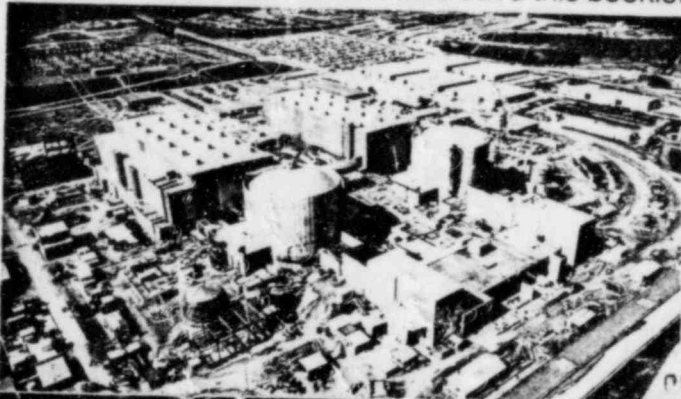


# Catawba Nuclear Station Emergency Plan

1984 Edition

Important information. Read and save this booklet.



Applicants' EP  
Exhibit 5

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**We Want You  
To Be Prepared**

This booklet is an emergency plan for people who live within 10 miles of Catawba Nuclear Station. We expect the station to operate safely. But we want you to be prepared—to know what the sirens mean and what you should do if you hear them.

The plan was made by state and local government officials and Duke Power Company. **Keep this booklet in a place where you can find it.** This booklet will be updated each year.

We hope you will take time to read this booklet carefully and study the maps at the back. If your family is familiar with the plan, you will be prepared for an emergency. If you have questions, call your county emergency management office:

|  |                                 |
|--|---------------------------------|
| York County Emergency Management                     | (803) 328-6171<br>ext. 225, 226 |
| Charlotte-Mecklenburg<br>County Emergency Management | (704) 374-2412                  |
| Gaston County Emergency Management                   | (704) 866-3303                  |

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**If You  
Hear A Rumor**

On occasion there may be noises or activities at Catawba that prompt rumors in the area around the plant. If you ever hear a rumor about something supposedly going on at the plant, call us immediately to get the facts. Don't repeat or act on rumor.

You can get information by calling this number:

(803) 324-5015 Rock Hill or (803) 831-2657 Lake Wylie.

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**Special Help  
For The  
Handicapped**

The emergency agencies listed above can notify and evacuate people with special needs during an emergency. If you are hearing impaired, or have a physical limitation, call your emergency agency today to tell them about your special needs. Use the phone number for your county listed above.

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**Dear Neighbor:**

Duke Power Company has been producing electricity safely with nuclear power for more than 10 years. This year, the Catawba Nuclear Station will begin producing electricity. As part-owner and operator of the station, Duke Power wants you to know about the emergency plan for our area.

We want to make sure we have the best possible plan. Once a year, practice drills will be held to make sure the plan works. State and local agencies work with Duke Power on these drills.

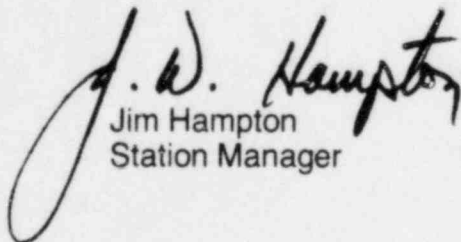
It is very unlikely there would ever be a serious emergency at Catawba. But it is important for you to know what actions to take if there were an emergency. This booklet tells you.

If you know someone who is blind or who does not read well, read this information to them. Talk to them about what to do in an emergency.

If there is an emergency, listen only to emergency officials and your local radio and television stations. They will give you the right information. If they tell you to take actions different from the ones in this brochure, follow the instructions given at the time of the emergency.

We are committed to safely generating electricity to serve your needs. If you have questions about the Catawba station, call us at (803) 324-5015 Rock Hill, or (803) 831-2657 Lake Wylie.

Sincerely,



Jim Hampton  
Station Manager

## How It Works

The Catawba Nuclear Station uses steam to generate electricity. Steam pushes against the blades of a turbine to turn them. As the turbine spins, it turns a generator. The generator produces electricity.

Since Catawba is a nuclear station, it uses uranium as its fuel. Uranium atoms can be split apart. This process is called nuclear fission. When the atoms split, heat and fission products are produced. The heat is used to make steam. Some of the fission products are radioactive. The plant is designed to keep this radiation inside.

There are three separate systems of water at Catawba. Water in one system doesn't touch water in another system.

