Fwd EP Off of Mgmt 3 RMG

DUKE POWER COMPANY
NUCLEAR PRODUCTION DEPARTMENT
P.O BOX 33189, 422 SOUTH CHURCH STREET
CHARLOTTE, N.C. 28242
(704) 373-4011

I-EP-3 5/3/84

DOCKETED USNRC
'84 MAY 24 A10:0
OFFICE OF SECRETARY DOCKETING & SERVICE BRANCH

April 21, 1983

DOCKET NUMBER
PROD. & UTIL. FAC. 50-413/414OL

Mr. J. Moore, Director ✓
SC Emerg. Preparedness Division

Mr. J. T. Pugh, Director ✓
NC Div. of Emerg. Management

Mr. P. McLeod
State of South Carolina
Office of the Governor

Mr. K. Williams ✓
ATTN: Mr. W. Broome
Char-Meck Emergency Management

Mr. J. L. Carroll, Director ✓
Municipal-County Emerg. Preparedness

Mr. R. Phillips, Director ✓
Gaston County Emerg. Management

Subject: Catawba Brochure Revision

Gentlemen:

Attached please find a first draft copy of the Catawba brochure. The form it is provided in here will change to a brochure version when put into a final draft, but for now this is a more expedient method for review. This brochure is different from that used at Oconee and McGuire to date, and is an attempt to lower the reading grade level as well as to include all NRC/FEMA required information. We intend to incorporate similar changes to the Oconee and McGuire brochures based on our experience with Catawba.

I would ask that you review the brochure and provide comments to me by phone by April 27. Please pay close attention to the tabular listing of zones, routes, and shelter/reception centers. Then, compare the listing to your maps of the EPZ. After I receive your comments they will be provided to our Corporate Communications staff for inclusion. The map will be ready for review in the next several days. I will be contacting each of you to arrange a time to evaluate it and to see a rough version of the brochure format. This review process must be expedited as we are attempting to have the brochure ready by May 31 for submittal to the NRC and FEMA as well as to include in the emergency plans. Based upon Federal review, public comment, and our experience in the upcoming hearings we will revise it prior to a general mail out to the public in January-February 1984.

NUCLEAR REGULATORY COMMISSION
Docket No. 50-413 & 414 OL Official Exh. No. Ant's EP-3
In the matter of Catawba
Staff _____ IDENTIFIED ✓
Applicant _____ RECEIVED ✓
Intervenor ✓ REJECTED _____
Cont'g Off'r _____
Contractor _____ DATE 5/3/84
Other _____ Witness Cat I+I Panel
Reporter Ly

8406220325 840503
PDR ADOCK 05000413
Q PDR

I appreciate your timely review of this document and forwarding comments by April 27.

Very truly yours,

R. Michael Glover

R. M. Glover
Emergency Response Coordinator

RMG/be

Attachment

xc: P. Carter (w/o att.)
M. E. Bolch " "
P. Osborne " "
J. Lesser " "

DUKE POWER COMPANY

Form 0018 (5-81)

Dev./Station _____ Unit _____ File No. _____

Subject Get NC comments & the ph. #'s for their 3 lines at Armory

By _____ Date _____

Sheet No. ___ of _____ Problem No. _____ ted By _____ Date _____

11, 19, 18, 13

SC comments

pg. 1 Third pp change "this brochure" to "the brochure" No! I do not agree

some page - can take pets with them but they cannot be in shelter / reception center

pg. 10 change "within" to "at least" or "outside of"

Additional Reception Centers are available in Chester County and will be opened on an as-needed basis.

"Or" should be "on" on map

Blacksburg 1st Baptist Church

Gaston County Comments

* See directions change on 1st listing

Meck. Co. Comments

pg. 1 see red marked ✓
pg. 6 comment on K.I - will go with 6 ✓
pg. 8 Scratch WHIP- Mooresville ✓
pg. 8 See other insert ✓
pg. 10 say "at least" or "outside of" ✓
pg. 10 insert "Obey normal traffic laws and follow the directions ✓ provided by law enforcement officers

DUKE POWER COMPANY

Form 00184 (6-81)

Dev./Station _____ Unit _____ File No _____

Subject _____

By _____ Date _____

Sheet No. ___ of _____ Problem No _____ Checked By _____ Date _____

Meck. Co. Comments

pg. 12 change "response" to "operations" ✓

pg. map listing - change "161" to "160" ✓

N.C. Comments

Livestock & Pets - water, food, shelter ✓

KI ✓

Remove Kings Mt. Station ✓

Remove WNSC-TV Rock Hill ✓

CATAWBA NUCLEAR STATION
Emergency Brochure
(Inside Flap - Front Page)

We Want You to Be Prepared

This brochure is your emergency plan for the Catawba Nuclear Station. It tells you what to do in the unlikely event a nuclear emergency occurs at the station. It is important that your entire family reads this information and becomes familiar with it. Your knowledge of the emergency plan will help assure the safety of you and your family.

This plan was made by members of the S.C. Emergency Preparedness Division, the N.C. Division of Emergency Management, the York County Emergency Management Agency, the Charlotte-Mecklenburg Emergency Management Agency, the Gaston County Emergency Management Agency and Duke Power Company.

This brochure will be updated each year and a new copy sent to you. It will keep you informed of any changes in the emergency plan. Throw the old brochure away when you get the new one.

If you still have questions about the emergency plan after reading this, contact any of the following offices for more information.

Telephone numbers:

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

RL/brm

4-15-83

CATAWBA - Emergency Brochure
(Inside Flap - Front Page)

Special Help For The Handicapped

Local Emergency Management agencies can make special arrangements for notifying and evacuating the handicapped. Since you might have a hard time contacting your local Emergency Management Agency during an actual emergency, you should telephone them today at one of the numbers listed above so they will be aware of your special needs.

RL/brm

4-15-83

CATAWBA - Emergency Brochure

Dear Neighbor:

For 10 years, Duke Power has been using nuclear power to provide ~~you with~~ a safe, efficient supply of electricity. During the next year, the Catawba Nuclear Station will begin generating electricity after more than 10 years of planning and construction. As part-owner and operator of the facility, we want you to be familiar with the emergency plan for our area.

The Nuclear Regulatory Commission requires that all utilities with nuclear plants develop an emergency plan for people living within 10 miles of the plant.

We want to make sure we have the best possible plan. Once a year, training drills will be held in cooperation with state and local agencies to make sure the plan adequately provides for your safety.

Even though it is very unlikely a serious emergency would ever occur at Catawba, we believe it is important for you to be familiar with the station, how it works and how you should respond in case of an emergency. This brochure provides that information.

In the event of an emergency, don't act on rumor. Listen to emergency officials and your local radio or television station for accurate, up-to-date information. Most important, don't evacuate unless you are ordered to do so.

As your neighbor, we are committed to safely generating electricity to serve your needs. If you have questions about the Catawba Station, feel free to call us at (803) 324-5015.

Sincerely,

Jim Hampton,
Station Manager

JH/brm

4-15-83

CATAWBA NUCLEAR STATION
Two Units, (1,145,000 kilowatts each)

ADMINISTRATION BUILDING contains security and administration offices.

CONTAINMENT BUILDING (or reactor building) is a steel and reinforced concrete structure. It houses the reactor, pressurizer, reactor coolant pumps, steam generators, piping and other equipment. This building is designed to contain radiation.

AUXILIARY BUILDING houses equipment and laboratories for normal operation of the plant in addition to certain backup systems. The control room is in this building.

TURBINE BUILDING contains the secondary (non-radioactive) system of water. Housed in this building are the steam turbines, the electric generator and the condenser system.

Drawing Here

COOLING TOWERS are one of the plant's environmental protection features. They cool ~~the condenser cooling water~~ the for reuse. There are three cooling towers per unit. Each tower can cool 200,000 gallons of water per minute.

