

RELATED CORRESPONDENCE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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OFFICE OF SECRETARY
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In the Matter of)	
)	
DUKE POWER COMPANY, <u>et al.</u>)	Docket Nos. 50-413
)	50-414
(Catawba Nuclear Station,)	
Units 1 and 2))	

APPLICANTS' TESTIMONY ON
EMERGENCY PLANNING CONTENTION 3

North Carolina	(James Edward Neves, J.T. Pugh, III)
South Carolina	(J. Gregory, Jr., P.R. Lunsford,
	W.M. McSwain,
Gaston County	(Bob E. Phillips)
Mecklenburg County	(Lewis Wayne Broome)
Red Cross	(Dennis Johnson)
Salvation Army	(Philip Needham)

April 16, 1984

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1 TESTIMONY OF THE STATE OF NORTH CAROLINA
2 (JAMES EDWARD NEVES AND J.T. PUGH, III) ON
3 EMERGENCY PLANNING CONTENTION 3

4 Background Information on Mr. Neves

5 Q. WHAT IS YOUR FULL NAME?

6 A. My full name is James Edward Neves. (JEN)

7 Q. WHAT IS YOUR BUSINESS ADDRESS AND YOUR JOB
8 DESCRIPTION AT THIS TIME?

9 A. I am the Regional Director of the State Division of
10 Social Services for the Western Region of North
11 Carolina which covers the 34 western counties
12 including Mecklenburg, Union, Gaston, and Stanley.
13 My business address is Department of Human Resources,
14 Western Regional Office, Division of Social Services,
15 Building 17, Black Mountain, North Carolina 28711.
16 (JEN)

17 Q. WOULD YOU PLEASE SUMMARIZE YOUR JOB DUTIES?

18 A. My job is to oversee a staff in the regional office
19 and out of our stations throughout the 34 counties
20 who supervise for the state the county-administered
21 social services programs in the 34 western counties
22 of North Carolina. I also serve as a member of the
23 State Emergency Response Team for actions in those 34
24 counties as it relates to emergency activities and
25 our responsibility for sheltering citizens in the
26 event of emergencies. (JEN)

27 Q. WOULD YOU ALSO SUMMARIZE YOUR EDUCATIONAL BACKGROUND?

1 A. I am a graduate of Western Carolina University,
2 having acquired a B.S. in psychology, with a
3 concentration in social welfare. I have done a
4 year's graduate work in social work at the University
5 of North Carolina at Chapel Hill, and for the last
6 year or so I have been taking business courses
7 through the University of North Carolina in
8 Asheville. (JEN)

9 Q. HOW LONG HAVE YOU BEEN IN YOUR CURRENT JOB?

10 A. I have been the Regional Director for about 5 1/2
11 years. (JEN)

12 Q. WHAT WAS THE NATURE OF YOUR EMPLOYMENT PRIOR TO YOUR
13 BEING REGIONAL DIRECTOR?

14 A. I was an employee of the Department of Human
15 Resources, Title 20 Planning Section, for a year. I
16 was the Assistant Regional Director of Social
17 Services for about a year and a half prior to that.
18 For the four years previous, I was the County
19 Director of Social Services in Jackson County, Sylva,
20 North Carolina. (JEN)

21 Q. HAVE YOU HAD ANY OTHER EMPLOYMENT EXPERIENCE
22 SUBSEQUENT TO RECEIVING THE DEGREES THAT YOU
23 MENTIONED?

24 A. I was a social worker in both Swain and Jackson
25 Counties and had one year of teaching experience
26 immediately after graduation. (JEN)

1 Q. DO YOU HAVE ANY BACKGROUND EXPERIENCE IN EMERGENCY
2 PLANNING?

3 A. I participated in several emergency exercises,
4 primarily those related to the McGuire Nuclear
5 Station. I have not been a part of the team
6 formulating emergency plans and have no specific
7 training in that area other than as a participant.
8 (JEN)

9 Q. HAVE YOU HAD ANY BACKGROUND EXPERIENCE IN EVACUATING
10 PEOPLE?

11 A. During the emergency exercises relating to McGuire, I
12 was involved in evacuation activities that were
13 carried out as part of those exercises. (JEN)

14 Q. HAVE YOU HAD ANY EXPERIENCE GETTING FOOD AND CLOTHING
15 TO PEOPLE?

16 A. Only during the McGuire exercises. During one of
17 those exercises a year ago we did actually open a
18 number of shelters and we were responsible for
19 delivering food and for feeding those evacuees in the
20 shelters. While the exercise was a mock emergency,
21 the individuals were indeed physically housed, fed,
22 and cared for during the time they were present as
23 volunteer evacuees in those shelters. (JEN)

24 Q. HAVE YOU HAD ANY EXPERIENCE WITH DECONTAMINATION OF
25 PEOPLE FOLLOWING A RADIOLOGICAL EMERGENCY?

1 A. Only as a monitor of that activity along with other
2 shelter activities during the most recent exercise
3 relative to the Catawba station. (JEN)

4 EPC-3 Testimony

5 Q. DOES THE STATE PLAN ADDRESS THE MATTERS RAISED BY
6 EMERGENCY PLANNING CONTENTION 3?

7 A. Yes, in Part 1, Section IV.E of the N.C. State Plan.

8 Q. DOES THE STATE PLAN PROVIDE FOR FOOD, CLOTHING, AND
9 BEDDING TO BE STORED AT SHELTERS FOR POTENTIAL
10 EVACUEES?

11 A. Planning calls for food, clothing, and bedding to be
12 provided from stores maintained by the counties, the
13 State Departments of Agriculture and Correction, U.S.
14 Department of Agriculture, and the Red Cross. The
15 initial supply of prepared foods would be made
16 available from the closest correctional facility.
17 The Red Cross and contiguous counties could furnish
18 blankets and cots within four to six hours with
19 larger quantities available within 24 hours. The
20 agencies responsible, i.e., Red Cross, Department of
21 Corrections, Department of Human Resources, and
22 Department of Agriculture, have signed the plan
23 thereby accepting responsibility for their assigned
24 mission. No materials are stored in shelters on an
25 on-going basis. However, the counties in North
26 Carolina involved with the Catawba Plant have 1,000

1 cots distributed equally among five counties. The
2 Salvation Army is another available source of
3 assistance in providing for evacuees. (JTP)

4 Q. FROM WHAT SOURCES WILL THE FOOD, CLOTHING, AND
5 BEDDING BE OBTAINED?

6 A. There are storage facilities that Emergency
7 Management has identified as well as Red Cross where
8 cots and other bedding materials are located in all
9 areas of the State. These entities would be better
10 able to give you the specific information as to where
11 that bedding would come from. Adequate clothing and
12 food will be provided through the North Carolina
13 Department of Corrections. This office will
14 coordinate the delivery of such food and clothing and
15 assure its delivery in a prompt fashion. (JEN)

16 Initial supplies of food could be delivered
17 within four to five hours. Large amounts of food are
18 available at public schools as well as Department of
19 Agriculture warehouses. Food availability for the
20 area surrounding Charlotte-Mecklenburg which could be
21 utilitized during a disaster or emergency condition
22 includes the following:

- 23 - dry goods - 34,347 tons
24 - canned goods - 44,593 tons

- 1 - perishables - 10,684 tons
- 2 - dairy products - 3,343 tons
- 3 - bakery products - 3,651.5 tons (JEN)

4 Q. FOR THE 38 IDENTIFIED SHELTERS, WHAT IS THE PRESENT
5 SUPPLY OF COTS, MATRESSES, AND BLANKETS?

6 A. These items would be brought in from the Red Cross
7 and other institutions. Clothing and bedding from
8 the Department of Correction could be loaded and
9 ready for shipment to the emergency site within three
10 hours. The Red Cross could furnish additional
11 blankets and cots within 4 to 6 hours. They could
12 also furnish within 24 hours 15,250 cots and 44,000
13 blankets available from their eastern region
14 operations. The Red Cross has 1,200 cots and 300
15 blankets stored at the Fort Bragg Army Base, and 600
16 blankets stored at Seymour Johnson Air Base for
17 delivery to on-site within four to six hours.
18 Representatives of the Salvation Army have indicated
19 that within four to six hours they will provide
20 clothing in the quantities shown in Mr. Needham's
21 testimony. There are approximately 2,000 cots and
22 1,000 blankets available at Red Cross Chapters
23 throughout the state that could be on-site within

1 four to six hours. Additionally, the surrounding
2 counties have 1,000 cots on hand. In summary, there
3 are 15,250 cots and 44,000 blankets that could be
4 on-site in 24 hours and 4,200 cots and 1,900 blankets
5 for delivery at the incident within four to six
6 hours. (JTP)

7 Q. WHAT IS THE PRESENT ACTUAL STOCK OF FOODSTUFF AND
8 BEVERAGES? WHERE IS IT STORED?

9 A. These items would be brought in from the Department
10 of Agriculture and the Department of Correction
11 warehouses. Initial supply of prepared foods would
12 be made available from the closest Agriculture
13 Department warehouse in Salisbury. Agriculture also
14 has a central warehouse located in Butner. The North
15 Carolina counties involved with the Catawba Plant
16 have a three to four weeks supply of food that could
17 be made available through the county school system
18 warehouses. The attached chart, marked as Attachment
19 A, identifies the Red Cross and U.S. Department of
20 Agriculture food commodities. (JEN)

21 Q. HAVE YOU SATISFIED YOURSELF THAT THE SUPPLIES OF
22 THESE NECESSITIES ARE ADEQUATE TO MEET THE NEED?

23 A. Yes. We are satisfied we have adequate supplies to
24 meet most contingencies, and we still have the option
25 to solicit aid from adjoining states, and the federal
26 government. (JEN, JTP)

