transmission line right of way.
21*	From intersection of SR 738 and SR 605 .4 mile South on SR 605. Siren on right midway between two single story houses.
26*	At intersection of SR 622 and SR 602, 0.4 miles South on SR 622 on the West side of the road at Lakeside Woods subdivision, SR 1550.
27*	South on SR 658, approximately 1.2 miles from intersection of SR 658 and SR 738. Siren on right side of road.
30*	On SR 658, approximately 0.4 miles North of intersection of SR 658 and 738 at Partlow.
45*	From bridge at Hunter's Landing on SR 719, approximately 0.9 mile, on SR 652, approximately 0.6 mile to Ruritan Club building, siren at rear of building in parking lot.
46*	SR 208, approximately 300 yards South of Lake Anna Properties real estate, across the road from Joe Pine Builder's office building.
47*	Approximately 0.2 mile South of Hebron Baptist Church on SR 208, turn right on to SR 733, approximately 0.3 miles to power line, siren on right across from C&P telephone building.
61*	SR 601 at Morning Glory Road
62*	SR 208 at Lake Anna Lodge.
64*	Lake Anna State Park, near beach area.
65*	On SR 652 (Kentucky Springs Rd) turn right on SR 208 (Courthouse Rd). Turn right on SR 601. Turn left on SR 665 (Belfonte Rd). Siren is located at the corner of SR 665 and Larkspur Ln.
66*	On SR 652 (Kentucky Springs Rd) turn right on SR 208 (Courthouse Rd). Turn left on SR 655 (Ridge Rd). Siren is at the intersection of SR 643 (Haleys Mill Rd) and SR 655. NOTE: High voltage overhead power lines at location of siren.

Attachment 1 to Tab F to Appendix 4 (continued)
North Anna Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
67*	On SR 652 (Kentucky Springs Rd) turn right on SR 208 (Courthouse Rd). Turn right on SR 601 (Lewistown Rd). Turn left on SR 614 (Dickerson Rd). Siren is located at First New Hope Baptist Church.
Louisa County	
16*	On SR 613, Approximately 50 yards East of Box 205 from intersection SR 625 and SR 613, approximately 25 yards West to siren.
17*	Intersection of SR 652 and SR 208, East on SR 652, approximately 0.1 mile on North side of road.
22*	Intersection of SR 208 and SR 625, approximately 1.9 miles on left.
23*	From intersection of SR 522 and SR 623, South to SR 733, approximately 1.5 miles, turn on to SR 733, approximately 0.2 mile. Siren to rear of second house.
24*	On SR 652 at intersection of SR 685, South side of road, approximately 0.4 mile West of SR 700.
25*	From intersection of SR 652 and SR 614 on SR 614 to SR 690, siren is 200 yards on left at intersection of SR 690 and SR 1230 at Tara.
28*	West on SR 208, Davis Highway, approximately 0.3 miles from Town of Mineral at intersection of SR 645.
29*	On SR 700, Johnson Road, approximately 2.9 miles South of intersection of SR 700 and SR 652 on right side of road in tree line, also approximately 0.1 mile South of railroad crossing on SR 700.
31*	Intersection of SR 33 and SR 644, South East side of intersection.
32*	On SR 614, 1.5 miles North of SR 618 at the rear of a house.
33*	Intersection of SR 700 and SR 689 at landfill sign, 0.8 miles turn on to Louisa landfill road, continue past dog pound, on left, down one lane dirt road to fence, approximately 0.7 mile.

Attachment 1 to Tab F to Appendix 4 (continued)
North Anna Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
34*	From intersection of SR 652 and SR 622, North on SR 622, approximately 0.3 miles, siren on left just across bridge.
35*	On SR 601, 1.6 miles North of intersection of SR 601 and SR 715, turn East, proceed down a gravel road, siren behind a brick and white wood house.
37*	Intersection or SR 33 and SR 605, North West side of intersection.
38*	On SR 656, 2.1 miles West of SR 618.
39*	On SR 618 at Buckner on North side of road, next to a barn and silo.
40*	On SR 601, turn on to driveway at St. Thomas Baptist Church, siren is near house 0.3 mile down dirt road.
42*	1 mile east of intersection SR 522, and SR 33 on SR 33 South side of road.
43*	On SR 612, 2.3 miles North of SR 33 at intersection of SR 612 and 617, NW side of intersection.
44*	On SR 701, 2.2 miles South of intersection of SR 618 and SR 701.
48*	North on SR 522 from intersection of SR 522 and SR 208 at Dickinson's Store, approximately 1.0 mile, turn right on SR 719, siren on right of road at telephone distribution shelter.
49*	On SR 522, approximately 1.4 miles East of Contrary Creek Bridge to intersection of SR 522 and SR 720, left on SR 720, down gravel road to junk yard, siren at junk yard.
50*	At intersection of SR 652 and SR 1205, across a barbed wire fence on South side of road.
51*	On SR 618 at railroad crossing, Frederick's Hall.
52*	On SR 665 from intersection of SR 522 and SR 665, approximately 0.3 miles to rear of house, just off St. Francis Avenue.
53*	East on SR 618, approximately 1.0 mile from intersection of SR 618 and 522 in Mineral at the Tried Way Church.

Attachment 1 to Tab F to Appendix 4 (continued)
North Anna Power Station Siren Locations by Jurisdiction

SITE NUMBER	DESCRIPTION
54*	Near meteorological tower in recreation area, North Anna Power Station.
55*	Intersection of SR 522 and SR 33 across driveway leading to large white frame house at Cuckoo.
56*	Intersection of SR 522, Zachary Taylor Hwy, and SR 623, Chopping Road.
57*	SR 700 across from Buckners LN SR 712.
58*	SR 652 behind Lake Anna Professional Building.
59*	SR 208 at Chevron Station.
60*	SR 622 Moody Town Road. Siren located at Peaceable Kingdom just before bridge.
63*	On SR 652 (Kentucky Springs Rd) turn right at SR 723. Turn right on Cuckoos Nest Dr. Turn right on Elnor Dr. and follow to end of road.

NOTE: The * along with the highlighted area indicate this siren as being an electronic siren.

Tab G to Appendix 4

ADJACENT STATES AND JURISDICTIONS WITHIN 50-MILE INGESTION PATHWAY

1. The Virginia EOC will provide notification to affected or potentially affected jurisdictions within the ingestion pathway and adjacent states in the event of a radiological emergency occurring at the North Anna or Surry Power Stations.* The State will transmit to each local organization recommended protective measures based upon protective action guides and other criteria. This shall be consistent with the recommendations of the U.S. Environmental Protection Agency (EPA) regarding exposure resulting from passage of radiological airborne plumes and with other Federal recommendations regarding radioactive contamination of human foods and animal feeds.

2. The primary means for notifying adjacent states and local jurisdictions within the ingestion pathway will be by commercial telephone. Adjacent states and local governments within the ingestion pathway are listed in Attachments 1 (Surry) and 2 (North Anna).

3. The Virginia EOC will provide notification to affected or potentially affected local jurisdictions within the Virginia portion of the ingestion pathway in the event of a radiological emergency occurring at the Calvert Cliffs, Maryland, Nuclear Power Station.

* Similar alerting procedures will be used to notify any area(s) of the state depending on the type of radiological accident and its effects.

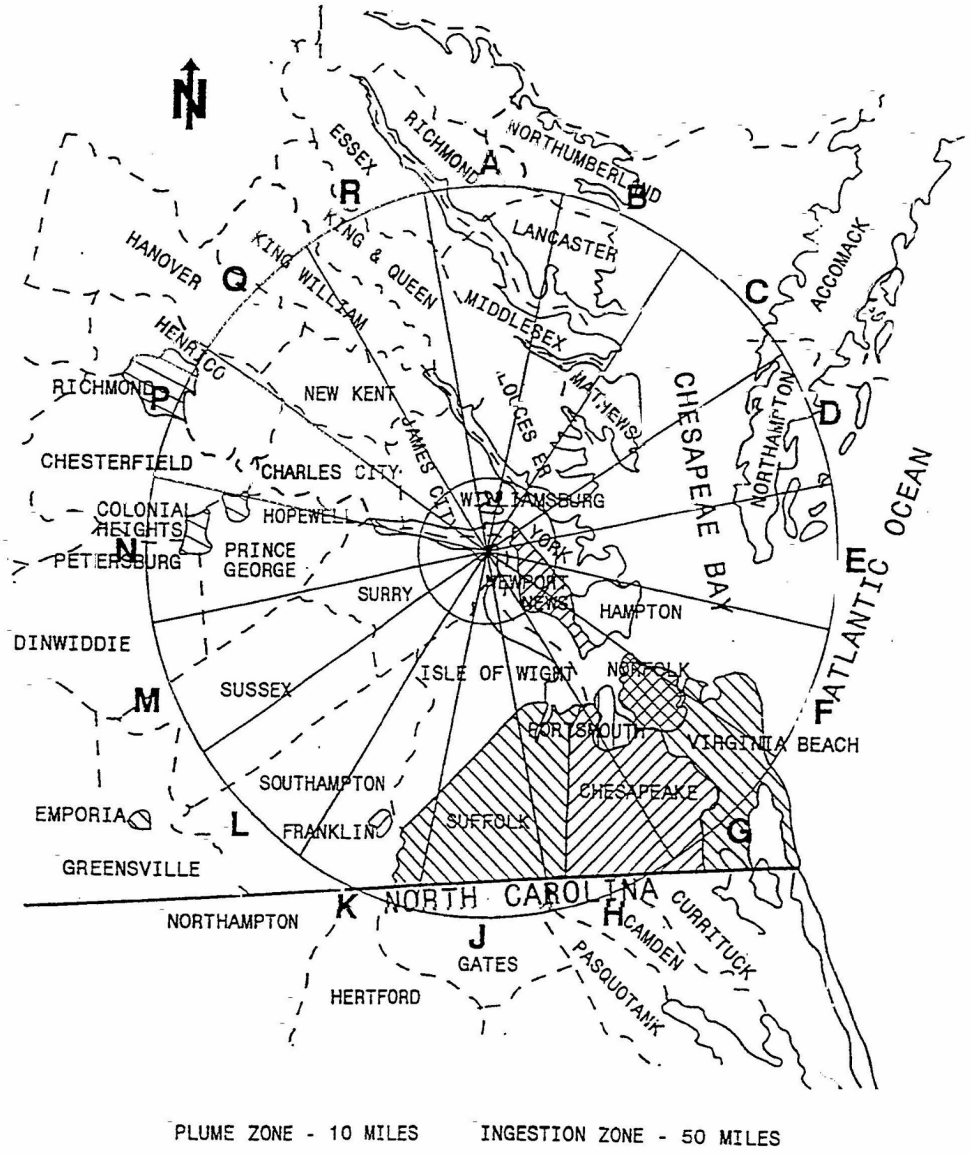
Attachment 1 to Tab G to Appendix 4

SURRY POWER STATION INGESTION PATHWAY – ADJACENT JURISDICTIONS (IN-STATE AND OUT-OF-STATE)

