

V.C. SUMMER NUCLEAR STATION

Emergency Preparedness Information

2023



Actions Speak Louder

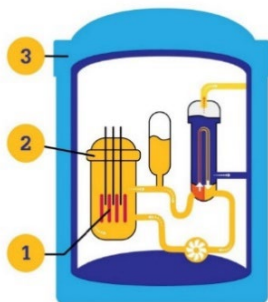
About Nuclear Safety and Radiation

Nuclear Safety

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 per day, 7 days per 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. Below is an illustration of the three fission product barriers (also referred to as protective barriers).



Understanding Radiation

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, smaller than the amount we would receive on a coast-to-coast airplane flight. Radiation risk depends on: (1) Kind of rays and particles that strike you. (2) Length of exposure time. (3) Body parts exposed. (4) Amount of radioactive material you 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.

Learn more about radiation (world-nuclear.org/nuclear-essentials/is-radiation-safe.aspx) and the various sources of radiation (nrc.gov/about-nrc/radiation/around-us/sources.html).

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

Natural and Man-Made sources Per Year Total: 625.0 mrem

Be Prepared

Develop an Emergency Plan and Kit

It is important to know which types of disasters could affect your area. Your **Emergency Plan** will have everything from emergency contact information to medical information, the protective action zone you live in, information about evacuation, sheltering-in-place, and more.

Your **Emergency Kit** should have supplies on hand to last at least three days for each family member, in durable and easy-to-carry bags or containers, such as backpacks, duffel bags, or suitcases.

Start developing your Emergency Plan and building your Emergency Kit today. Download the SC Emergency Manager Mobile App (scemd.org/stay-informed/mobile-applications), South Carolina Emergency Management Division's (SCEMD) official mobile app, to build your own emergency plan(s), keep track of supplies, and stay connected. Or, visit the SCEMD website (scemd.org) to view available resources and tools.

- 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
- Important documents/cash
- Clothing/blankets
- Phone/phone chargers
- Tools
- Local map
- Personal items
- Infant/children items
- Pet supplies
- Photo ID
- Potassium iodide

Develop a Pet Emergency Plan and Kit

Not all shelters and hotels accept pets. Plan ahead to stay with family, friends, or pet-friendly locations if you need to evacuate your home. If a hotel has a no-pets policy, ask the manager if the hotel can waive the policy during an emergency. Deciding in advance what to do with your pet during an emergency can save its life.

You should never hesitate to evacuate your home in an emergency because you don't want to leave your pets behind. Start your pet plan and kit today. Go to SCEMD's Preparing Your Pets for Emergencies webpage (scemd.org/prepare/your-emergency-plan/pet-planning) for additional information and guidance.

Register as an Individual with Access/Functional Needs

If you are an individual with access and functional needs that may require evacuation assistance, complete, and return the **Individuals with Access and Functional Needs Survey** that is mailed to you annually, at no cost, 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. 8.

Preparing for a Radiological Emergency

Nuclear Regulatory Commission (NRC) 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.

Pet Kit Items

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

Stay Informed

Stay Up to Date and Listen to Emergency Notifications

In addition to listening to local radio or TV station for information, the public will be alerted and notified of an emergency at V.C. Summer Nuclear Station via the Integrated Public Alert and Warning System (IPAWS) (fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public). IPAWS is FEMA's national system for local alerting that provides authenticated emergency and life-saving information to the public through mobile phones using Wireless Emergency Alerts (WEA), to radio and television via Emergency Alert System, and on the National Oceanic and Atmospheric Administration's Weather Radio.

In an emergency, an emergency alert (a WEA message) will be sent to your WEA-enabled mobile device at no charge to you. When you receive a WEA message, tune in to one of your local EAS radio or TV stations broadcasting emergency information and listen for instructions. Call your neighbors, especially the elderly or those with access and functional needs to make sure they know what to do.

Receiving/hearing a WEA message or any alert message on your phone, does NOT mean you should evacuate. It means tune in to your local EAS radio or television 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 WEA messages, you must have a compatible device and be located in the affected area where the WEA message is being sent. To ensure you receive WEA messages, go to your mobile phone's settings, under notifications, scroll to the bottom and confirm all Emergency Alerts are toggled on.

There are multiple ways for you to stay informed before, during, and after a disaster. Go to SCEMD Stay Informed (scemd.org/stay-informed) to learn more.



