

# V.C. SUMMER NUCLEAR STATION

## Emergency Preparedness

### Information



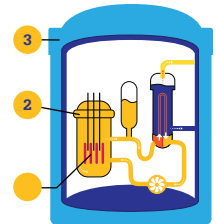
## UNDERSTANDING NUCLEAR SAFETY & RADIATION



Nuclear power plants are designed, engineered, and operated to adhere to stringent safety and security regulations and practices. Multiple layers of safety systems and structures protect the plant and community from an emergency:

- Reactor safety systems with separate, redundant backup systems to provide reliable protection
- Reinforced concrete and steel designed containment buildings to withstand tremendous forces (e.g., hurricanes, tornadoes, earthquakes, and external explosions)
- Regularly exercised and comprehensive emergency plans and procedures
- Highly skilled, experienced, and continuously trained plant employees
- Highly secured, 24 hours a day, 7 days a week
- Comprehensive security plans and on-site security force personnel
- Advanced physical security and monitoring systems

There are three **fission product barriers** (also referred to as **protective barriers**) that prevent the release of radioactive fission products (radiation) into the environment:



1. **Fuel Cladding:** Fuel cladding is the outer layer of the fuel rods, standing between the reactor coolant and the nuclear fuel (i.e., fuel pellets). It prevents corrosion of the fuel.
2. **Reactor Coolant System:** The reactor coolant system acts as the second fission product barrier. Within the large steel reactor vessel, the reactor coolant system includes the pipes and components (e.g., the reactor vessel, coolant pumps and piping) that supports the transfer and process of reactor coolant (water) to remove heat from the reactor core.
3. **Containment Building:** The containment building acts as the third fission product barrier. The containment is a concrete shield building and steel containment vessel that houses the reactor vessel, steam generators, and piping of the reactor coolant system.



Radiation is energy emitted in tiny waves or particles. It naturally occurs in the environment; it is not new or mysterious. We receive radiation from the sun, minerals in the earth, food we eat, and building materials. We even give off radiation.

You can't see, taste, or hear radiation. However, you can measure radiation – in units called rem and millirem. A millirem (mrem) is 1/1000th of a rem. The rem is a unit of measure that considers the effect that different types of radiation have on the body. The table below shows the average mrem an individual in the United States receives from naturally occurring and man-made radioactive material. (Source NCRP Report No. 160, *Ionizing Radiation Exposure of the Population of the United States*).

Radiation can produce charged particles in material it strikes. Charged particles are known as ions. The most common types of ionizing radiation are alpha, beta, and gamma. **Alpha radiation** is the least penetrating type. It can be stopped with a shield equivalent to a sheet of paper. **Beta radiation** consists of electrons that can be stopped by the equivalent of thin cardboard. **Gamma radiation** consists of electro-magnetic waves that can be stopped by heavy shielding such as concrete or lead.

Exposure to large amounts of radiation can be harmful or even fatal; however, radiation emitted during normal plant operations is very small, as indicated in the table below. Radiation risk depends on: (1) Kind of rays and particles that strike an individual. (2) Length of exposure time. (3) Body parts exposed. (4) Amount of radioactive material an individual may have ingested or inhaled. And (5) Age – young children are more at risk because cells in their bodies are growing much faster than the cells of older children and adults.

Natural Background (mrem)		Man-Made (mrem)	
Radon & Radon Daughters	228.0	Medical Diagnostic X-Rays	33.0
Cosmic Rays	33.0	Other Medical	267.0
Terrestrial Radiation	21.0	Consumer Products	13.0
Internal Radiation	29.0	Occupational	0.5
<b>Per Year Total</b>	<b>311.0</b>	Nuclear Power	0.1
		Miscellaneous	0.3
		<b>Per Year Total</b>	<b>314.0</b>
<b>Natural and Man-Made sources Per Year Total</b>			<b>625.0</b>

