

DUKE POWER COMPANY

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

June 22, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

Dear Mr. Denton:

In response to Section 13.3.2.7 of Supplement 1 to the Catawba Safety Evaluation Report, please find attached seven copies of the public information brochure for Catawba.

Very truly yours,

H.B. Tucker / HBT
Hal B. Tucker

ROS/php

Attachments

cc: (w/attachment)

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Mr. P. K. Van Doorn
NRC Resident Inspector
Catawba Nuclear Station

Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
Charleston, South Carolina 29412

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Mr. Harold R. Denton, Director
June 22, 1983
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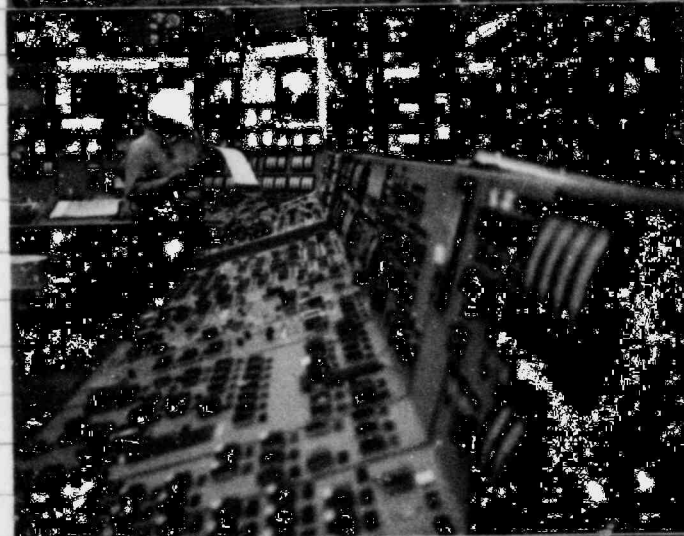
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Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 29205

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

Mr. Henry A. Presler, Chairman
Charlotte-Mecklenburg Environmental Coalition
943 Henley Place
Charlotte, North Carolina 28207

Catawba Nuclear Station Emergency Plan

Important information. Read and save this booklet.



**We Want You
To Be Prepared**

This brochure is an emergency plan for people who live within 10 miles of Catawba Nuclear Station. We expect the plant to operate safely. You will probably only use the emergency plan for a drill. 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. It will be updated each year. When you get your new copy, throw this booklet away.

We hope you will take time to read the booklet carefully and study the map at the back. If your family is familiar with the plan, you will be prepared for an emergency. Keep the booklet in a place where you can find it. If you have questions, call your county office:

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

**Special Help
For The
Handicapped**

The emergency agencies listed above can notify and evacuate handicapped people during an emergency. If you are handicapped, call your emergency agency today to tell them about your special needs. Use the phone number for your county listed above.

Dear Neighbor:

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

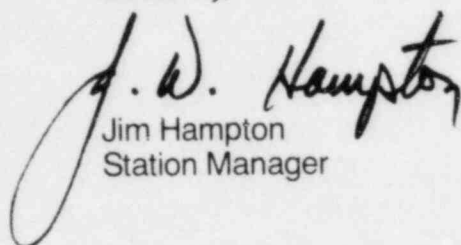
We want to make sure we have the best possible plan. Once a year, practice drills will be held to make sure the plan works. State and local agencies work with Duke Power on these drills.

It is very unlikely there would ever be a serious emergency at Catawba. But it is important for you to know how the station works and what you should do during an emergency. This booklet tells you.

If there is an emergency, listen only to emergency officials and your local radio or television station. They will give you the right information. Most important, do not evacuate unless you are ordered to do so.

We are committed to safely generating electricity to serve your needs. If you have questions about the Catawba station, we want you to call us at (803) 324-5015.

Sincerely,



Jim Hampton
Station Manager

How It Works

The Catawba Nuclear Station will use 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 for our homes, schools, businesses and industries.

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 released. 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. (Shown on the diagram by different colors.) Water in one system never touches 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).

