EMERGENCY INFORMATION

State of Tennessee
Cleveland/Bradley County Emergency Management Agency
Hamilton County Emergency Services
Tennessee Valley Authority

2010 SEQUOYAH

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FOR QUESTIONS ABOUT THIS MATERIAL

During emergency operations, additional telephone numbers will be published and broadcast over the Emergency Alert System (EAS).

Tennessee Valley Authority
843-7839
(inside local calling area)
800-467-1388
(outside calling area)

Hamilton County Emergency Services
622-7777

Cleveland/Bradley County Emergency Management Agency
476-0493

Tennessee Emergency Management Agency (NON-EMERGENCY)
615-741-0001

For alternate formats of this document, call 865-632-6824 and allow five workdays for processing.

Dear Sequoyah Neighbor,

As in the past, the Tennessee Valley Authority, the State of Tennessee, and your local Emergency Management Agency have provided you with a calendar that contains important information about Sequoyah Nuclear Plant and photographs of the Tennessee Valley region.

This calendar contains updated information reflecting additions and changes over the past year. This information will help you better understand Sequoyah and the emergency plans that have been developed for your protection. Please keep the calendar in a convenient place and readily available. Any previous calendars or brochures concerning emergency information or instructions about Sequoyah should be discarded.

We realize that some Sequoyah neighbors would require special assistance in the unlikely event of an emergency at the plant. Therefore, we have included a card for you to fill out and return if such assistance is needed. For your convenience, the card has been pre-addressed, and the postage has been paid. In order for emergency officials to maintain a current list of persons who would need assistance, this card must be returned immediately, even though you may have sent a card from a previous calendar or brochure.

If you have any questions about this material, please call one of the numbers listed on this page, and we will be glad to answer them for you.

Timothy P. Cleary
Vice President
Sequoyah Nuclear Plant
Tennessee Valley Authority

James H. Bassham
Director
Tennessee Emergency Management Agency
State of Tennessee

The Prompt Notification System

We expect Sequoyah Nuclear Plant to operate safely. However, if an emergency occurs at the plant, TVA will inform state officials at once.

In-depth emergency plans have been prepared by TVA, the State of Tennessee, and your local Emergency Management Agency. These plans are in place to protect your health and safety, and this calendar is a part of those plans because we want you to be prepared, know what the sirens mean, and know what you should do if you hear them.

If needed, the Prompt Notification System will be activated quickly to inform the public of any potential threat. The Prompt Notification System uses sirens and tone-alert radios to notify the public to tune their radios or televisions to an Emergency Alert System (EAS) station. The EAS station will provide information and emergency instructions for the public to follow.

The Emergency Alert System includes local radio and television stations, NOAA weather radio, and the cable-TV interrupt system. Fixed sirens provide coverage out to approximately 10 miles around Sequoyah. If you hear the sirens, tune to a local radio or television station for news and instructions.

The sirens and other warning systems are operated by the Tennessee Emergency Management Agency (TEMA) and may be used to warn residents of an emergency other than an incident at Sequoyah. For example, the sirens may be used to warn the public of floods, tornadoes, or other natural or man-made disasters.

If you note a problem with one of the sirens, please notify your county or state Emergency Management Agency using the numbers listed on page 1.

If you hear the sirens

Check it out – it could be only a test. Siren tests occur in your area on the first Wednesday of each month at noon. If there is severe weather in the area at the time of a scheduled test, the sirens may not be tested.

Remember: Hearing a siren or tone-alert radio does not mean you should evacuate. It means turn on your radio or television and listen for instructions.

Tune to your local radio or television station and listen for details. WUSY-FM (100.7) in Chattanooga is the primary EAS station in the area and is monitored by other stations. A real warning could mean fire, tornado, chemical spill, nuclear accident, or other emergency.

Most radio and television stations in the area participate in the EAS and will be making announcements. NOAA weather radio (162.55 MHz) will instruct listeners to tune to one of these stations.

Check on your neighbors.

Do not use the phone unless absolutely necessary. The phone lines need to be open for emergency workers. Do not call 911 for information if you hear the sirens.

If the warning involves an incident at Sequoyah, you might be advised to go indoors and close all windows, doors, and other sources of outside air. Or you may be advised to leave (evacuate) your area. In either case, see page 3 for additional information.

If you are advised to take shelter indoors

- Go indoors and stay there.
- Close all doors and windows.
- Shut off all systems that draw outside air into the house such as furnaces, air conditioners, fireplace vents, and dampers.
- Stay tuned to your local EAS radio or television station (see page 2). These are the best sources for information and instruction.
- If you must go outside, protect your breathing. Place a damp cloth or towel over your nose and mouth.
- If you are told that it is safe to go outside, try to check on your neighbors. They may not have heard the announcements.
- Do not use the phone unless you have a special emergency and need help. Leave the lines open for official business.
- Primary EAS Station: WUSY-FM (100.7)

If you are asked to leave (evacuate) the area

Stay calm and do not rush. Evacuation can work properly and reduce your risk only if you act safely and calmly.