	Counties	Cities
Virginia	1. Charles City 2. Chesterfield+ 3. Dinwiddie 4. Essex+@ 5. Gloucester 6. Hanover+ 7. Henrico+ 8. Isle of Wight* 9. James City* 10. King & Queen+@ 11. King William+ 12. Lancaster 13. Mathews 14. Middlesex 15. New Kent 16. Northampton 17. Northumberland 18. Prince George 19. Richmond@ 20. Southampton 21. Surry* 22. Sussex 23. York*	1. Chesapeake 2. Colonial Heights 3. Franklin 4. Hampton 5. Hopewell 6. Newport News* 7. Norfolk 8. Petersburg 9. Poquoson 10. Portsmouth 11. Richmond+ 12. Suffolk 13. Virginia Beach 14. Williamsburg*
North Carolina	1. Camden 2. Currituck 3. Hertford 4. Northampton 5. Pasquotank 6. Gates	

* Within 10 miles of SPS. + Also within 50 miles of NAPS.
@ Within 50 miles of Calvert Cliffs

Figure 1 to Attachment 1 to Tab G to Appendix 4



PLUME ZONE - 10 MILES INGESTION ZONE - 50 MILES

Attachment 2 to Tab G to Appendix 4

NORTH ANNA POWER STATION INGESTION PATHWAY -
ADJACENT JURISDICTIONS
IN-STATE AND OUT-OF-STATE)

	Counties	Cities
Virginia	1. Albemarle	1. Charlottesville
	2. Amelia	2. Fredericksburg
	3. Buckingham	3. Richmond +
	4. Caroline *@	
	5. Chesterfield +	
	6. Culpeper	
	7. Cumberland	
	8. Essex +@	
	9. Fauquier	
	10. Fluvanna	
	11. Goochland	
	12. Greene	
	13. Hanover * +	
	14. Henrico +	
	15. King George@	
	16. King & Queen +@	
	17. King William +	
	18. Louisa *	
	19. Madison	
	20. New Kent	
	21. Orange *	
	22. Page	
	23. Powhatan	
	24. Prince William@	
	25. Rappahannock	
	26. Richmond+@	
	27. Rockingham	
	28. Spotsylvania *	
	29. Stafford@	
	30. Westmoreland@	
Maryland	1. Charles	

*Within 10 miles of NAPS. + Also within 50 miles of SPS.
@Within 50 miles of Calvert Cliffs.

Figure 1 to Attachment 2 to Tab G to Appendix 4

Attachment 3 to Tab G to Appendix 4

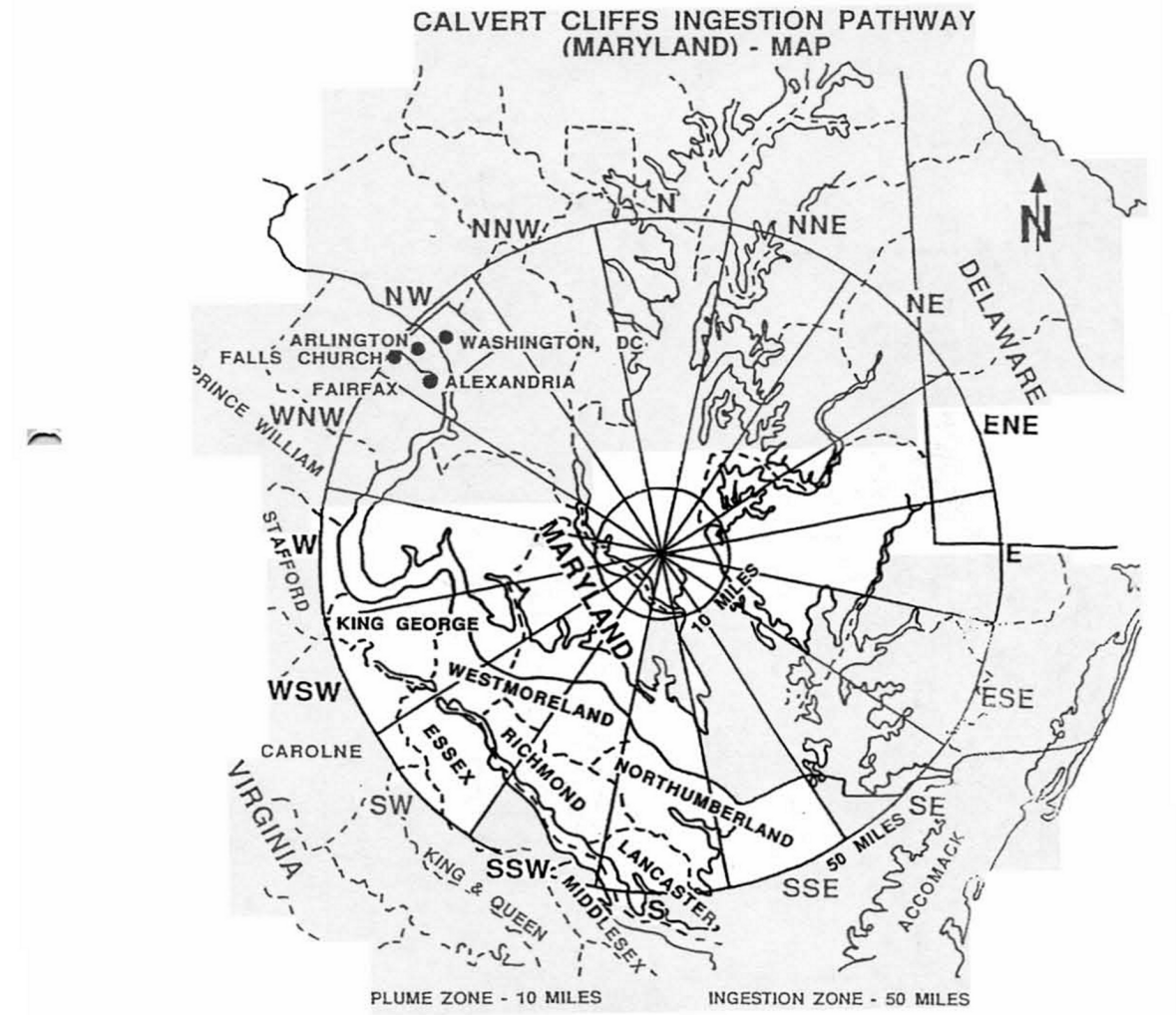
CALVERT CLIFFS POWER STATION (MARYLAND)

VIRGINIA JURISDICTIONS WITHIN INGESTION PATHWAY

Counties	Cities
1. Accomack (Tangier Island)	1. Alexandria
2. Arlington	2. Falls Church
3. Caroline	
4. Essex *	
5. Fairfax	
6. King George	
7. King and Queen *+	
8. Lancaster +	
9. Middlesex +	
10. Northumberland +	
11. Prince William	
12. Richmond +	
13. Stafford *	
14. Westmoreland	

* Also within 50 miles of NAPS. + Also within 50 miles of SPS.

Figure 1 to Attachment 3 to Tab G to Appendix 4



Appendix 5:
EMERGENCY RESPONSE

I. MISSION

The mission of the State and local governments is to plan and prepare for implementation of response to radiological emergencies that will provide maximum protection to the public with the least possible cost and disruption.

II. OPERATIONAL CONCEPTS AND PROCEDURES

A. Concept of Operations

Response to radiological emergencies caused by events at fixed nuclear facilities is based on reaction to an airborne release of radioactive materials. This type of release is the most probable and allows the least time for reaction. In a radiological emergency caused by an airborne release, the most urgent actions in terms of response time are those to protect the population from inhalation of radioactive materials in the plume and from direct whole body exposure to gamma radiation from the plume. During the initial period (4-5 hours), speed for completing immediate emergency response protective actions is critical to avoiding undue exposure to radiation. Early but less immediate action is also taken to protect the population and milk-producing animals from ingestion of contaminated food and water within a designated ingestion pathway emergency planning Zone surrounding the fixed nuclear facility.

B. Emergency Classification Levels

1. The operator of a fixed nuclear facility will provide immediate notification to State and local government officials, as outlined in Appendix 3, whenever any one of the four classes of emergency classification levels has been declared.

2. The four classes of emergency classification levels could occur in sequence from less to most severe; in which case, verification of off-site conditions could be accomplished before emergency response is required. However, the first indication of a problem could be a report of a General Emergency, requiring sheltering or immediate evacuation of the population from specified areas within a ten-mile radius of the facility. Where appropriate, the facility operator's initial report will include recommendations for off-site protective actions.

3. As time could be a major factor, response to radiological emergencies is based on the rapid implementation of preplanned actions upon recommendation of the facility operator or the Virginia EOC. When notified, the State and affected local government Radiological Emergency Response Plans are

implemented. The Bureau of Radiological Health (BRH) initiates accident assessment to provide guidance and assistance to the local government and the Virginia EOC. Following implementation of any immediate preplanned response, subsequent protective actions are based on results of the State evaluation of the radiological situation.

4. At the Alert or higher emergency classification level, appropriate state agencies will deploy to the Virginia EOC, Emergency Operations Facility (EOF), Joint Information Center (JIC), and to other sites in accordance with this plan and Standing Operating Procedures.

   a. The State On-Scene Coordinator (SOSC) and support staff will deploy to the accident site or utility's EOF;

   b. The VDEM Director of Public Information (or his designee) and staff will deploy to the Virginia EOC to prepare and provide press releases and media briefings and establish and provide manning for the JIC. The Virginia EOC may also establish an alternate Public Information Center (bank of telephone operators) in or near the Virginia EOC, if requested and necessary.

   c. BRH and other supporting agencies and staffs will deploy to the accident site or EOF, Virginia EOC, and other field sites to perform accident assessment, monitoring and sample collection, and will provide Protective Action Recommendations to the Virginia EOC.

   d. Other State agencies will carry out their missions and task assignments in accordance with this plan and agency-specific SOP's. These functions will be coordinated with the Virginia EOC.

   e. If the state EOC recieves a request from local jurisdictions for additional monitoring support (either for field monitoring or monitoring at the EAC), the regional HazMat team should be deployed to the area of need.