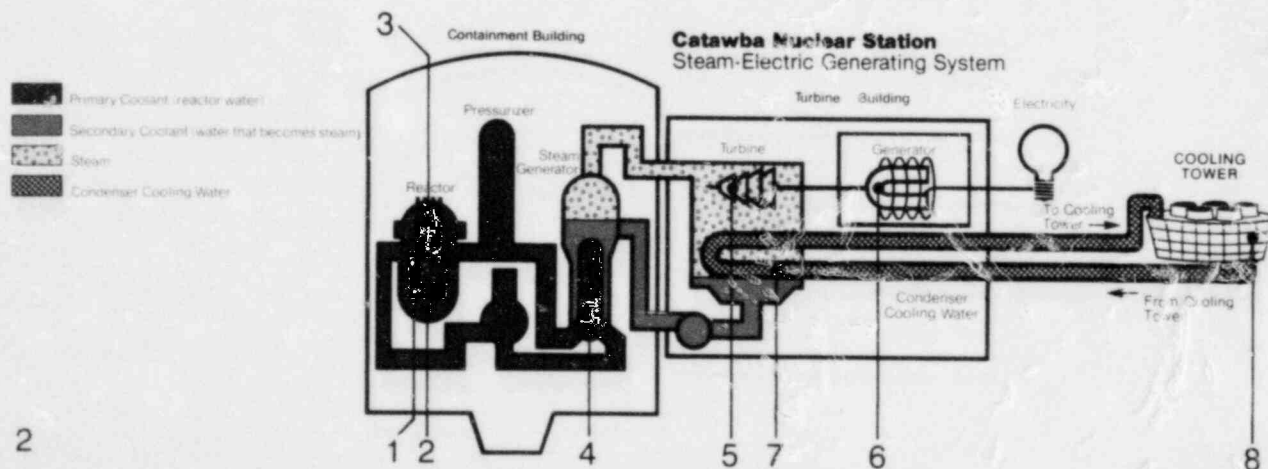
As it flows through the reactor (2), it heats to about 600°F. Because this water is under very high pressure, it does not boil. The amount of heat produced in the reactor is controlled by control rods (3). The reactor shuts down when the control rods are lowered.

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.

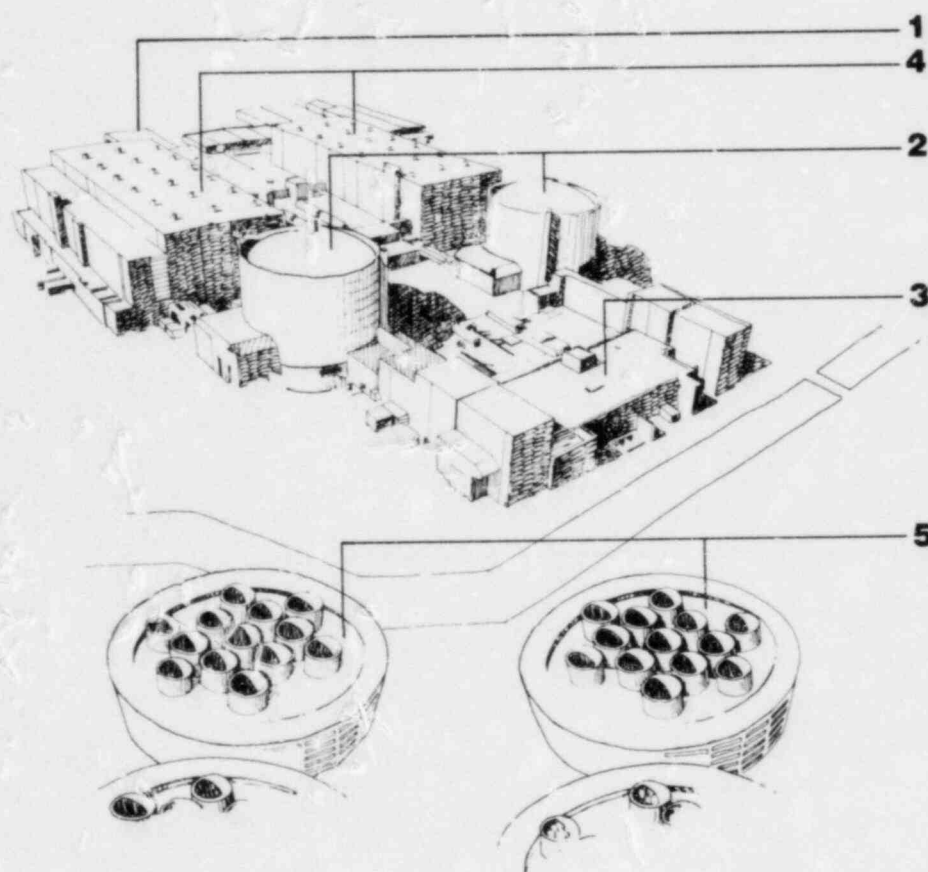
The steam heats the water inside the pipes. Before it can be used again, it must be cooled in the cooling towers.