- Take a few items with you. Gather personal items you or your family might need, using the checklist on page 8.
- Turn off lights, appliances, and water.
- As you leave, lock your house and tie a white cloth or white towel on your front door. This sign will let emergency workers know that everyone in your home has left the area.
- Please leave your pets at home with plenty of food and water. Pets will NOT be allowed in the public shelters.
- Use your own transportation or, if possible, make arrangements to ride with a neighbor. Keep car windows and air vents closed and listen to an EAS radio station.
- Use the map on page 4 of this booklet to find the sector in which you live and the evacuation route you should follow. (Write this information in the space provided next to the map.)
- Follow the evacuation routes shown on the map. If you need a place to stay, shelter information points will be located along the controlled evacuation routes.

While you are away

- Local police officers will secure the evacuated areas to protect homes and businesses.
- ONLY authorized persons will be allowed into the evacuated areas.
- Officials of the Tennessee Department of Radiological Health will monitor affected areas. You will be notified when it is safe to return home.

Sequoyah evacuation map and routes

If an evacuation is ordered, it is important that you follow the evacuation routes shown on the map.

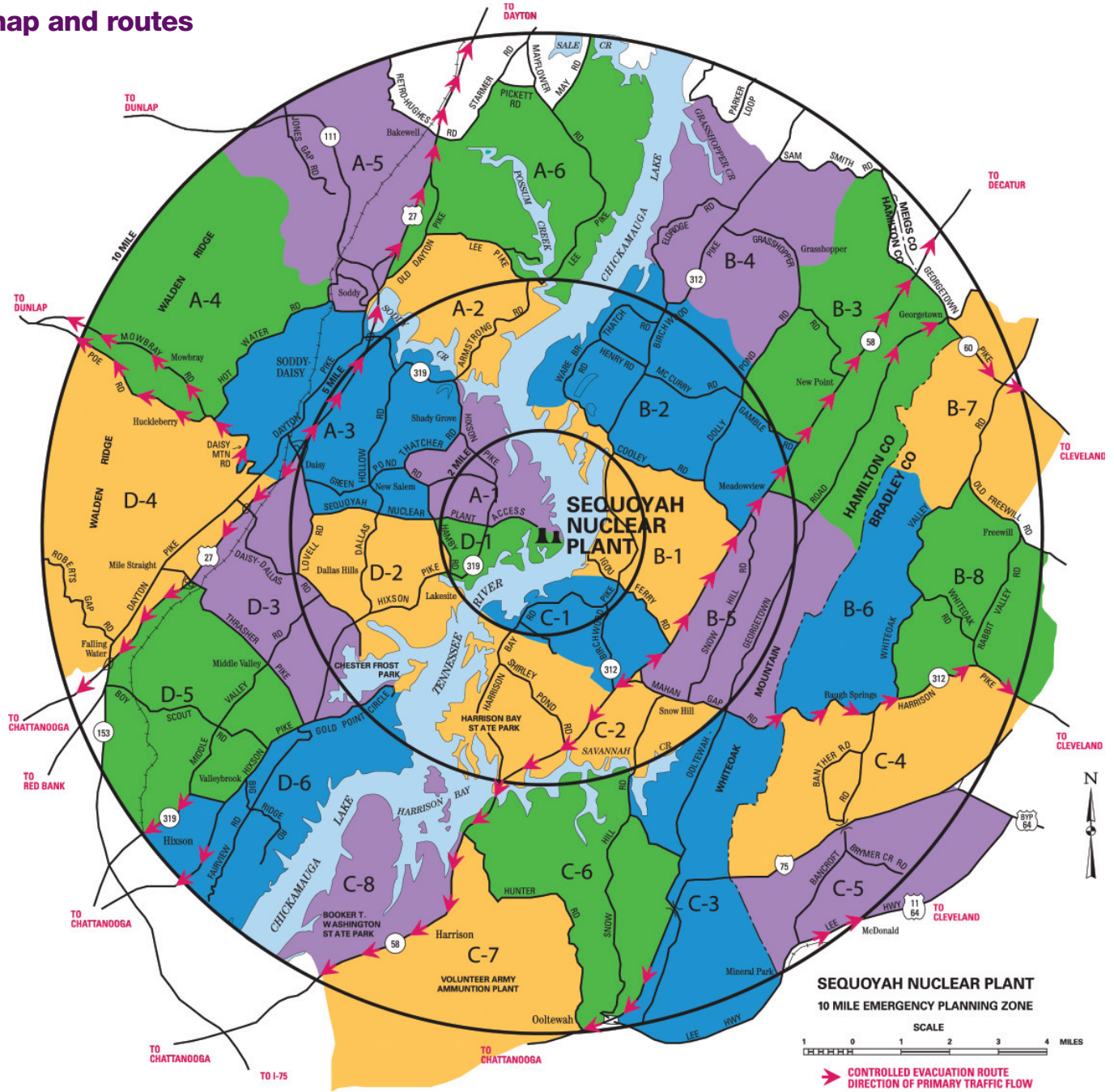
The 10-mile Emergency Planning Zone (EPZ) is divided into sectors. For quick reference, locate the sector in which you live or work and write it in the space below.