## BE PREPARED

### Develop an Emergency Plan & Kit



It is important to know which types of disasters could affect your area. Your **Emergency Plan** will contain emergency contacts, medical information, your Protective Action Zone, evacuation and sheltering information, and more. Your **Emergency Kit** should have supplies to last at least three days for each family member. Keep it in an easy-to-carry bag, such as a backpack, duffel bag, or suitcase. Emergency kit items to include:

- First aid kit  
(including list of allergies, extra contact lenses, glasses)
- Non-perishable foods/can opener
- Matches/lighters
- Water, one gallon per person per day
- Medications
- Flashlight/batteries
- Items for individuals with access/functional needs
- Local map
- Important documents/cash
- Clothing/blankets
- Phone/phone charger
- Tools
- Local map
- Personal items
- Infant/children items
- Pet supplies
- Photo ID
- Potassium Iodide (KI)

For **persons with access and functional needs** who may need help in an evacuation - Complete and return the **Individuals With Access and Functional Needs Survey**. This survey is mailed to you every year. Residents must complete and mail, at no cost, the survey card every year. Or, contact your locality to learn available options. If you become ill or need assistance at the time of an emergency, contact your local sheriff or ambulance service. Contact information is provided under **More Information on pg. 14**.

## Develop a Pet Emergency Plan and Kit

Not all shelters and hotels accept pets. Plan ahead to stay with family, friends, or at pet-friendly locations if you need to evacuate your home. If a hotel has a no-pets policy, ask if they can waive the policy during an emergency. Don't hesitate to leave your home in an emergency because you don't want to leave your pet(s) behind.

### Pet Kit Items:

- Microchip your pet
- Familiar items/toys/beds
- Pet carrier
- Pet food/water for at least 3 days
- Photograph of pet
- Non-spill water/food bowls
- Plastic bags/litter
- Extra newspaper/ disinfectant
- Collar with ID tag/leash
- Pet vaccination/medical records/meds

## Protect Your Livestock & Agriculture

Livestock and poultry owners are responsible for the care and well-being of their animals. Livestock and poultry owners, farmers, and producers should develop and maintain an emergency plan specific to their needs to use in the case of an evacuation. Nuclear plant emergencies may impact livestock, food, and agricultural products. Protective actions for livestock and agricultural products will be issued by appropriate state and local officials.

These actions may include:

- (1) Restriction of movement for livestock, poultry, food and feed items, and other agricultural products.
- (2) If possible, shelter farm animals and provide stored (covered) feed and protected water (e.g., protective self-feeders and automatic waterers).
- (3) Store feed in buildings or cover with plastic or canvas if outdoors.
- (4) Cover open wells and water tanks.

For more information and guidance on disaster planning for livestock and agriculture, visit:

- SCEMD's Agriculture and Nuclear Power in South Carolina factsheet <https://www.scemd.org/media/1198/plant-and-agricultural-brochure.pdf>
- Clemson University Livestock Poultry Health (Office of the SC State Veterinarian) <https://www.clemson.edu/public/lph/ahp/emergency-prep/index.html>
- Clemson University Cooperative Extension Service <https://www.clemson.edu/extension/co/index.html>

## Preparing for a Radiological Emergency

The Nuclear Regulatory Commission defines four emergency classifications that could occur at a nuclear power station. Dominion Energy would contact federal, state, and local authorities in each of the following situations:

- **Unusual Event is the least serious level**, indicating a potential or minor event at the station. Radioactive release, if any, is minimal and far below Federal guidelines. There is no impact to public and no public action needed. Support from state and local emergency officials is not needed.
- **Alert is a more serious level**, indicating an event that may affect station safety. Radioactive release, if any, is minimal and far below Federal guidelines. There is no impact to public and no public action needed. State and local emergency officials will share information with the public as needed.
- **Site Area Emergency is a serious level**, indicating an event that may affect or has affected plant safety. Radioactive release, if any, should remain under Federal guidelines. When alerted, you should tune in to local radio and television stations for information and instructions. State and local emergency officials may recommend actions for the public to take.
- **General Emergency is the most serious level** that involves a serious event that may affect or has affected plant safety. Radioactive release, if any, may exceed Federal guidelines. When alerted, you should tune in to local radio and television stations for information and instructions for protective actions. State and local emergency officials will direct actions for the public to take.