Attachments:

Tab A - Evacuation Assembly Center Registration Form

Tab B - Population At Risk and Protective Actions

- Attachment 1- SPS Evacuation Centers and Routes
- Attachment 2- NAPS Evacuation Centers and Routes
- Attachment 3- SPS Protective Action Zones, Routes, and Evacuation Centers
  - Figure 1 - SPS 10-Mile Protective Action Zones, Zone Descriptons,and EAC's
- Attachment 4- NAPS Protective Action Zones, Routes, and Evacuation Centers
  - Figure 1 - NAPS 10-Mile Protective Action Zones, Zone Descriptions, and EAC's
- Attachment 5- Surry Power Station (SPS)
  - Figure 1 - SPS Evacuation Roadway Network
  - Figure 2 - 2000 Census Population Within 10-Mile EPZ of SPS
  - Figure 3 - SPS Population Data by PAZ
  - Figure 4 - SPS 10 Mile EPZ Population Grouped by County/City
  - Figure 5 - Surry 10 Mile EPZ Population Grouped by Protective Action Zones
    - Table 1 - Network Clearance Times for SPS EPZ
- Attachment 6- North Anna Power Station (NAPS)
  - Figure 1 - NAPS Evacuation Roadway Network
  - Figure 2 - 2000 Census Population Within 10-Mile EPZ of NAPS
  - Figure 3 - North Anna Power Station Population Data by Sector
  - Figure 4 - North Anna 10-mile Non-Auto Owning Population and Households Grouped by County
  - Figure 5 - North Anna Auto-Owned Households and Vehicles by Political Subdivision
  - Figure 6 - North Anna Population Grouped by Protective Action Zones
    - Table 1 - Network Clearance Times for NAPS EPZ

Tab C - School Reception Centers Surry Power Station

Tab D - School Reception Centers North Anna Power Station

Tab A to Appendix 5

American Red Cross

DISASTER SHELTER REGISTRATION

Family Last Name

Names	Age	Medical Problem ·Killed ·Injured ·Hospitalized	Referred to Nurse
Man			
Woman (Include Maiden Name)			
Children in Home			
Family Member not in Shelter (Location if Known)			

Shelter Location

Shelter Telephone No. Date of Arrival

Predisaster Address and Telephone No.

I _ do, _ do not, authorize release of the above information concerning my whereabouts or general condition.

_____
Signature

Date Left Shelter _____

Time Left Shelter _____

Postdisaster Address and Telephone Number

SHELTER MASTER FILE

AMERICAN RED CROSS FORM 5972(5-79)

_____
Copy 1 - Shelter Master File
Copy 2 - Disaster Welfare Inquiry
Copy 3 - Shelter Receptionist

Tab B to Appendix 5

POPULATION AT RISK AND PROTECTIVE ACTIONS

1. Population at Risk

The population distribution data used in the plan for the ten-mile plume exposure pathway EPZ for each fixed nuclear facility derives from the 2000 United States Census of population and housing. The 2000 Census data was modified to make it site specific by political subdivision and adjusted to realistically reflect the numbers of residents, transients, and institutionalized persons located within ten miles of each of the two nuclear facilities by sectors, at distances of two, five, and ten miles.

2. Population Groupings

For purposes of evacuation, three distinctive population groupings have been identified as follows:

a. Residents - Persons residing within the plume EPZ on a permanent basis.

b. Institutionalized - Persons who, on a part- or full-time basis, spend time in institutions located within the plume EPZ, such as schools, hospitals, nursing homes, penal facilities, and major industries.

c. Transients - Persons within the plume EPZ at any given time who are not full-time residents, such as visitors, vacationers, and travelers.

Local plans will address all three population groupings in planning and when protective actions are instituted. Specific information will be developed by local governments of individuals who are non-ambulatory, individuals without transportation, and institutions requiring support assistance, e.g., transportation.

3. Protective Actions

Protective actions to be taken, to include sheltering and evacuation, will be contingent on continuous accident assessment by the Department of Health. A spectrum of alternative protective actions may be available, if time permits, to include traffic and access control (Annex M, B and Appendix 12), pasture and feed control (Appendix 8 and Annex H), control of milk, food, and water (Appendix 8 and Annex H), decontamination (Appendix 11), and use of potassium iodide (Appendix 7 and Annex I). The protective action(s) implemented will be based on the recommendations of the nuclear facility substantiated, when possible, by monitoring conducted by State and local monitors as assessed by BRH personnel. However, if the nuclear facility operator reports a General Emergency, immediate evacuation of the affected population may be necessary. Evacuation of persons

who are institutionalized, non-ambulatory, or who have no means of transportation will require special attention. Transportation for evacuees will be by personal vehicle for residents and transients, supported by local government vehicles, e.g., school buses or vehicles from local firms. Institutions will provide transportation for their patients or residents. Assistance will be requested from the local Coordinator of Emergency Services. Non-ambulatory persons will be evacuated by members of the immediate family or friends. Special needs individuals requiring transportation will be identified by local coordinators and transportation provided. The State will provide back-up transportation support to local governments. The Virginia National Guard can respond with passenger buses and trucks within twelve hours. Other State agencies have vehicles which can be made available on short notice.

4. Public Information, (See Appendix 9 and Annex N)

To assure proper response when instituting protective actions and particularly when evacuation is directed, a comprehensive public information program will be undertaken. Educational information will be furnished to the public on the protective action Zone concept, evacuation assembly centers, evacuation routes, and other related matters, prior to the occurrence of a radiological emergency, with additional and supportive information during an emergency, provided through emergency broadcasts and periodic news releases.

5. Evacuation Assembly Centers (See Annex G)

Evacuation Assembly Centers (EACs) will be established and operated by local governments or by nearby political subdivisions through mutual support agreements. The State will provide support on request. Where possible, EACs will be staffed and operational prior to a radiological release from the facility. Local radiological monitors at the EAC will operate under the supervision of the local Radiological Officer (RO). Each EAC, except Surry High School is located beyond 15 miles of a fixed nuclear facility. Surry High School is about 13-1/2 miles from the facility and are listed as EACs because of the excellent shelter support capabilities existing in high schools. Additional EACs will be opened and staffed by local governments at the time of the radiological emergency, as required.

6. Protective Action Zones

To facilitate notification and selective evacuation of the public, protective action Zones corresponding to the ten-mile EPZ have been established around each of the two fixed nuclear power stations in Virginia. The scheme utilizes prominent physical features, either natural (rivers, lakes) or man-made (road net), to outline the boundaries of an protective action Zone. The delineated Zones are readily comprehensible to the area population and permit flexible and selective guidance to the public in the event of a radiological emergency requiring the implementation of protective actions. Twenty-five Protective Action Zones has been identified for the North Anna Power Station and 30 Zones for the Surry Power Station. The demarcation of the protective action Zones roughly corresponds to two-, five-, and ten-mile distances from the nuclear facility. Protective action Zone

boundaries for the Surry Power Station are depicted at Attachment 3 and for the North Anna Power Station at Attachment 4. Estimated population density by protective action Zone for the Surry Power Station is contained in Figure 6 to Attachment 5 and for the North Anna Power Station in Figure 6 to Tab F.

7. Population, Vehicles, Route Capacities, and Potential Traffic Impediments

This section of the plan addresses population and vehicle data by sectors within the ten-mile plume exposure pathway EPZ of both fixed nuclear power stations, an assessment of the available road net, projected traffic capacities of evacuation routes under emergency conditions, potential impediments to traffic flow, and time estimates for evacuation of various sectors and distances based on a dynamic analysis. See Attachment 5 for the Surry Power Station and Attachment 6 for the North Anna Power Station.

Attachment 1 to Tab B to Appendix 5

EVACUATION CENTERS AND ROUTES
Surry Power Station

Jurisdiction	Evacuation Center	Evacuation Routes
James City County	Charles City County School Complex (24)*	U.S. Route 60, Interstate 64, State Routes 5, 199, 614, 615, and 616
	Hampton Coliseum (19)	Interstate 64, U.S. Route 60, State Routes 143, 168, and 238
Isle of Wight County	Smithfield H.S. (16) Windsor H.S. (23)	State Routes 677, 10, 627, 626, and 258
City of Williamsburg	New Kent H.S. (30)@ New Kent M.S. (28)@	U.S. Route 60, Interstate 64, and State Routes 168, 249, 155, and 627
York County	Tabb H.S. (15) Poquoson H.S.+ New Kent H.S.@ Grafton Middle School/High School Complex (15)	Interstate 64, U.S. Route 17, Colonial Parkway, State Routes 143, 171, 172, 173, and 600; Interstate 64, State Routes 168, 249, 255, and 627
Surry County	L.P. Jackson M.S. (13.7) Surry County H.S. (13.7) Surry County E.S. (13.7)	State Routes 650, 10, 31, 616, 617, 618, 626, and 634
City of Newport News	Huntington M.S. ( ) Warwick H.S. (15) Gildersleeve M.S. ( ) South Morrison E.S. (16)	U.S. Routes 60, 17, 258, Interstate 64, State Routes 143, 152 and 166

* Located in Charles City County; available by Mutual Support Agreement.
~ Located in City of Hampton; available by Mutual Support Agreement.
@ Located in New Kent County; available by Mutual Support Agreement.
+ Located in City of Poquoson; available by Mutual Support Agreement.
( ) Distance in Miles from Surry Power Station.

Attachment 2 to Tab B to Appendix 5

EVACUATION CENTERS AND ROUTES
North Anna Nuclear Power Station

Jurisdiction	Evacuation Center	Evacuation Routes
Spotsylvania County	Courtland H.S. (17) Chancellor H.S. (20) Massaponax H.S. (30)	State Routes 712, 612, 606, 601, 622, 614, 657, 738, 208, and 639
Hanover County	Liberty M.S. (24) Patrick Henry H.S. ( ) *	State Routes 658, 738, 715, 671, 657, and 54
Orange County	Orange County H.S. (20) Prospect Heights M.S. (21)	U.S. Route 522, State Routes 20,
Caroline County	Caroline County M.S. (15) Caroline County H.S. (16)	State Routes 738, 669, and 639
Louisa County	Trevilians E.S. (19) Patrick Henry H.S. ( ) *	U.S. Route 522,

* Located in Hanover County: Available by Mutual Support Agreement.

( ) Distance in Miles from North Anna Power Station.