The evacuation routes for each sector are described on pages 5 and 6. If an evacuation is ordered, locate the number for your sector and follow that route. Emergency workers will patrol these roads and will provide any aid or guidance you need.

Note: Individuals in doubt as to sector of residence or work should contact their local Emergency Management Agency.

My sector number is:

HOME	WORK



Controlled evacuation routes

Controlled evacuation routes are established for the purpose of helping the traffic flow. These routes will be patrolled by law enforcement officers and traffic-assist teams. In addition, if you are not familiar with the area or your shelter assignment, shelter information points will be set up on each route to assist in getting you to your assigned shelter. The controlled evacuation routes are indicated by arrows on the map on page 4 and are as follows:

US Highway 27: North from the intersection of Sequoyah Access Road into Rhea County and south from the intersection into Chattanooga

State Route (SR) 58: North from the intersection of Igou Ferry Road into Meigs County and south from the intersection into Chattanooga

Mowbray Road: West into Sequatchie County to Dunlap

Hixson Pike: South into Chattanooga

Middle Valley Road: South into Chattanooga

Georgetown Pike: East into Cleveland

Harrison Pike: East into Cleveland

South Lee Highway: East into Cleveland

A-1, A-2

To: Rhea Central Elementary School (Rhea County)

Take the most direct route from your location to US 27; go north on US 27 and take the Business Route into Dayton to Delaware Avenue; turn left on Delaware to the school, located at 1005 Delaware Avenue at the corner of Delaware and SR 30 West.

A-3

To: Rhea County High School (Rhea County)

Take the most direct route from your location to US 27; go north on US 27 into Rhea County through Dayton to Evensville; the school is on the left in Evensville.

A-4

To: Sequatchie County High School (Sequatchie County)

Take the most direct route from your location to Mowbray Road; go west on Mowbray Road into Sequatchie County to East Valley Road and turn left; go to Old York Highway and turn right; go to US 127; turn left on US 127 and go to SR 28; turn right on SR 28 and go to the school on the right.

A-5, A-6

To: Rhea Central Elementary School (Rhea County)

Take the most direct route from your location to US 27; go north on US 27 and take the Business Route into Dayton to Delaware Avenue; turn left on Delaware and go to the school, located at 1005 Delaware Avenue at the corner of Delaware and SR 30 West.

B-1, B-2, B-3, B-4, B-5

To: Meigs County High School (Meigs County)

Take the most direct route from your location to SR 58; go north on SR 58 into Meigs County to Decatur; go to the intersection with SR 30 and turn left; go one block on SR 30, then turn right on Meigs Drive and go to the school, located on the right.

B-6, B-8

To: Ocoee Middle School (Bradley County)

Take the most direct route from your location to Harrison Pike into Cleveland; turn left on Keith Street and go to 25th Street; turn right and go to Ocoee Street; turn right on Ocoee Street and go to the shelter at Ocoee and 23rd Streets.

B-7

To: Ocoee Middle School (Bradley County)

Take the most direct route from your location to Georgetown Pike (SR 60); take Georgetown Pike into Cleveland to 25th Street; follow 25th Street to Ocoee Street; turn right on Ocoee Street and go to the shelter at Ocoee and 23rd Streets.

C-1, C-2

To: Brainerd High School (Hamilton County)

Take the most direct route from your location to SR 58; go south on SR 58 to SR 153; go south on SR 153 to Lee Highway/Brainerd Road; turn right on Brainerd Road and go to North Moore Road; turn right on North Moore and go to the school at 1020 North Moore Road.

C-3, C-6

To: East Ridge High School (Hamilton County)

Take the most direct route from your location to SR 58; go south on SR 58 to SR 153; go south on SR 153 to I-75 South; go south on I-75 to the East Ridge exit; turn right on Ringgold Road to Tombras Road (traffic light #8); turn left on Tombras Road to Bennett Road; turn right and go to the school on the left at 4320 Bennett Road.

C-4, C-5

To: Ocoee Middle School (Bradley County)

Take the most direct route from your location to South Lee Highway or Harrison Pike into Cleveland to Keith Street. Go north on Keith Street to 25th Street; turn right on 25th Street and go to Ocoee Street; turn right on Ocoee Street and go to the shelter at Ocoee and 23rd Streets.

C-7

To: East Ridge Middle School (Hamilton County)

Take the most direct route from your location to SR 58; go south on SR 58 to SR 153; go south on SR 153 to I-75 South; go south on I-75 to the East Ridge exit; turn right on Ringgold Road to Tombras Road (traffic light #8); turn left on Tombras Road to Bennett Road; turn right and go to the school on the left at 4400 Bennett Road.

C-8
To: Dalewood Middle School (Hamilton County)
Take the most direct route from your location to SR 58; go south on SR 58 to SR 153; go south on SR 153 to the Shallowford Road exit; turn right and go to the school at 1300 Shallowford Road.