Catawba Nuclear Station

Two Units (1,145,000
kilowatts each)

- 1 Administration Building** contains security and plant offices.
- 2 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.
- 3 Auxiliary Building** houses the control room, equipment and laboratories for operation of the plant.
- 4 Turbine Building** contains the turbines, the generator and the condenser system.
- 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 come 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 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 nuclear power adds very little to how much radiation we get.

How radiation would harm you depends on:

- The type of radiation to which you are exposed;
- The amount of radioactive material you breathe or take into your body;
- The length of time you are exposed;
- The amount of your body exposed and which part.

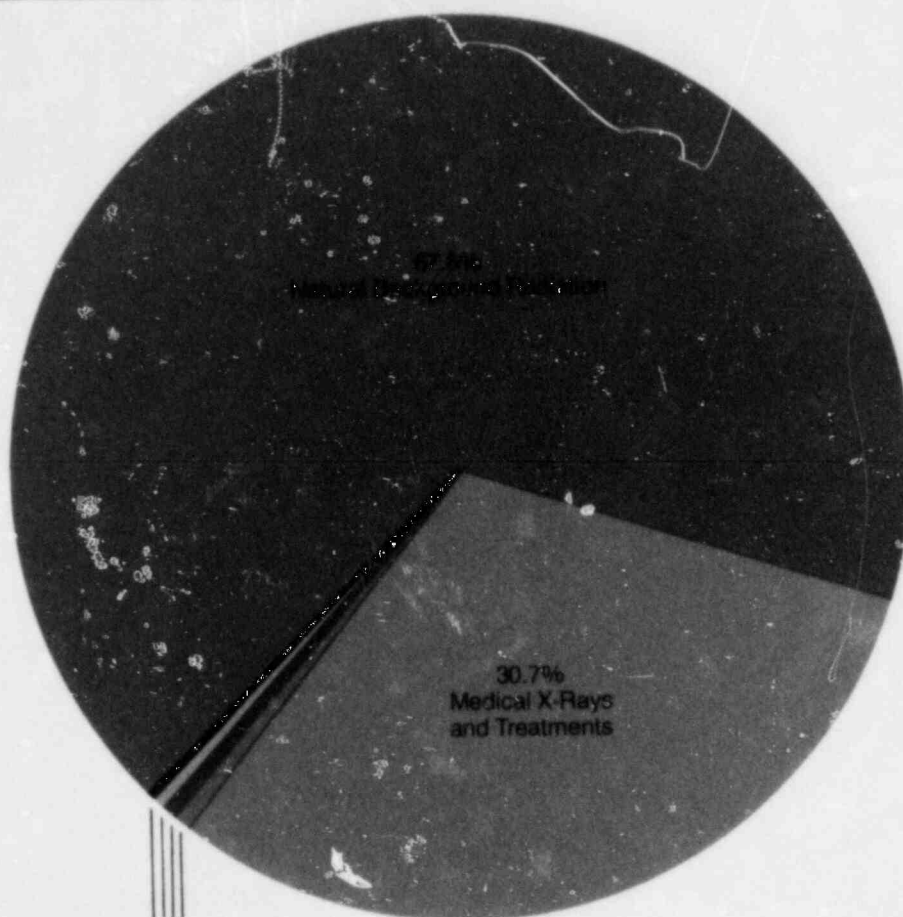
If radiation were released from the Catawba Nuclear Station, there are things you could do to help keep it out of your body.