Secondary water system

RL/brm
4-15-83

CATAWBA - Emergency Brochure

HOW IT WORKS

How It Works

The Catawba Nuclear Station is a pressurized water reactor. It has ~~three~~ two completely separate water systems. (Illustrated on the diagram by different colors.)

The first system is the primary water system, which circulates around the nuclear fuel, often called the core (1).

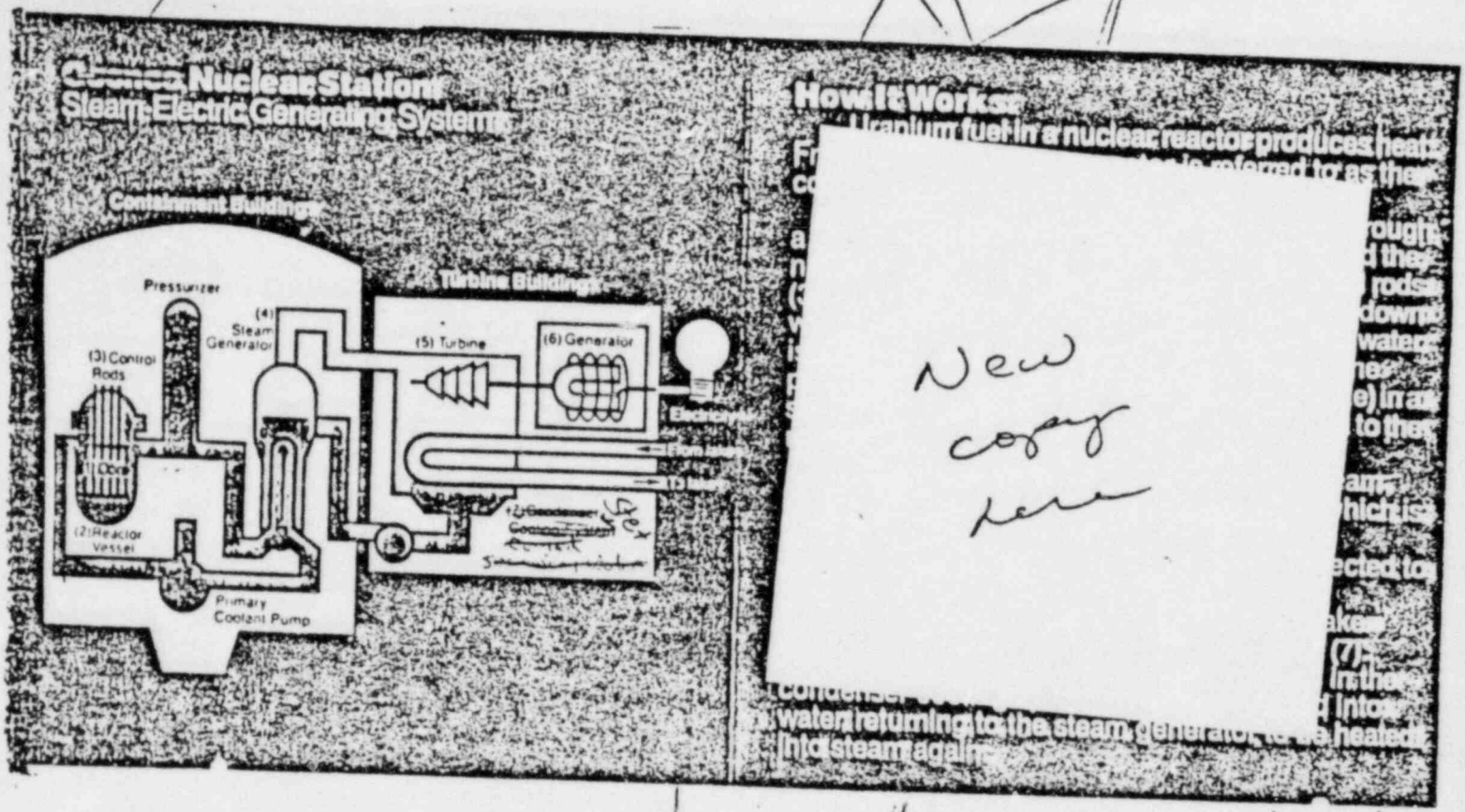
Primary water (shown in green) circulates through the reactor (2) and heats to about 600°F as it flows around the nuclear fuel. Because water in the reactor system is under very high pressure, it does not boil. The amount of heat produced in the reactor is controlled by the control rods (3). The reactor is shut down when the control rods are lowered.

The heated primary water flows through u-shaped tubes in the steam generator (4) and gives off its heat to water (dark blue) in a separate secondary system before it is returned to the reactor to be heated again.

The secondary system of water is converted to steam (light blue) in the steam generator. The steam rotates a turbine (5) that is connected to an electric generator (6). As the steam leaves the turbine it falls on pipes carrying cooling water in the third system (yellow) from the cooling towers.

As the steam hits the outside of the condenser tubes, it is changed back to water and returned to the steam generator to be heated to steam again.

RL/brm
4-15-83



cooling towers

CATAWBA - Emergency Brochure

RADIATION...A FACT OF LIFE

~~Radiation...A Fact of Life~~

Radiation is all around us. It is a natural part of our environment. Natural background radiation is in the air we breathe, in the food we eat, in our homes and even in our bodies.

In addition to natural background radiation, there is also man-made radiation from such sources as medical and dental X-rays, fall-out from the testing of nuclear weapons and very small amounts from the generation of nuclear power.

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

The amount of radiation we all receive is usually measured in millirems. In this part of the United States, the average person is exposed to about 180 millirems per year. The ~~nautral~~ natural background radiation we receive each year is hundreds of times greater than that released to the environment by an operating nuclear plant. By looking at this chart, you can see that the nuclear power industry is a small contributor to your average radiation exposure.

(Insert Chart 1)

The potential harm to you from radiation depends on:

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

In the event of a radiation release from the Catawba Nuclear Station, you can take several steps to limit the amount that enters your body:

- If you are told to stay indoors, close all windows and doors and turn off fans and air conditioners.
- Place a damp cloth over your nose and mouth.
- Use radioprotective drugs, ~~if they are distributed by state authorities. At this time, neither N.C. or S.C. intends to distribute these drugs.~~ which are available over the counter, if desired.

• Evacuate outside the 10 mile area if ordered to do so.

Unborn and very young children are more sensitive to radiation than older children and adults. Because of this, precautions might be ordered at lower levels of radiation release for women who are, or could be, pregnant and for very young children.

An overwhelming majority of evidence shows that low-level radiation doses of up to several thousand millirems do not result in long-term or short-term health effects. However, to be extra careful, protective actions for the public would be ordered at lower levels of potential or actual releases of radiation. ~~This will allow residents within the 10-mile area around Catawba more time to take shelter or, if necessary, to evacuate.~~ Use of these lower levels as guidelines for when action is needed provides another level of protection for the health and safety of you and your family.

(Insert Chart 2)

EMERGENCY AND YOU

Locating Your Zone

On the map folding out at the end of this brochure you will see that the 10-mile area around Catawba Nuclear Station has been divided into zones. Find the zone where you live or work and write it on the cover of this brochure. This way you will be able to quickly tell 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.

How Would I Be Notified Of An Emergency?

If an emergency occurs at the Catawba Nuclear Station, Duke Power will immediately notify North Carolina, South Carolina, York County, Mecklenburg County, and Gaston County Emergency organizations. These organizations have carefully tested plans that would deal ~~with~~ with any emergency at Catawba. They are responsible for notifying you if any action is needed.