D-1, D-2, D-6
To: Chattanooga High School (Hamilton County)
Take the most direct route from your location to Hixson Pike; go south on Hixson Pike to Fernway Road; Fernway Road will turn into Old Dallas Road; continue on Old Dallas Road to Dallas Road; continue on Dallas Road to the school, located at 1301 Dallas Road.

D-3
To: Orchard Knob Middle School (Hamilton County)
Take the most direct route from your location to Hixson Pike; go south on Hixson Pike to SR 153; go south on SR 153 to Amnicola Highway; south on Amnicola Highway to Wilcox Boulevard; turn left on Wilcox Boulevard and go to Holtzclaw Avenue; turn right on Holtzclaw to 3rd Street; turn left on 3rd Street to Highland Park Avenue; turn left on North Highland Park and go to the school at 500 North Highland Park.

D-4
To: Howard School of Academics and Technology (Hamilton County)
Take the most direct route from your location to US 27; go south on US 27 to the I-24 interchange; take the Lookout Mountain/South Broad Street exit onto Williams Street; go to 26th Street; turn left on 26th Street and go to Market Street. The school is at 2500 South Market Street.

D-5
To: Howard School of Academics and Technology (Hamilton County)
Take the most direct route from your location to US 27; go south on US 27 to the I-24 interchange; take the Lookout Mountain/South Broad Street exit onto Williams Street; go to 26th Street; turn left on 26th Street and go to Market Street. The school is at 2500 South Market Street.

School pairings for relocation

If an incident involving an actual or potential radiological release occurs at Sequoyah Nuclear Plant, first consideration will be given to the safety of children.

If a Site Area Emergency is declared at the plant (see page 9, “How Emergencies Are Classified”), students and child-care children in the 10-Mile Emergency Planning Zone (EPZ) will be relocated to paired schools in a safe area. Children will be under the supervision of school officials at all times during and after the movement.

To allow school officials to move the children quickly and safely without causing unnecessary delays, do not attempt to pick up children at the schools once the relocation order is issued.

A list of schools and child-care centers in the EPZ and the schools to which the children will be taken is provided below. (Sector location is in parentheses.)

Hamilton County Schools

John Allen Elementary School (A-3)
Relocated to: Rhea County High School, Highway 27 North, Evensville, TN

Soddy-Daisy Middle School (A-3)
Relocated to: Rhea County High School, Highway 27 North, Evensville, TN

Soddy Elementary School (A-5)
Relocated to: Rhea Central Elementary School, 1005 Delaware Avenue, Dayton, TN

North Hamilton Co. Elementary School (A-5)
Relocated to: Rhea Central Elementary School, 1005 Delaware Avenue, Dayton, TN

Daisy Elementary School (D-3)
Relocated to: Rhea Central Elementary School, 1005 Delaware Avenue, Dayton, TN

Soddy-Daisy High School (D-3)
Relocated to: Rhea County High School, Highway 27 North, Evensville, TN

Loftis Middle School (D-3)
Relocated to: Orchard Knob Middle School, 500 North Highland Park Avenue, Chattanooga, TN

Snow Hill Elementary School (C-2)
Relocated to: Brainerd High School, 1020 North Moore Road, Chattanooga, TN

Hamilton County High School (C-2)
Relocated to: Brainerd High School, 1020 North Moore Road, Chattanooga, TN

Ooltewah High School (C-6)
Relocated to: East Ridge High School, 4320 Bennett Road, East Ridge, TN

Hunter Road Middle School (C-7)
Relocated to: East Ridge Middle School, 4400 Bennett Road, East Ridge, TN

Brown Middle School (C-7)
Relocated to: East Ridge Middle School, 4400 Bennett Road, East Ridge, TN

Central High School (C-7)
Relocated to: East Ridge Middle School, 4400 Bennett Road, East Ridge, TN

Wallace A. Smith Elementary School (C-7)
Relocated to: East Ridge Middle School, 4400 Bennett Road, East Ridge, TN

Harrison Elementary School (C-8)
Relocated to: Dalewood Middle School, 1300 Shallowford Road, Chattanooga, TN

Sequoyah High School (D-2)
Relocated to: Chattanooga High School, 1301 Dallas Road, Chattanooga, TN

McConnell Elementary School (D-3)
Relocated to: Orchard Knob Middle School, 500 North Highland Park Avenue, Chattanooga, TN

Ganns Middle Valley Elementary School (D-3)
Relocated to: Orchard Knob Middle School, 500 North Highland Park Avenue, Chattanooga, TN

Falling Water Elementary School (D-4)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Hixson High School (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Hixson Middle School (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Big Ridge Elementary School (D-6)
Relocated to: Chattanooga High School, 1301 Dallas Road, Chattanooga,TN

Bradley County Schools

Prospect Elementary School (B-6)
Relocated to: Ocoee Middle School, Ocoee Street at 23rd Street, Cleveland, TN

Bradley-Bachman School (C-5)
Relocated to: Ocoee Middle School, Ocoee Street at 23rd Street, Cleveland, TN