Emergency Alert System Radio / TV Stations	
Radio	
	WCOS 1140 AM WCOS 97.5 FM WTCB 106.7 FM WLTR 91.3 FM
TV Station	
All radio and television stations with city of license and cable operators with their franchise agreements within the Midlands local area will monitor WCOS-FM, WTCB-FM and NOAA. This includes Fairfield, Lexington, Newberry, and Richland counties, in which the V.C. Summer 10-mile evacuation zone is located.	

Parents of School Children

Emergency officials will advise school administrators on what action to take. Parents need to listen to local media for updates on school status and instruction.

Each school year, review your child's emergency school plan(s) and procedure(s) on how you will be notified of your child's status in an emergency.

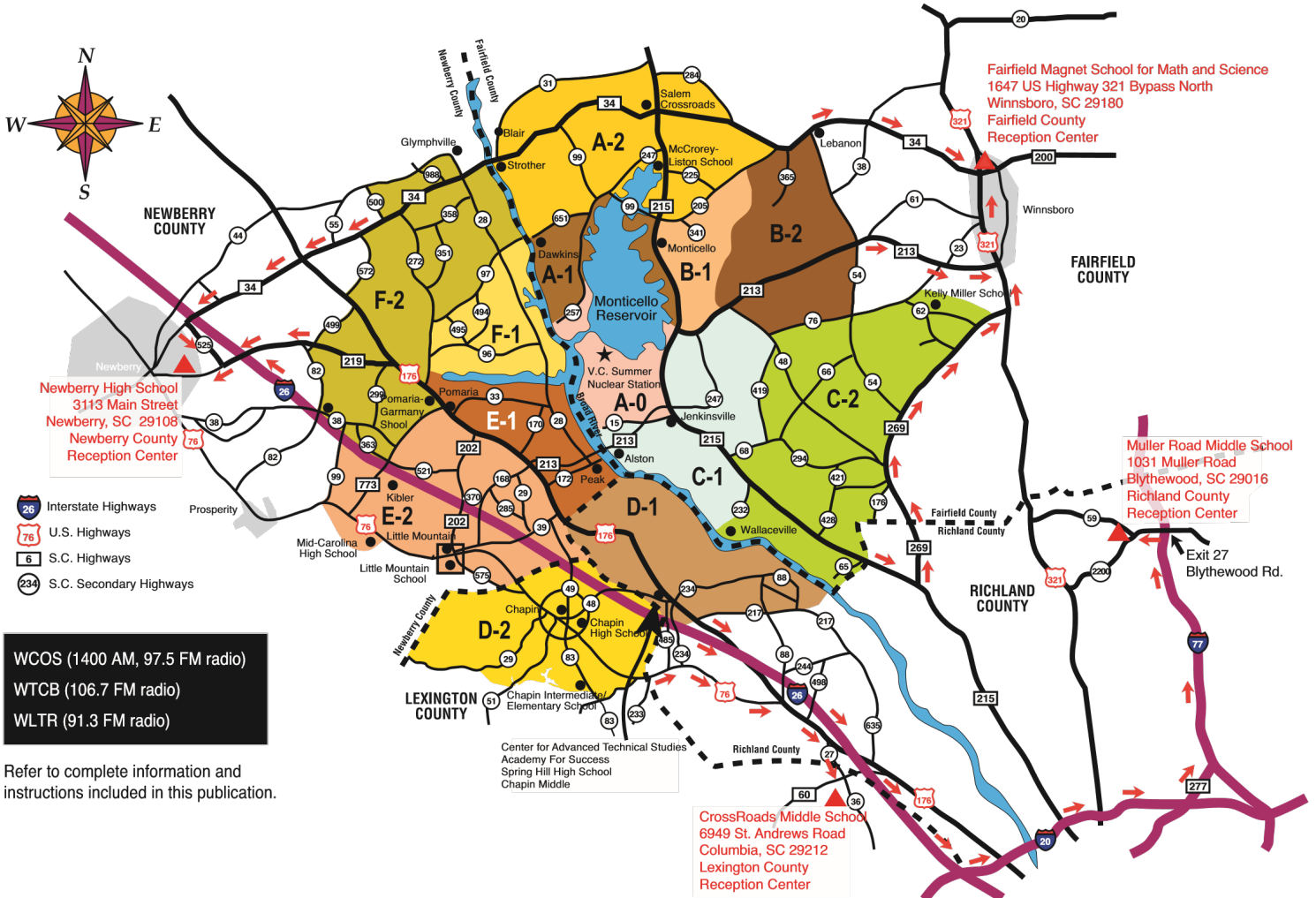
Emergency officials will advise school administrators on what action to take. Parents need to listen to local media for updates on school status and instruction. Each school year, review your child's emergency school plan(s) and procedure(s) on how you will be notified of your child's status in an emergency.