- If you are told to stay indoors, close all windows and doors. Turn off fans and air conditioners.
- Hold a damp cloth over your nose and mouth.

Unborn babies and very young children 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 up to several thousand millirems do not cause health effects. To be extra careful, protective actions would be ordered at much lower levels. This would allow you and your family more time to take shelter or, if necessary, to evacuate.

Source of Radiation



About 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	45
Air	5
The Earth	15
Food	25
Building Materials:	
Living in a brick house	45
Living in a stone house	50
Living in a wood house	35

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

Dental X-Rays:	
Bitewing Series	40
Panoramic	500-1000
Coast-to-Coast Airline Flight	5
Color Television	1 per year
Living next to a 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 to the reactor core and 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 a nuclear power plant. The Nuclear Regulatory Commission has established a maximum permissible dose of 500 millirems of radiation per year for the general public. For 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.

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.

1 An Unusual Event is the least serious of the four warning classifications. It means there is a 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.

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.

3 A Site Area Emergency is an event that could possibly affect the public. The sirens are sounded to alert the public to listen to the emergency broadcast stations for information and instructions.

4 A General Emergency is the most serious of the four classifications. In this situation, 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 which folds out at the end 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 "Evacuation Zones" chart on page 13. Find the shelter or reception center for your zone. This is where you should 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
	WIST	1240	Davidson, NC	WDAV	89.9
	WQCC	1540	Gastonia, NC	WZXI	101.9
	WSOC	930	Kannapolis, NC	WKRB	99.7
Concord, NC	WEGO	1410	Rock Hill, SC	WNSC	88.9
Dallas, NC	WAAK	960			
Gastonia, NC	WGAS	1420			
	WGNC	1450			
	WLTC	1370			
Kannapolis, NC	WGIL	870			
	WKRB	1460			
Kings Mountain, NC	WKMT	1220			
Lincolnton, NC	WLON	1050			
Monroe, NC	WIXE	1190			
	WMAP	1060			
Mooresville, NC	WHIP	1350			
Rock Hill, SC	WRHI	1340			
	WTYC	1150			
York, SC	WBZK	980			

TV

Charlotte, NC	WBTB	Ch. 3
	WCCB	Ch. 18
	WPCQ	Ch. 36
	WSOC	Ch. 9
	WTVI	Ch. 42
Concord, NC	WUNG	Ch. 58
Rock Hill, SC	WNSC	Ch. 30

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

If I Hear The Siren, What Should I Do?

First, 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. **Do not evacuate unless an order is given.**

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. Remember, **do not evacuate unless an order is given!**

You Might Be Told To Stay Indoors

If you are told to stay indoors:

- 1** Do not evacuate unless an order is given.
- 2** Stay indoors until you are told it is safe to go out.
- 3** Close all windows and doors. Turn off fans and air conditioners.
- 4** Listen to your local radio or television station for more instructions.

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 something like a damp handkerchief 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 reception centers and shelters.
- 5** Get into your car or other vehicle. Close all windows and vents. Drive to your shelter or reception center.

South Carolina residents — go first to the reception center for your area, shown on the map. From there you could be sent to a shelter. Or you may choose to stay with friends or relatives living at least 15 miles from the plant.

North Carolina residents — go first to the shelter for your area, shown on the map. You may then stay at the shelter. Or you may choose to stay with friends or relatives living at least 15 miles from the plant.

A place in the shelter or reception center will be provided for you in the state in which you live. If you go to the wrong place, you will be sent to the right one.

Exit Routes During An Evacuation

Look at the map and "Evacuation Zone" chart in 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 or reception center for your zone.

There would be no need to rush. You are more likely to get hurt by rushing, than by the release of radiation. **REMEMBER: IF THERE WERE AN EMERGENCY AT THE CATAWBA NUCLEAR STATION, YOU WOULD BE GIVEN PLENTY OF TIME TO TAKE NECESSARY ACTION.**

Things You May Want To Take In An Evacuation

The shelters would have food and beds for you. 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.