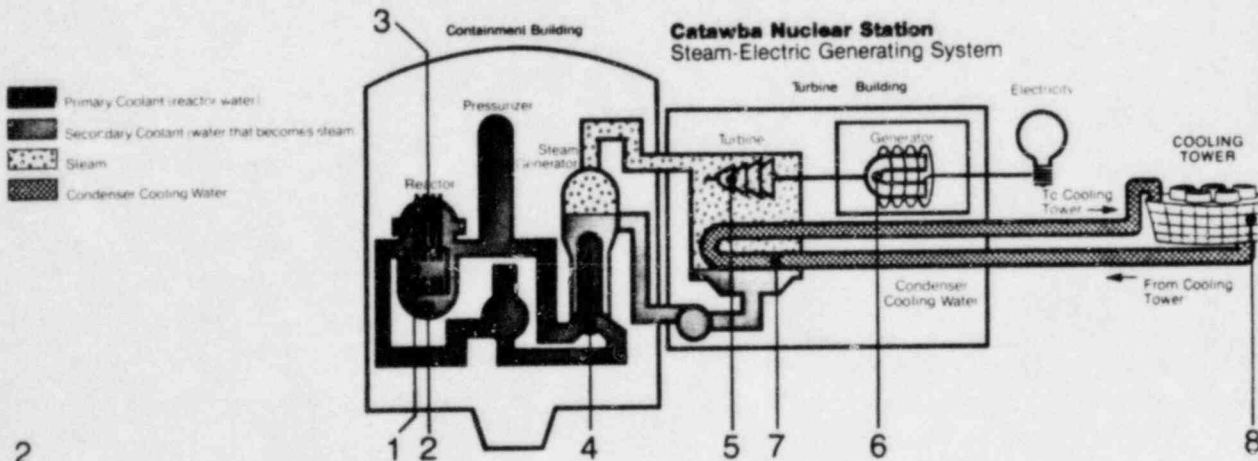
The first system is the primary water system (shown in green). It circulates around the nuclear fuel, called the core (1).

As it flows through the reactor (2), it heats to about 600° F. Because this water is under very high pressure, it does not boil. The amount of heat produced in the reactor is controlled by control rods (3). The reactor shuts down when the control rods are lowered.

The heated primary water next flows through u-shaped tubes in the steam generator (4). There it gives off its heat to water (dark blue) in the secondary water system. It is then pumped back to the reactor to be heated again.

Water in the secondary system is changed to steam (light blue) in the steam generator. The steam spins a turbine (5) connected to an electric generator (6) and produces electricity. As the steam leaves the turbine, it falls on pipes (7) carrying cooling water in the third system (yellow). This water comes from the cooling towers (8).

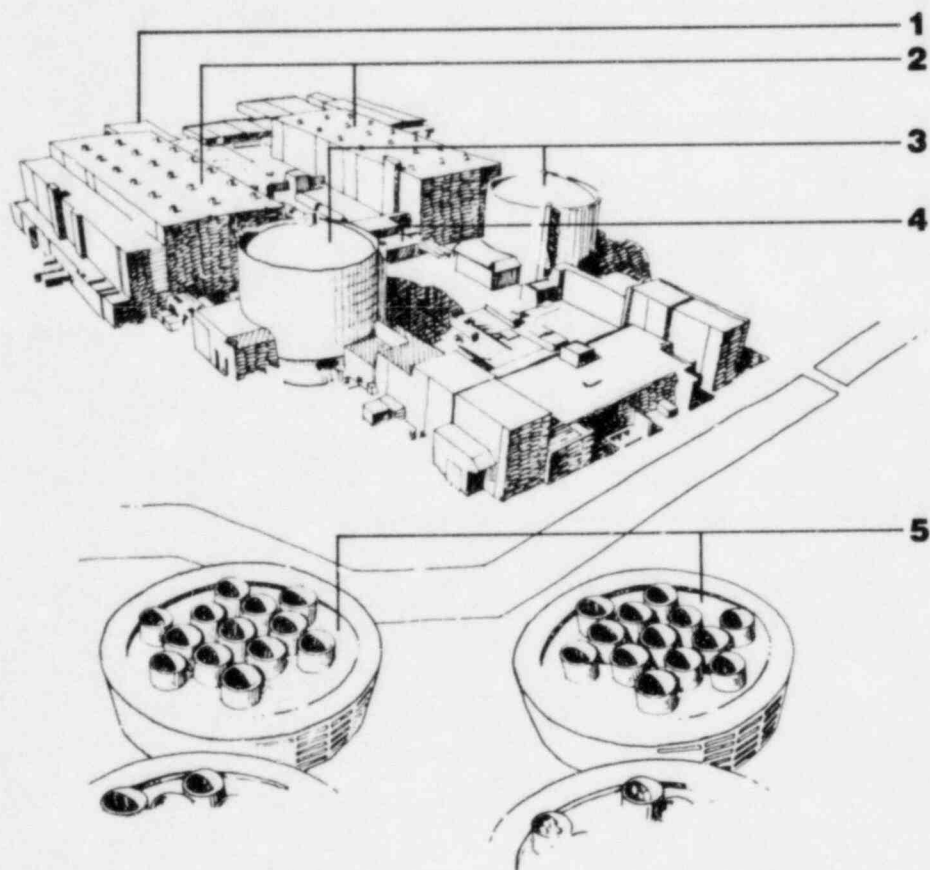
As the steam hits the outside of the pipes, it is changed back to water. It is then pumped to the steam generator to be heated to steam again. The steam heats the water inside the pipes. Before it can be used again, it must be cooled in the cooling towers.