If needed, sirens installed in the 10-mile area around the station will be sounded. A steady, three-minute signal will alert you to an emergency. If you hear the sirens, tune immediately to a radio or television station that is part of the emergency broadcast system. These stations will give you information about the emergency and instructions.

CATAWBA - Emergency Brochure

The emergency broadcast stations for the area around Catawba are:

Emergency Broadcast System
~~Within 30-40 Miles of~~ Around
Catawba ~~McGuire~~ Nuclear Station

AM Radio

Belmont	WCGC	1270
Charlotte	WAME	1480
	WAYS	610
	WBT	1110
	WGIV	1600
	WHVN	1310
	WIST	1240
	WQCC	1540
	WSOC	930
~~China Grove~~ Cherryville	~~WRNA~~ WCSL	~~1140~~
~~Concord~~	~~WEGO~~	~~1410~~
Dallas	WAAK	960
Gastonia	WGAS	1420
	WGNC	1450
	WLTC	1370
~~Hickory~~	~~WHKY~~	~~1290~~
	~~WIRC~~	~~630~~
	~~WSPF~~	~~1000~~
Kannapolis	WGTL	870
	~~WKRB~~	~~1460~~
Kings Mountain	WKMT	1220
Lincolnton	WLON	1050
~~Mooresville~~	~~WHIP~~	~~1350~~
~~Newton~~	~~WNNC~~	~~1230~~
~~Salisbury~~	~~WSAT~~	~~1280~~
	~~WSTP~~	~~1490~~
~~Statesville~~	~~WDRV~~	~~550~~
	~~WSIC~~	~~1440~~

FM Radio

Charlotte	WBCY	107 9
	WEZC	104 7
	WFAE	90 9
	WROQ	95 1
	WSOC	103 7
Concord	WPEG	97.9
Davidson	WDAV	89 9
Gastonia	WZXI	101 9
~~Hickory~~	~~WHKY~~	~~102 9~~
	~~WXRC~~	~~95 7~~
Kannapolis	WKRB	99 7
~~Salisbury~~	~~WNDN~~	~~102 5~~
	~~WRDX~~	~~106 5~~
~~Statesville~~	~~WFMX~~	~~105 7~~
	~~WLYV~~	~~96 9~~

TV

Charlotte	WBTV	Ch. 3
	WCCB	Ch. 18
	WPCQ	Ch. 36
	WSOC	Ch. 9
	WTVI	Ch. 42
~~Concord~~	~~WUNG~~	~~Ch. 58~~
~~Hickory~~	~~WHKY~~	~~Ch. 14~~

Place in a convenient location with your McGuire brochure for quick reference.

Catawba

S.C. Stations

WBZK	York	980	AM
WTYC	Rock Hill	1150	AM
WRHI	Rock Hill	1340	AM
WNSC	Rock Hill	88.9	FM
WNSC-TV	Rock Hill	Ch. 30	

N.C. Stations

WIXE	Monroe	1190	AM
WMAP	"	1060	AM
WKKT	Gastonia	105.3	FM
WEAC	"	1500	AM
WFHN	"	1570	AM
WDZH	Chester	99.3	FM
WGCD	"	1490	AM
WAGL	Lancaster	1560	AM
WLCM	"	1360	AM
WPAJ	"	107.1	FM

Local fire, police and rescue units would also patrol the affected areas if necessary and sound their sirens, if there were an emergency.

CATAWBA - Emergency Brochure

What Do The Sirens Mean?

The sirens mean an emergency situation has developed at the Catawba Nuclear Station. Check this brochure to see what zone you are in and listen for instructions for your area. You might be told to stay indoors or to evacuate or you might hear that your area is not affected. Follow the instructions. Do not evacuate unless an order is given.

After hearing the instructions, contact your neighbors to make sure they know about the emergency and have transportation if an evacuation is ordered. Use the telephone only for emergencies.

Even if there were an accident at Catawba Nuclear Station, it is unlikely that everyone within the 10-mile area would be affected. The areas affected would be determined by weather conditions such as wind speed and direction as well as by the seriousness of the accident. Remember, do not evacuate unless an order is given!

You Might Be Told To Stay Indoors

If you are told to stay indoors you should:

(1) Not evacuate unless an order is given.

(2) Stay indoors until further notice.

(3) Close windows and doors and turn off fans and air conditioners.

(4) Stay tuned to your local radio or television station and await further instructions.

EVACUATION PROCEDURES

If You Are Ordered To Evacuate

In case of an evacuation:

(1) Do not waste time trying to take all of your possessions with you. An evacuation could last from a few hours to several days.

(2) Turn off appliances and faucets, lock all windows and doors.

(3) Put on a dust mask or breathe through a damp handkerchief to filter out any dust in the air.

(4) Get into your car or other vehicle, close all windows and vents and drive to your designated shelter or reception center identified on the enclosed map.

(5) Provide food, water, and shelter for your pets and livestock. Pets are not allowed at the reception centers and shelters.

South Carolina residents -- report to your designated reception center. From there you could be directed to a shelter or you may choose to stay with friends or relatives living ~~within~~ at least 15 miles from of the plant.

North Carolina residents -- report to your designated shelter, or if you may ~~From there you may~~ choose to stay with friends or relatives living ~~within~~ at least 15 miles from of the plant.

Shelter and reception center space is designated for you in the state in which you live. If you go to the wrong facility you will be redirected to the proper one.

Exit Routes

Exit Routes During An Evacuation

Exit routes would be defined by traffic control officials and announced on radio and television, if an evacuation were ordered. Use car pools if possible, to limit traffic. There would be no need to rush! Obey normal traffic laws and follow the directions provided by law enforcement officers. DRIVE SAFELY. Once outside the 10 mile area you will be directed to the appropriate shelter or reception center for your area.

There would be no need to rush. You're a lot more likely to get hurt by rushing, than by any possible release of radiation. REMEMBER: IF AN EMERGENCY SITUATION SHOULD DEVELOP AT THE CATAWBA NUCLEAR STATION, YOU WOULD BE GIVEN PLENTY OF TIME TO TAKE NECESSARY PRECAUTIONS. Evacuation is only a remote possibility and if ordered generally would only be advised for the area within about 10 miles of the plant.

Things You May Want To Take In An Evacuation

Shelter in designated reception and care centers would provide food and beds, as well as other emergency services. Some additional things you might want

CATAWBA - Emergency Brochure

to bring include:

(1) Two changes of clothing;

(2) Two blankets or a sleeping bag per 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 emergency situation developed and an evacuation were ordered, school officials would be contacted immediately. Children in schools within the EPZ would be moved to the reception center or shelter designated for their school. Adult supervision will be provided until parents pick their children up. If your children spend time at home or elsewhere without adult supervision, you should discuss with them what to do in an emergency.

What If I Don't Have Transportation?

If you or members of your family are unable to drive or do not have means of transportation, call the emergency management agency for your area at the number listed on page _____. Transportation would be provided.

Zones

CATAWBA - Emergency Brochures

(Back Flap)

Emergency Classifications

If there were an emergency at the Catawba Nuclear Station, the following four classifications would be used to describe the type and seriousness of the emergency. You should be familiar with these terms because you may see them in news articles or hear them on radio and television news programs. Appropriate federal, state and local authorities would be contacted by Duke Power in each of the following situations.

1. An Unusual Event is the least serious of the four warning classifications. It means that a problem exists in the station and is being handled by the plant personnel. Because of strict federal regulations, a number of problems -- even though they pose no danger to the public -- are classified as unusual events and would be reported to the Nuclear Regulatory Commission as well as to state and local officials.
2. An Alert is an event that could effect plant safety. Although there is still no danger to the public, county and state officials begin activating emergency operation response centers in case the situation worsens.
3. A Site Area Emergency is an event that could possibly pose a danger to the public. The sirens are activated to alert the public to tune to the emergency broadcast stations for information and, if necessary instructions for protective actions. Emergency operation response centers are being fully activated at this point.
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 inform the public about conditions and necessary protective actions. If necessary, some areas could be evacuated.