Attachment 3 to Tab B to Appendix 5

SPS PROTECTIVE ACTION ZONES AND ROUTES

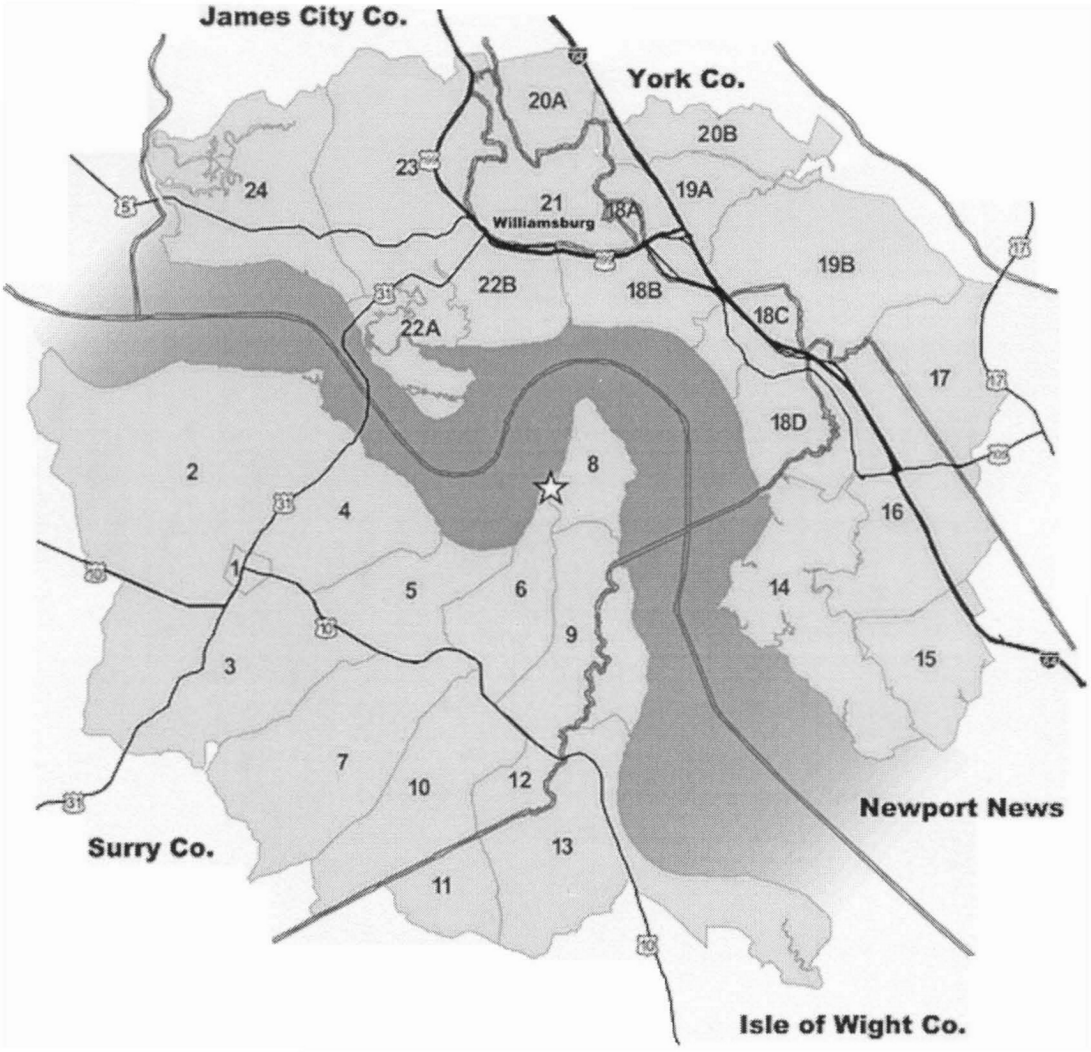


Figure 1 to Attachment 3 to Tab B to Appendix 5

SURRY POWER STATION 10-MILE PROTECTIVE ACTION ZONES

ZONE DESCRIPTIONS AND EAC'S

Protective Action Zone	County/City	Zone Description	EACs
1	Surry County	Town of Surry	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
2	Surry County	Consists of Area bounded on the: north by James River, east by Route 31, south by Route 10, west by Route 609	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
3	Surry County	Consists of Area bounded on the: north by Route 10, east by Route 616, south by Moores Swamp, Cypress Run, and Route 618, west by Route 618	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
4	Surry County	Consists of Area bounded on the: north by James River, east by Routes 636 and 634, south by Route 10, west by Route 31	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
5	Surry County	Consists of Area bounded on the: north by the James River, east by Routes 633 and 634, south by Route 10, west by Routes 636 and 634	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
6	Surry County	Consists of Area bounded on the north by Route 650, east by Route 650, south by Routes 10 and 634, west by Routes 633, 634 and James River	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.

Figure 1 to Attachment 3 to Tab B to Appendix 5

Protective Action Zone	County/City	Zone Description	EACs
7	Surry County	Consists of Area bounded on the: north by Route 10, east by Route 617 south by Route 617 west by Route 616, Cypress Run and Mill Swamp	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
8	Surry County	Consists of Area bounded on the: north by the James River east by the James River south by Hog Island State Wildlife Management Area, west by Route 650 and the James River	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
9	Isle of Wight and Surry Counties	Consists of Area bounded on the: north by Hog Island State Wildlife Management Area, east by James River, south by Routes 686, 628, and 10, west by Route 650	Smithfield H.S. Windsor E.S. Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
10	Surry County	Consists of Area bounded on the: north by Route 10, east by Route 627, south by Surry Co. and Isle of Wight County Line and Route 626, west by Routes 617 and 625	Surry Co. H.S. Surry Co. E.S. L.P. Jackson M.S.
11	Isle of Wight Co.	Consists of Area bounded on the: north by Surry County Line, east by Route 627, south by Route 626 west by Route 626	Windsor E.S. Smithfield H.S.

Figure 1 to Attachment 3 to Tab B to Appendix 5

Protective Action Zone	County/City	Zone Description	EACs
12	Surry County	Consists of Area bounded on the: north by Route 10, east by Lawnes Creek, south by Isle of Wight County Line west by Route 627	Surry Co. H.S. Surry E.S. L.P. Jackson M.S.
13	Isle of Wight Co.	Consists of Area bounded on the: north by Route 686 and 628, east by James River, south by Route 673, 10, 678, 626, west by Route 627, the Isle of Wight County Line and Lawnes Creek	Windsor E.S. Smithfield H.S.
14	Newport News City	Consists of Area: Fort Eustis	A.P. Hill Military Installation or DOD Facility beyond 15 miles of SPS
15	Newport News City	Consists of Area bounded on the: north by Route 173, east by Jefferson Ave., Bland Blvd.,C&O Rail Road, Sluice Mill Pond and Deep Creek, south by James River & mouth of the Warick River west by Warwick River/Ft. Eustis Shoreline and Lucas Creek	Ferguson H.S. Huntington M.S. Deer Park E.S. South Morrison E.S.
16	Newport News City	Consists of Area bounded on the: north by York Co. Line, south by Denbigh Blvd., Rts. 173 and 143 and Lucas Creek, & Warwick River east by Route 173, west by Fort Eustis/Warwick River boundary line and Skiffes Creek	Huntington M.S.. Deer Park E.S. South Morrison E.S.

Figure 1 to Attachment 3 to Tab B to Appendix 5

Protective Action Zone	County/City	Zone Description	EACs
17	York County	Consists of Area bounded on the: north by Route 238 and York River, east by Route 17 and Siege Lane, south by Route 636, south/west by Newport News City Line, west by Route 238	Tabb H.S. Grafton M.S./H.S. Poquoson H.S. New Kent H.S.
18A	James City Co.	Consists of Area bounded on the: north by Penniman Road, east by Oak Drive and Government Road, south by Williamsburg City Line west by Williamsburg City Line	Charles City Co. School Complex Hampton Coliseum
18B	James City Co.	Consists of Area bounded on the: north by James City Co. Line, east by Busch Gardens' eastern edge and Busch Creek, south by James River, west by Colonial Parkway.	Charles City Co. School Complex Hampton Coliseum
18C	James City Co.	Consists of Area bounded on the: north by Boundary Road West, east by James City Co. Line, south by James River, Carters Grove and US 60, west by Busch Gardens' eastern edge and Busch Creek.	Charles City Co. School Complex Hampton Coliseum
18D	James City Co.	Consists of Area bounded on the: north by Carters Grove and US 60, bounded on the east by Skiffes Creek Reservoir, bounded on the south by Skiffes Creek, and bounded on the west by James River.	Charles City Co. School Complex Hampton Coliseum

Figure 1 to Attachment 3 to Tab B to Appendix 5

Protective Action Zone	County/City	Zone Description	EACs
19A	York County	Consists of Area bounded on the: north by Colonial Parkway, east by King Creek, south by York Co. Line west by Government Road, Penniman Road and York County Line.	Grafton MS/HS Tabb H.S. New Kent Co. H.S. Poquoson H.S.
19B	York County	Consists of Area bounded on the: north by Colonial Parkway, east by York River, south by Rt. 238, Newport News City Line and Interstate 64, west by King Creek.	Grafton MS/HS Tabb H.S. New Kent Co. HS Poquoson H.S.
20A	York County	Consists of Area bounded on the: north by Rt. 645, east by Interstate 64 and Rt. 143, south by York County Line west by York County Line.	Grafton MS/HS Tabb H.S. New Kent Co. HS Poquoson HS
20B	York County	Consists of Area bounded on the: north by Camp Perry, Hawtree Landing and Queens Creek, east by York River, south by Colonial Parkway west by York County Line and Rt. 143.	Grafton MS/HS Tabb H.S. New Kent Co. HS Poquoson HS
21	Williamsburg	City of Williamsburg	New Kent H.S. New Kent M.S.
22A	James City County	Consists of Area bounded on the: north by Powhatan Creek, east by Lake Powell and Mill Creek, and bounded on the south by James River west by James River.	Charles City Co. School Complex Hampton Coliseum

Figure 1 to Attachment 3 to Tab B to Appendix 5

Protective Action Zone	County/City	Zone Description	EACs
22B	James City County	Consists of Area bounded on the: north by Rt. 199, east by Colonial Parkway south by Colonial Parkway, west by Mill Creek, Lake Powell, and Route 31.	Charles City Co. School Complex Hampton Coliseum
23	James City County	Consists of Area bounded on the: north by Routes 614, 612, 658, east by Williamsburg City Line, south by Routes 31, Lake Powell and Hickory Signpost Road west by Powhatan Creek	Charles City Co. School Complex
24	James City County	Consists of Area bounded on the: north by Gordon Creek east by Powhatan Creek, Hickory-Signpost Road, & Lake Powell south byPowhatan Creek & James River west by the Chickahominy River	Charles City Co. School Complex