## STAY INFORMED

### Stay Up to Date & Listen to Emergency Notifications



Local radio and TV stations will have information and provide actions to take to keep you safe in the unlikely emergency event at V.C. Summer Nuclear Station. The public will be alerted and notified of an emergency via the Integrated Public Alert and Warning System [fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public](https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public).

In an emergency, an emergency alert will be sent to your emergency alert-enabled mobile device. At no charge to you. When you receive an emergency alert on your phone, tune in to one of your local radio or TV station for emergency information and instructions.

**Receiving an emergency alert on your phone, does NOT mean you should evacuate.** It means turn on your local radio or TV station(s) and listen for information and instructions on what to do. A list of local television and radio stations is provided below.

In order to receive an alert on your phone, you must have a mobile device and be located in the affected area where the alert is being sent. To ensure you receive the alert, go to your mobile phone's settings, under notifications, scroll to the bottom and confirm all emergency alerts are enabled.

TV Stations
WIS, Ch. 10 WLTX, Ch. 19 WOLO-TV, Ch. 25 WACH, Ch. 57

Radio
WCOS 1140 AM WCOS 97.5 FM WTCB 106.7 FM WLTR 91.3 FM

## PROTECTIVE ACTION ZONE & RECEPTION CENTER



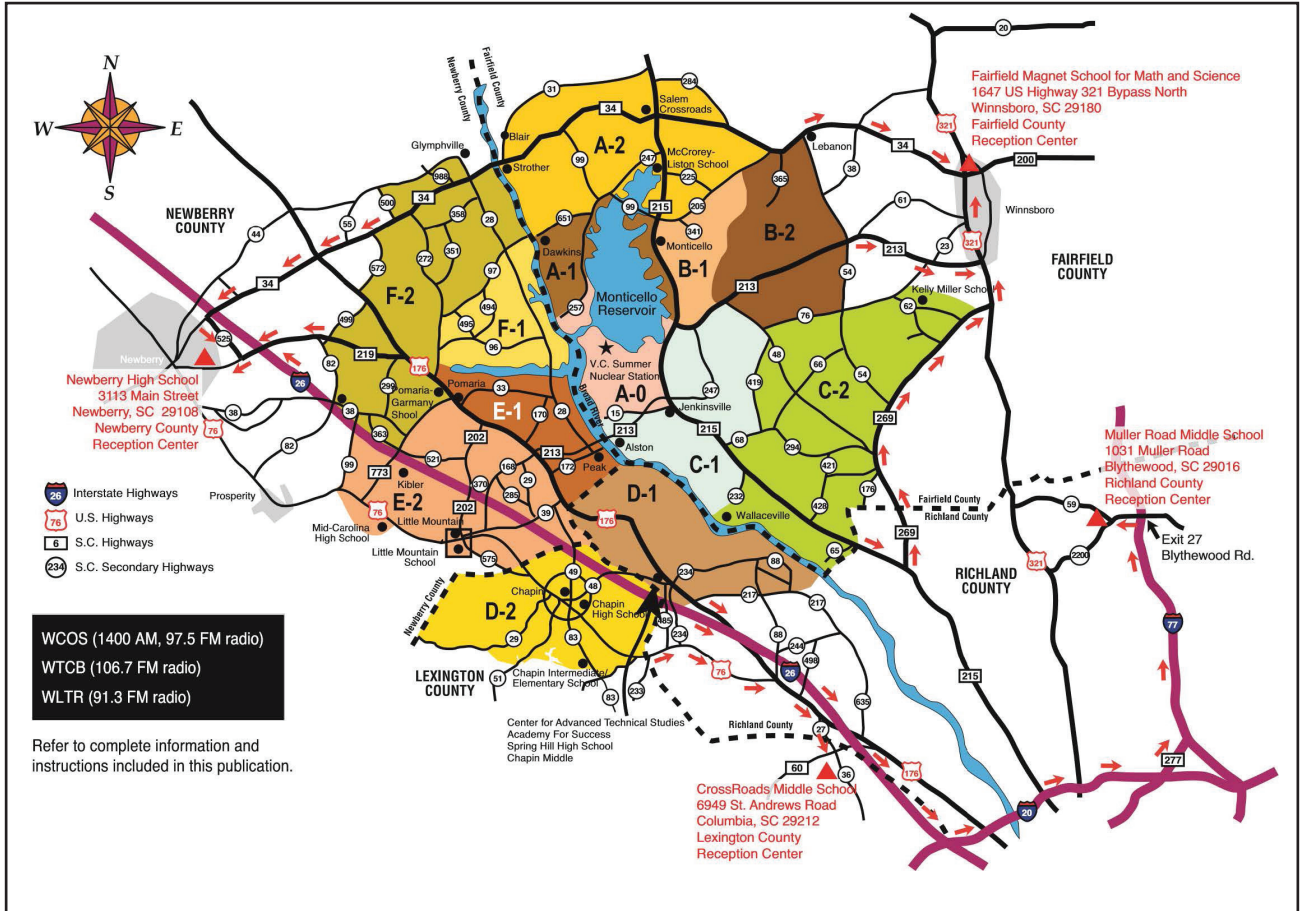
The 10-mile area around V.C. Summer Nuclear Station is divided up into 13 zones, called **Protective Action Zones (PAZ)**. Knowing your PAZ will let you know if your zone is affected by the emergency and what actions to take to keep you safe. Go to SCEMD's Nuclear Facility Zones interactive map [scedm.org/prepare/types-of-disasters/nuclear-power-plants/](https://scedm.org/prepare/types-of-disasters/nuclear-power-plants/) to find your PAZ or view in the SC Emergency Manager mobile app.