CATAWBA - Emergency Brochure

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 contains about the same amount of energy as that produced from burning one ton of coal. A modern reactor core may contain up to ten million pellets.

Fuel Rods -- Hollow tubes 13 feet long of zirconium metal 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, according to the substance.

Maximum Permissible Dose (MPD) -- The legal limit to the amount of radiation a member of the public may be exposed to froma 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.

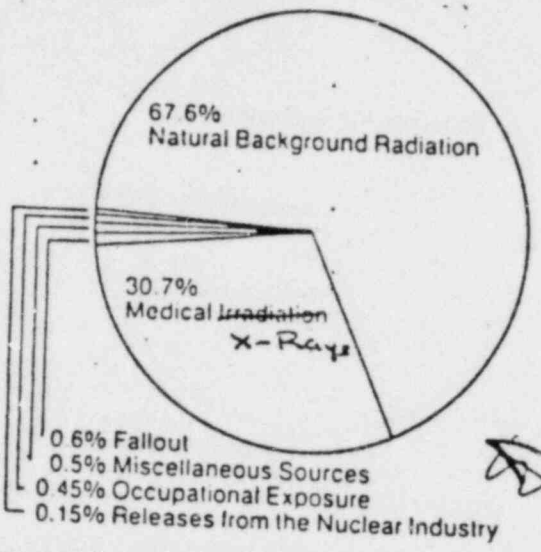
Millirem -- The unit used to measure radiation dosage. It is 1/1000th of a REM. REM stands for Roentgen Equivalent Man, a measure of radiation that indicates potential impact on human cells.

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 fissioning process.

RL/brm
4-15-83

#1



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

Source: National Academy of Sciences

What proportion to other medical X-Rays?

OIC

RMG

Emergency Broadcast System
~~Within 30-40 Miles of~~ Around Catawba ~~McGuire~~ Nuclear Station

Unit File No.

By Date

Checked By Date

AM Radio

Belmont	WCGC	1270
Charlotte	WAME	1480
	WAYS	610
	WBT	1110
	WGIV	1600
	WHVN	1310
	WIST	1240
	WQCC	1540
	WSOC	930
~~China Grove~~ Cherryville	~~WRNA~~ WCBL	~~1140~~ 1590
Concord	WEGO	1410
Dallas	WAAK	960
Gastonia	WGAS	1420
	WGNC	1450
	WLTC	1370
~~Hickory~~	~~WHKY~~	~~1290~~
	~~WIRC~~	~~630~~
	~~WSPF~~	~~1000~~
Kannapolis	WGTL	870
	WKRB	1460
Kings Mountain	WKMT	1220
Lincolnton	WLON	1050
Mooresville	WHIP	1350
~~Newton~~	~~WNNC~~	~~1230~~
~~Salisbury~~	~~WSAT~~	~~1280~~
	~~WSTP~~	~~1490~~
~~Statesville~~	~~WDRV~~	~~550~~
	~~WSIC~~	~~1440~~

FM Radio

Charlotte	WBCY	107.9
	WEZC	104.7
	WFAE	90.9
	WROQ	95.1
	WSOC	103.7
Concord	WPEG	97.9
Davidson	WDAV	89.9
Gastonia	WZXI	101.9
~~Hickory~~	~~WHKY~~	~~102.9~~
	~~WXRC~~	~~95.7~~
Kannapolis	WKRB	99.7
~~Salisbury~~	~~WNDN~~	~~102.5~~
	~~WRDX~~	~~106.5~~
~~Statesville~~	~~WFMX~~	~~105.7~~
	~~WLYV~~	~~96.9~~

TV

Charlotte	WBTV	Ch. 3
	WCCB	Ch. 18
	WPCQ	Ch. 36
	WSOC	Ch. 9
	WTVI	Ch. 42
Concord	WUNG	~~Ch. 58~~
~~Hickory~~	~~WHKY~~	~~Ch. 14~~

Place in a convenient location with your ~~McGuire~~ brochure for quick reference.

Catawba

S.C. Stations

WBZK	York	980	AM
WTYC	Rock Hill	1150	AM
WRHI	Rock Hill	1340	AM
* WNSC	Rock Hill	88.9	FM
WNSC-TV	Rock Hill	Ch. 30	

N.C. Stations

WIXE	Monroe	1190	AM
WMAP	"	1060	AM

S.C. Stations

WAGI -	FM	105.3	Gaffney
WEAC -	AM	1500	"
WFGN -	AM	1570	"
WDEK -	FM	99.3	Clinton
WSCD -	AM	1490	"
WAGL -	AM	1560	Lancaster
WLCM -	AM	1360	"
WPAJ -	FM	107.1	"

CATAWBA NUCLEAR STATION — name? — PROTECTIVE ACTION ZONES

County	Zone (Communities)	Primary Evacuation Routes	Reception Center/Shelter
Mecklenburg	A-0 (N.C.) A-1 A-2 Steele Creek, Shopton A-3 Pineville,	1. NC 49 or US 521 or NC (160) (161) to I-77 North. I-77 North to I-85 North to NC 49 East to the shelter. 2. Or, NC 49 East to the shelter. 3. Or, NC 51 East to NC 16 North ~~to US 277~~ to I-85 North to NC 49 to the shelter.	UNCC [1]
Gaston	F-3	1. NC 274 North to ~~US 29/74 West to US 321 South to~~ (west on Garrison Blvd. to) Ashley Jr. High 2. NC 279 North to Hancock Elementary School 3. NC 273 North to North Belmont Elementary School	Ashley Jr. High [2] Hancock Elem. [3] North Belmont Elem. [4] Warlick School [5] (overflow)
York	B-1 Tega Cay B-2 Fort Mill	1. SC 160 to US 521 South to SC 9 West to Rec. Center 2. Or, SC 5 to US 521 South to SC 9 West to Rec. Center 3. Or, SC 5 to US 21 South to SC 9 East to the Rec. Center	Univ. of SC at Lancaster [6]
York	C-1 Lakewood C-2 Rock Hill, Newport, Red River, Etenergy	1. I-77 South or SC 901 South or SC 72 South or SC 5 South to US 21 to SC 9 to the Rec. Center ~~2. SC-901-South or.~~ ~~3. SC-72-South or.~~ ~~4. SC-5-South to US 21 to SC 9 to the Rec. Center~~	Lewisville High School [7] Lewisville Middle School [8] (Additional Rec'n Centers in Chester County to be provided by W.-McSwain) available in Chester County and will be opened on an as-needed basis)
York	D-1 D-2 York	1. US 321 South to Lowrys to East (or) SC 909 to the Rec. Center on 2. Or, SC 322 to US 321 to 909 East to the Rec. Center	Zion Presbyterian Church [ ] Lowry Baptist Church [ ] (Additional Reception Centers are available in Chester County and will be opened on an as-needed basis).