## Catawba Nuclear Station

Two Units (1,145,000  
kilowatts each)

- 1 Administration Building** contains security and plant offices.
- 2 Turbine Building** contains the turbines, the generator and the condenser system.
- 3 Containment Building** (or reactor building) is made of steel and reinforced concrete. It houses the reactor vessel, pressurizer, reactor coolant pumps, steam generators and other equipment. This building is designed to keep radiation inside.
- 4 Auxiliary Building** houses the control room, equipment and laboratories for operation of the plant.
- 5 Cooling Towers** cool the condenser cooling water to be used again. There are three cooling towers for each unit. Each tower can cool 200,000 gallons of water each minute.



## **Radiation . . . A Fact Of Life**

Radiation is energy. Radar, radio waves, ultraviolet (sun) rays and X-rays are common forms of radiation.

Radiation is all around us. It is in the air we breathe, in the food we eat and in our homes. It is even in our bodies. These sources of radiation are lumped together and called background radiation.

In addition to natural background radiation, there is also man-made radiation. It comes from such things as medical and dental X-rays and treatments. Very small amounts of radiation comes from the generation of nuclear power.

There are three types of radiation: alpha particles, beta particles and gamma rays. Alpha particles are the least penetrating. They can be stopped by a sheet of paper. Beta particles can be stopped by a thin sheet of metal. Gamma rays are the most penetrating. They can be almost completely stopped by three feet of concrete.

Radiation is measured in units called millirems. The average person receives about 180 millirems of background and man-made radiation a year. Each year we get more radiation from natural sources than we get from an operating nuclear plant. The chart on the opposite page shows how much radiation we get from different things. You can see an operating nuclear power plant adds very little to how much radiation we get.

If there were a major emergency at Catawba, people in areas near the plant could be exposed to high levels of radiation. Exposure to high levels of radiation causes health effects. For your protection, follow the instructions on the emergency broadcast stations.