**Listen carefully to instructions specific to your zone.** Not all PAZs may be affected by the emergency or need to evacuate. If your PAZ is instructed to evacuate, listen for instructions to report to your assigned **Reception Center**. Reception Centers offer contamination monitoring, decontamination if needed, and other care services. Learn more about potassium iodide on [pg. 12](#).

Identify your assigned Reception Center from the list below:

- **Fairfield County Reception Center**  
Fairfield Magnet School for Math and Science  
1647 US Highway 321 Bypass North  
Winnsboro, SC 29180
- **Lexington County Reception Center**  
Crossroads Intermediate School  
6949 St. Andrews Rd.  
Columbia, SC 29212
- **Newberry County Reception Center**  
Newberry High School  
3133 Main Street  
Newberry, SC 29108
- **Richland County Reception Center**  
Muller Road Middle School  
1031 Muller Rd.  
Blythewood, SC 29016

## V.C. Summer Nuclear Station Evacuation Zone and Reception Center Map



You may also use SCEMD's Nuclear Facility Zones interactive map available at [scemd.org/prepare/types-of-disasters/nuclear-power-plants/](http://scemd.org/prepare/types-of-disasters/nuclear-power-plants/) to find your PAZ and Reception Center.

In an emergency, **parents of school children** need to listen to local radio and/or TV station(s) for updates on school status and instructions. Emergency officials will advise schools on what actions to take. If told to evacuate, the schools will go to the their assigned Reception Center. Below are the assigned Reception Centers for schools and day care centers in the V.C. Summer Nuclear Station 10-mile area:

#### **Fairfield Magnet School (Fairfield)**

- Kelly Miller Child Develop. Center
- Kelly Miller School
- McCrorey-Liston Child Develop. Center
- McCrorey-Liston School of Technology

#### **Central United Methodist (Newberry)**

- Pomaria-Garmany School\*

#### **Crossroads Intermediate School (Lexington)**

- Chapin Baptist Child Develop. Center
- Chapin Children Center
- Chapin Elemen. School
- Chapin Intermediate School
- Chapin High School
- Inez's Children Center
- Abner Montessori School
- Mt. Horeb Lutheran Church

#### **Muller Road Middle School (Richland)**

- Academy for Success
- Spring Hill High School
- Center for Advanced Tech. Services
- Chapin Middle School

#### **Newberry High School (Newberry)**

- Little Angels Day Care

#### **Wightman United Methodist Church (Newberry)**

- Little Mountain School\*
- Mid-Carolina High School\*
- Mid-Carolina Middle School\*

*\*Refer to Parent Information Brochure on Critical Incidents, distributed by Newberry County Schools.*

## **FOLLOW EMERGENCY INSTRUCTIONS**



***If Your Protective Action Zone is Told to Evacuate:***

- ✓ **Stay calm – review your emergency plan.**  
In an event, you will have time to take necessary action
- ✓ **Turn on local radio or TV station(s).**
- ✓ **Grab your emergency kit.** Grab all essentials for you, your family, and pet(s). You may be away from home for several days.
- ✓ **Keep up to date and listen to instructions.** Ensure your phone is enabled to receive emergency alerts and listen to local radio or TV for information and potential actions to take to keep you safe.
- ✓ **Limit telephone use to emergencies only,** keep the lines open for official use.
- ✓ **Check on family and friends** who may need assistance.
- ✓ **Know your children's school emergency plan.** Review emergency school plan(s) and procedure(s) each school year.
- ✓ **Secure your home and turn off appliances.** Lock doors and windows. Turn off appliances (except refrigerator and freezer).
- ✓ **Tie a white handkerchief or cloth to door or mailbox.** This indicates to authorities that you have left your home.
- ✓ **Drive safely to your Reception Center.** If directed, report to your assigned Reception Center for contamination monitoring and other potential protective actions. Close windows, vents, and turn off air conditioner and heater.
- ✓ **If registered as an individual needing evacuation assistance,** wait for instructions from your locality.
- ✓ **Return home when directed.** When the emergency has ended, emergency officials will provide instructions for returning home.
- ✓ **Questions during an emergency and more information,** contact SC 2-1-1 and/or visit the SCEMD website [scemd.org](http://scemd.org).

**If Your Protective Action Zone is Told to Shelter-In-Place:**

- ✓ **Stay calm – stay inside.** Stay in the middle of the building, as much as possible, and close all windows and doors. Prepare to stay inside for at least three days.
- ✓ **If driving,** close windows and vents and turn off air conditioner and heater.
- ✓ **Bring pets and livestock inside.** Plan for at least three days.
- ✓ **Close all windows and doors, and turn off all devices that draw outside air, if possible.** You can use fans or heating devices inside the home to keep warm or cool.
- ✓ **Close chimney flues when possible.**
- ✓ **Keep informed and listen to instructions.** Continue to monitor local radio or TV and follow instructions. Do not evacuate unless directed.
- ✓ **Limit telephone use to emergencies only,** keep the lines open for official use.
- ✓ **For questions during an emergency and for more information,** contact SC 2-1-1 and/or visit SCEDM website [scemd.org](http://scemd.org).

**TAKE POTASSIUM IODIDE (KI)**  
**(If Recommended)**



Not every radiological emergency will result in the release of radiation. Potassium iodide, also known as KI, is a form of iodine. KI is used as a supplemental protective action. KI helps protect your thyroid gland if there is a chance you might be exposed to a harmful amount of radiation. A 2-day supply of KI tablets is provided at no cost to residents living or working within the 10-mile area around V.C. Summer Nuclear Station by the South Carolina Department of Health and Environmental Control (SCDHEC).