1 Q. HOW DID YOU GO ABOUT ESTIMATING THE POTENTIAL NEED?

2 A. The total population within the Emergency Planning
3 Zone in the State of North Carolina was used as the
4 criterion for estimating our potential needs. (JTP,
5 JEN)

6 Q. ARE THERE SOURCES FOR FURTHER SUPPLIES OF THESE
7 NECESSITIES SHOULD THAT BE REQUIRED FOR ANY REASON?

8 A. Practically unlimited supplies are available from
9 unaffected areas of the state and contiguous state
10 and federal sources. Depending on the number of
11 citizens needing assistance and the duration of the
12 emergency we might very well solve our supply needs
13 by contacting institutional stores controlled by the
14 Department of Correction. We could draw on these
15 stores for a considerable period based on their
16 running inventories. We plan to use these supplies
17 as in any other emergency. Providing supplies for
18 this emergency is the same as for all other
19 emergencies or disasters planned for within the
20 State. (JTP, JEN)

21 Q. TO WHAT EXTENT HAVE YOU MADE ARRANGEMENTS TO AVAIL
22 YOURSELF OF THESE ADDITIONAL RESOURCES?

23 A. Resources available require no prior arrangements.
24 The state and local agencies from which the resources
25 will come are equipped for responding to emergencies
26 and only phone calls will be necessary to furnish

1 on-site support. These supplies fluctuate from week
2 to week; however, the supplies are always
3 substantial. The Secretary of the Department of
4 Correction has signed the Catawba plan, and a
5 telephone call is all that will be required to
6 release any needed resources of food. Bedding,
7 clothing, and cots will also be available from the
8 Red Cross and Salvation Army as well as local
9 government. (JTP, JEN)

10 Q. DOES THE STATE RELY SOLELY UPON 14 RECEPTION
11 CENTERS/SHELTERS FOR PROCESSING AND REGISTERING EPZ
12 RESIDENTS? IF NOT, PLEASE DESCRIBE YOUR PLANS IN
13 THIS AREA.

14 A. North Carolina presently has 38 shelters which have
15 been designated to support the Catawba Plan. There
16 will be no reception centers. Evacuees will be
17 registered only at these shelter sites. (JTP)

18 Q. HOW MANY PERSONS CAN THE 38 SHELTERS HANDLE UNDER THE
19 CATAWBA PLAN?

20 A. We are prepared for the worse case situation and can
21 handle in these shelters at least 70,000 to 80,000
22 evacuees. (JTP)

23 Q. DO YOU ANTICIPATE THAT REGISTRATION OF POTENTIAL
24 EVACUEES WILL POSE ANY PROBLEMS OF OVERCROWDING OR
25 DELAY OF EVACUATION?

26 A. No. (JTP)

1 Q. IN THE EVENT OF OVERCROWDING, WHAT STEPS WILL YOU
2 TAKE?

3 A. If there is overcrowding, we would be able to
4 activate additional shelters, as needed, in six or
5 seven surrounding counties. (JTP)

6 Q. WHAT REGISTRATION PROCEDURES WILL BE FOLLOWED?

7 A. Standard Red Cross procedures will be utilized.
8 These procedures were established in consultation
9 with the division of Social Services. (JTP)

10 Q. WHO WILL ADMINISTER THOSE PROCEDURES?

11 A. The assigned shelter registrar and the first evacuees
12 arriving will assist as necessary. The number of
13 registrars can be expanded or contracted to meet the
14 need. To expand, the early evacuees are utilized to
15 assist with the registration process and shelter
16 operations. Adequate staffs have been assigned
17 within the plan. (JTP)

18 Q. DOES THE AGENCY OR INSTITUTION WHICH WILL ADMINISTER
19 THOSE PROCEDURES HAVE EXPERIENCE IN ADMINISTRATION OF
20 SHELTERS AND REGISTERING EVACUEES IN OTHER EVACUATION
21 SITUATIONS?

22 A. Yes. In the area of the Catawba Nuclear Plant the
23 Red Cross and Department of Social Services are
24 responsible for shelter administration. Each has
25 experience in the administration of shelters, having
26 successfully handled the victims of the 1977 floods,

1 the recent 1983 chemical spill in Iredell County, the
2 most recent tornado disaster, as well as numerous
3 other actual evacuations. This experience has been
4 further enhanced by several exercises and specialized
5 training. (JTP)

6 Q. WHAT CRITERIA HAVE THE STATES AND COUNTIES USED IN
7 ESTABLISHING SHELTER CAPACITIES? DOES THE
8 AGENCY/INSTITUTION WHICH WILL ADMINISTER THE SHELTERS
9 AGREE WITH YOUR SHELTER CAPACITY ESTIMATES?

10 A. The criteria that the state and counties are using is
11 based on the National Shelter Survey Instructions
12 TR-84 dated May, 1982, Federal Emergency Management
13 Agency. The criteria allots 40 square feet per
14 person in shelters. This 40 square feet per person
15 has proven adequate to date based on actual
16 experience during exercises. The Red Cross and
17 Social Services have concurred in the 40 square feet
18 per person criteria. (JTP)

1 TESTIMONY OF THE STATE OF SOUTH CAROLINA
2 (J. GREGORY, JR. AND P.R. LUNSFORD) ON
3 EMERGENCY PLANNING CONTENTION 3

4 Background Information on Mr. Gregory

5 Q. PLEASE STATE YOUR NAME AND ADDRESS, MR. GREGORY.

6 A. My name is James Gregory, Jr., South Carolina
7 Department of Social Services, 1535 Confederate
8 Avenue Extension, Columbia, South Carolina, 29202.
9 (JG)

10 Q. PLEASE STATE YOUR PRIOR PROFESSIONAL EXPERIENCE.

11 A. I am retired as a Senior Master Sergeant from the
12 United States Air Force. I have an associate degree
13 in business management and was employed as a planner
14 with the South Carolina Emergency Preparedness
15 Division from March, 1981, to April, 1983. I am
16 presently employed as an Emergency Welfare Service
17 Planner with the Department of Social Services. I
18 have served in this position since May 1983. (JG)

19 Q. WHAT IS YOUR PRIMARY DUTY?

20 A. I assist county and state governments in their
21 emergency welfare service planning. (JG)

22 EPC-3 Testimony

23 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

24 A. The purpose of my testimony is to testify with regard
25 to CESG and PA Contention 3. (JG)

26 Q. IS THIS SUBJECT ADDRESSED IN THE STATE PLAN?

1 A. Yes, in Annex B of the Catawba Site Specific Plan and
2 Figure 12 of that Site Specific Plan. (JG)

3 Q. ARE YOU FAMILIAR WITH THE STATE AND COUNTY EMERGENCY
4 WELFARE SERVICE PLANS FOR SOUTH CAROLINA?

5 A. Yes, I am. (JG)

6 Q. HOW DID YOU GAIN FAMILIARITY WITH THESE PLANS?

7 A. My familiarity with the plans was acquired by
8 reviewing and reading the plans and in working with
9 them. (JG)

10 Q. WHERE IN THE SOUTH CAROLINA PLAN ARE EMERGENCY
11 RESPONSE FACILITIES, SPECIFICALLY SHELTERS,
12 ADDRESSED?

13 A. Annex B and Part IV.3.6 of the S.C. Site Specific
14 Plan. (WM)

15 Q. WHAT ABOUT FOOD, CLOTHING, AND BEDDING?

16 A. It is listed in the York County/State of South
17 Carolina Resources List. This is a supporting
18 document. (WM)

19 Q. DOES THE STATE PLAN PROVIDE FOR FOOD, CLOTHING, AND
20 BEDDING TO BE STORED AT SHELTERS OR TO BE BROUGHT TO
21 SHELTERS?

22 A. There is no arrangement to store food, clothing, or
23 bedding at shelters in the counties which would host
24 evacuees from York County; however the schools will
25 have a food supply as part of their normal operation
26 during the school year. There are no plans to store

1 materials at shelters on an ongoing basis. Food,
2 clothing, and bedding would be obtained from several
3 additional sources: the Red Cross, Salvation Army,
4 and existing stocks that are controlled by the State
5 and/or the federal government. (JG, WM)

6 Q. PLEASE DESCRIBE HOW COTS, BLANKETS, ETC. WILL BE
7 FURNISHED TO THE SHELTER.

8 A. Cots and blankets will be supplied by the American
9 Red Cross. There is no plan to stock bedding in the
10 shelters. The state and county plans provide that
11 clothing and bedding be brought to shelters for
12 evacuees. (JG, WM)

13 Q. HOW WILL FOOD AND BEVERAGES BE SUPPLIED TO THE
14 SHELTER?

15 A. There is existing food at the schools in the
16 lunchroom stocks that would last for several days.
17 That would customarily be turned over if the school
18 were to be made a shelter. (WM)

19 Schools used for shelters will have enough food
20 on hand to feed at least two meals to evacuees
21 assigned. The food level at the schools varies at
22 different times of the year. Any potential shortfall
23 in the supplies will be made up by the Red Cross.
24 There will be enough food within each host county

1 school system to provide at least two meals for
2 evacuees sheltered in other buildings such as
3 churches. (JG)

4 Seven commercial food distributors' warehouses
5 are used to store USDA food for the South Carolina
6 schools. The two warehouses which supply the schools
7 and the counties which would be host to the evacuees
8 within the 10-mile EPZ are Biggers Brothers Wholesale
9 Food Distributors in Charlotte, North Carolina, and
10 Pearce-Young-Angel Company in Columbia, South
11 Carolina. These distributors store as many as 50
12 USDA food items such as cheese, meat, peanut butter,
13 canned vegetables, flour, and rice. The level of
14 school food varies at different times of the year.
15 Any shortfall in such supplies will be made up by the
16 Red Cross. (JG)