Hamilton County Child Care Facilities

Sequoyah Learning Center (A-1)
Relocated to: Rhea Central Elementary School, 1005 Delaware Avenue, Dayton, TN

ABC Day Nursery (A-3)
Relocated to: Rhea County High School, Highway 27 North, Evensville, TN

Teresa's Hot Tots (A-3)
Relocated to: Rhea County High School, Highway 27 North, Evensville, TN

Mill Creek Country Day School (C-6)
Relocated to: East Ridge High School, 4320 Bennett Road, East Ridge, TN

Child Care Network (Ooltewah) (C-7)
Relocated to: East Ridge Middle School, 4400 Bennett Road, East Ridge, TN

Discovery Point Child Development Center (C-7)
Relocated to: East Ridge Middle School, 4400 Bennett Road, East Ridge, TN

Little Kings and Queens Day Care (C-8)
Relocated to: Dalewood Middle School, 1300 Shallowford Road, Chattanooga, TN

Daisy Head Start (D-2)
Relocated to: Chattanooga High School, 1301 Dallas Road, Chattanooga, TN

Sequoyah High School
(Careers for Children Program I & II) (D-2)
Relocated to: Chattanooga High School, 1301 Dallas Road, Chattanooga, TN

Hixson First Baptist Child Development Center (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Hixson United Methodist Day Care (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Child Care Network (Hixson) (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Burk's United Methodist Day Care (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Grace Christian Academy (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Kiddieland (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Tiny Scholars (D-5)
Relocated to: Howard School of Academics and Technology, 2500 South Market Street, Chattanooga, TN

Hixson Learning Center (D-6)
Relocated to: Chattanooga High School, 1301 Dallas Road, Chattanooga, TN

Kids "R" Kids Preschool (D-6)
Relocated to: Chattanooga High School, 1301 Dallas Road, Chattanooga, TN

Bradley County Child Care Facilities

Korner Kampus II Day Care (C-5)
Relocated to: Ocoee Middle School, Ocoee Street at 23rd Street, Cleveland, TN

If you need special help

Your health and safety are important. Therefore, special plans must be made to assist and care for persons who are medically disabled or handicapped.

If you or someone you know lives within 10 miles of Sequoyah and needs special help, please fill out and mail the card provided in this calendar. The card is pre-addressed and postage-paid and must be mailed as soon as possible so adequate arrangements can be made.

Please fill out and return the card even though you may have returned the card from a previous calendar.

This will enable your emergency officials to maintain a current list of all persons who would need assistance.

After you have answered all the questions, drop the card in a mailbox.

If you have any questions or need additional cards, you can contact an emergency management official listed on page 1 of this calendar.

Dial 711 for TTY/Relay Service.

For farmers and home gardeners

If a major incident happens at Sequoyah Nuclear Plant, the Tennessee Department of Agriculture will issue periodic information concerning the safety of using homegrown products.

You should stay tuned to an EAS station for these announcements. Information on actions you can take to protect crops and livestock is available from your County Agricultural Extension Agent.

Your crops

- An unharvested crop is hard to protect. But normal harvesting and processing may still be possible if time permits.
- Crops already harvested will be safer if they are stored inside.
- You should wash and peel vegetables and fruits from your garden before use if they were not already harvested.

To protect your livestock

- Provide as much shelter as possible. If you do not have enough space in barns or sheds, use natural shelters such as wooded lots or culverts.
- Take care of milk animals first.
- Provide plenty of food and water and make sure shelters are well ventilated.
- Use stored feed when possible.

Emergency supplies checklist

To help you prepare for any type of emergency, we have provided two lists of supplies. One list is items you may need to keep in your home to aid your response. The second list is supplies to take with you if you are asked to leave the area. Check the supplies you would need and add supplies not listed.

Emergency supplies for your home

❑ First-aid kit
❑ Toolbox
❑ Candles and matches
❑ Potassium iodide tablets*
❑ Portable radio, flashlight, extra batteries
❑ _____

Evacuation supplies

❑ This calendar
❑ Medicine or any special medication
❑ Personal health products (shaving cream, toothbrush)
❑ Special diet food
❑ Blankets and pillows
❑ Cash, checkbook, credit cards, important papers
❑ Items for children (favorite toy, books)
❑ Change of clothing
❑ Potassium iodide tablets*
❑ _____

*** Potassium iodide tablets –** In cases where you may be exposed to certain types of radioactivity, the Tennessee Department of Health may direct you to take potassium iodide (KI) tablets. These tablets, when taken as directed, may reduce the amount of radioactive iodine absorbed by your body's thyroid gland. Should an accidental release of radiation occur, potassium iodide will be available at all mass-care shelters. However, if you live within five miles of the plant and prefer to have it on hand, you can pick up a supply at the following location: **Sequoyah Health Center, 9527 Ridge Trail Road, Soddy-Daisy, TN 37379, 423-842-3031.**

Any questions concerning potassium iodide should be referred to Sequoyah Health Center.