To obtain your 2-day KI supply, go to your local SCDHEC county public health department and bring some form of identification or paperwork that shows you live or work within the 10-mile area of V.C. Summer Nuclear Station (no appointment necessary):

County	Address
Fairfield County Health Department	1136 Kincaid Bridge Rd. Winnsboro, SC 29180
Lexington County Health Department	1070-B South Lake Dr. Lexington, SC 29073
Newberry County Health Department	2111 Wilson Rd. Newberry, SC 29108
Richland County Health Department	2000 Hampton St. Columbia, SC 29204

Residents living outside the 10-mile area can purchase KI tablets from their personal pharmacy.

If KI is recommended in an emergency, it is important to follow exact dosing, which can be found at South Carolina Department of Public Health Potassium Iodide (KI) webpage <https://dph.sc.gov/diseases-conditions/diseases/cancer/potassium-iodide-ki>. Especially in young children and infants, giving too much KI can cause more serious side effects and health issues.

KI can be taken by most people and is safe for babies and small children. Some people with certain thyroid conditions should consult their doctors BEFORE taking KI. In addition, those people who:

- have a known allergy to iodine (as is used in X-ray dye).
- have a shellfish allergy (and know they are allergic to the iodine, not the protein).
- have certain disorders (such as dermatitis herpetiformis or urticaria vasculitis).

If you have those conditions or believe you might be allergic to iodine, consult your doctor at your next appointment and request guidance on whether you can take KI in the event of a nuclear power plant incident.

Visit SCDHEC's Radiation, Nuclear Safety webpage [scdhec.gov/disaster-preparedness/radiation-nuclear-safety](http://scdhec.gov/disaster-preparedness/radiation-nuclear-safety) for more information on radiation, KI, and South Carolina's Department of Health and Environmental Control's Nuclear Response and Emergency Environmental Surveillance section, or call 1-844-723-7377.

## MORE INFORMATION

### Local and State Contact Information



Visit or contact your local/state emergency management or public safety agency for additional emergency preparedness and response information specific to your area.

#### Fairfield County

Office..... (803) 635-4444  
24-hour..... (803) 635-5511  
24-hour **(emergency use only)**..... 911

#### Lexington County

Office..... (803) 785-8343  
24-hour **(emergency use only)**..... 911

#### Newberry County

Office..... (803) 321-2135  
24-hour..... (803) 321-2222  
24-hour **(emergency use only)**..... 911

#### Richland County

Office..... (803) 576 -3400  
24-hour..... (803) 254-3061  
24-hour **(emergency use only)**..... 911

#### South Carolina Emergency Management Division

**(SCEMD)** [scemd.org](http://scemd.org)  
Office: (803) 737-8500

#### SCEMD Public Information

**(activated only during emergencies)**  
866-246-0133

#### South Carolina Department of Health and

**Environmental Control (SCDHEC)** [scdhec.gov](http://scdhec.gov):

For radiation and nuclear safety related inquiries, call 844-723-7377.

**South Carolina 2-1-1** [sc211.org](http://sc211.org): Call SC 2-1-1 for information on all kinds of topics, including school closures, reception center, emergency preparedness, and other emergency planning topics.

#### Dominion Energy [DominionEnergy.com](http://DominionEnergy.com):

Contact Dominion Energy toll-free at 800-251-7234 for more information about nuclear power station operations and preparedness, or to request a hard copy of this information mailed to you at no cost.