York

A-0 (S.C.)
E-1
E-2 Clover
F-1
F-2

1. SC 55 West to Bethany Elem. School
2. Or, SC 55 West to SC 161 North to Bethany Presbyterian Church
3. Or, SC 49 to NC 274 to NC 177 to NC 279 to I-85 South to Reception-Center I-85 Welcome Center
4. Or, SC/NC 49 to NC 274 to I-85 South to Rec.-Center I-85 Welcome Center
5. Or, US 321 North to I-85 South to Reception Center I-85 Welcome Center
6. Or, SC 5 West to US 29 South in Blacksburg to Blacksburg First Baptist Church

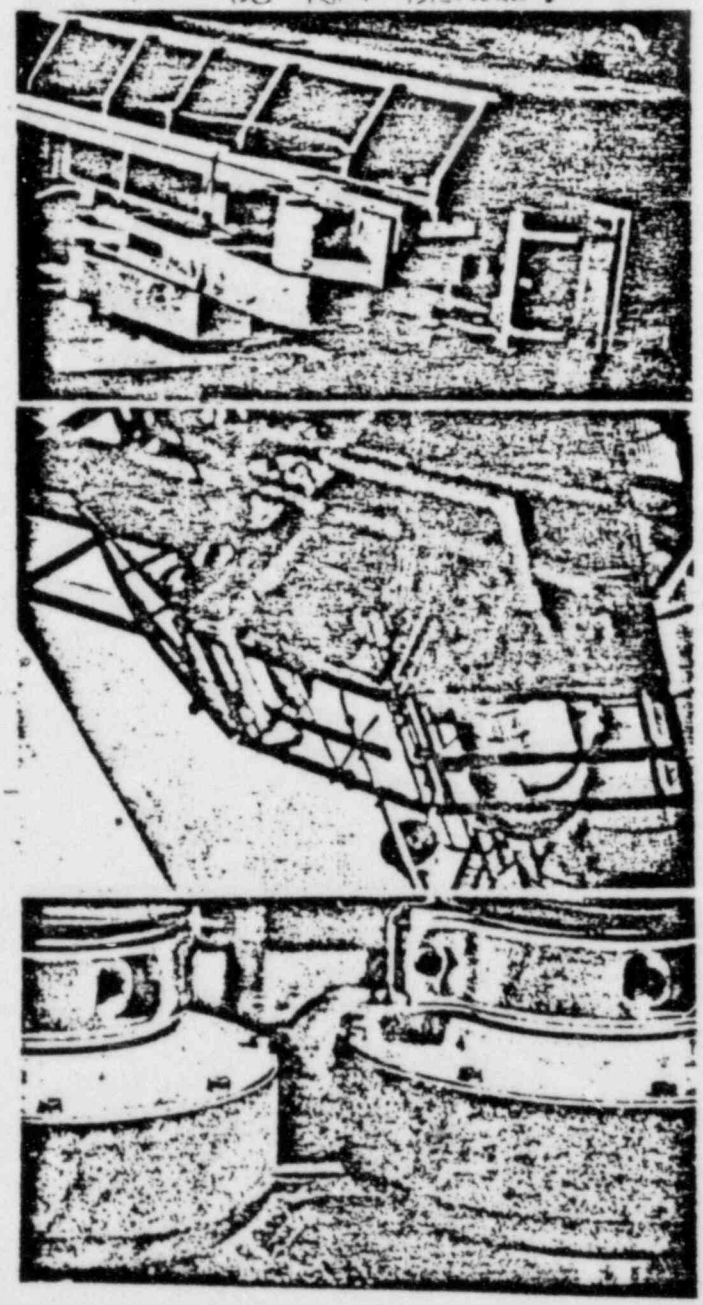
Bethany Elementary School ☐
Bethany Presbyterian Church ☐
I-85 Welcome Center (Cherokee County) ☐
(Additional ~~Gaffney Church~~ to be provided by W. McSwain) ☐
Blacksburg First Baptist Church in Downtown Blacksburg ☐

PC/bb
3-31-83

Catawba Nuclear Station

1983 Edition

Public Emergency Information Brochure
Do Not Discard!



Sequence of sections will follow your note of 2 May 83

Add in inadvertent area activation information

We Want You to Be Prepared

This brochure is your emergency plan for the Catawba Nuclear Station. It tells you what to do in the unlikely event a nuclear emergency occurs at the station. It is important for your entire family to read this information and become familiar with it. Your knowledge of the emergency plan will help assure the safety of you and your family.

This plan was made by members of the S.C. Emergency Preparedness Division, the N.C. Division of Emergency Management, the York County Emergency Management Agency, the Charlotte-Mecklenburg Emergency Management Agency, the Gaston County Emergency Management Agency and Duke Power Company.

This brochure will be updated each year and a new copy sent to you. It will keep you informed of any changes in the emergency plan. Throw the old brochure away when you get the new one.

If you still have questions about the emergency plan after reading this, contact any of the following offices for more information.

Telephone numbers:

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

Special Help For The Handicapped

Local emergency management agencies can make special arrangements for notifying and evacuating the handicapped. Since you might have a hard time contacting your local agency during an actual emergency, you should telephone today, using one of the numbers listed above, so emergency officials will be aware of your special needs.

Dear Neighbor:

For 10 years, Duke Power has been using nuclear power as a safe, efficient way to provide you with an assured supply of electricity. During the next year, the Catawba Nuclear Station will begin generating electricity after more than 10 years of planning and construction. As part-owner and operator of the facility, we want you to be familiar with the emergency plan for our area.

The Nuclear Regulatory Commission requires that all utilities with nuclear plants develop an emergency plan for people living within 10 miles of the plant.

We want to make sure we have the best possible plan. Once a year, training drills will be held in cooperation with state and local agencies to make sure the plan adequately provides for your safety.

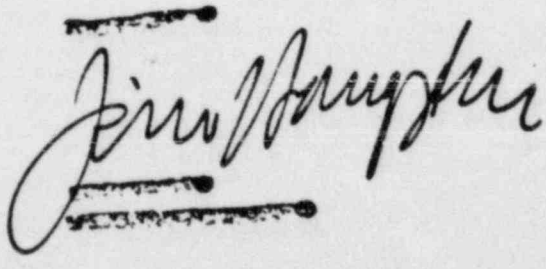
Even though it is very unlikely a serious emergency would ever occur at Catawba, we believe it is important for you to be familiar with the station, how it works and how you should respond in case of an emergency. This brochure provides that information.

In the event of an emergency, don't act on rumor. Listen to emergency officials and your local radio or television station for accurate, up-to-date information. Most important, don't evacuate unless you are ordered to do so.

As your neighbor, we are committed to safely generating electricity to serve your needs. If you have questions about the Catawba Station, feel free to call us at (803) 324-5015.

Sincerely,

Jim Hampton,
Station Manager



How It Works

The Catawba Nuclear Station is a pressurized water reactor. It has three completely separate water systems. (Illustrated on the diagram by different colors.)

The first system is the primary water system, which circulates around the nuclear fuel, often called the core (1).

Primary water (shown in green) circulates through the reactor (2) and heats to about 600°F as it flows around the nuclear fuel. Because water in the reactor system is under very high pressure, it does not boil. The amount of heat produced in the reactor is controlled by the control rods (3). The reactor is shut down when the control rods are lowered.

The heated primary water flows through u-shaped tubes in the steam generator (4) and gives off its heat to water (dark blue) in a separate secondary system before it is returned to the reactor to be heated again.

The secondary system of water is converted to steam (light blue) in the steam generator. The steam rotates a turbine (5) that is connected to an electric generator (6). As the steam leaves the turbine it falls on pipes carrying cooling water in the third system (yellow) from the cooling towers.

As the steam hits the outside of the condenser tubes, it is changed back to water and returned to the steam generator to be heated to steam again.