Attachment 4 to Tab B to Appendix 5

NAPS PROTECTIVE ACTION ZONES AND ROUTES

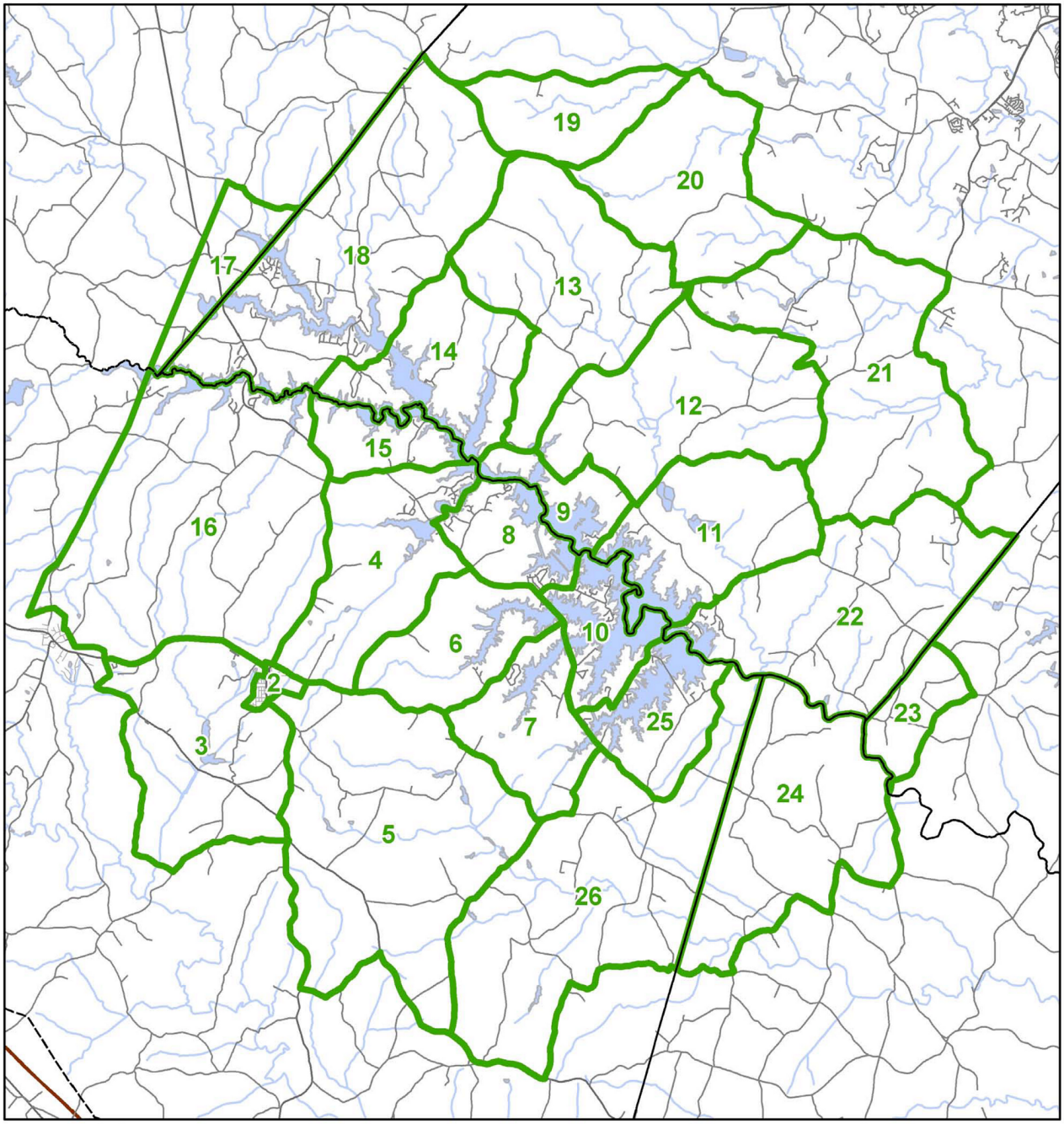


Figure 1 to Attachment 4 to Tab B to Appendix 5

NORTH ANNA POWER STATION 10-MILE PROTECTIVE ACTION ZONES
ZONE DESCRIPTIONS AND EAC'S

Protective Action Zone	County/City	Zone Description	EAC
1	Not in Use	Not in Use	Not in Use
2	Louisa County	Town of Mineral	Trevilians E.S.
3	Louisa County	Consists of Area bounded to the: north by Routes 22 and 208 east by Routes 33 and 522 Mineral Town Line south by Routes 605 and 643 west by Routes 644, 33 and Louisa Town Line	Trevilians E.S.
4	Louisa County	Consists of Area bounded to the: north by Route 208 east by Lake Anna, Contrary Creek, and Routes 652 and 700 south by Routes 618 and 667 west by Routes 208 and 522	Trevilians E.S.
5	Louisa County	Consists of Area bounded to the: north by Route 618 and Mineral Town Line east by Rote 609 south by Routes 33 and 657 west by Route 522	Trevilians E.S.
6	Louisa County	Consists of Area bounded to the: north by Route 652 east by Route 614 south by Route 618 west by Route 700	Trevilians E.S.
7	Louisa County	Consists of Area bounded to the: north by Route 652 east by Route 650 south by Route 618 west by Route 614	Trevilians E.S.

Figure 1 to Attachment 4 to Tab B to Appendix 5

NORTH ANNA POWER STATION 10-MILE PROTECTIVE ACTION ZONES
ZONE DESCRIPTIONS AND EAC'S

Protective Action Zone	County/City	Zone Description	EAC
8	Louisa County	Consists of Area bounded to the: northeast by Lake Anna southeast by Route 614 northwest by Contrary Creek southwest by Route 652	Trevilians E.S.
9	Spotsylvania Co.	Consists of Area bounded to the: north by Routes 713 and 601 east by Route 614 south by Lake Anna west by Route 208	Courtland H.S. Chancellor HS Massaponax HS
10	Louisa County	Consists of Area bounded to the: north by Lake Anna east by Lake Anna and Route 622 south by Route 622 west by Routes 652 and 614	Trevilians E.S.
11	Spotsylvania Co.	Consists of Area bounded to the: north by Route 657 east by Routes 738 and 622 south by Route 622 west by Lake Anna and Route 614	Courtland H.S. Chancellor HS Massaponax HS
12	Spotsylvania Co.	Consists of Area bounded to the: north by Bluff Run and Glebe Run east by Route 738 & Oak Crest Drive south by Routes 657, 614, 601, 713 west by Route 208	Courtland H.S. Chancellor HS Massaponax HS
13	Spotsylvania Co.	Consists of Area bounded to the: north by Route 606 east by Routes 208 and 650 south by Route 208 west by Routes 601, 612, and 655	Courtland H.S. Chancellor HS Massaponax HS

Figure 1 to Attachment 4 to Tab B to Appendix 5

NORTH ANNA POWER STATION 10-MILE PROTECTIVE ACTION ZONES
ZONE DESCRIPTIONS AND EAC'S

Protective Action Zone	County/City	Zone Description	EAC
14	Spotsylvania Co.	Consists of Area bounded to the: north by Route 601 east by Route 655 south by Lake Anna west by Routes 612 and 719	Courtland H.S. Chancellor HS Massaponax HS
15	Louisa Co..	Consists of Area bounded to the: north by Lake Anna east by Lake Anna south by Route 208 west by Routes 522 and 719	Courtland H.S.
16	Louisa County	Consists of Area bounded to the: north by Lake Anna east by Routes 719 & 522/208 south by Routes 22, 208, & Louisa Town Line west by Colonial Pipeline	Trevilians E.S.
17	Orange County	Consists of Area bounded to the: north by Routes 653 and 629 east by Orange/Sponsylvania Co. Line south by Orange/Louisa Co. Line (N. Anna River) west by Colonial Pipeline	Orange Co. H.S. Prospect Hights MS
18	Spotsylvania Co.	Consists of Area bounded to the: north by Routes 606 and 608 east by Routes 612 and 719 south by Sponsylvania /Louisa Co. Line (N. Anna River) west by Sponsylvania /Orange Co. Line	Courtland H.S. Chancellor HS Massaponax HS
19	Spotsylvania Co.	Consists of Area bounded to the: north by Route 608 east by Route 612 south by Route 606 west by Route 606	Courtland H.S. Chancellor HS Massaponax HS

Figure 1 to Attachment 4 to Tab B to Appendix 5

NORTH ANNA POWER STATION 10-MILE PROTECTIVE ACTION ZONES
ZONE DESCRIPTIONS AND EAC'S

Protective Action Zone	County/City	Zone Description	EAC
20	Spotsylvania Co.	Consists of Area bounded to the: north by Route 608 east by Routes 606 and 649 south by Route 208 west by Routes 606, 612 and 650	Courtland H.S. Chancellor HS Massaponax HS
21	Spotsylvania Co.	Consists of Area bounded to the: north by Routes 208 and 606 east by Routes 647 and 738 south by Route 605 west by Bluff Run, Glebe Run, Oak Crest Drive and Route 738	Courtland H.S. Chancellor HS Massaponax HS
22	Spotsylvania Co.	Consists of Area bounded to the: north by Routes 604 and 605 east by Spotsylvania/Caroline Co. Line south by the North Anna River west by Routes 622 and 738	Courtland H.S. Chancellor HS Massaponax HS
23	Caroline Co.	Consists of Area bounded to the: north by Route 738 east by Route 738 south by the North Anna River west by Spotsylvania/Caroline Co. Line	Ladysmith E.S. Ladysmith PS
24	Hanover Co.	Consists of Area bounded to the: north by the North Anna River east by Route 738 south by Routes 608, 658,680, 715, 729,739,& 800 west by Hanover/Louisa Co. Line	Liberty Jr. H.S.

Figure 1 to Attachment 4 to Tab B to Appendix 5

NORTH ANNA POWER STATION 10-MILE PROTECTIVE ACTION ZONES
ZONE DESCRIPTIONS AND EAC'S

Protective Action Zone	County/City	Zone Description	EAC
25	Louisa Co.	Consists of Area bounded to the: north by the North Anna River east by Route 601 south by Route 652 west by Route 622	Trevilians E.S.
26	Louisa Co.	Consists of Area bounded to the: north by the North Anna River east by Hanover/Louisa Co. Line south by Routes 33, 608, 655 and 701 west by Routes 601, 609, 650 and 652	Trevilians E.S.

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)

The Surry Power Station (SPS), located on the south bank of the James River in Surry County, near Hog Island. James City, York , and Surry Counties are located east of the river; with Isle of Wight County to the south and west. Approximately quarter of the plume exposure pathway is consists of water. However, there are a number of Special Facilities north of the James River. Population figures for the EPZ can vary extensively based upon tourism during the warmer months at Colonial Williamsburg, Busch Gardens, and the Jamestown-Yorktown Colonial National Historical Parks and whether or not the College of William and Mary is in session. Surry and Isle of Wight Counties are sparsely populated with only one special facility, Chippokes State Park, located south of the James River. In addition, commercial fishing and pleasure boating are conducted on the James River within the EPZ.

The James River varies in width from 1.5 to 5.5 miles and presents a major mobility barrier with only three crossings along a 50-mile stretch between Hopewell and Portsmouth. These crossings are the Benjamin Harrison Bridge, located 35 miles upstream from the SPS; the Scotland Toll Ferry, located 5 miles upstream from the Station; and the James River Bridge, located 16 miles downstream from the SPS.

The total permanent resident population within the Surry 10-mile EPZ is 137,475. There is a concentration within PAZ's 14,15,16,18B,19A,21,23,and 24. The total daytime transient population within the Surry 10-mile EPZ is 136,068. A large portion of this transient popelation is concentrated within PAZ's 15, 16, 18B, 19A, 21, 22A, 23,and 24. Special industries within the 10-mile EPZ include 79 industries employing more than 50 individuals each, 18 hotels employing more than 50 individuals each, 35 schools, 1 hospital, 1 prison, and several large recreational attractions and military institutions.