## RESOURCES

### Radiological Preparedness and About Radiation



- CDC: Radiation Emergencies [cdc.gov/nceh/radiation/emergencies/index.html](http://cdc.gov/nceh/radiation/emergencies/index.html)
- CDC: Where to Go in a Radiation Emergency [https://emergency.cdc.gov/radiation/pdf/Infographic\\_Where\\_to\\_go.pdf](https://emergency.cdc.gov/radiation/pdf/Infographic_Where_to_go.pdf)
- EPA: Radiation Emergencies and Preparedness [epa.gov/radtown/radiation-emergencies-and-preparedness](http://epa.gov/radtown/radiation-emergencies-and-preparedness)
- NRC: How Can I Prepare for A Radiological Emergency? <https://www.nrc.gov/about-nrc/emerg-preparedness/prepare-for-radiological-emerg.html>
- NRC: How a Pressurized Reactor Works <https://www.nrc.gov/reactors/power/pwrs.html>
- NRC: Sources of Radiation <https://www.nrc.gov/about-nrc/radiation/around-us/sources.html>
- World Nuclear Association [world-nuclear.org/nuclear-essentials/is-radiation-safe.aspx](http://world-nuclear.org/nuclear-essentials/is-radiation-safe.aspx)

### Personal and Family Preparedness Resources

- [FEMA.gov](http://FEMA.gov)
- [Ready.gov](http://Ready.gov)
- SCEMD: Emergency Planning for Your Family [scemd.org/prepare/your-emergency-plan/](http://scemd.org/prepare/your-emergency-plan/)
- SCEMD: Emergency Manager Mobile App [scemd.org/stay-informed/mobile-applications/](http://scemd.org/stay-informed/mobile-applications/)

### Pet Preparedness Resources

- SCEMD: Develop a Pet Emergency Plan and Kit [scemd.org/prepare/your-emergency-plan/pet-planning/](http://scemd.org/prepare/your-emergency-plan/pet-planning/)
- Find Pet-Friendly Hotels
  - [bringfido.com](http://bringfido.com)
  - [dogfriendly.com](http://dogfriendly.com)
  - [pet-friendly-hotels.net](http://pet-friendly-hotels.net)
  - [petswelcome.com](http://petswelcome.com)
  - [tripswithpets.com](http://tripswithpets.com)
  - [officialpethotels.com](http://officialpethotels.com)



# EVACUATION ROUTE INSTRUCTIONS TO EVACUATION RECEPTION CENTERS



Use the primary evacuation route described in the table below to get to your assigned reception center, unless otherwise directed to use another alternative route instead.

COUNTY	SECTOR	PRIMARY EVACUATION ROUTE	RECEPTION CENTER
FAIRFIELD	A-0	East, North, to	Fairfield Magnet School for Math & Science
FAIRFIELD	A-1	North, to North, to East, North, to	Fairfield Magnet School for Math & Science
FAIRFIELD	A-2	East, North, to	Fairfield Magnet School for Math & Science
FAIRFIELD	B-1	East, North, to	Fairfield Magnet School for Math & Science
FAIRFIELD	B-2	East, North, to	Fairfield Magnet School for Math & Science
FAIRFIELD	C-1	South, North, North, to	Fairfield Magnet School for Math & Science
FAIRFIELD	C-2	South, North, North, to	Fairfield Magnet School for Math & Science

COUNTY	SECTOR	PRIMARY EVACUATION ROUTE	RECEPTION CENTER
RICHLAND	D-1	East, East, North, North, Exit 27 Blythewood Rd, to State Rd S-40-59 Muller Rd	Muller Road Middle School*
LEXINGTON	D-2	East, Exit 103 Harbison Blvd to St. Andrews Rd, West to	Crossroads Intermediate School
NEWBERRY	E-1	West, South/West, to	Newberry High School
NEWBERRY	E-2	West, South/West, to	Newberry High School
NEWBERRY	F-1	Broad River Rd North, to South, to Hillbrook Lane (West), South/West, to	Newberry High School
NEWBERRY	F-2	North, to South, to Hillbrook Lane (West), South/West, to	Newberry High School

\* Students will be released to their parents via the Dutch Fork High School parents' pick-up line at Dutch Fork High School.

**Scan the QR code for EP Information**



**[DominionEnergy.com/NuclearEP](https://www.dominionenergy.com/NuclearEP)**