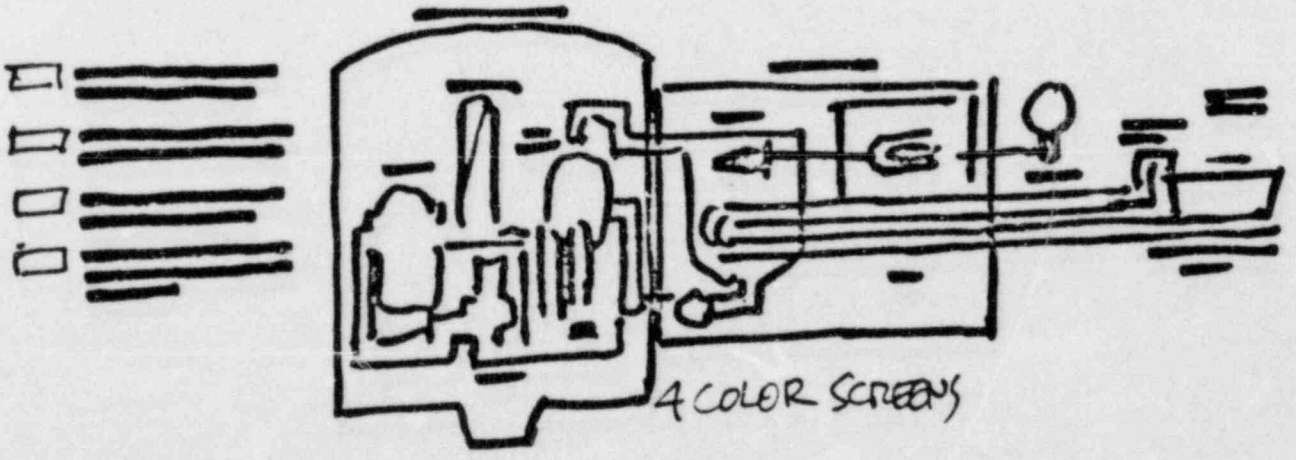


Illustration (B)

5

bold CATAWBA NUCLEAR STATION
bold Two Units, 1,145,000 kilowatts each

Drawing Here (See next page)

bold ADMINISTRATION BUILDING contains security and administration offices.

bold CONTAINMENT BUILDING (or reactor building) is a steel and reinforced concrete structure. It houses the reactor, pressurizer, reactor coolant pumps, steam generators, piping and other equipment. This building is designed to contain radiation.

bold AUXILIARY BUILDING houses equipment and laboratories for normal operation of the plant in addition to certain backup systems. The control room is in this building.

bold TURBINE BUILDING contains the secondary (non-radioactive) system of water. Housed in this building are the steam turbines, the electric generator and the condenser system.

bold COOLING TOWERS are one of the plant's environmental protection features. They cool the condenser cooling water for reuse. There are three cooling towers per unit. Each tower can cool 200,000 gallons of water per minute.

Secondary water system

Steer positioning is accurate for alpha alert

Illustration B

cGuire Nuclear Station
/o Units, 1,180,000 kilowatts each

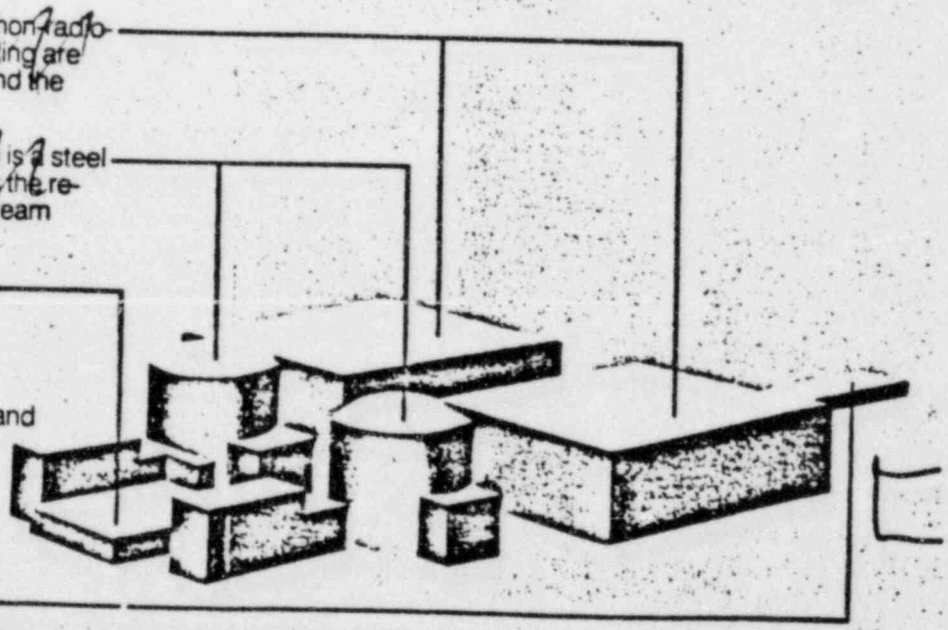
rbine Building contains the secondary (non-radioactive) system of water. Housed in this building are steam turbines, the electric generator and the ndenser system.

ntainment Building (or reactor building) is a steel d reinforced concrete structure. It houses the reactor, pressurizer, reactor coolant pumps, steam erators, piping and other equipment.

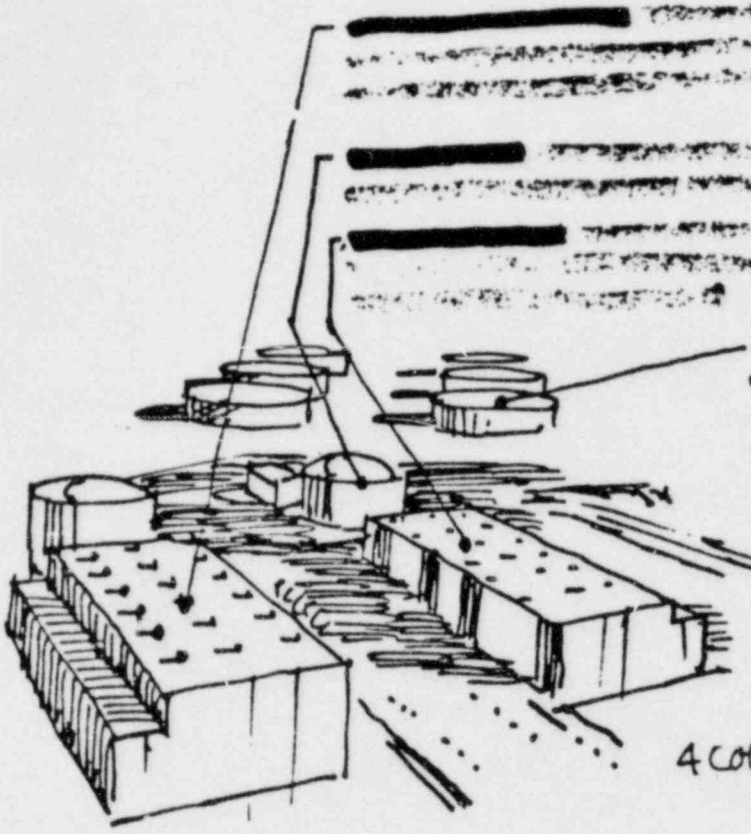
Auxiliary Building houses equipment and oratories for normal operation of the nt in addition to certain backup systems. e control room is in this building.

ministration Building contains security and ninistration offices.

Cooling Towers



Catawba Nuclear Station



4 COLOR SCREEN

Jane - I'm unclear on the copy to go here. The copy you gave me with other material was Xed out — see attached

Radiation . . . A Fact of Life

Radiation is all around us. It is a natural part of our environment. Natural background radiation is in the air we breathe, in the food we eat, in our homes and even in our bodies.

In addition to natural background radiation, there is also man-made radiation from such sources as medical and dental X-rays and treatments, fall-out from the testing of nuclear weapons and very small amounts from the generation of nuclear power.