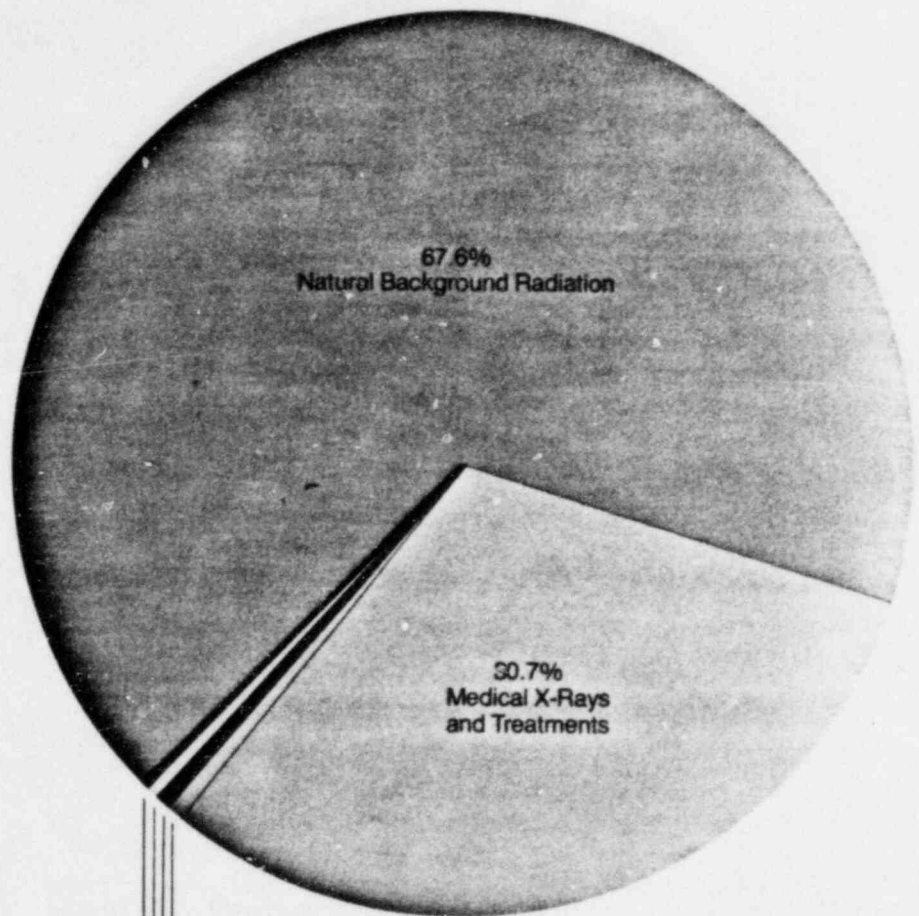
If radiation were released, you could protect yourself by:

- 1** Following the instructions given by the emergency broadcast radio or television station.
- 2** If instructed, leave the area and check in at a shelter.
- 3** If you are told to stay indoors, turn off fans, air conditioners, and forced-air heating units. Close all windows and doors.
- 4** Hold a damp cloth over your nose and mouth.
- 5** Limit the amount of time you are outdoors.

Unborn babies and children up to six years old are more likely than other people to be harmed by radiation. Because of this, early precautions might be ordered for women who are, or could be, pregnant and very young children.

Most evidence shows radiation doses of 25 to 50,000 millirems do not cause permanent health effects. To be extra careful, protective actions would be ordered at much lower levels. This would provide you and your family more time to take shelter or, if necessary, to evacuate.

## Sources Of Radiation



- 0.6% Fallout
- 0.5% Miscellaneous Sources
- 0.45% Occupational Exposure
- 0.15% Releases from the Nuclear Industry

### Sources and amounts of natural background radiation (Measured in Millirem per Year)

|                         |    |
|-------------------------|----|
| Cosmic Rays             | 26 |
| Air-Food-Water          | 24 |
| The Earth               | 26 |
| Building Materials:     |    |
| Living in a brick house | 7  |
| Living in a stone house | 7  |

### Sources and amounts of man-made radiation (Measured in Millirem)

|   |                      |
|---|----------------------|
| Dental X-Rays:                            |                      |
| Bitewing series                           | 40                   |
| Panoramic                                 | 500                  |
| Coast-to-Coast Airline Flight             | 1                    |
| Color Television                          | 1 per year           |
| Living Next to an Operating Nuclear Plant | Less than 1 per year |

## Nuclear Terms

**Chain Reaction** — The point in the fission process at which the production of neutrons in the reactor core is self-sustaining.

**Cold Shutdown** — The temperature of the water in the primary system is reduced below boiling point and the pressure is reduced to atmospheric pressure.

**Control Rods** — Rods made of a material that absorbs neutrons. When inserted into the nuclear fuel, the rods stop the fission process, shutting down the reactor.

**Core** — The central part of a nuclear reactor that contains the nuclear fuel.

**Emergency Core Cooling System** — A back-up emergency system designed to pump thousands of gallons of water into the reactor core to cool the fuel.

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

**Fuel Assemblies** — A collection of rods that contain the nuclear fuel pellets which produce heat to make steam used to generate electricity.

**Fuel Pellets** — Thimble-sized uranium oxide 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 10 million pellets.

**Fuel Rods** — Hollow tubes 13 feet long that contain stacks of uranium oxide fuel pellets. These rods are bundled together to form fuel assemblies.

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

**Maximum Permissible Dose (MPD)** — The legal limit to the amount of radiation a member of the public may be exposed to from any source. The Nuclear Regulatory Commission has established a maximum per person permissible dose of 500 millirems of radiation per year for the general public. For nuclear plant workers, the maximum has been established at 5,000 millirems per year.

**Millirem** — The unit used to measure radiation dosage. It is 1/1000th of a REM. REM stands for Roentgen Equivalent Man, a measure of radiation that indicates potential impact on human cells.