17 Q. HOW MUCH FOOD IS PRESENTLY ON HAND?

18 A. It is my understanding that on September 30, 1983,
19 Biggers Brothers had 7,200 cases of USDA food on
20 hand. Pearce-Young-Angel had 9,500 cases of USDA
21 food on hand. In addition, most schools have a
22 minimum of five days' food on hand. (JG)

23 Listed below are the average number of meals fed
24 per day in the particular counties which when
25 multiplied by 5 will give a fair estimate of the
26 potential meals on hand. (JG)

1 Cherokee County Schools - 7,200 meals per day
2 Chester County Schools - 4,750 meals per day
3 Fairfield County Schools - 3,400 meals per day
4 Lancaster County Schools - 7,500 meals per day
5 Union County Schools - 4,210 meals per day
6 York County Schools - 12,000 meals per day
7 Total 39,210
8 x5 days supply
9 196,050 potential meals on
10 hand

11 Q. HOW MUCH BEDDING IS ON HAND?

12 A. This information was obtained from Mr. Dennis
13 Johnson, ARC Disaster Specialist, Charlotte, North
14 Carolina. Below are listed the quantities of cots
15 and blankets which the American Red Cross could
16 supply within the first 48 hours following an
17 evacuation of the 10-mile EPZ of the Catawba
18 facility. (JG)

19 1. Cots

	<u>Time</u>	<u>Quantity</u>
20	within 24 hours	26,000
21	within 48 hours	33,000 additional
22	Total in 48 hours	59,000 cots

24 2. Blankets

	<u>Time</u>	<u>Quantity</u>
25	within 4 hours	61,000
26	within 48 hours	123,000 additional
27	Total	184,000 blankets within
28		48 hours

30 Q. HOW MUCH CLOTHING IS AVAILABLE?

31 A. This information was obtained from the Salvation
32 Army, Charlotte, North Carolina, Major Phil Needham,
33 Divisional Secretary. The listing is for sets of
34 clothing such as trousers and shirt, skirt and blouse

1 or a dress and is for South Carolina only. There are
2 also large quantities of coats and shoes available.
3 The Salvation Army could supply the transportation
4 for the clothing from the twenty thrift shops in
5 South Carolina to the counties where the clothing
6 would be required. Resources would also be available
7 from adjoining states if needed. (JG)

8 1. Adult Clothing Available

9	<u>Time</u>	<u>Male</u>	<u>Female</u>
10	within 4 hours	1,200 sets	2,000 sets
11	within 24 hours	1,600 sets	3,000 sets additional
12	Total in 24 hrs.	2,800 sets	5,000 sets

13 2. Children's Clothing Available

14	<u>Time</u>	<u>Male</u>	<u>Female</u>
15	within 4 hours	1,700 sets	1,100 sets
16	within 24 hours	1,800 sets	1,700 sets additional
17	Total in 24 hrs.	3,500 sets	2,800 sets

18 Q. HAVE YOU SATISFIED YOURSELVES THAT THE SUPPLIES OF
19 THESE NECESSITIES ARE ADEQUATE TO MEET THE NEED?

20 A. Yes we have. We are confident that along with the
21 Red Cross and Salvation Army we can adequately meet
22 the needs of the evacuees. Additionally, we can look
23 to our adjacent states with which we have mutual aid
24 agreements, as well as the Federal Government. (JG)

25 Q. HOW DID YOU GO ABOUT ESTIMATING THE POTENTIAL NEED?

- 1 A. The potential needs of the evacuees were estimated by
2 using a "worst case" scenario resulting in the
3 evacuation and hosting of the total population within
4 the 10-mile EPZ of the Catawba Nuclear Plant. That
5 is approximately 85,000 people. (PL, WM, JG)
- 6 Q. HOW LONG WILL IT TAKE TO BRING SUCH SUPPLIES TO THE
7 SHELTER?
- 8 A. I can give you the recent example of the tornado in
9 Marlboro County: within two days, I believe, there
10 were 1000 cots available on the site. (PL, WM)
- 11 Q. PRIOR TO THOSE COTS BEING MADE AVAILABLE, WHERE DO
12 THE PEOPLE SLEEP?
- 13 A. They were with friends, neighbors, they were in
14 shelters that were established in two schools and two
15 churches. (PL, WM)
- 16 Q. WITH RESPECT TO THE SHELTERS, IN THE SCHOOLS AND
17 CHURCHES, DID THE PEOPLE SUFFER GREATLY BECAUSE THEY
18 DID NOT HAVE COTS?
- 19 A. No. (PL, WM)
- 20 Q. WERE THE PEOPLE, IN YOUR JUDGMENT, ADEQUATELY TAKEN
21 CARE OF?
- 22 A. Yes. (PL, WM)
- 23 Q. ARE THERE OTHER SOURCES OF SUPPLIES THAT THE STATE
24 COULD CALL ON IN THE EVENT OF AN EMERGENCY AT
25 CATAWBA? FOR EXAMPLE, FOOD, CLOTHING AND BEDDING?

1 A. Yes. There are several religious groups that we have
2 seen in the past tornado that have shown up: one
3 group out of Alabama, the Alabama Disaster
4 Brotherhood Association, and we have a list of
5 several other agencies that we obtained through the
6 recent emergency. Plus, individuals privately
7 provided supplies. The resources of the American Red
8 Cross, the Food and Nutrition Service of the USDA,
9 the Salvation Army, the County, State, and Federal
10 Government will be available to meet the needs of the
11 evacuees. (JG)

12 Q. TO WHAT EXTENT HAVE YOU MADE ARRANGEMENTS TO USE
13 THESE ADDITIONAL RESOURCES?

14 A. Extant plans and agreements provide for the supply of
15 additional resources as they are required. (PL, WM)

16 Q. IN A WORST CASE EMERGENCY HOW MANY PERSONS WILL USE
17 THE SHELTER?

18 A. We assume that all the people in the 10-mile EPZ
19 would go to their assigned shelter if a total
20 evacuation were ordered. (PL, WM)

21 Q. HOW MANY PEOPLE ARE ASSIGNED TO ADMINISTER THE
22 SHELTER PROGRAM?

23 A. The number of people designated for shelter
24 operations will vary according to the hosting
25 requirements for each county. The Red Cross has and
26 will provide shelter training. (PL, WM)

- 1 Q. HOW MANY PERSONS ARE IN A RECEPTION TEAM?
- 2 A. For internal shelter operations, the number of staff
3 varies with the number of evacuees. Internal shelter
4 staff would include a shelter manager and one or more
5 registrars, nurses, cooks, recreation officer,
6 support staff, and a communication officer. (PL, WM)
- 7 Q. WHAT REGISTRATION PROCEDURES WILL BE USED?
- 8 A. Those that the Red Cross has already established.
9 (PL, WM)
- 10 Q. WHO WILL ADMINISTER THOSE PROCEDURES?
- 11 A. The Red Cross and the Department of Social Services
12 jointly in the shelter. (PL, WM)
- 13 Q. HAVE PLANS FOR ENTRY AND EXIT FROM SHELTERS BEEN
14 DEVELOPED?
- 15 A. In the Red Cross criteria for the shelter, yes they
16 have. (PL, WM)
- 17 Q. WILL THE RED CROSS ADMINISTER THE OPERATION OF THE
18 SHELTERS?
- 19 A. Yes. (PL, WM)
- 20 Q. DO THEY HAVE EXPERIENCE IN RUNNING SHELTERS?
- 21 A. Yes. The American Red Cross has had over eighty
22 years of experience and success in the administration
23 of shelters and registration of evacuees. (PL, WM,
24 JG)
- 25 Q. BASED ON YOUR EXPERIENCE, HAS THEIR OPERATION OF
26 SHELTERS BEEN SUCCESSFUL?

- 1 A. Yes. (PL, WM)
- 2 Q. HOW LONG WILL IT TAKE TO REGISTER PERSONS AT THE
3 SHELTER?
- 4 A. It will require approximately 2 minutes to register
5 one person. Registration time is decreased if a
6 family registers as a unit. A family of 4 requires
7 approximately 3-1/2 minutes to register. (PL, WM)
- 8 Q. WHAT IS CONSIDERED ADEQUATE DECONTAMINATION
9 EQUIPMENT?
- 10 A. The procedures listed in Attachment A (Personnel
11 Decontamination) are considered adequate techniques
12 for removing radioactive particulate contamination.
13 No decontamination is required for exposure to noble
14 gases. These techniques are not intended for cases
15 of internal contamination; specialized medical
16 consultation is indicated in such cases. The
17 necessary equipment is implied by the description of
18 each decontamination method. (PL, WM)
- 19 Q. IS EACH OF THE 38 SHELTERS EQUIPPED WITH ADEQUATE
20 DECONTAMINATION EQUIPMENT?
- 21 A. Yes. (PL, WM)
- 22 Q. ARE SPECIALLY-TRAINED NURSES OR PARAMEDICS REQUIRED
23 TO PERFORM DECONTAMINATION?
- 24 A. No. (PL, WM)
- 25 Q. WHAT SUPPLIES ARE REQUIRED FOR DECONTAMINATION?
- 26 A. Soap, water, and towels. (PL, WM)

1 Q. HOW WILL CONTAMINATED MATERIALS BE DISPOSED OF AT
2 EACH SHELTER?

3 A. Contaminated clothing will be placed in containers.
4 Disposal of contaminated water is based on DHEC/BRH
5 instructions. (PL, WM)

6 Q. HOW HAS EMERGENCY PLANNING PROVIDED MEANS FOR
7 REUNITING FAMILIES SEPARATED DURING EVACUATION?

8 A. The American Red Cross will register all evacuees who
9 report to a shelter. Families can make inquiries
10 through the ARC Disaster Welfare Inquiry System. (PL,
11 WM)

12 Q. DOES THE PLAN STILL CONTEMPLATE FOURTEEN RECEPTIONS
13 CENTERS?

14 A. No. Evacuees will not be processed and registered at
15 reception centers. Plans provide that residents
16 within the 10-mile EPZ will be preassigned to
17 shelters. They will be notified of these
18 preassignments by brochure and other public
19 information methods. (WM)

20 We took a hard look at the reception center
21 concept for Catawba and based upon the size of the
22 population felt it would not be feasible to use such
23 a concept, thus we went to a sheltering system where
24 the public would go directly to shelters rather than
25 first to a reception center and then to a shelter.
26 We have approximately 38 primary and well over 100

1 total shelters designated in the State and local plan
2 for Catawba that could be called on if the population
3 warranted it. (WM)

4 Q. IF THE SHELTERS DESIGNATED IN THE PLAN BECAME
5 OVERCROWDED FOR SOME REASON WOULD YOU BE ABLE TO OPEN
6 ADDITIONAL SHELTERS FURTHER OUT?