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

The amount of radiation we all receive is usually measured in millirems. In this part of the United States, the average person is exposed to about 180 millirems per year. The natural background radiation we receive each year is hundreds of times greater than that released to the environment by an operating nuclear plant. By looking at this chart, you can see that **the nuclear power industry is a small contributor to your average radiation exposure.**

The potential harm to you from radiation depends on:

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

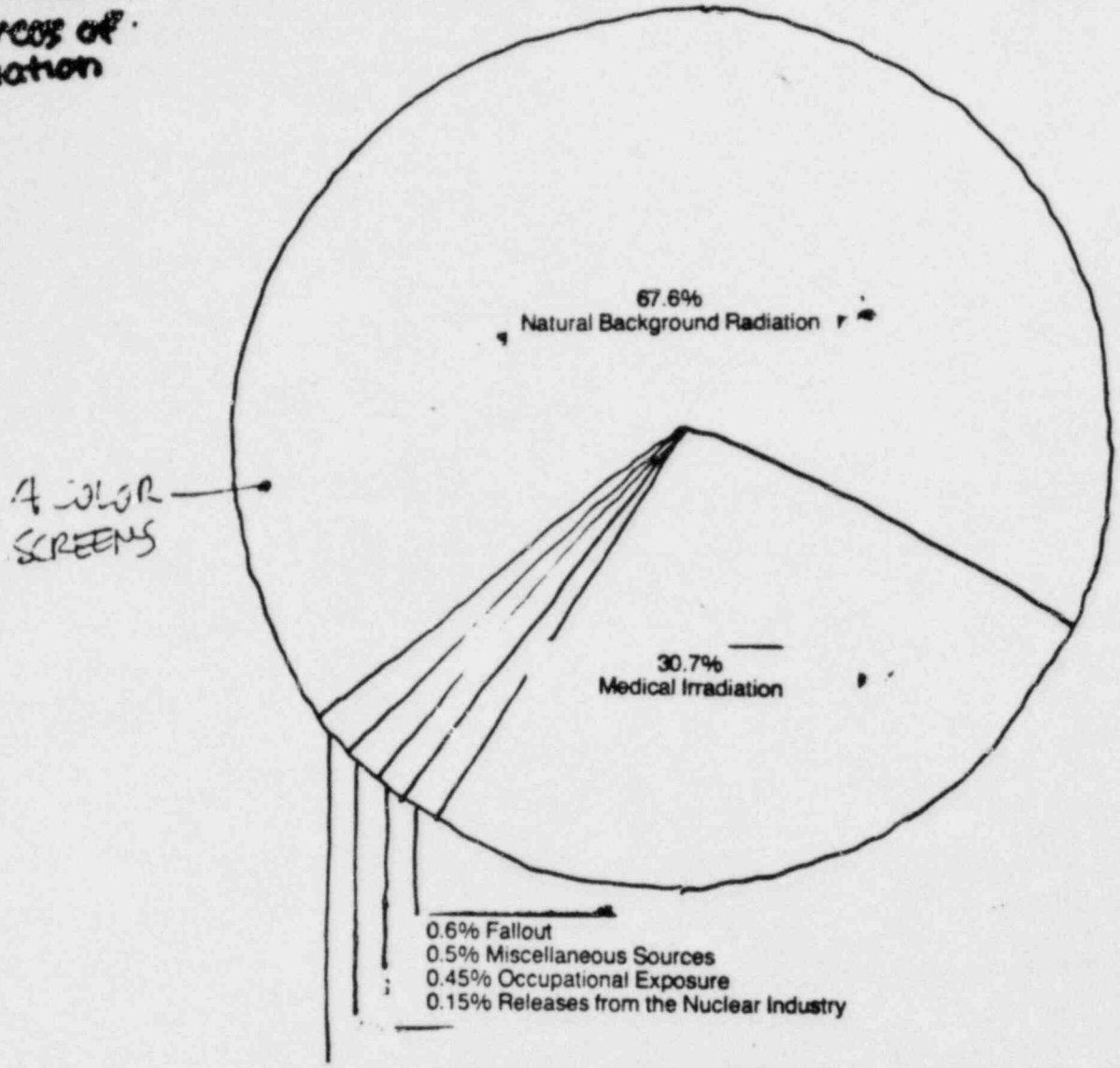
In the event of a radiation release from the Catawba Nuclear Station, you can take several steps to limit the amount that enters your body:

- If you are told to stay indoors, close all windows and doors and turn off fans and air conditioners.
- Place a damp cloth over your nose and mouth.
- Use radioprotective drugs, if they are distributed by state authorities. At this time, neither N.C. or S.C. intends to distribute these drugs.

Unborn and very young children are more sensitive to radiation than older children and adults. Because of this, precautions might be ordered at lower levels of radiation release for women who are, or could be, pregnant and for very young children.

An overwhelming majority of evidence shows that low-level radiation doses of up to several thousand millirems do not result in short or long-term health effects. However, to be extra careful, protective actions for the public would be ordered at lower levels of potential or actual releases of radiation. This will allow residents within the 10-mile area around Catawba more time to take shelter or, if necessary, to evacuate. Use of these lower values provides another measure of protection for you and your family.

Sources of Radiation



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

Source: National Academy of Sciences

Locating Your Zone

On the map folding out at the end of this brochure you will see that the 10-mile area around the Catawba Nuclear Station has been divided into zones. Find the zone where you live or work and write it on the cover of this brochure. This way you will be able to quickly tell 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.

How Would I Be Notified Of An Emergency?

How Would I Be Notified Of An Emergency

If an emergency occurs at the Catawba Nuclear Station, Duke Power will immediately notify North Carolina, South Carolina, York County, Mecklenburg County, and Gaston County Emergency organizations. These organizations have carefully tested plans to that would deal with any emergency at Catawba. They are responsible for notifying you if any action is needed.

To alert you to the situation

If needed, sirens installed in the 10-mile area around the station will be sounded.

A steady, three-minute signal will alert you to an emergency. If you hear the sirens, tune immediately to a radio or television station that is part of the emergency broadcast system. These stations will give you information about the emergency and instructions.

The emergency broadcast stations for the area around Catawba are:

AM RADIO

Belmont, NC	WCGC	1270
Charlotte, NC	WAME	1480
	WAYS	610
	WBT	1110
	WGIV	1600
	WHVN	1310
	WIST	1240
	WQCC	1540
	WSOC	930
~~Concord, NC~~	~~WEGO~~	~~1410~~
Dallas, NC	WAAK	960
Gastonia, NC	WGAS	1420
	WGNC	1450
	WLTC	1370
~~Kannapolis, NC~~	~~WGIL~~	~~870~~
	~~WKRB~~	~~1480~~
~~Kings Mountain, NC~~	~~WKMT~~	~~1220~~
~~Lincolnton, NC~~	~~WLON~~	~~1060~~
Monroe, NC	WIXE	1190
	WMAP	1060
~~Mooresville, NC~~	~~WIKP~~	~~1350~~
Rock Hill, SC	WRHI	1340
	WTYC	1150
York SC	WBZK	96S
York, SC	WBZK	980
Concord, NC	WPEG	97.9
Davidson, NC	WDAV	89.9
Gastonia, NC	WZXI	101.9
~~Kannapolis, NC~~	~~WKRB~~	~~99.7~~
Rock Hill, SC	WNSC	88.9

Cherryville Station WCSL 1590

Also

WAGI	GAFFNEY	105.3 FM
WEAC	"	1500 AM
WFGN	"	1570 AM
WDZK	Chester	99.3 FM
WGCD	"	1490 AM
WAGL	Lancaster	1560 AM
WLCM	"	1360 AM
WPAJ	"	107.1 FM

TV

Charlotte, NC	WBTV	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

FM RADIO

Charlotte, NC	WBCY	107.9
	WEZC	104.7
	WFAE	90.9
	WROQ	95.1
	WSOC	103.7

Local fire, police and rescue units ~~would also~~ may patrol the affected areas and sound their sirens, if there were an emergency.

During storms, always a single siren may sound.

What Do The Sirens Mean?