All ETE's (Evacuation Time Estimates) generated for Surry were modeled under both normal and advers weather conditions, and are based on peak season daytime population counts. The results are as follows:
Range in times for normal weather: 49 minutes to 10 hours 50 minutes
Range in times for adversel weather: 55 minutes to 12 hours 21 minutes

Signnificant traffic congestion was noted in several scenarios. The worst occurred in the following areas:

- Hwy. 31
- Hwy. 60
- Hwy. 143
- Hwy. 199
- Route 238

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

SURRY 10-MILE

NORTH of the JAMES RIVER

This scenario includes the evacuation of Zones (including subzones) 14 through 24 within the 10-mile EPZ. Included are areas within: James City County, York County, Newport News, and the City of Williamsburg. Approximately 70,000 vehicles will be evacuated. The estimated total evacuation times are as follows: 8 hours 11 minutes in normal weather conditions, and 9 hours 32 minutes in adverse weather conditions.

Major exits from this quadrant include I-64, Hwy.5, Hwy.60, Route 1, Route 132, Route 612, and Route 614. Links in the evacuation network that are expected to develop congestion during the evacuation are summarized in the following table:

Summary of Congested Links: SURRY 10-MILE

Segment ID	*Name*	*Route*	*Start of Congestion (w/in minutes)*	*% of Time Congested*	Severity of *Congestion*
115	John Tyler Hwy.	5	150	32%	Moderate to Severe
107	Capitol Landing Rd.	31	120	70%	Very Severe
101	Bypass Rd.	60	45	39%	Mild
133	Bypass Rd.	60	45	51%	Moderate to Severe
158	Warwick Blvd.	60	45	67%	Moderate to Severe
73	Warwick Blvd.	60	45	66%	Very Severe
74	Warwick Blvd.	60	45	70%	Very Severe
90	Warwick Blvd.	60	195	59%	Very Severe
129	State Rt. 132	132	60	59%	Moderate to Severe
92	Merrimac Trail	143	75	44%	Mild
154	Merrimac Trail	143	75	47%	Moderate to Severe
156	Jefferson Ave.	143	75	62%	Very Severe
75	Jefferson Ave.	143	105	49%	Moderate to Severe
25	Ramp	199	90	60%	Moderate to Severe
159	Yorktown Rd.	238	30	54%	Moderate to Severe
145	Water St.	238	195	27%	Mild

Source: Innovative Emergency Management, 2001

Routes 5, 31, 60, 132, 143, 199, and 238 experience various levels of congestion throughout the evacuation period. Hwy. 60 specifically becomes congested approximately 45 minutes into the evacuation.

When attempting to evacuate to the west of Williamsburg, Hwy. 5 is congested within *90 minutes* and remains so for up to *one-third* of the evacuation period. It should be noted that Hwy. 199 north may be further utilized during an evacuation.

When attempting to evacuate to the east or north of Williamsburg, Hwy. 31 becomes congested at Francis Street East and Capital Landing Road (In Williamsburg). This occurs approximately *75 minutes* into to evacuation and continues as such for about *30-70%* of the total evacuation period. Hwy. 60 (Bypass Rd., Pocahontas Trl. and York St.) become congested about *30 minutes* into the evacuation. I-64 at the Route 199 on ramp is essentially blocked off within 90 minutes of the evacuation, continuing for about 60% of the total evacuation period. As a result, I-64 does not become congested and as such is underutilized *throughout the evacuation.*

In the southeastern section, Hwy. 60 (Warwick Blvd. and Bypass Rd) is congested within 45 minutes and remains congested for as much as 70% of the total evacuation period. Most notably, Warwick Blvd. is quickly congested at the southeasterly exit points from the 10-mile EPZ, remaining as such for 70% of the total evacuation period. This causes a bottleneck and significant congestion. Jefferson Avenue (Route 143) is also quickly congested at the exit points from the 10-mile EPZ, remaining as such for about 50% of the total evacuation period. This too causes a bottleneck and significant congestion on the feeder routes. Due to the limited number of I-64 access ramps available to the residents of Zones 15 and 16, the interstate is under-utilized.

Attachment 5 to TaB B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

SURRY 10-MILE

SOUTH of the JAMES RIVER

This scenario includes the evacuation of Zones 1 through 13 within the 10-mile EPZ including areas within Surry County and Isle of Wight County. Approximately 1,400 vehicles will be evacuated. Total estimated evacuation time for the five mile network under normal conditions is 1 hours 1 minute. Under adverse weather conditions the estimated evacuation time is 1 hours 1 minute.

No routes should experience any significant congestion during the evacuation of this area.

SURRY 5-MILE

The Surry 5-mile network consists of Zones 14, 18B,18C,18D, 22A, and 22B to the north of the James River and Zones 4,5,6,7,8,9, and 10 to the south of the river. Large population groups in the area are found at Busch Gardens in Zone 18B and Fort Eustis in Zone 14. Approximately 25,000 vehicles will attempt to evacuate the area. Total estimated evacuation time for the five mile network under normal conditions is 9 hours 28 minutes. Under adverse weather conditions the estimated evacuation time is 10 hours 22 minutes.

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

No traffic congestion is expected for persons evacuating from zones south of the James River along Hwy. 10, Route 638, Route 650.

Major exit routes from this area north of the James River include Hwy.5, Hwy.60, Route 143, and Route 199. Links that are expected to become congested during an evacuation are summarized in the following table:

Summary of Congested Links: Surry 5-Mile

Segment ID	*Name*	*Route*	*Start of Congestion (w/in minutes)*	*% of Time Congested*	Severity of *Congestion*
92	Merrimac Trail	143	75	44%	Mild
154	Merrimac Trail	143	75	47%	Moderate to Severe
156	Jeffferson Ave.	143	75	62%	Very Severe
75	Jeffferson Ave.	143	105	49%	Moderate to Severe
25	Ramp (to I-64)	199	90	60%	Moderate to Severe
159	Yorktown Rd.	238	30	54%	Moderate to Severe
145	Water St.	238	195	27%	Mild

Source: Innovative Emergency Management, 2001

Routes 1, 60,105,143,199 and 238 experience congestion levels ranging from mild to severe beginning as early as *45 minutes* into the evacuation and lasting for much of its duration. In the northwest section of the area, Route 614(Centerville Rd.) and Route 5 (John Tyler Road) become congested within 90 minutes into the evacuation and remain so for approximately *15% of its duration*. Route 1 (Washington Blvd.) becomes congested within 15 minutes and remains so for approximately *50% of the duration.* Traffic from Route 143 to I-64 via Route 199 is effectively blocked off within 90 minutes and remains so for approximately *60% of the evacuation period*. The westbound traffic on Route 143 backs up as a result.

In the southeast area, Hwy. 60 (Warwick Ave.) becomes congested approximately *45 minutes* into the evacuation. The most severe congestion on Hwy. 60 occurs just north of the intersection with Route 105 and remains so for 60% of evacuation period. The worst congestion in this scenario is on Route 143 between Route 238 and Hwy. 199. This is also an exit route for the evacuation. Route 143 becomes congested about 75 minutes into the evacuation and remains severely congested for about 50% of the duration. Partially attributable to the limited number of I-64 entry points available within the 5-mile radius, the interstate in underutilized and does not become congested.

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

SURRY 2-MILE

The Surry 2-mile radius scenario includes the evacuation of Zones 5, 6, 8, and 9. Approximately 550 vehicles will evacuate the area. Under normal conditions this evacuation will take approximately 9 minutes, but under adverse conditions it will take approximately 55 minutes.

No routes should experience any significant congestion during an evacuation.

SURRY QUADRANT I

Quadrant 1 in the Surry EPZ encompasses Protective Action Zone 8, south of the James River as well as Zones 16, 17, 18A, 18B, 18C, 18D, 19A, 19B, 20A, 20B, 21, 22B, north of the river. Large population concentrations within this quadrant include:

1. Camp Peary U.S. Naval Reservation

2. City of Williamsburg

3. Colonial National Historical Park

4. Surry Nuclear Power Station

Evacuation of Quadrant I requires moving approximately 55,000 vehicles to safety. A total evacuation of this quadrant *under normal conditions* is estimated at 8 hours 54 minutes. Under *adverse conditions*, 9 hours 28 minutes. No traffic congestion is expected for persons evacuating from *Zone 8* (to the south of the James River) along Route 650.

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

Major routes serving evacuation Zones in this quadrant include Hwy.5, Hwy.60, Route 132, Route 143, Route 612, and Route 614. The major exit routes from this quadrant south of the James River are Hwy.10, and Hwy.31. Links in the evacuation network developing the most congestion during the evacuation are summarized in the following table.

Summary of Congested Links: Surry Quadrant I

Segment ID	*Name*	*Route*	*Start of Congestion (w/in minutes)*	*% of Time Congested*	Severity of *Congestion*
115	John Tyler Hwy.	5	150	29%	Moderate to Severe
107	Capitol Landing Rd.	31	120	64%	Very Severe
101	Bypass Rd.	60	45	52%	Moderate to Severe
133	Bypass Rd.	60	45	44%	Moderate to Severe
158	Warwick Blvd.	60	45	64%	Moderate to Severe
73	Warwick Blvd.	60	45	54%	Very Severe
74	Warwick Blvd.	60	45	64%	Very Severe
90	Warwick Blvd.	60	195	58%	Very Severe
129	State Rt. 132	132	60	58%	Moderate to Severe
83	Jefferson Ave.	143	75	22%	Mild
92	Merrimac Trail	143	75	41%	Mild
154	Merrimac Trail	143	75	48%	Moderate to Severe
156	Jefferson Ave.	143	75	62%	Very Severe
75	Jefferson Ave.	143	105	48%	Moderate to Severe
25	Ramp	199	90	61%	Moderate to Severe
159	Yorktown Rd.	238	30	57%	Moderate to Severe
145	Water St.	238	195	25%	Mild

Source: Innovative Emergency Management, 2001

Routes 5, 31, 60, 132, 143, 199 and 238 experience a range of congestion levels throughout the evacuation process. In the northwest section of the quadrant , Hwy.31 becomes congested in Williamsburg within approximately *75 minutes* of the evacuation. These links are congested for *30-65%* of the evacuation period. Hwy.60 and Route 143 also experience congestio to the east and northeast of Williamsburg. Traffic flow to I-64 via Route 199 is essentially blocked off for *60%* of the evacuation period, beginning approximately *90 minutes* into the evacuation process. Route 143 becomes congested aprroximately *75 minutes* into the evacuation process. As a result, I-64 does not become congested and as such is underutilized *throughout the evacuation.*

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

In the southeast section of the quadrant, Hwy. 60 (Warwick Blvd. and Bypass Rd.) is first significantly congested within approximately *45 minutes* into the evacuation process and remains so for *45-65%* of the evacuation. Warwick Blvd. is quickly congested at the exit point from the 10-mile EPZ in the southeasterly direction and remains so for much of the evacuation period thus creating a bottleneck and backing up traffic on this highway. Jefferson Ave. also becomes near the exit point for the EPZ approximately *75 minutes* into the evacuation and severely congested for approximately 60% of the evacuation period. Partially attributable to the limited number of I-64 entry points available in Zone 16, the interstate in underutilized and does not become congested.