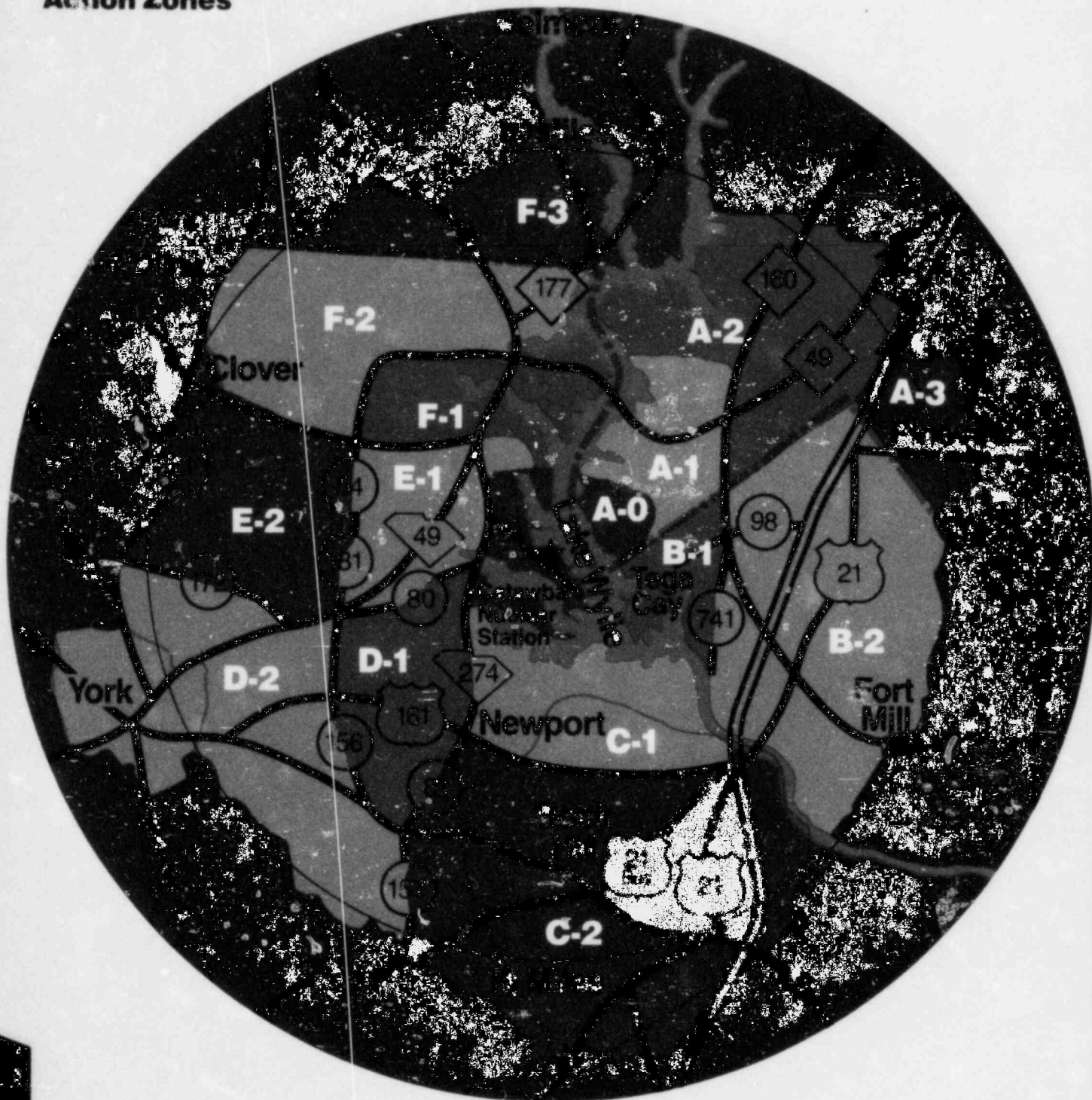
What If My Children Are In School?

If an evacuation were ordered, children at schools within the emergency zone would be moved to the reception center or shelter for their school. Adults will stay with the children until parents pick them up. If your children ever spend time anywhere alone, you should tell them what to do in an emergency.

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.

**Catawba
Nuclear Station
Protective
Action Zones**



My zone is:

Duke Power Company