The sirens mean an emergency situation has developed at the Catawba Nuclear Station. Check the map and chart in the back of this brochure to see what zone you are in and listen for instructions for your area. You might be told to stay indoors or to evacuate or you might hear that your area is not affected. Follow the instructions. **Do not evacuate unless an order is given.**

After hearing the instructions, contact your neighbors to make sure they know about the emergency and have transportation in case an evacuation is ordered. Use the telephone only for emergencies.

Even if there were an accident at Catawba Nuclear Station, it is unlikely that everyone within the 10-mile area would be affected. The areas affected would be determined by weather conditions such as wind speed and direction as well as by the seriousness of the accident. Remember, **do not evacuate unless an order is given!**

You Might Be Told To Stay Indoors

If you are told to stay indoors you should:

1 Not evacuate unless an order is given.
2 Stay indoors until further notice.
3 Close windows and doors and turn off fans and air conditioners.
4 Stay tuned to your local radio or television station and await further instructions.

If You Are Ordered To Evacuate

In case of an evacuation:

1 Do not waste time trying to take all of your possessions with you. An evacuation could last from a few hours to several days.

2 Turn off appliances and faucets; lock all windows and doors.

3 Put on a dust mask or breathe through a damp handkerchief to filter out any dust in the air.

4 Get into your car or other vehicle, close all windows and vents and drive to your designated shelter or reception center identified on the chart of protective action zones and indicated on the enclosed map.

5.

Provide food, water, and shelter for your pets and livestock. Pets are not allowed inside Reception Centers or Shelters.

South Carolina residents — report to your designated reception center. From there you could be directed to a shelter or you may choose to stay with friends or relatives living farther than 15 miles from the plant.

North Carolina residents — report to your designated shelter. From there you may choose to stay with friends or relatives living farther than 15 miles from the plant.

Shelter and reception center space is designated for you in the state in which you live. If you go to the wrong facility, you will be redirected to the proper one.

Exit Routes During An Evacuation

Exit routes would be defined by traffic control officials and announced on radio and television, if an evacuation were ordered. Use car pools if possible, to limit traffic. There would be no need to rush! DRIVE SAFELY. Once outside the 10 mile area you will be directed to the appropriate shelter or reception center for your area.

There would be no need to rush. You're a lot more likely to get hurt by rushing, than by any possible release of radiation. REMEMBER: IF AN EMERGENCY SITUATION SHOULD DEVELOP AT THE CATAWBA NUCLEAR STATION, YOU WOULD BE GIVEN PLENTY OF TIME TO TAKE NECESSARY PRECAUTIONS. Evacuation is only a remote possibility and if ordered generally would only be advised for the area within about 10 miles of the plant.

Exit routes are found on the map at the end of this brochure.

Obey normal traffic laws. Follow directions provided by law enforcement officers.

Things You May Want To Take In An Evacuation

Shelters in designated reception and care centers would provide food and beds, as well as other emergency services. Some additional things you might want to bring include:

1. Two changes of clothing;
2. Two blankets or a sleeping bag per 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 emergency situation developed and an evacuation ordered, school officials would be contacted immediately. Children would be moved to the reception center or shelter designated for their school. Adult supervision will be provided until parents pick their children up. If your children spend time at home or elsewhere without adult supervision, you should discuss with them what to do in an emergency.

What If I Don't Have Transportation?

If you or members of your family are unable to drive or do not have means of transportation, call the emergency management agency for your area at the number listed on page ____ . Transportation would be provided.

Catawba
Nuclear Station

Protective
Action Zones

4 COLOR

Protective Action Zones

Emergency Classifications

The following four classifications would be used to describe the type and seriousness of a nuclear plant emergency. You should be familiar with these terms because you may see them in news articles or hear them on radio and television news programs. Appropriate federal, state and local authorities would be contacted by Duke Power in each of the following situations.

1 An **Unusual Event** is the least serious of the four warning classifications. It means that a problem exists at the station and is being handled by the plant personnel. Because of strict federal regulations, a number of problems — even though they pose no danger to the public — are classified as unusual events and would be reported to the Nuclear Regulatory Commission as well as 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 activating emergency response centers in case the situation worsens.

Operations

3 **A Site Area Emergency** is an event that could possibly pose a danger to the public. The sirens are activated to alert the public to tune to the emergency broadcast stations for information and, if necessary instructions for protective actions. Emergency response centers are being fully activated at this point.

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 inform the public about conditions and necessary protective actions. ~~If necessary,~~ some areas ~~could~~ may be evacuated.

[redacted]

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 contains about the same amount of energy as that produced from burning one ton of coal. A modern reactor core may contain up to ten million pellets.
Fuel Rods — Hollow tubes 13 feet long of zirconium metal 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 fissioning process.

My zone is:

1/16

CATAWBA NUCLEAR STATION — names. PROTECTIVE ACTION ZONES

County	Zone	Communities	Primary Evacuation Routes	Reception Center/Shelter
Mecklenburg	A-0 (N.C.) A-1 A-2 A-3	Steele Creek, Shopton, Pineville,	1. NC 49 or US 521 or NC (160) (161) to I-77 North. I-77 North to I-85 North to NC 49 East to the shelter. 2. Or, NC 49 East to the shelter. 3. Or, NC 51 East to NC 16 North ~~to US 279~~ to I-85 North to NC 49 to the shelter.	UNCC [1]
Gaston	F-3		1. NC 274 North to ~~US 29/74 West to US 321 South to~~ (West on Garrison Blvd. to) Ashley Jr. High 2. NC 279 North to Hancock Elementary School 3. NC 273 North to North Belmont Elementary School	Ashley Jr. High [2] Hancock Elem. [3] North Belmont Elem. [4] Warlick School [5] (overflow)
York	B-1 B-2	Tega Cay Fort Mill	1. SC 160 to US 521 South to SC 9 West to Rec. Center 2. Or, SC 5 to US 521 South to SC 9 West to Rec. Center 3. Or, SC 5 to US 21 South to SC 9 East to the Rec. Center	Univ. of SC at Lancaster [6]
York	C-1 C-2	Lakewood Rock Hill, Newport, Red River, Etenergy	1. I-77 South or SC 901 South or SC 72 South or SC 5 South to US 21 to SC 9 to the Rec. Center 2. ~~SC 901 South or~~ 3. ~~SC 72 South or~~ 4. ~~SC 5 South to US 21 to SC 9 to the Rec. Center~~	Lewisville High School [7] Lewisville Middle School [8] (Additional Rec. Centers in Chester County to be provided by W. McSwain) available in Chester County and will be opened on an as-needed basis)
York	D-1 D-2	York	1. US 321 South to Lowrys to East (or) SC 909 to the Rec. Center on 2. Or, SC 322 to US 321 to 909 East to the Rec. Center	Zion Presbyterian Church [ ] Lowry Baptist Church [ ] (Additional Reception Centers are available in Chester County and will be opened on an as-needed basis).

York

A-0 (S.C.)
E-1
E-2 Clover
F-1
F-2

1. SC 55 West to Bethany Elem. School
2. Or, SC 55 West to SC 161 North to Bethany Presbyterian Church
3. Or, SC 49 to NC 274 to NC 177 to NC 279 to I-85 South to Reception-Center ~~I-85 Welcome Center~~
4. Or, SC/NC 49 to NC 274 to I-85 South to ~~Rec.~~-Center ~~I-85 Welcome Center~~
5. Or, US 321 North to I-85 South to Reception-Center ~~I-85 Welcome Center~~
6. Or, SC 5 West to US 29 South in Blacksburg to Blacksburg First Baptist Church

Bethany Elementary School ☐
Bethany Presbyterian Church ☐
I-85 Welcome Center (Cherokee County) ☐
(Additional ~~Gaffney Church~~ to be provided by W. McSwain) ☐
Blacksburg First Baptist Church in Downtown Blacksburg ☐

PC/bb
3-31-83