Most of the evacuating population in this quadrant is north of the river. Interstate 64, Routes 60 and 143 around Williamsburg and Route 60 and Route 173 around Newport News receive the highest amount of flows. The majority of people around Williamsburg are evacuated on Interstate 64 and Route 60. A significant part of the population is evacuated on Routes in the east-west direction. Prominent among these are Route 5 West and the Colonial National Historical Parkway towards the west.

Congestion occurs on Route 5, one and one half hours into the evacuation and lasts for nearly the remainder of the clearance time. Route 60 experiences similar congestion around Williamsburg. The southern portion of Route 60 near Newport News becomes congested two hours into the evacuation process. Delays last for an hour and a half. Routes 143 and 199 experience congestion two hours into the evacuation which lasts for about 30 minutes.

SURRY POWER STATION (SPS) (continued)

SURRY QUADRANT II

Quadrant II in the Surry area encompasses Protective Action Zones 8, 9, and 13 south of the James River as well as Zones 14,15,16,17, and 18D to the north of the river. Large population concentrations within this quadrant include:

1. Surry Nuclear Power Station
2. City of Newport News
3. Colonial National Historical Park
4. Busch Gardens

Approximately 42,000 vehicles must be cleared from this area during an evacuation which is estimated to take 10 hours 50 minutes under normal weather conditions and 12 hours 21 minutes under adverse weather conditions.

No traffic congestion is expected for persons evacuating from zones south of the James River along Route 650, Hwy. 10, Route 617, Route 628 and Route 627.

Major exit routes from this quadrant to the north of the James River includeI-64, Hwy. 60, Route 143 to the northwest and southeast, as well as Routes 1, 238, and 105 to the north and east. Links in the evacuation network developing congestion during the evacuation are summarized in the following table:

Summary of Congested Links: Surry Quadrant II

Segment ID	*Name*	*Route*	*Start of Congestion (w/in minutes)*	*% of Time Congested*	Severity of *Congestion*
158	Warwick Blvd.	60	45	68%	Moderate to Severe
73	Warwick Blvd.	60	45	55%	Very Severe
74	Warwick Blvd.	60	45	70%	Very Severe
90	Warwick Blvd.	60	195	58%	Moderate to Severe
161	Washington Blvd.	105	45	32%	Mild
154	Merrimac Trail	143	75	48%	Moderate to Severe
156	Jefferson Ave.	143	75	62%	Very Severe
75	Jefferson Ave.	143	105	48%	Moderate to Severe
25	Ramp	199	90	52%	Moderate to Severe
159	Yorktown Rd.	238	30	53%	Moderate to Severe

Source: Innovative Emergency Management, 2001

Attachment 5 to Tab B to Appendix 5

SURRY POWER STATION (SPS)
(continued)

Routes 1,3,60,173, and 238 experience varying levels of congestion from about *45 minutes* into the evacuation period, lasting for much of the *duration*. In the northwest section of the quadrant, Route 143 (Merrimac Trail) is congested within *75 minutes* and remains so for approximately *50%* of the evacuation period. Hwy.60 (York Street) near Williamsburg also experiences considerable congestion, but it is shortlived. *90 minutes* into the evacuation, traffic flow to I-64 via Route 199 off of Route 143 is essentially blocked *50%* of the evacuation period. This causes northbound traffic on Route 143 to back up at this junction. As a result of this and the limited number of I-64 access ramps, the interstate is under-utilized

In the southeast section of the quadrant, Hwy. 60 (Warwick Blvd., Bypass Rd.) is congested within *45 minutes* and remains so for *15%-70%* of the evacuation period. Warwick Blvd. is quickly congested at the exit point from the 10-Mile EPZ in the southeasterly direction, creating a bottleneck and causing severe congestion. Route 143 (Jefferson Ave.) is also congested at the exit point from the EPZ. This occurs within about *105 minutes* and remains severely congested for much of the evacuation period. Again, due to the limited number of I-64 access ramps available to the residents of Zone 16, the interstate is under-utilized

SURRY QUADRANT III

Quadrant III includes all evacuation areas south of the James River (Zones 1-13). This part of the evacuation area is sparsely populated with the exception of the Town of Surry and the Surry Nuclear Power Station. Approximately 1,400 vehicles will be evacuated. Total estimated evacuation time for the five mile network under normal conditions is 1 hours 1 minute. Under adverse weather conditions the estimated evacuation time is 1 hours 1 minute.

No routes should experience any significant congestion during the evacuation of this area.

SURRY QUADRANT IV

Quadrant IV encompasses most of the James City County (Zones 22, 23, and 24) and the City of Williamsburg (Zone 21) as well as a few Zones (2, 4, 5, and 8) south of the James River in Surry County. Approximately 26,000 vehicles will be evacuated. The approximate total evacuation times for this area are 3 hours 10 minutes in normal conditions, and 4 hours 1 minutes in adverse conditions.

No traffic congestion is expected for persons using Hwy. 10, Hwy. 31, Route 650, Route 638 and other to evacuate Zones 2,4,5,8 to the south of the James River.

Major exit routes from this quadrant north of the James River include Hwy. 5, Hwy.60, Routes 132, 143, 612 and 614. Links in this area expected to develop congestion during the evacuation are summarized in the following table:

Summary of Congested Links: Surry Quadrant IV

Segment ID	*Name*	*Route*	*Start of Congestion (w/in minutes)*	*% of Time Congested*	Severity of *Congestion*
158	Warwick Blvd.	60	45	69%	Moderate to Severe
73	Warwick Blvd.	60	45	63%	Very Severe
74	Warwick Blvd.	60	45	70%	Very Severe
90	Warwick Blvd.	60	195	57%	Moderate to Severe
161	Washington	105	45	32%	Mild
154	Merrimac Trail	143	75	49%	Moderate to Severe
156	Jefferson Ave.	143	75	62%	Very Severe
75	Jefferson Ave.	143	105	48%	Moderate to Severe
25	Ramp	199	90	53%	Moderate to Severe
159	Yorktown Rd.	238	30	60%	Moderate to Severe
145	Water St.	238	195	22%	Mild

Source: Innovative Emergency Management, 2001

Routes 60, 105, 143, 199 and 238 become congested approximately *45 minutes* into the evacuation. These routes experience a various levels of congestion throughout much of the evacuation period.

Little congestion is experienced by those attempting to evacuate to the west of Williamsburg. Also at this time, Hwy. 199 northbound is under-utilized in the evacuation network.

Traffic evacuating to the east or north of Williamsburg will experience only slight congestion on Hwy. 641 (Penniman Rd.), Route 1 (Quarter Path Rd.), and Hwy 143 (Merrimac Trl.) These links become congested within at about *2 hours* into the evacuation period, but remain so for only a *short time*. Route 143 (Merrimac Trl.) beomes congested about 75 minutes into the evacuation and remains so for approximately half of the evacuation period. Traffic flow to I-64 via Route 199 (at the southern end) becomes essentially blocked off about *90 minutes* into the evacuation and remains so for approximately *half* of the evacuation period. This causes extremely heavy congestion on many of the roads leading to the I-64 on ramps. Due to the lack of access to the interstate, I-64 is under-utilized in the evacuation. To the southeast of Williamsburg, Hwy. 60 and Route 143 experience some congestion.