**Radioactivity** — The property possessed by some elements that give off energy in the form of waves or particles. Radiation may be alpha, beta or gamma.

**Reactor Trip** — The situation in which control rods are quickly inserted into the fuel core of the reactor, stopping the fission process.



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## **Emergency Classifications**

One of the four classifications below would be used to describe a nuclear plant emergency. You should know these terms. Duke Power would contact federal, state and local authorities in each of the following situations.

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**1 An Unusual Event** is the least serious of the four warning classifications. It means there is a minor problem at the station that is being handled by plant workers. Because of strict federal regulations, a number of problems are reported as unusual events even though they pose no danger to the public. They would be reported to the Nuclear Regulatory Commission and to state and local officials. No release of radiation is expected. You will not have to do anything.

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**2 An Alert** is an event that could affect plant safety. Although there is still no danger to the public, county and state officials begin getting emergency operation centers ready in case the situation gets worse. You probably will not have to do anything.

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**3 A Site Area Emergency** is an event that could possibly affect the public. Small amounts of radiation could be released outside the station. The sirens are sounded to alert the public to listen to the emergency broadcast stations for information and instructions.

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**4 A General Emergency** is the most serious of the four classifications. State and federal authorities would take action to protect the public and station workers. Emergency broadcast stations would continue to give information and instructions. If necessary, some areas could be evacuated.

## Locating Your Zone

Look at the map on page 12 of this booklet. You will see the 10-mile area around Catawba Nuclear Station is divided into zones. **Find the zone where you live or work. Write it on the inside back cover of this booklet.** This way you will know if you live or work in the area affected by an emergency. For example, residents in zones A-1 and A-2 might be told to stay indoors. Others might not be affected.

Next turn to the protective action zones chart on page 13. Find the shelter for your zone. Locate it on the map of shelters on page 14. This is where you would go if an evacuation were ordered.

## How Would I Be Told About An Emergency?

If there were an emergency at the Catawba Nuclear Station, Duke Power would immediately tell state and county emergency organizations. These groups have plans to deal with any emergency at Catawba. They would tell you if any action is needed.

To warn you of an emergency, sirens in the 10-mile area around the station would go off.

A steady, three-minute signal would sound. Turn on your radio or television immediately. Tune to one of the emergency broadcast stations. These stations would give you information and tell you what you should do.

The emergency broadcast stations for the area around Catawba are:

| AM RADIO           |      |      | FM RADIO       |      |        |
|--------------------|------|------|----------------|------|--------|
| Belmont, NC        | WCGC | 1270 | Charlotte, NC  | WBCY | 107.9  |
| Charlotte, NC      | WAME | 1480 |                | WEZC | 104.7  |
|                    | WAYS | 610  |                | WFAE | 90.9   |
|                    | WBT  | 1110 |                | WROQ | 95.1   |
|                    | WGIV | 1600 |                | WSOC | 103.7  |
|                    | WHVN | 1310 | Concord, NC    | WPEG | 97.9   |
|                    | WQCC | 1540 | Davidson, NC   | WDAV | 89.9   |
| Concord, NC        | WSOC | 930  | Gastonia, NC   | WZXI | 101.9  |
|                    | WEGO | 1410 | Kannapolis, NC | WRKB | 99.7   |
| Dallas, NC         | WAAK | 960  | Rock Hill, SC  | WNSC | 88.9   |
| Gastonia, NC       | WGAS | 1420 |                |      |        |
|                    | WGNC | 1450 |                |      |        |
|                    | WLTC | 1370 | Charlotte, NC  | WBTV | Ch. 3  |
| Kannapolis, NC     | WGTL | 870  |                | WCCB | Ch. 18 |
|                    | WRKB | 1460 |                | WPCQ | Ch. 36 |
|                    | WKMT | 1220 |                | WSOC | Ch. 9  |
| Kings Mountain, NC | WLON | 1050 | Concord, NC    | WTVI | Ch. 42 |
| Lincolnton, NC     | WIXE | 1190 | Rock Hill, SC  | WUNG | Ch. 58 |
|                    | WMAP | 1060 |                | WNSC | Ch. 30 |
| Monroe, NC         | WHIP | 1350 |                |      |        |
| Mooresville, NC    | WRHI | 1340 |                |      |        |
|                    | WTYC | 1150 |                |      |        |
| Rock Hill, SC      | WBZK | 980  |                |      |        |
| York, SC           |      |      |                |      |        |

In case of an emergency, fire, police and rescue units would also patrol the affected areas and sound their sirens.