7 A. Yes. (WM)

8 Q. WILL PEOPLE HAVE TO REGISTER?

9 A. Yes, they will have to register at the shelter. (JG,
10 WM)

11 Q. DO YOU ANTICIPATE THAT REGISTRATION OF POTENTIAL
12 EVACUEES WILL POSE ANY PROBLEMS OF OVERCROWDING OR
13 DELAY THAT WOULD CAUSE PEOPLE NOT TO HAVE SHELTER AS
14 SOON AS THEY NEED IT?

15 A. There are experienced people that are usually in
16 charge of the shelters and know those procedures. I
17 do not envision that there would be any delay that
18 would cause people not to have shelter as soon as
19 they need it. (JG, WM)

20 Q. BASED ON YOUR EXPERIENCE WITH THE PROCESSING OF
21 PEOPLE AT SHELTERS, HAS THAT MOVED FAIRLY SMOOTHLY?

22 A. In the recent examples that I have seen, yes. (JG,
23 WM)

24 Q. IS THE IDENTITY OF THE SHELTERS SET FORTH IN THE
25 STATE PLAN?

- 1 A. That's correct. It is listed in Appendix 1 to Annex
2 B of the Site Specific Plan and in Annex Q of the
3 county plan. (WM)
- 4 Q. IS THAT AN ACCURATE LIST?
- 5 A. The Red Cross is confirming those figures now to make
6 sure those shelters meet their criteria. (WM)
- 7 Q. WHAT CRITERIA HAS THE STATE USED IN ESTABLISHING
8 SHELTER CAPACITIES?
- 9 A. American Red Cross regulations are followed in
10 establishing shelter capacities. The Red Cross
11 inspects every shelter and signs an agreement with
12 the building owner/manager. When listed shelter
13 capacities do not meet Red Cross criteria, such
14 listed capacities will be either increased or
15 decreased to meet the criteria. (WM)
- 16 Q. ARE YOU AWARE OF ANY SHELTERS ON THAT LIST THAT ARE
17 NOT ADEQUATE?
- 18 A. Yes we are. Two shelters in York County did not meet
19 the criteria and thus people assigned to those
20 shelters will be reallocated to another shelter. The
21 Red Cross is confirming the square footages and
22 should complete their confirmation work in July or
23 August. (JG, WM)
- 24 Q. WHAT HAPPENS IF SHELTERS BECOME OVERCROWDED?

1 A. You move to an area farther away from the plant and
2 put people into other shelters that have been
3 previously identified and designated. (WM)

4 Q. WHAT IF PEOPLE OUTSIDE THE CATAWBA EPZ MIGHT SEEK
5 SHELTER? IF SUCH DOES OCCUR, WOULD YOU BE ABLE TO
6 HANDLE THIS ADDITIONAL INCREMENT?

7 A. We have no experience on how many might do that, but
8 I can say that the policy throughout the State is to
9 deny no one shelter. (PL, WM)

10 Q. IF SHELTERS BECOME OVERCROWDED, YOU WOULD SEEK
11 ADDITIONAL SHELTERING CAPABILITY?

12 A. Yes, in fact we go so far as to recommend closing the
13 schools for a short time. (PL, WM)

14 Q. NOW IF I CAN DRAW ON YOUR RECENT EXPERIENCE WITH THE
15 TORNADOS IN MARLBORO COUNTY, WERE THERE PREDESIGNATED
16 SHELTERS IN THAT COUNTY?

17 A. Not to my knowledge. (PL, WM)

18 Q. YET YOU WERE ABLE TO SET UP SHELTERS?

19 A. Yes, very quickly. (PL, WM)

20 Q. DOES THAT GIVE YOU SOME MEASURE OF CONFIDENCE THAT IF
21 INDEED THERE IS OVERCROWDING AS A RESULT OF PEOPLE
22 COMING FROM OUTSIDE THE EPZ, YOU WILL BE ABLE TO
23 PROVIDE SHELTER FOR THEM?

1 A. That is correct. The school superintendent is the
2 one who designated which schools would be open, they
3 were staffed quickly, and there was no problem
4 feeding or sheltering people that sought it. (PL, WM)

5 Q. HAS IT BEEN YOUR EXPERIENCE THAT IN AN EMERGENCY
6 SITUATION NOT EVERYONE WOULD COME TO A SHELTER?

7 A. Yes. In the recent episode in Marlboro County, some
8 of the people preferred to go to family members'
9 homes or the homes of friends. (PL, WM)

10 Q. IN THAT INSTANCE WERE THEY INSTRUCTED TO FIRST COME
11 TO THE SHELTER?

12 A. I do not know. In the Catawba emergency plan, in the
13 event of an evacuation, people would be informed to
14 come to a shelter in the first instance. (PL, WM)

15 Q. DO YOU HAVE CONFIDENCE THAT PEOPLE WILL FOLLOW THAT
16 INSTRUCTION BASED ON YOUR EXPERIENCE?

17 A. I would hope that they would. It is my experience
18 that in an emergency people will follow the
19 directions they are given. In the recent tornado
20 emergency, for example, there was excellent response.
21 (PL, WM)

22 Q. BUT ONCE EVACUEES COME TO THE SHELTER IS IT YOUR
23 EXPERIENCE, BASED ON THE MARLBORO COUNTY WORK, THAT
24 NOT EVERYONE WOULD STAY AT A SHELTER?

25 A. Correct. Not everyone in this type of emergency
26 stayed in the shelter. (PL, WM)

1 TESTIMONY OF GASTON COUNTY
2 (BOB E. PHILLIPS) ON
3 EMERGENCY PLANNING CONTENTION 3

4 Q. EMERGENCY PLANNING CONTENTION 3 ASSERTS THAT THE
5 EMERGENCY PLANS DO NOT PROVIDE FOR ADEQUATE EMERGENCY
6 FACILITIES AND EQUIPMENT. DOES GASTON COUNTY'S PLAN
7 PROVIDE FOR FOOD, CLOTHING AND BEDDING TO BE STORED
8 AT THE SHELTERS OR BROUGHT TO THE SHELTERS FOR
9 POTENTIAL EVACUEES' USE?

10 A. Food will be provided from those supplies already
11 stored at the schools. Clothing will be provided by
12 the N.C. Department of Corrections. For bedding, we
13 have about 100 cots stored in Gaston County. Other
14 cots will be brought in from surrounding counties.

15 Q. DOES THE COUNTY PLAN PROVIDE INFORMATION REGARDING
16 THIS CONTENTION?

17 A. Yes, Part 2, figure 6 of the N.C. State Plan lists
18 the Gaston County designated shelters. Part 2,
19 Section III, of the N.C. State Plan addresses the
20 responsibilities of Gaston County government for
21 provision of food, clothing and bedding.

22 Q. HOW LONG WILL IT TAKE FOR THESE SUPPLIES TO BE
23 BROUGHT IN?

24 A. It will take about 2 hours for clothing and bedding
25 to be brought in.

26 Q. HAVE YOU SATISFIED YOURSELF THAT THE SUPPLY OF THESE
27 NECESSITIES IS ADEQUATE TO MEET THE POTENTIAL NEED?

1 A. Yes.

2 Q. HOW DID YOU GO ABOUT ESTIMATING THE POTENTIAL NEED
3 FOR FOOD, CLOTHING, AND BEDDING?

4 A. We discussed this with the state and I believe the
5 Red Cross and Salvation Army have been involved also.

6 Q. ARE THERE OTHER SOURCES OF FOOD, CLOTHING, AND
7 BEDDING WHICH COULD BE MADE AVAILABLE IF NECESSARY?

8 A. Yes.

9 Q. HAVE YOU MADE ARRANGEMENTS TO USE THESE ADDITIONAL
10 RESOURCES IF THEY SHOULD BE REQUIRED?

11 A. Yes, I have made arrangements with the local Red
12 Cross, the Department of Social Services, local
13 school officials, and State officials.

14 Q. DO YOU FEEL THAT THE AMOUNT OF SHELTER CAPACITY THAT
15 YOU HAVE WILL BE ADEQUATE FOR THE NEEDS THAT YOU
16 ANTICIPATE?

17 A. We have in the Gaston County part of the EPZ about
18 2,700 people and we have adequate shelter space for
19 these people, plus approximately 11,000 more people.
20 In the event more space is necessary, we will direct
21 evacuees to additional identified shelter space in
22 adjoining counties. I have identified shelters in
23 Cleveland County to receive the evacuees from York
24 County if needed. In addition, we can use the Grier
25 Junior High, Gaston College, and Highland Junior High
26 to shelter part of the 11,000 people.

1 Q. WHAT WILL GASTON COUNTY RELY UPON FOR PROCESSING AND
2 REGISTERING EPZ RESIDENTS?

3 A. I rely on 2 primary shelters for Gaston County
4 residents and on 3 secondary shelters for the 11,000
5 York County residents. There are no reception
6 centers in the Gaston County plan; the people go
7 directly to shelters.