Attachment 5 to Tab B to Appendix 5

SPS EVACUATION ROUTES

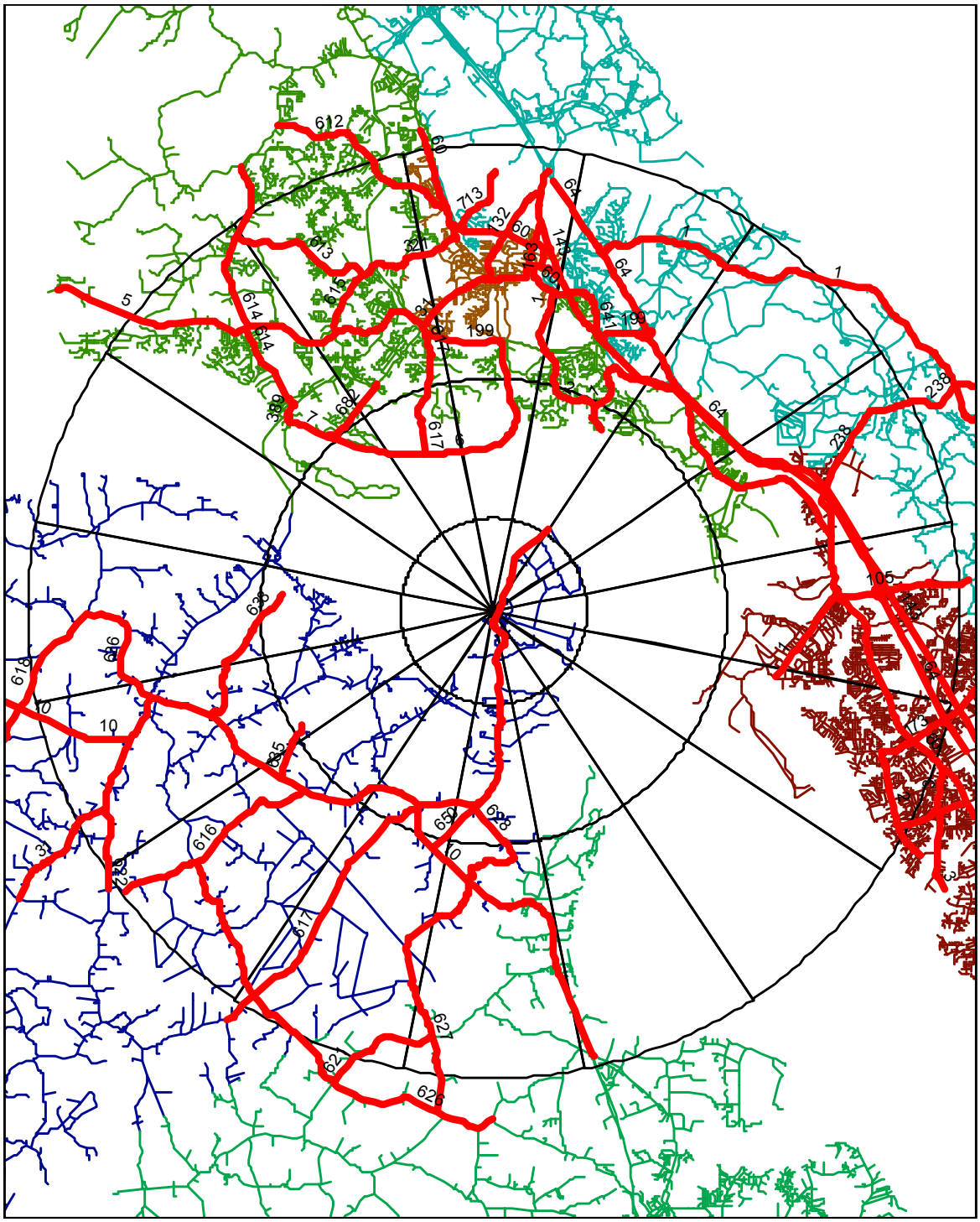


Figure 2 to Attchment 5 to Tab B to Appendix 5

2000 CENSUS POPULATION WITHIN 10-MILE EPZ OF SPS

A.	Permanent Residents	
1.	Counties	
a.	Isle of Wight	1,902
b.	James City	33,381
c.	Surry	3,717
d.	York	9,104
2.	Cities	
a.	Newport News	77,373
b.	Williamsburg	11,998
	SUBTOTAL	137,475
B.	Special Facilities	
1.	Transient Population	
a.	Jamestown Original Settlement & National Park	3,200
b.	Colonial Williamsburg Foundation	13,600
c.	Busch Gardens	30,000
e.	Colonial National Historic Parkway	2,100
f.	Chippokes State Park	16,000
g.	Water Country USA	15,000
	SUBTOTAL	98,800
2.	Institutionalized Population	
a.	College of William and Mary	9,960
b.	Williamsburg Community Hospital	549
c.	Virginia Peninsula Regional Jail	429
d	Naval Weapons Station/Cheatham Annex	2,823
e.	Fort Eustis	14,815
	SUBTOTAL	28,576

TOTAL (2000 CENSUS POPULATION WITHIN 10-MILE EPZ OF SPS) 264,851

Figure 2 to Attachment 5 to Tab B to Appendix 5
PUBLIC SCHOOLS within the 10-Mile EPZ

Williamsburg			
	Berkeley MS	23	702
	Clara Byrd Baker ES	23	964
	College of Wm. & Mary	21	9,960
	Eastern Virginia School	19A	4
	James Blair MS	21	576
	James River ES	18C	572
	Jamestown HS	24	1,319
	Magruder ES	19A	617
	Matthew Whaley PS	21	538
	Queens Lake MS	20B	502
	Rawls Bird ES	20B	619
	Thomas Nelson CC	18B	1,343
	Waller Mill ES	20A	253
	Williamsburg Christian	21	345
Smithfield			
	Hardy ES	13	857
Yorktown			
	Yorktown ES	17	435
City of Newport News			
	BC Charles E.S.	15	616
	D.A. Dutrow ES	16	603
	Epes Elementary	16	1,438
	GJ McIntosh ES	16	698
	Holy Tabernacle Christian	16	97
	Jenkins ES	15	613
	JM Dozier MS	16	1,211
	Lee Hall ES	16	895
	Menchville HS	15	2,003
	New Horizons Regional	16	450
	O.C. Greenwood ES	16	869
	R.O. Nelson ES	16	833
	Reservoir MS	16	839
	Richneck ES	16	832
	T.R. Sanford ES	15	663
	Tabb MS	16	892
	Warwick Christian	15	350
	Woodside HS	16	2,338
TOTAL			35,246

Source: Innovative Emergency Management, 2001

Figure 3 to Attachment 5 to Tab B to Appendix 5
SPS RESIDENT POPULATION DATA BY PAZ

1	262	305	567
2	901	132	1,033
3	653	17	670
4	451	86	537
5	348	169	517
6	239	21	260
7	233	24	257
8	6	966	972
9	567	38	605
10	203	6	209
11	94	0	94
12	68	0	68
13	1,594	268	1,862
14	5,738	13,022	18,760
15	26,322	4,961	31,283
16	45,235	9,767	55,002
17	1,505	164	1,669
18A	1,317	1,002	2,319
18B	4,094	33,356	37,450
18C	3,331	1,291	4,622
18D	63	1,366	1,429
19A	4,739	17,988	22,727
19B	591	2,559	3,150
20A	690	2,448	3,138
20B	1,579	609	2,188
21	11,998	32,768	44,766
22A	1,170	3,590	4,760
22B	3,150	1,559	4,709
23	15,792	5,301	21,093
24	4,464	2,245	6,709

Source: Innovative Emergency Management, 2001

Figure 4 to Attachment 5 to Tab B to Appendix 5

SPS 10-MILE EPZ POPULATION GROUPED BY COUNTY/CITY

Isle of Wight	1,902	753	2.53	56	154
James City Co.	33,381	13,553	2.46	1,221	3,005
Surry	3,717	1,435	2.59	142	369
York	9,104	3,444	2.64	241	638
Newport News	77,373	27,134	2.85	2,171	6,241
Williamsburg City	11,998	3,619	3.39	622	2,062
TOTAL	137,75	49,938	2.78	4,453	12,469

Source: Innovative Emergency Management, 2001

Figure 5 to Attachement 5 to Tab B to Appendix 5

Network Clearance Times for Surry Power Station EPZ

Area	Total Pop. Evacuated	Clearance Time Good Weather	Clearance Time Poor Weather
10 Mile Radius North	172,565	8 hours 11 minutes	9 hours 32 minutes
10 Mile Radius South	3,533	1 hours 1 minute	1 hours 1 minute
5 Mile Radius	62,370	9 hours 28 minute	10 hours 22 minutes
2 Mile Radius	1,354	9 minutes	55 minutes
Quadrant I Sectors A, B, C, and D	135,943	8 hours 54 minutes	9 hours 28 minutes
Quadrant II Sectors E, F, G, and H	104,939	10 hours 50 minutes	12 hours 21 minutes
Quadrant III Sectors J, K, L, and M	3,533	1 hours 1 minute	1 hours 1 minute
Quadrant IV Sectors N, P, Q, and R	65,293	3 hours 10 minutes	4 hours 1 minute

Source: Innovative Emergency Management, 2001

Attachment 6 to Tab B to Appendix 5

NORTH ANNA POWER STATION (NAPS)

The NAPS is located on a peninsula on the southern shore of Lake Anna in Louisa County. Lake Anna and its tributaries comprise about 10% of the plume exposure pathway EPZ area. The land area, divided by the lake and North Anna River, is divided almost equally with Spotsylvania County to the north and east and Louisa County to the south and west. Small segments of Orange County (NW), Caroline County (SE), and Hanover County (SE) protrude into the ten-mile EPZ.

The total permanents resident population within the North Anna 10 mile EPZ is 20,292. A transient populations within the EPZ, numbering approximately 380, are concentrated within PAZ's 12,14, and 15. Identified special populations within the 10 mile EPZ include 7 schools and 4 industries with 50+ employees.

All ETE's (Evacuation Time Estimates) generated for North Anna were modeled under both normal and advers weather conditions, and are based on peak season daytime population counts. The results are as follows:
Range in times for normal weather: 1 hour 25 minutes to 1 hours 45 minutes
Range in times for adversel weather: 1 hour 30 minutes to 1 hours 45 minutes

No significant congestion was found in any of the scenarios evaluated.

North Anna 10-MILE Radius

The North Anna 10-mile radius scenario includes the evacuation of all zones within th e10-mile EPZ. Approximately 8,400 vehicles will need to be ecavuated. Total estimated evacuation time for the ten mile network under normal conditions is 1 hours 25 minutes. Under adverse weather conditions the estimated evacuation time is 1 hours 30 minutes. No routes experience any significant congestion during the evacuation of this area.

North Anna 5-MILE Radius

The 5-mile evacuation includes Zones 4, 6,7,8,9,10, 14,15,25 and portions of 5, 11,12, and 13. Approximately 2,900 vehicles will attempt to evacuate the area. Total estimated evacuation time for the five mile network under normal conditions is 1 hour 35 minutes. Under adverse weather conditions the estimated evacuation time is 1 hour 40 minutes. No routes experience any significant congestion during the evacuation of this area.

Attachment 6 to Tab B to Appendix 5

NORTH ANNA POWER STATION (NAPS)
(continued)

North Anna 2-MILE Radius

The 2-mile radius scenario includes portions of Zones 6,8, 9 and portions of 4,7,10, and 11. Approximately 830 vehicles will attempt to evacuate the area. Total estimated evacuation time for the two mile network under normal conditions is 1 hour 45 minutes. Under adverse weather conditions the estimated evacuation time is 1 hours 45 minutes. No routes experience any significant congestion during the evacuation of this area.

North Anna Quadrant I

North Anna Quadrant I consists of Zones 8,9,11,12,13,14,18,19,20,21. Much of the population is contained within Zones 18,19,20, and 21; but, there are no major population concentrations in this quadrant. Approximately 3,800 vehicles will evacuate the area. Total estimated evacuation time for the Quadrant I network under normal conditions is 1 hour 30 minutes. Under adverse weather conditions the estimated evacuation time is 1 hours 35 minutes.

No routes experience any significant congestion during the evacuation of this area.

North Anna Quadrant II

North Anna Quadrant II consists of Zones 6,7,8,10,25 and 26 in Louisa County; Zones 9,11,21, and 22 in Spotsylvania County; Zone 23 in Caroline County; and Zone 24 in Hanover County. Approximately 3,700 vehicles will evacuate the area. Total estimated evacuation time for the Quadrant II network under normal conditions is 1 hour 30 minutes. Under adverse weather conditions the estimated evacuation time is 1 hours 30 minutes.

No routes experience any significant congestion during the evacuation of this area.

North Anna Quadrant III

North Anna Quadrant III consists of Zones 2,3,4,5,6,7,8,16, and 26, all of Louisa County. There is a high population concentration in the Town of Mineral, which is located in Zone 2. Approximately 3,650 vehicles will evacuate the area. Total estimated evacuation time for the Quadrant III network under normal conditions is 1 hour 30 minutes. Under adverse weather conditions the estimated evacuation time is 1 hours 35 minutes.

No routes experience any significant congestion during the evacuation of this area.

Attachment 6 to Tab B to Appendix 5

NORTH ANNA POWER STATION (NAPS)
(continued)

North Anna Quadrant IV

North Anna Quadrant IV consists of Zones 4,8,15, and 16 of Louisa County; Zone 17 of Orange County , Zones 14 and 18 of Spotsylvania County. There is a high population concentration in the Town of Mineral, which is located in Zone 2. Approximately 3,650 vehicles will evacuate the area. Total estimated evacuation time for the Quadrant IV network under normal conditions is 1 hour 30 minutes. Under adverse weather conditions the estimated evacuation time is 1 hours 35 minutes.

No routes experience any significant congestion during the evacuation of this area.

Attachment 6 to Tab B to Appendix 5

NAPS EVACUATION ROUTES