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## **If I Hear The Siren, What Should I Do?**

Go indoors immediately and tune to one of the emergency broadcast stations. Listen for instructions for your zone. You might be told to stay indoors or to evacuate. You might hear that your zone is not affected. Follow the instructions.

Use the telephone only for emergencies.

Even if there were an accident at Catawba Nuclear Station, it is not likely everyone within the 10-mile area would be affected. The areas affected would depend on such things as wind speed and wind direction. It would also depend on how serious the accident is.

If you hear no message on radio or television, call your county's emergency management office listed on the inside of the front cover.

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## **You Might Be Told To Stay Indoors**

If you are told to stay indoors:

- 1** Stay indoors until you are told it is safe to go out.
- 2** Close all windows and doors. Turn off fans, air conditioners and forced-air heating units.
- 3** Move to a basement if possible.
- 4** Place a damp cloth over your nose and mouth.
- 5** Listen to your local radio or television station for more instructions.
- 6** Water, milk and food supplies will be monitored for potential contamination. The emergency broadcast stations will notify the public of any actions to be taken in regard to food and water.

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### **If You Are Ordered To Evacuate**

If you are ordered to leave the area:

- 1** Do not try to take all of your things with you. You could be away from home from a few hours to a few days.
- 2** Turn off appliances and faucets. Lock all windows and doors.
- 3** Hold a damp cloth over your nose and mouth. This would help keep radiation from entering your body.
- 4** Provide food, water and shelter for your pets and livestock. Pets are not allowed at the shelters.
- 5** Get into your car or other vehicle. Close all windows and vents. Drive to your shelter and register. You may stay at the shelter. Or after you register at the shelter, you may choose to stay with friends or relatives living at least 15 miles from the plant. Registering at the shelter will enable officials to contact you to tell you when you can go back home. You can also get information there while away from home.

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### **Exit Routes During An Evacuation**

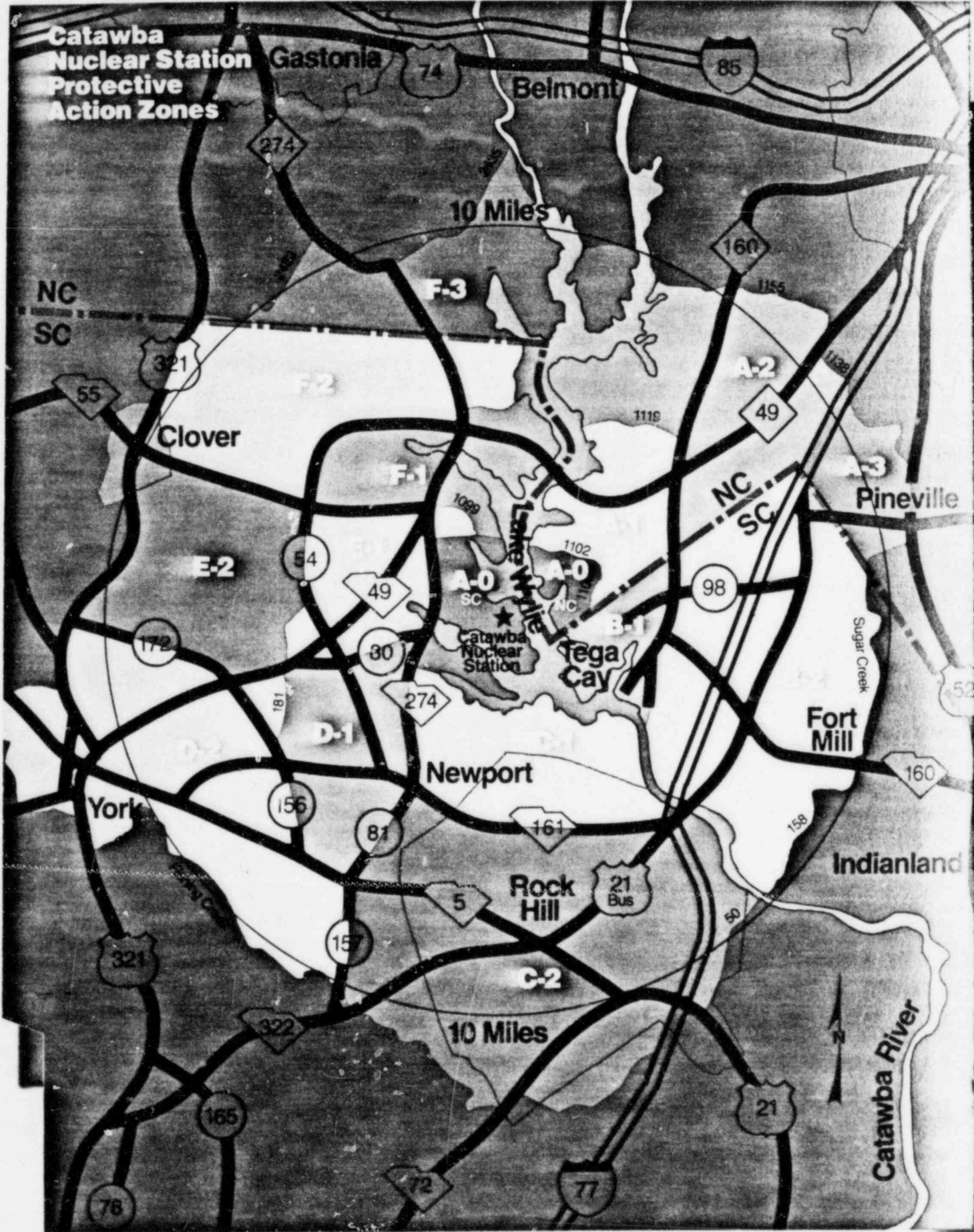
Look at the map and protective action zones chart at the back of this booklet to find your exit route. Exit routes would also be announced on radio and television. Police would help direct traffic during an evacuation. Use car pools if possible, to limit traffic. **DRIVE SAFELY.** Once outside the 10-mile area you would be directed to the shelter for your zone.