Know Your Protective Action Zone and Reception Center

In an emergency, it is unlikely that everyone within the 10-mile area of the plant would be affected due to varying factors, such as weather and nature of the emergency. The 10-mile area around the V.C. Summer Nuclear Station is divided up into 13 zones, called **Protective Action Zones**. By knowing your protective action zone, you can quickly identify if you are in the zone affected by the emergency and what action(s) to take. For example, people in some zones may be instructed to shelter-in-place or evacuate, while people in other zones may not be affected at all. If your protective action zone is instructed to evacuate, listen closely to emergency officials on instruction to report to your assigned **Reception Center**. Learn more about Reception Centers under **Report to Your Reception Center in an Evacuation** below on pg. 7.

Know Your Protective Action Zone and Reception Center

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



Take Action

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.
- ✓ **Grab your emergency kit.** Grab all essentials, including personal items and devices for you, your family, and pet(s). You may be away from home for several days.
- ✓ **Keep informed.** Ensure your IPAWS-WEA capable phone is enabled to receive IPAWS-WEA emergency alerts and continually monitor local radio or television for information. Emergency instructions will be broadcast on what protective actions to take – whether to shelter-in-place or evacuate via designated evacuation routes.
- ✓ **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 with your child.
- ✓ **Secure your home and turn off utilities.** Lock doors and windows and turn off electrical 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 and report to your reception center.** If directed, report to your assigned reception center for contamination monitoring and, if recommended, KI. 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 for more information,** contact SC 2-1-1 and/or visit the SCEMD (scemd.org) website.

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 3 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.
- ✓ **Extinguish stove/fireplace fires and close 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 the SCEMD (scemd.org) website.



Follow Emergency Instructions

Report to Your Reception Center in an Evacuation

If asked to evacuate, you may be instructed to go to your assigned reception center where designated personnel will monitor for contamination and, if recommended, provide potassium iodide (KI) as a supplemental protective action. Below are schools and licensed daycare centers in the 10-mile area around the V.C. Summer Nuclear Station and assigned reception center to go to if instructed to evacuate:

County	School/Day Care Center	Sector	Reception Center
Richland	Academy for Success	D-1	Muller Rd MS
	Spring Hill High School	D-1	Muller Rd MS
	Center for Advanced Technology Services	D-1	Muller Rd MS
	Chapin Middle School	D-1	Muller Rd MS
Fairfield	Kelly Miller Child Development Center	C-2	Fairfield Magnet School
	Kelly Miller School	C-2	Fairfield Magnet School
	McCrorey-Liston Child Development Center	A-2	Fairfield Magnet School
	McCrorey-Liston School of Technology	A-2	Fairfield Magnet School
Lexington	Chapin Baptist Child Development Center	D-2	Crossroads Intermediate School
	Chapin Children Center	D-2	Crossroads Intermediate School
	Chapin Elementary School	D-2	Crossroads Intermediate School
	Chapin Intermediate School	D-2	Crossroads Intermediate School
	Chapin High School	D-2	Crossroads Intermediate School
	Inez's Children Center	D-2	Crossroads Intermediate School
	Abner Montessori School	D-2	Crossroads Intermediate School
	Mt. Horeb Lutheran Church	D-2	Crossroads Intermediate School
Newberry	Little Angels Day Care	E-2	Newberry HS
	Little Mountain School*	E-2	Wightman UM Church
	Mid-Carolina High School*	E-2	Wightman UM Church
	Mid-Carolina Middle School*	E-2	Wightman UM Church
	Pomaria-Garmany School*	F-2	Central UM Church

Use the primary evacuation routes described on **pg. 9** for directions to your assigned reception center.

Take Potassium Iodide (KI) If Recommended

Not every emergency will result in the release of radioactive iodine. Potassium iodide (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 radioactive iodine. A 2-day supply of KI is provided at no cost to residents living or working within the 10-mile area around V.C. Summer Nuclear Station. To obtain your KI, go to your local SCDHEC public health department and bring form of ID or paperwork showing you live or work within the 10-mile area of the station (no appointment needed):

Fairfield County Health Dept.