General information

How emergencies are classified

If there is an incident at Sequoyah Nuclear Plant, it will be placed in one of four categories that have been established by the United States Nuclear Regulatory Commission and adopted by the State of Tennessee and TVA.

The four emergency levels are described below in order from least to most severe.

1. **A Notification of Unusual Event** is the least serious. Because of strict federal laws, any event out of the ordinary is reported to federal, state, and local authorities. The event poses no threat to you or to plant employees, but emergency officials are notified.

2. **An Alert** is declared when an event has occurred that could reduce the level of safety of the plant, but backup plant systems still work. Emergency agencies are notified and kept up-to-date, but no action by the public is necessary.

3. **A Site-Area Emergency** is declared when an event involving major problems with plant safety systems has progressed to the point that a release of some radioactivity into the air or water is possible. The sirens will be sounded. If they are, you should listen to radio and television stations for details.

4. **A General Emergency** is the most serious of the four classifications and is declared when an event at the plant has caused a loss of safety systems and is likely to lead to a release of radiation into the environment. State and local authorities would take action to protect residents living near the plant. People in affected areas would be advised to stay indoors or to evacuate.

Glossary

Background radiation – This is radiation from natural sources. It comes from the sun's rays and it's in the ground, building materials, and the human body.

Core – The central part of a nuclear reactor that contains the uranium fuel.

Fission – The nuclear process in which a heavy atom, such as uranium, splits into fragments.

Fuel assembly – A collection of rods that contain the nuclear fuel pellets. The fuel pellets produce heat to make the steam used to generate electricity.

Fuel pellets – Thimble-sized uranium dioxide pellets used in nuclear power generation. Each pellet contains about the same amount of energy as that produced from burning one ton of coal. A modern reactor core may contain up to 17.5 million pellets.

Fuel rods – Hollow tubes that contain stacks of uranium dioxide fuel pellets. These rods are bundled together to form fuel assemblies.

Half-life – The time required for a radioactive substance to lose one-half of its radioactivity. Half-life can vary from minutes to years, depending on the substance.

What is radiation?

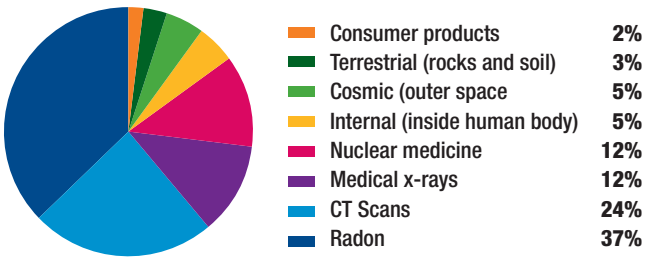
Radiation is energy traveling in the form of invisible particles or rays after the breakdown of radioactive atoms. Everyone is exposed to small amounts of radiation every day. Air, water, food, and sunshine are a few sources of natural background radiation. The dose humans receive from radiation is commonly measured in "millirems." According to recent studies, the average radiation dose to a member of the public in the United States is about 620 millirems per year.

Radiation also comes from other sources. Color televisions produce about 1 millirem of radiation every year. Medical procedures such as x-rays and diagnostic tests can result in 20 to several thousand millirems of radiation a year, depending on a person's treatment for disease or injury.

People are concerned about radiation exposure because it can alter or damage human-cell structure. That is why workers at nuclear power plants are carefully monitored and trained to limit their exposure to a level that is as low as is reasonably achievable. The Nuclear Regulatory Commission, which issues licenses to all nuclear power plants, has set a maximum safe individual dose of 5,000 millirems a year, measured over the entire body. To avoid coming even close to this level, TVA work procedures set an administrative limit of 1,000 millirems per year for any worker, with any additional dose requiring written approval.

A nuclear power plant's containment building, reactor vessel, and fuel assemblies are barriers designed to contain radiation and protect plant workers and persons living near the plant from any exposures to elevated levels of radiation. Repeated surveys around TVA's operating nuclear plants have shown no detectable increase in radiation above normal background levels.

SOURCES OF RADIATION



How Sequoyah works

Sequoyah operates much like a fossil-fueled power plant, with one major difference. In a fossil plant, coal, oil, or gas is burned to make heat. The heat turns water into steam, the steam drives a turbine, and the turbine spins an electrical generator, producing electric power.

The operation is the same at Sequoyah, except the heat is provided by a process called fission that occurs within the nuclear fuel. The fuel for Sequoyah is slightly enriched uranium dioxide, which is made into pellets and sealed inside long metal tubes called fuel rods.

To make up the fuel core, 264 fuel rods are placed in a bundle called a fuel assembly. There are 193 fuel assemblies per reactor core. The heavy steel reactor vessel in which these fuel assemblies are contained is about 44 feet high and 14 feet in diameter. The concrete walls around it are eight feet thick. The outer dome-shaped concrete containment that encloses each reactor is about 151 feet high and 134 feet in diameter.

When a uranium atom is struck by a small particle called a neutron, it can split (fission), giving off heat and more neutrons. Those neutrons strike other uranium atoms, causing them to split and continue the chain reaction. The reaction is started and stopped by substances that absorb neutrons. Control rods are made of material that absorbs neutrons and can be moved in and out of the fuel core. When inserted into the core, they stop the chain reaction.