---

### **Services Provided At The Shelters**

- 1** Representatives of organizations including Red Cross, Salvation Army and insurance companies would be at shelters to provide services you may need.
- 2** Shelters would have facilities for decontamination of evacuees and their vehicles and personal items.
- 3** Shelters would also provide food, water, clothing, medical help, beds, showers and toilets.
- 4** Radioprotective drugs would be available if distributed by state authorities.

**Catawba Nuclear Station Protective Action Zones**



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### **Things You May Want To Take In An Evacuation**

The shelters would have food, clothing and beds for you. Shelters would also have medical support and telephones. You might want to bring these things from home:

- 1** Two changes of clothing;
- 2** Two blankets or a sleeping bag for each person;
- 3** Important personal papers;
- 4** Toilet articles (soap, toothbrush and toothpaste);
- 5** Medical supplies (first aid kit, medicine and prescriptions);
- 6** Special baby formulas or food.

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### **What If My Children Are In School?**

If an evacuation were ordered, children at schools within the emergency zone would be moved to the shelter for their school. It is important for parents to know what zone their children's school is in. You also should know what shelter they will be taken to. To find out, look at the map of zones and list of shelters at the end of this booklet. Write the zone for your children's school on the back of this booklet. Adults will stay with the children until parents pick them up. If your children ever spend time alone, you should tell them what to do in an emergency. Be sure they know what zone they are in.

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### **What If I Don't Have Transportation?**

If you or members of your family cannot drive or do not have any transportation, call the emergency agency in your area at the number listed on the inside front cover. You would be picked up. If members of your family are sometimes at home without transportation, make these plans now.

# Regional Shelter Locations



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**My zone is:**

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**My children's  
school zones are:**