8 Q. DO YOU ANTICIPATE THAT THE REGISTRATION OF POTENTIAL
9 EVACUEES WILL POSE ANY PROBLEMS OF OVERCROWDING OR
10 DELAY OF EVACUATION?

11 A. No. The Gaston County Red Cross Director has
12 experience with this problem and will use enough
13 registrars to avoid any delay. Two hundred shelter
14 managers are already trained.

15 Q. WHAT REGISTRATION PROCEDURES WILL BE FOLLOWED?

16 A. Red Cross procedures.

17 Q. WHO WILL ADMINISTER THESE PROCEDURES?

18 A. Red Cross personnel, backed by Department of Social
19 Services personnel.

20 Q. DOES THE RED CROSS, WHICH WILL ADMINISTER THESE
21 PROCEDURES, HAVE EXPERIENCE IN SUCCESSFULLY
22 ORGANIZING SHELTERS AND REGISTERING EVACUEES?

23 A. Yes. The Red Cross has been active in disaster
24 relief for years.

25 Q. WHAT CRITERIA HAS GASTON COUNTY USED IN ESTABLISHING
26 SHELTER CAPACITIES?

1 A. The criteria used were supplied by the North Carolina
2 Department of Crime Control and Public Safety. The
3 Red Cross, using its criteria, has reviewed the
4 shelters and has confirmed our selections. State
5 engineers came in last September to determine
6 capacities using these criteria.

1 TESTIMONY OF MECKLENBURG COUNTY
2 (LEWIS WAYNE BROOME) ON
3 EMERGENCY PLANNING CONTENTION 3

4 Q. EMERGENCY PLANNING CONTENTION 3 ALLEGES THAT THE
5 EMERGENCY PLANS DO NOT PROVIDE FOR ADEQUATE EMERGENCY
6 FACILITIES AND EQUIPMENT TO SUPPORT THE EMERGENCY
7 RESPONSE. WHERE DOES THE MECKLENBURG COUNTY PLAN
8 ADDRESS EMERGENCY FACILITIES (SHELTERS, EOCS) AND
9 EQUIPMENT (FOOD, CLOTHING, BEDDING)?

10 A. Part 3 of the N.C. State Plan addresses Mecklenburg
11 County procedures. Section III of Part 3 lists
12 organizational responsibilities in the county for
13 provision of food, clothing and bedding. Part 3,
14 figure 6 lists the designated Mecklenburg County
15 shelters. The Standard Operating Procedures will
16 provide more specific detail.

17 Q. WILL CHARLOTTE-MECKLENBURG HAVE ADEQUATE SUPPLIES OF
18 UNCONTAMINATED FOOD, CLOTHING, AND BEDDING FOR
19 PERSONS WHO ARE EVACUATED TO SHELTERS?

20 A. We have sufficient food resources available to us.
21 We have surplus food commodities through the
22 Department of Agriculture that would be available.
23 We have ninety thousand plus tons of food that have
24 been identified in the Charlotte-Mecklenburg area
25 that could be utilized.

26 Q. WHERE IS THE FOOD STORED?

1 A. The food is stored in various distribution facilities
2 within the Mecklenburg County area.

3 Q. HOW LONG WOULD IT TAKE FOR FOOD SUPPLIES TO BE
4 BROUGHT TO THE SHELTERS?

5 A. Within 5 to 6 hours after notification that food is
6 necessary at the shelters, we would have access to
7 enough food to feed the anticipated shelter
8 population.

9 Q. WHAT ABOUT BEDDING?

10 A. We provide the very basics which might consist of a
11 cot or blanket for women and children or the elderly
12 or something of this nature. It is not the intent of
13 shelter operations to provide mattresses, pillow
14 cases, and pillows to shelterees. We have identified
15 about thirteen hundred cots that would be available
16 within a couple hours time. Long range, we would
17 have additional resources from the Red Cross and the
18 State.

19 Q. HOW ABOUT CLOTHING?

20 A. It is my understanding that the State would take the
21 lead in providing clothing and we would act as a
22 support. We would also utilize any organization such
23 as the Red Cross or the Salvation Army that could
24 supply clothing locally.

1 Q. DO YOU AGREE WITH INTERVENORS' ASSERTION THAT THE
2 NUMBER OF SHELTERS IS INSUFFICIENT FOR THE NUMBER OF
3 EVACUEES THAT YOU MIGHT HAVE?

4 A. No. Mecklenburg County has identified shelter
5 capacity for over forty-two thousand people. In
6 addition, we have agreements with other adjacent
7 counties that would house overflow, so there is
8 sufficient shelter in Mecklenburg and surrounding
9 counties to accommodate, we think, the evacuation
10 population.

11 Q. WOULD THAT INCLUDE PEOPLE WHO EVACUATE FROM SOUTH
12 CAROLINA AS WELL AS PEOPLE WHO EVACUATE FROM PORTIONS
13 OF THE EPZ IN THIS COUNTY?

14 A. That's correct.

15 Q. WOULD THAT INCLUDE PEOPLE WHO MIGHT COME INTO
16 MECKLENBURG COUNTY FROM GASTON COUNTY?

17 A. If they came from Gaston County to Mecklenburg
18 County, we would provide as much as we could; we
19 would not turn anybody away.

20 Q. CAN YOU ESTIMATE THE NUMBER OF EVACUEES YOU COULD
21 HANDLE, TAKING INTO ACCOUNT ANY ARRANGEMENTS THAT YOU
22 MADE WITH THE ADJACENT COUNTIES?

23 A. Mecklenburg County can handle forty-two thousand plus
24 evacuees. In a worst-case evacuation, my
25 understanding of the most recent population figures
26 is that about sixty thousand people would require

1 shelter, so we are looking at about eighteen thousand
2 people who would go to the surrounding counties. We
3 already have Cabarrus County in place because
4 Cabarrus is utilized for the McGuire Nuclear Station
5 emergency response. In addition, we could activate
6 mutual aid agreements with all of the other
7 surrounding counties so that we don't think that
8 putting up sixty thousand people would pose that much
9 of a problem. Logistics could be a problem
10 initially, but that could be administratively worked
11 out over a period of a couple of hours. The
12 logistics would be resolved.

13 Q. WHAT CRITERIA DID MECKLENBURG COUNTY USE IN
14 ESTIMATING SHELTER CAPACITIES?

15 A. The criteria used (40 sq. ft/person) were supplied by
16 the N.C. Department of Crime Control and Public
17 Safety. The Red Cross has reviewed the shelters
18 using its criteria, and has confirmed our selection.

19 Q. HOW WILL MECKLENBURG COUNTY REGISTER AND PROCESS EPZ
20 RESIDENTS?

21 A. We will use the standards and procedures that the Red
22 Cross has established and utilized in numerous
23 disaster situations.

1 TESTIMONY OF AMERICAN RED CROSS
2 (DENNIS JOHNSON) ON
3 EMERGENCY PLANNING CONTENTION 3

4 Background Information

5 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

6 A. My name is Dennis Johnson. My business address is
7 2425 Park Road, Charlotte, North Carolina.

8 Q. WHAT IS YOUR JOB POSITION?

9 A. My job title is Disaster Specialist for the American
10 Red Cross.

11 Q. HOW LONG HAVE YOU BEEN IN THAT JOB?

12 A. Since August of 1977.

13 Q. PRIOR TO THAT TIME DID YOUR JOB RELATE TO EMERGENCY
14 RESPONSE?

15 A. Yes. I have worked with the American Red Cross in
16 the area of disaster relief since November of 1974.
17 In my capacity as Director of Volunteers in Hartford,
18 Connecticut, I did disaster relief work in Puerto
19 Rico, in Guatamala, and also locally in Connecticut.

20 Q. HAVE YOU READ CESG/PALMETTO ALLIANCE CONTENTION 3,
21 WHICH DEALS WITH THE ADEQUACY OF EMERGENCY FACILITIES
22 AND EQUIPMENT?

23 A. Yes.

24 Q. HAVE YOU BEEN INVOLVED IN ANY EMERGENCIES WHERE
25 NOTIFICATION TO EVACUATE WAS GIVEN TO THE PUBLIC?

1 A. Yes. Two examples are my involvement in the
2 evacuation related to Hurricane Alan a couple of
3 years ago in South Texas, and my involvement in
4 evacuation activities during the Nicaraguan civil
5 war.

6 Q. HAVE YOU BEEN INVOLVED IN ANY EMERGENCY RESPONSE
7 ACTIVITIES THAT INVOLVED SHELTERING?

8 A. Many of the disasters that I've been on had
9 sheltering as a component of the activities. I was
10 personally involved in a major sheltering operation
11 some years ago in Honduras and Nicaragua where we
12 sheltered 52,000 refugees from the Nicaraguan civil
13 war. We've also done local sheltering throughout the
14 South. I hadn't done any here in North and South
15 Carolina until the recent tornado experience because
16 we hadn't had a disaster experience that required
17 extensive sheltering.

18 Q. BASED UPON YOUR EXPERIENCE IN RESPONDING TO
19 DISASTERS, WHAT IS YOUR IMPRESSION OF PEOPLE'S
20 RESPONSE TO DIRECTIONS GIVEN BY EMERGENCY RESPONSE
21 OFFICIALS?

22 A. I think a lot of people's response to direction
23 depends on the kind of experience they have had
24 dealing with evacuation and sheltering in the past.
25 For example, if you have people who have had a recent
26 experience with a certain kind of disaster, they're

1 going to respond very favorably to direction. We
2 have also found that if people have for many, many
3 years not had the experience of having lived through
4 a disaster, they also are receptive to moving. Along
5 the coast here in the Carolinas, we have found that
6 we occasionally have a small hurricane come through,
7 such as a Hurricane David, that causes minor damage.
8 People begin to believe that they don't have to
9 evacuate because they are not genuinely threatened by
10 that kind of disaster. But with either a very recent
11 disaster or a long, long term of no disaster
12 whatsoever people tend to be most receptive to
13 wanting evacuation.