1136 Kincaid Bridge Rd.
Winnsboro, SC 29180

Lexington County Health Dept.

1070-B South Lake Dr.
Lexington, SC 29073

Newberry County Health Dept.

2111 Wilson Rd.
Newberry, SC 29108

Richland County Health Dept.

2000 Hampton St.
Columbia, SC 29204

Residents outside the 10-mile area can purchase KI from a local pharmacy. If recommended, follow exact dosing on the SCDHEC KI Fact Sheet (scdhec.gov/disaster-preparedness/radiation-nuclear-safety/potassium-iodide-ki/faq). Especially in young children/infants, exceeding dosage can cause serious side effects and health issues. For more information, go to scdhec.gov/radiation, or call 844-723-7377.

Protect Your Livestock, Poultry, and Agriculture

Protective recommendations will be issued by appropriate state and local officials. Livestock and poultry owners are responsible for the care and wellbeing of their animals. Livestock and poultry owners, farmers, and producers should develop and maintain a premises-specific emergency plan in case of an evacuation notice. Nuclear plant emergencies may impact livestock, food, and agricultural products. As a precaution for public health and safety, and in response to an emergency resulting in contamination, state and federal officials may restrict the movement of livestock, poultry, food, feed items, and other agricultural products. Livestock and poultry are domesticated animals typically raised on a farm or other agricultural setting and include but not limited to cattle, horses/donkeys, pigs, sheep, goats, chickens, and turkeys. Go to **More Information** on pg. 8 for additional information and resources.

IMPORTANT KI REMINDERS

- Do **NOT** take KI unless directed by public health officials.
- If directed, follow exact KI dosage for age group.
- Do **NOT** give KI to pets.

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):

Office: (803) 737-8500

SCEMD Public Information (activated only during emergencies): 866-246-0133.

South Carolina Department of Health and Environmental Control (SCDHEC) (scdehec.gov): For radiation and nuclear safety related inquiries, call 844-723-7377.

South Carolina 2-1-1 (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): 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.

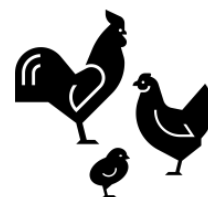
Additional Resources

Federal Resources

- FEMA.gov
- Ready.gov
- CDC: Radiation Emergencies (cdc.gov/nceh/radiation/emergencies/index.htm)
- CDC: Where to Go in a Radiation Emergency (cdc.gov/nceh/multimedia/infographics/radiation_emergency.html)
- EPA: Radiation Emergencies and Preparedness (epa.gov/radtown/radiation-emergencies-and-preparedness)
- NRC: How Can I Prepare for A Radiological Emergency? (nrc.gov/about-nrc/emerg-preparedness/prepare-for-radiological-emerg.html)
- NRC: How a Pressurized Reactor works (nrc.gov/reactors/power/pwrs.html)

Miscellaneous Resources

































- Pet-friendly hotels:
 - bringfido.com
 - dogfriendly.com
 - pet-friendly-hotels.net
 - petswelcome.com
 - tripswithpets.com
 - secure.rezserver.com/home/?refid=1385



- Livestock, poultry, and agricultural emergency preparedness information:
 - Clemson University Livestock Poultry Health (Office of the SC State Veterinarian) website at clemson.edu/public/lph/ahp/emergency-prep/index.html
 - Clemson University Cooperative Extension Service website at clemson.edu/extension/co/index.html

Evacuation Route Instructions to 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 and Science
FAIRFIELD	A-1	 North, to  North, to  East,  North, to	Fairfield Magnet School for Math and Science
FAIRFIELD	A-2	 East,  North, to	Fairfield Magnet School for Math and Science
FAIRFIELD	B-1	 East,  North, to	Fairfield Magnet School for Math and Science
FAIRFIELD	B-2	 East,  North, to	Fairfield Magnet School for Math and Science
FAIRFIELD	C-1	 South,  North,  North, to	Fairfield Magnet School for Math and Science
FAIRFIELD	C-2	 South,  North,  North, to	Fairfield Magnet School for Math and Science
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	US  West, on SC  South/West, to	Newberry High School
NEWBERRY	E-2	US  West, on SC  South/West, to	Newberry High School
NEWBERRY	F-1	Broad River Rd North, to SC  South, to Hillbrook Lane (West), On SC  South/West, to	Newberry High School
NEWBERRY	F-2	US  North, to SC  South, to Hillbrook Lane (West), On SC  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.