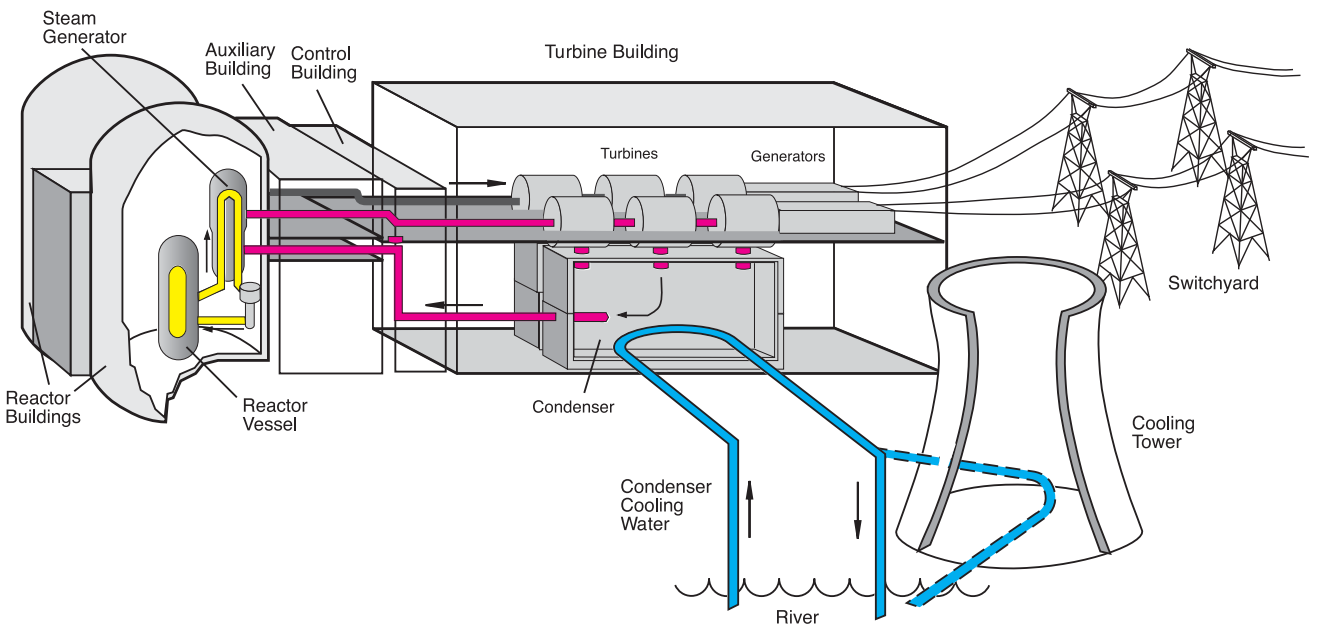
The illustration below shows the three separate water systems used at Sequoyah and how the heat from the fission process is used to make steam and generate electricity. Please note that the radioactive water in the primary loop (yellow) is not permitted to mix with other nonradioactive water systems (pink and blue).

In the primary loop (yellow), water is pumped through the reactor core and heated by the fission process that occurs within the fuel rods. The water is kept under high pressure to prevent it from boiling. The heated water from the reactor is passed through tubes inside four steam generators, where the heat is transferred to a secondary loop.

The water in the secondary loop (pink) boils and turns to steam. The steam is piped to the turbines. Each turbine receives steam at a pressure of more than 800 pounds per square inch and a temperature of more than 500 degrees Fahrenheit. The force of the expanding steam drives three low-pressure turbines and one high-pressure turbine to spin an electromagnet in a coil of wire (the generator) at 1,800 revolutions a minute, generating electric power. The total weight of these rotating parts is more than a million pounds. The generator produces about 24,000 volts, which is sent to transformers in the switchyard and stepped up to 500,000 volts for Unit 1 and 161,000 volts for Unit 2.

After passing through the turbines, the low-energy steam is converted back to water by circulating it around tubes that carry cool water from Chickamauga Reservoir (blue) in a large boxlike structure called a condenser. The condensed steam—now water—is pumped back to the steam generator at about 50,000 gallons per minute to repeat the cycle.

The water in the condenser tubes picks up heat from the steam passing around the outside of the tubes. This heated water may be passed through Sequoyah's two 459-foot-high cooling towers before being returned to the lake or reused in the plant. The height and shape of these concrete towers create a natural draft of air through the tower base, which is used to remove heat from the water. The white plumes that sometimes rise from the towers are ordinary water clouds.