14 Q. DO YOU HAVE AN OPINION AS TO WHETHER OR NOT PEOPLE
15 WOULD RESPOND POSITIVELY IN A NUCLEAR EMERGENCY?

16 A. Yes, I do. It's my opinion that people would
17 evacuate when they receive the warning to do so. I'm
18 basing that opinion on my belief that people have a
19 very significant fear of the unknown in this instance.
20 It's not like a tornado that you can see; it's not
21 like a hurricane that you can experience, you can
22 feel, you can hear. This is something that is
23 invisible as far as most people are concerned. They
24 don't know when it's coming or how it's going to
25 affect them on a short term or a long term basis, and

1 as a result, I think people are going to be
2 frightened enough as a result of that to pick up and
3 leave.

4 Q. DO YOU HAVE ANY BASIS FOR THAT OPINION?

5 A. Well, this is something that, because we're in the
6 business of providing disaster relief, we sit down
7 and talk with people on a local basis. I've spoken
8 with people throughout North and South Carolina
9 around nuclear power plants, and I've spoken with
10 other disaster specialists in other areas as well, to
11 get their impression, and they seem to feel that
12 people will move.

13 Q. AS A RESULT OF THE THREE MILE ISLAND ACCIDENT, THERE
14 WAS AN EVACUATION OF YOUNG CHILDREN AND PREGNANT
15 WOMEN. WAS THE RED CROSS INVOLVED AT ALL IN THAT
16 ACTIVITY?

17 A. Yes, they were involved in the sheltering process.

18 Q. HAVE YOU READ ANY INFORMATION REGARDING THIS
19 EVACUATION?

20 A. I did read an after-action report based on the events
21 of Three Mile Island.

22 Q. DID PREGNANT WOMEN AND CHILDREN LEAVE THE AREA AS
23 DIRECTED?

24 A. It seems that they did. There weren't nearly as many
25 people in the shelters as people anticipated, but
26 going back to the experience that we've had over the

1 years in terms of sheltering people from different
2 kinds of natural disasters, we found that to be true
3 as well. Most people who evacuate from any kind of
4 disaster, man-made or natural, tend to go with people
5 that they are familiar with. If your mother or
6 father lives nearby, chances are you are going to go
7 to their house and stay with them. People are much
8 more comfortable in a setting that they know and
9 understand outside an area of danger than they would
10 be staying in a Red Cross facility or any other kind
11 of public facility.

12 Q. THE PRESENT EMERGENCY RESPONSE PLANS CALL FOR
13 DECONTAMINATION CAPABILITY AT EACH ONE OF THE
14 SHELTERS, AND THE SHELTERS ARE ALIGNED IN THE EPZ
15 SUCH THAT PEOPLE WOULD DISBURSE FROM THE EPZ TO THE
16 VARIOUS SHELTERS. IF GIVEN PROPER INSTRUCTION BEFORE
17 THE INCIDENT AND DURING THE EMERGENCY SITUATION, DO
18 YOU THINK THE PROBABILITY THAT PEOPLE WOULD GO TO
19 SHELTERS TO GET DECONTAMINATED IS GREATER THAN IF
20 THEY HADN'T BEEN GIVEN ANY INSTRUCTION?

21 A. Yes, I think it would be greater.

22 Q. IN YOUR EXPERIENCE, HAVE VOLUNTEERS BEEN FORTHCOMING
23 IN AN EMERGENCY?

24 A. They always are. The whole disaster relief process
25 that the American Red Cross runs hinges on the
26 involvement of volunteers at all levels.

1 Q. IN YOUR EXPERIENCE, HAVE FOOD, CLOTHING, BEDDING BEEN
2 READILY AVAILABLE IN AN EMERGENCY?

3 A. Absolutely.

4 EPC 3 Testimony

5 Q. EMERGENCY PLANNING CONTENTION 3 ASSERTS THAT EXISTING
6 EMERGENCY PLANS DO NOT PROVIDE FOR SUFFICIENT FOOD,
7 CLOTHING, AND BEDDING FOR EVACUEES. HOW DID YOU GO
8 ABOUT ESTIMATING THE POTENTIAL NEED FOR FOOD,
9 BEDDING, AND CLOTHING?

10 A. Well, initially, of course, we looked at the numbers
11 of the people, the size of the population within the
12 ten-mile EPZ and based our estimates for the kinds of
13 supplies we would need on those numbers.

14 Q. IN YOUR OPINION, WOULD ADEQUATE FOOD, CLOTHING, AND
15 BEDDING FOR EVACUEES BE AVAILABLE IN THE EVENT OF A
16 NUCLEAR EMERGENCY AT CATAWBA?

17 A. I believe it would be. In large shelter operations,
18 the Red Cross utilizes USDA foods that are stored in
19 large warehouses and in individual schools. Some of
20 the schools serve as shelters. The amounts in
21 storage vary depending upon the time of year. We
22 would also be able to purchase additional food
23 supplies from commercial wholesale distributors. So,
24 I don't feel that providing food in a nuclear
25 emergency would be any different than dealing with
26 people on a natural disaster basis. The food is

1 still going to be there. We're still going to be
2 able to use the resources in Charlotte, for example,
3 where they have major food storage warehouses, and
4 that in other major cities. Whether we have to truck
5 food in or bring it in by the trainload or planeload,
6 however we have to, we'll get it.

7 Clothing, for example, can be purchased on a
8 local basis, either directly from retail suppliers
9 or, if needed in vast quantities, we can go to
10 wholesale supplies. But in this particular plan,
11 clothing isn't something that the Red Cross is tasked
12 with supplying.

13 Bedding, though, is a concern that we have for
14 the shelters. The fact is that in a shelter, not
15 everyone has a bed. And in any kind of shelter, in
16 all but the smallest disaster, that's the case. When
17 there is a hurricane and there are massive
18 evacuations from the coast, only a very small
19 percentage of the people who actually stay in a
20 shelter stay on a cot. They may have a blanket or a
21 pillow, they may have a cot the second or third day,
22 but the fact is that these people initially do not
23 have that kind of a supply in any kind of a shelter.
24 Currently, there are 1161 cots and 1245 blankets in
25 counties with shelters. In addition, we have
26 thousands of cots and blankets stored in disaster

1 warehouses throughout the country that can be brought
2 into a situation like this within twenty-four to
3 forty-eight hours. So, we're basing the need for
4 bedding on being able to be supplied by these
5 warehouses. Generally, the people who need the cots
6 that we would provide are people who are elderly or
7 who are sick. Not everyone, for instance, in your
8 family or my family who's young and healthy needs a
9 cot, frankly.

10 Q. ALTHOUGH THEY MIGHT NOT HAVE COTS IMMEDIATELY AND
11 MAYBE NOT EVEN BEDDING IMMEDIATELY, IS IT YOUR
12 EXPERIENCE THAT PEOPLE HAVE BEEN ABLE TO SURVIVE IN
13 SHELTERS?

14 A. Yes.

15 Q. IS IT YOUR EXPERIENCE THAT THE FOOD, CLOTHING, AND
16 BEDDING DOES REACH A SHELTER WITHIN A RELATIVELY
17 SHORT PERIOD OF TIME, SAY TWENTY-FOUR HOURS?

18 A. Absolutely.

19 Q. DO YOU HAVE ANY REASON TO SUSPECT THAT WOULD NOT BE
20 THE CASE IN AN EMERGENCY SITUATION INVOLVING A
21 NUCLEAR INCIDENT AT CATAWBA?

22 A. Not based on the knowledge I have of how this would
23 occur.

24 Q. PLEASE DESCRIBE WHAT SPECIFIC ARRANGEMENTS HAVE BEEN
25 MADE TO PROVIDE AN UNCONTAMINATED WATER SUPPLY.

- A. The primary resource for water supply would be National Guard tank trucks (2-5,000 gallons) and water trailers (85-400 gallons). Water would be trucked from nearby uncontaminated resources and distributed in the smaller trailers.
- Q. HOW WILL CONTAMINATED CLOTHING AND OTHER MATERIALS BE DISPOSED OF AT THE SHELTERS?
- A. Plastic garbage bags and other trash containers will be used which will later be moved to an appropriate dump site.
- Q. HOW WOULD THE AMERICAN RED CROSS BE NOTIFIED IN AN EMERGENCY?
- A. We might be notified by a number of sources, including the local Red Cross chapter, the Department of Social Services, the S.C. Emergency Preparedness Department, or law enforcement officials. After being notified, we would then proceed to staff each shelter.
- Q. WOULD THE SHELTERS BE STAFFED BY PERMANENT EMPLOYEES OF THE AMERICAN RED CROSS OR BY VOLUNTEERS?
- A. A combination of both. We're not only counting on the Red Cross staff that we have available through our local chapters and national organization, but also on local volunteers who have been trained at this point and are in place. But, whenever a

1 disaster like this occurs, we pick up a lot of people
2 who are interested in providing their assistance on a
3 immediate basis also.

4 Q. WOULD THOSE INDIVIDUALS WHO STAFF THE SHELTERS,
5 WHETHER THEY WERE RED CROSS EMPLOYEES OR VOLUNTEERS,
6 KNOW WHAT TO DO?

7 A. The Red Cross has an eight-hour shelter management
8 course that we give. We have been giving it for
9 many, many years now here in the Carolinas and across
10 the country. We train the managers in this course,
11 and all the volunteers who will come in will be a
12 part of this management team. If they haven't had
13 the training, that's not really significant because
14 the whole process, the whole disaster relief system
15 that we have, is based on utilizing people who have
16 had a minimum of experience and, in many instances,
17 no training whatsoever. But under the direction of
18 these trained managers, they can be put to work in a
19 very important function.