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| County      | Zone  | Primary Evacuation Routes   | Shelters  |
|-------------|---|---|---|
| Mecklenburg | <b>A-0 NC</b><br><b>A-1</b><br><b>A-2</b><br><b>A-3</b> | 1. NC 49 or US 521 or NC 160 to I-77 North. I-77 North to I-85 North to NC 49, east to the shelter.<br>2. Or, NC 49 east to the shelter.<br>3. Or, NC 51 east to NC 16, north to I-85 North to NC 49 to the shelter.  | UNCC <b>1</b>   |
| Gaston      | <b>F-3</b>  | 1. NC 274 north to Garrison Blvd. West to the shelter.  | Ashley Jr. High School <b>2</b>   |
| York        | <b>A-0 SC</b>   | 1. SC 55 west to SC 161, north to Bethany ARP Church.<br>2. Or, SC 55 west to Bethany Elementary School.<br>3. Or, SC 49 west to S-40, north to Sharon Elementary School.<br>4. Or, SC 49 west to SC 211, west to Hickory Grove School.   | Bethany ARP Church <b>3</b><br>Bethany Elementary School <b>4</b><br>Sharon Elementary School <b>5</b><br>Hickory Grove School <b>6</b>   |
| Lancaster   | <b>B-1</b><br><b>B-2</b><br><b>C-1</b>                  | 1. SC 160 east to US 521, south to Indianland Elementary School, Indianland High School, and Indianland Vocational School.<br>2. SC 160 east to US 521, south to SC 9, west to Barr Street Jr. High.<br>3. SC 160 east to US 521, south to North Elementary School.   | Indianland Elementary School <b>7</b><br>Indianland High School <b>8</b><br>Indianland Vocational School <b>9</b><br>Barr Street Jr. High School <b>10</b><br>North Elementary School <b>11</b>   |
| Chester     | <b>C-2</b>  | 1. US 21 south to SC 9, east to Ft. Lawn-Springs Warehouse and Springs Cotton Division.<br>2. US 21 south to SC 9, west to Ft. Lawn Elementary School.<br>3. I-77 South to SC 9, east to Lewisville High School, Lewisville Middle School, and Lewisville Elementary School.<br>4. I-77 South to S-46, east to Lando Baptist church.<br>5. SC 72 south to SC 72 By-Pass, south to Southside Elementary School, Chester County Career Center, and Chester Senior High School.<br>6. SC 72 south to SC 72 By-Pass, south to US 321, north to Old National Guard Armory.<br>7. SC 72 south to Springs Mill-Eureka Plant.<br>8. SC 72 south to SC 909, west to S-190, south to Gethsemane Baptist Church.<br>9. SC 72 south to SC 132, west to S-1, north to York Road Elementary School.<br>10. US 321 south to S-78, north to Brown Chapel AME Zion Church and Christian Home Church.<br>11. US 321 south to S-29, south to North Chester Head Start School.<br>12. US 321 south to Lowry's Baptist Church. | Ft. Lawn-Springs Warehouse <b>12</b><br>Springs Cotton Division <b>13</b><br>Ft. Lawn Elementary School <b>14</b><br>Lewisville Elementary School <b>15</b><br>Lewisville Middle School <b>16</b><br>Lewisville High School <b>17</b><br>Lando Baptist Church <b>18</b><br>Southside Elementary School <b>19</b><br>Chester Co. Career Center <b>20</b><br>Chester Senior High School <b>21</b><br>Old National Guard Armory <b>22</b><br>Springs Mill-Eureka Plant <b>23</b><br>York Road Elementary School <b>24</b><br>Gethsemane Baptist Church <b>25</b><br>Christian Home Church <b>26</b><br>Brown Chapel AME Zion Church <b>27</b><br>North Chester Head Start School <b>28</b><br>Lowry's Baptist Church <b>29</b> |
| Union       | <b>D-1</b><br><b>D-2</b>                                | 1. SC49 west to SC9, west to S-31, north to Lockhart School.<br>2. SC49 west to S-69, north to Union High Complex.  | Lockhart School <b>30</b><br>Union High Complex <b>31</b>   |
| Cherokee    | <b>E-1</b><br><b>E-2</b><br><b>F-1</b><br><b>F-2</b>    | 1. SC55 west to SC5, north to US29, west to S-100, south to Blacksburg High School.<br>2. SC55 west to SC5, north to US29, west to Cherokee Vocational School.<br>3. SC55 west to SC5, north to US29, west to SC18, south to Gaffney High School.<br>4. SC55 west to SC5, north to US29, west to SC18, south to S-111, east to East Jr. High School.<br>5. SC55 west to SC5, north to US29, west to S-89, north to West School.<br>6. SC55 west to SC5, north to US29, west to S-31, north to B.D. Lee Elementary School.<br>7. I-85 West to Luther Vaughn Elementary School.   | Blacksburg High School <b>32</b><br>Cherokee Voc. School <b>33</b><br>East Jr. High School <b>34</b><br>Gaffney High School <b>35</b><br>West School <b>36</b><br>B.D. Lee Elementary School <b>37</b><br>Luther Vaughn Elem. School <b>38</b>  |

The shelters listed here have enough space for all North Carolina residents living within 10 miles of the nuclear station. There is enough space for one-third of all South Carolina residents who live within 10-miles of the plant. Additional shelters would be opened in York, Lancaster, Union, Chester, Cherokee and Fairfield counties for South Carolina residents if needed. People who arrive at a shelter that is full would be directed to one of the additional shelters.