2009

DECEMBER

sunday	monday	tuesday	wednesday	thursday	friday	saturday
		1	SIREN TESTING 2	3	4	5
6	7	8	9	10	11	12 HANUKKAH
13	14	15	16	17	18	19
20	21 FIRST DAY OF WINTER	22	23	24	25 CHRISTMAS	26
27	28	29	30	31 NEW YEAR'S EVE		

NOVEMBER 2009

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JANUARY 2010

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

2010
JANUARY

sunday	monday	tuesday	wednesday	thursday	friday	saturday
DECEMBER 2009 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28				1 NEW YEAR'S DAY	2
3	4	5	SIREN TESTING 6	7	8	9
10	11	12	13	14	15	16
17	18 MARTIN LUTHER KING JR. DAY	19	20	21	22	23
24 31	25	26	27	28	29	30

JANUARY 2010

2010

FEBRUARY

sunday	monday	tuesday	wednesday	thursday	friday	saturday
	1	2	SIREN TESTING 3	4	5	6
7	8	9	10	11	12 LINCOLN'S BIRTHDAY	13
14 VALENTINE'S DAY	15 PRESIDENTS DAY	16	17	18	19	20
21	22 WASHINGTON'S BIRTHDAY	23	24	25	26	27
28						

JANUARY 2010

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

MARCH 2010

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

2010

MARCH

sunday	monday	tuesday	wednesday	thursday	friday	saturday
	1	2	SIREN TESTING 3	4	5	6
7	8	9	10	11	12	13
14 DAYLIGHT SAVING TIME BEGINS	15	16	17 ST. PATRICK'S DAY	18	19	20 FIRST DAY OF SPRING
21	22	23	24	25	26	27
28	29	30 PASSOVER	31			

FEBRUARY 2010

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

APRIL 2010

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

2010

APRIL

sunday	monday	tuesday	wednesday	thursday	friday	saturday
MARCH 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MAY 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			1	2 GOOD FRIDAY	3
4 EASTER	5	6	7 SIREN TESTING	8	9	10
11	12	13	14	15	16	17
18	19	20	21 ADMINISTRATIVE PROFESSIONALS DAY	22 EARTH DAY	23	24
25	26	27	28	29	30 NATIONAL ARBOR DAY	

APRIL 2010

2010
MAY

sunday	monday	tuesday	wednesday	thursday	friday	saturday
APRIL 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30					1
2	3	4	SIREN TESTING 5	6	7	8
9 MOTHER'S DAY	10	11	12	13	14	15 ARMED FORCES DAY
16	17	18	19	20	21	22
23 30	24 31 MEMORIAL DAY	25	26	27	28	29

MAY 2010

2010

JUNE

sunday	monday	tuesday	wednesday	thursday	friday	saturday
		1	SIREN TESTING 2	3	4	5
6	7	8	9	10	11	12
13	14 FLAG DAY	15	16	17	18	19
20 FATHER'S DAY	21 FIRST DAY OF SUMMER	22	23	24	25	26
27	28	29	30			

MAY 2010

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JULY 2010

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

2010
JULY

sunday	monday	tuesday	wednesday	thursday	friday	saturday
JUNE 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	AUGUST 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			1	2	3
4 INDEPENDENCE DAY	5	6	SIREN TESTING 7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JULY 2010

2010
AUGUST

sunday	monday	tuesday	wednesday	thursday	friday	saturday
1	2	3	SIREN TESTING 4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JULY 2010

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER 2010

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

AUGUST 2010

2010

SEPTEMBER

sunday	monday	tuesday	wednesday	thursday	friday	saturday
			SIREN TESTING 1	2	3	4
5	6 LABOR DAY	7	8	9 ROSH HASHANAH	10	11
12	13	14	15	16	17	18 YOM KIPPUR
19	20	21	22	23 FIRST DAY OF AUTUMN	24 NATIVE AMERICAN DAY	25
26	27	28	29	30		

AUGUST 2010

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

OCTOBER 2010

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER 2010

2010
OCTOBER

sunday	monday	tuesday	wednesday	thursday	friday	saturday
SEPTEMBER 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	NOVEMBER 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				1	2
3	4	5	SIREN TESTING 6	7	8	9
10	11 COLUMBUS DAY	12	13	14	15	16
17	18	19	20	21	22	23
24 31 HALLOWEEN	25	26	27	28	29	30

OCTOBER 2010

2010
NOVEMBER

sunday	monday	tuesday	wednesday	thursday	friday	saturday
	1	2	SIREN TESTING 3	4	5	6
7 DAYLIGHT SAVING TIME ENDS	8	9	10	11 VETERANS DAY	12	13
14	15	16	17	18	19	20
21	22	23	24	25 THANKSGIVING	26	27
28	29	30				

OCTOBER 2010

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

DECEMBER 2010

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

2010
DECEMBER

sunday	monday	tuesday	wednesday	thursday	friday	saturday
NOVEMBER 2010 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JANUARY 2011 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		SIREN TESTING 1	2 HANUKKAH	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21 FIRST DAY OF WINTER	22	23	24	25 CHRISTMAS
26	27	28	29	30	31 NEW YEAR'S EVE	

Tennessee Valley Authority
Knoxville, Tennessee 37902-1401

PRESORTED STANDARD
U.S. POSTAGE PAID
TENNESSEE VALLEY
AUTHORITY

Contains important planning information.
Read and keep this calendar close by.