20 Q. HOW WOULD THE PROCESSING OF PEOPLE AT A SHELTER WORK?

21 A. After they have been monitored and decontaminated, if
22 that should be necessary, we will have a registration
23 table at which they will sign into the shelter, and
24 when they leave they'll sign out of the shelter. A
25 sample registration form is attached as Attachment A.

1 Q. WILL THE REGISTRATION CREATE A BOTTLENECK?

2 A. Not if it's adequately staffed.

3 Q. DO YOU HAVE ANY REASON TO BELIEVE THAT THERE WON'T BE
4 ADEQUATE STAFF AT THESE SHELTERS?

5 A. Not if the plan is followed.

6 Q. DO YOU HAVE ANY REASON TO BELIEVE THE PLAN WILL NOT
7 BE FOLLOWED?

8 A. Not at this point.

9 Q. WOULD THE AMERICAN RED CROSS BE INVOLVED IN ASSESSING
10 CONTAMINATION?

11 A. We are only involved in it to the extent that we need
12 to be sure that the people are monitored and
13 decontaminated prior to their entry into the shelter.
14 We want to be sure that the system is established
15 such that our workers, our volunteers, as well as the
16 other people who enter into the shelter, are not
17 affected by this contamination whatsoever.

18 Q. DO YOU HAVE PROCEDURES IN PLACE THAT WILL ASSURE
19 THAT?

20 A. Well, basically the procedures are those used by the
21 monitoring teams.

22 Q. HOW LONG DO YOU PLAN FOR PEOPLE TO REMAIN IN THE
23 SHELTERS?

- 1 A. We have never attached a time factor to our shelters.
2 Naturally, we like to get people back into their
3 homes as rapidly as possible and then make every
4 effort to do what we can to help them either return
5 to their home or to find alternate housing.
- 6 Q. TURNING TO THE ADEQUACY OF THE SHELTERS PROVIDED, HOW
7 MANY SHELTERS HAVE YOU IDENTIFIED FOR THE 10-MILE
8 EPZ?
- 9 A. I have identified 38 primary shelters within the
10 area.
- 11 Q. IS THE AMERICAN RED CROSS INVOLVED IN ASSESSING THE
12 ADEQUACY OF SHELTERS?
- 13 A. The shelter management course that we have sets out
14 certain guidelines which specify the kinds of things
15 that make a shelter adequate in terms of such details
16 as number of commodes, for example, square footage
17 allowable per person, etc.
- 18 Q. ARE YOU APPLYING THOSE CRITERIA TO EACH OF THE
19 SHELTERS THAT HAVE THUS FAR BEEN IDENTIFIED?
- 20 A. Yes.
- 21 Q. WHAT HAVE YOU FOUND IN YOUR REVIEW OF THE SHELTERS?
- 22 A. Well, we're finding that some of the shelters that
23 were originally designated have been eliminated from
24 the system because they did not have the square
25 footage that was necessary or there might have been

1 some other reasons for them to be eliminated; but,
2 generally speaking, we're talking about square
3 footage, accessibility, and sanitary facilities.

4 Q. WHEN WILL YOUR REVIEW OF THE DESIGNATED SHELTERS BE
5 COMPLETE?

6 A. Within the year, if possible.

7 Q. WILL YOUR REVIEW OF THE ADEQUACY OF THE SHELTERS
8 RESULT IN A SIGNIFICANT REDUCTION IN THE NUMBER OF
9 SHELTERS THAT ARE PRESENTLY IDENTIFIED?

10 A. We haven't seen that so far.

11 Q. IN THE EVENT THERE IS EITHER A SIGNIFICANT REDUCTION
12 OR A MINOR REDUCTION, HOW WILL ADDITIONAL SHELTER
13 SPACE BE PROVIDED?

14 A. I would imagine that what they would do would be to
15 designate other counties as host counties. We would
16 use facilities farther away from the EPZ.

17 Q. DOES THAT POSE ANY PROBLEM?

18 A. Not as far as we're concerned. It may pose a
19 transportation problem for some of the individuals
20 involved within the ten mile radius of the plant.

21 Q. WILL THE RED CROSS EVALUATE THESE ADDITIONAL SHELTERS
22 WITH RESPECT TO ADEQUACY?

23 A. On the same basis that we evaluate the other ones,
24 yes.

- 1 Q. IN SUM, THEN, WILL THE AMERICAN RED CROSS SATISFY
2 ITSELF THAT THERE'S A SUFFICIENT AMOUNT OF ACCEPTABLE
3 SHELTER SPACE?
- 4 A. That's correct.
- 5 Q. HAVE YOU CONSIDERED THE FACT THAT SOME PEOPLE OUTSIDE
6 THE EPZ MIGHT SEEK REFUGE AT A SHELTER?
- 7 A. We've considered the fact, but frankly I can't see
8 that happening.
- 9 Q. IF THIS WERE TO HAPPEN, AND THERE WERE OVERCROWDING,
10 WOULD ADDITIONAL SHELTERS BE OPENED AND STAFFED AND
11 THOSE PEOPLE TAKEN CARE OF?
- 12 A. That's correct.
- 13 Q. WHO WOULD STAFF THE ADDITIONAL SHELTER?
- 14 A. We may have to bring in people from other states,
15 from across the country, from other parts of North
16 and South Carolina. Initially, we would depend also
17 on the Department of Social Services workers
18 available here in South Carolina.
- 19 Q. HAS IT BEEN YOUR EXPERIENCE THAT YOU ARE ABLE TO DRAW
20 ON RESOURCES FROM OUTSIDE YOUR IMMEDIATE AREA TO
21 RESPOND TO A DISASTER?
- 22 A. It happens in every disaster of any size.
- 23 Q. HAS YOUR EXPERIENCE WITH SHELTERING ACTIVITIES BEEN
24 THAT THE PROCEDURES USED BY THE AMERICAN RED CROSS IN
25 REGISTERING PEOPLE AND CARING FOR PEOPLE IN SHELTER
26 HAS BEEN EFFECTIVE?

1 A. As far as I've seen, yes.

2 Q. HOW LONG WOULD IT TAKE TO PROCESS A FAMILY OF FOUR?

3 A. We timed the processing procedure recently and found
4 that it takes approximately three to three and a half
5 minutes.

6 Q. WHAT DOES PROCESSING OF PEOPLE ENTAIL?

7 A. We have a registration form that is in place, people
8 will come in and either stand or sit with the
9 registrar. The registrar will ask them their name,
10 address, and the other information that's contained
11 on the form itself, which is very brief. Following
12 that, they'll be moved into the shelter.

1 TESTIMONY OF THE SALVATION ARMY
2 (MAJOR PHILIP NEEDHAM) ON
3 EMERGENCY PLANNING CONTENTION 3

4 Background Information

- 5 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.
- 6 A. My name is Major Philip Needham. My business address
7 is 1051 E. Morehead Street, Charlotte, North Carolina
8 28204.
- 9 Q. WHAT IS YOUR JOB POSITION?
- 10 A. I am Divisional Secretary of the Salvation Army for
11 North Carolina and South Carolina.
- 12 Q. HOW LONG HAVE YOU HELD THAT POSITION?
- 13 A. Since February of 1983.
- 14 Q. WHAT ARE THE DUTIES OF THE DIVISIONAL SECRETARY?
- 15 A. I am responsible for the physical property of the
16 Salvation Army, men's club work, office activities,
17 and I am responsible for disaster activities.
- 18 Q. PRIOR TO BECOMING DIVISIONAL SECRETARY, WHAT WAS YOUR
19 POSITION WITH THE SALVATION ARMY?
- 20 A. I was the Corps Officer and City Coordinator in St.
21 Petersburg, Florida.
- 22 Q. HOW LONG DID YOU SERVE IN THAT CAPACITY?
- 23 A. I served there for five years.
- 24 Q. WHAT WERE YOUR DUTIES IN ST. PETERSBURG?
- 25 A. As the City Coordinator, I was in charge of all
26 disaster activities in Pinellas County, Florida.
- 27 Q. HAVE YOU EVER DIRECTED DISASTER RELIEF ACTIVITIES?

1 A. Yes, there were two disasters which the Salvation
2 Army helped with in Pinellas County. The major one
3 was the Sunshine Skyway disaster in which the Skyway
4 bridge collapsed into the bay. Numerous persons were
5 killed. Another disaster involved a Coast Guard ship
6 which collided with a tanker. Most of the men
7 drowned. For both of these disasters, the Salvation
8 Army brought in mobile canteens and provided meals,
9 both to the disaster victims, their families and
10 rescue workers. In addition, the Salvation Army, at
11 my direction, provided clothing for victims and their
12 families who came to Pinellas County.

13 Q. HAVE YOU SERVED IN OTHER CAPACITIES WITH THE
14 SALVATION ARMY?

15 A. Yes. Prior to serving in Pinellas County, I spent
16 seven years in Atlanta, Georgia. Prior to that, from
17 1969 through 1971, I was the Corps Officer in Ft.
18 Myers, Florida, where I had the responsibility of
19 disaster relief.

20 Q. IN YOUR DISASTER RELIEF EXPERIENCE, HAVE YOU HAD THE
21 OPPORTUNITY TO PROVIDE SHELTER TO EVACUEES OR OTHERS
22 IN NEED?

1 A. While serving in Petersburg and Ft. Myers, the
2 Salvation Army conducted an ongoing shelter for
3 people in need. We served people whose homes had
4 been burned or who were homeless for other reasons,
5 including transients.

6 EPC 3 Testimony

7 Q. HAVE YOU READ CESG/PALMETTO ALLIANCE CONTENTION 3,
8 WHICH DEALS WITH THE ADEQUACY OF EMERGENCY FACILITIES
9 AND EQUIPMENT?

10 A. Yes.

11 Q. IF AN EMERGENCY OCCURRED AT THE CATAWBA NUCLEAR
12 STATION CAUSING PEOPLE TO GO TO SHELTERS, WHAT ROLE
13 WOULD THE SALVATION ARMY FILL?

14 A. The Salvation Army will provide clothing free of
15 charge to those persons who have become contaminated.

16 Q. ABOUT HOW MANY PEOPLE CAN THE SALVATION ARMY CLOTHE?

17 A. The Salvation Army would have no problem in clothing
18 over 75,000 people.

19 Q. HOW QUICKLY COULD THIS CLOTHING BE OBTAINED?

20 A. We would be able to obtain all of this clothing
21 within 48 hours.

22 Q. HOW WOULD YOU BE ABLE TO OBTAIN SO MUCH CLOTHING SO
23 QUICKLY?

1 A. The Salvation Army has numerous clothing centers in
2 the southeastern United States. The local post can
3 call on these centers where the clothing is already
4 sorted and ready to be distributed.

5 Q. WOULD YOU BE ABLE TO PROVIDE CLOTHING FOR MEN, WOMEN,
6 CHILDREN AND INFANTS?

7 A. Yes, we have resources to clothe all ages and sexes.
8 I believe that the uncontaminated clothing needs of
9 all evacuees could be met in a timely fashion.

10 Q. ARE THERE OTHER ACTIVITIES IN WHICH THE SALVATION
11 ARMY MIGHT SERVE IN AN EMERGENCY?

12 A. Yes. The Salvation Army would be able to set up
13 mobile canteens for the temporary feeding of
14 evacuees. We could serve soup, sandwiches, donuts
15 and coffee for a short time. This activity would be
16 limited to the immediate response since the Red Cross
17 will feed the evacuees in the shelters. In addition,
18 the Salvation Army can provide canned goods but this
19 would be supplemental and in addition to the Red
20 Cross' responsibility.

21 Q. HOW MANY SETS OF CLOTHING INCLUDING TROUSERS,
22 SHIRTS, SKIRTS, BLOUSES, OR DRESSES CAN THE SALVATION
23 ARMY FURNISH FROM NEARBY EXISTING SUPPLIES, WITHIN
24 FOUR HOURS AND WITHIN 24 HOURS?

1 A. The Salvation Army can furnish the following in South
2 Carolina and in addition can call on resources
3 outside the state should the need arise:

4	<u>Time</u>	<u>Male</u>	<u>Female</u>
5	Within 4 hours	1,200 sets	2,000 sets
6	Within 24 hours	<u>1,600 sets</u>	<u>3,000 sets</u>
7	Total in 24 hours	2,800 sets	5,000 sets

8 In addition, the Salvation Army can furnish the
9 following children's sets of clothes as indicated:

10	<u>Time</u>	<u>Male</u>	<u>Female</u>
11	Within 4 hours	1,700 sets	1,100 sets
12	Within 24 hours	<u>1,800 sets</u>	<u>1,700 sets</u>
13	Total in 24 hours	3,500 sets	2,800 sets

FOOD STORAGE/ AVAILABILITY FOR CHARLOTTE-MECKLENBURG COUNTY
AND SURROUNDING AREA FOR DECLARED DISASTER/EMERGENCY CONDITION

DISTRIBUTION CODE: PRIMARY DISTRIBUTORS	DRY GOODS	CANNED GOODS	PERISHABLES	DAIRY PRODUCTS	BAKERY PRODUCTS	COMMENTS
A.	-0-	2,000	1,820	-0-	-0-	760 Tons Paper Products
B.	2,000	2,243	4,510*	10	10	* Includes Frozen Foods
C.	4,764	4,764	108(meat)	262	148**	**Produce Products
D.	360	1,213	1,037	195	15	
E.	7,000	7,000	1,467	1,467	1,467	
F.	4,950	5,136	1,220	483	176	
G.	4,581	4,581	-0-	-0-	-0-	
DISTRIBUTION CODE: SECONDARY DISTRIBUTORS						
A.	35	-0-	45	-0-	-0-	
B.					1,200	
C.	2	25	50	5	-0-	
D.			50			
E.					100	
F.					432	
G.			2			Sugar and Candy
H.		60				
I.		7	12		0.5	
J.					40	
K.			40			
L.	100					
M.		1,110				
N.			2			
O.	4	4	1		2	
P.	3	10	20	1		
Q.	10,500	7,000				
R.					5	
S.	25					
T.	20	40	300			
U.	3					
V.					2	
W.				900		
X.		9,400				
Y.					32	
Z.					10	
AA.					7	
BB.					5	
All figures are shown in tons	34,347 Tons	44,593 Tons	10,684 Tons	3,323 Tons	3,651.50 Tons	Total 96,598 Tons

EPC 3
Johnson Attachment A

SPRINT © MOORE BUSINESS FORMS, INC. 1

American Red Cross

Family Last Name

Names	Age	Medical Problem • Killed • Injured • Hospitalized	Referred to Nurse
Man			
Woman (Include Maiden Name)			
Children in Home			
Family Member not in Shelter (Location if Known)			

SHELTER MASTER FILE

DISASTER SHELTER REGISTRATION

Shelter Location	
Shelter Telephone No.	Date of Arrival
Predisaster Address and Telephone No.	

I ☐ do, ☐ do not, authorize release of the above information concerning my whereabouts or general condition.

Signature

Date Left Shelter

Time Left Shelter

Postdisaster Address and Telephone Number

AMERICAN RED CROSS FORM 8872 (5-79)

TECHNICAL
RADIOLOGICAL
EMERGENCY
RESPONSE PLAN

APPENDIX VII
DECONTAMINATION

BUREAU OF RADIOLOGICAL HEALTH
S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

FEBRUARY 1982

APPENDIX II

PERSONNEL DECONTAMINATION

Method*	Surface	Action	Technique	Advantages	Disadvantages
Soap and water	Skin and hands	Emulsifies and dissolves contaminate.	Wash 2-3 minutes and monitor. Do not wash more than 3-4 times.	Readily available and effective for most radioactive contamination.	Continued washing will defat the skin. Indiscriminate washing of other than affected parts may spread contamination.
Soap and water	Hair	Same as above.	Wash several times. If contamination is not lowered to acceptable levels, shave the head and apply skin decontamination methods.		
Lava soap, soft brush, and water	Skin and hands	Emulsifies, dissolves, and erodes.	Use light pressure with heavy lather. Wash for 2 minutes, 3 times. Rinse and monitor. Use care not to scratch or erode the skin. Apply lanolin or hand cream to prevent chapping.	Same as above.	Continued washing will abrade the skin.
Tide or other detergent (plain)	Same as above.	Same as above.	Make into a paste. Use with additional water with a mild scrubbing action. Use care not to erode the skin.	Slightly more effective than washing with soap.	Will defat and abrade skin and must be used with care.
Mixture of 50% Tide and 50% cornmeal	Skin and hands.	Emulsifies, dissolves, and erodes.	Make into a paste. Use with additional water with a mild scrubbing action. Use care not to erode the skin.	Slightly more effective than washing with soap.	Will defat and abrade skin and must be used with care.
5% water solution of a mixture of 30% Tide, 65% Calgon, 5% Carbose (carboxymethyl cellulose)	Same as above.	Same as above.	Use with water. Rub for a minute and rinse.	Same as above.	Same as above
A preparation of 8% Carbose, 3% Tide, 1% Versene, and 88% water homogenized into a cream.	Same as above.	Same as above.	Use with additional water. Rub for 1 minute and wipe off. Follow with lanolin or hand cream.	Same as above.	Same as above.

*Begin with the first listed method and then proceed step by step to the more severe methods, as necessary.

PERSONNEL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Titanium dioxide paste. Prepare paste by mixing precipitated titanium dioxide (a very thick slurry, never permitted to dry) with a small amount of lanolin. If not successful, go on to the next step.	Skin, hands, and extremities. Do not use near face or other body openings.	Same as above.	Work the paste into the affected area for 2 minutes. Rinse and wash with soap and warm water. Monitor.	Removes contamination lodged under scaly surface of skin. Good for heavy surface contamination of skin.	If left on too long will remove skin.
Mix equal volumes of a saturated solution of potassium permanganate and 0.2 N sulfuric acid. (Saturated solution of $KMnO_4$ is 6.4 grams per 100 ml of H_2O .) Continue with next step.	Skin, hands, and extremities. Do not use near face or other openings.	Dissolves contaminant absorbed in the epidermis.	Pour over wet hands, rubbing the surface and using handbrush for not more than 2 minutes. Rinse with water.	Superior for skin contamination. May be used in conjunction with titanium oxide.	Will remove a layer of skin if in contact with the skin for more than 2 minutes.
Apply a freshly prepared 5% solution of sodium acid sulfite. (Solution made by dissolving 5 gm of $NaHSO_3$ crystals in 100 ml distilled water.)	Same as above.	Removes the permanganate stain.	Apply in same manner as above. Apply for not more than 2 minutes. The above procedure may be repeated. Apply lanolin or hand cream when completed.		Same as above
Flushing	Eyes, ears, nose, and mouth	Physical removal by flushing.	Roll back the eyelid as far as possible, flush with large amounts of water. If isotonic irrigants are available, obtain them without delay. Apply to eye continually and then flush with large amounts of water. (Isotonic irrigant [0.9% NaCl solution]: 9 grams NaCl in beaker, fill to 1000 cc with water.) Can be purchased from drug suppliers, etc. Further decontamination should be done under medical supervision.	If used immediately will remove contamination. May also be used for ears, nose, and throat.	When using for nose and mouth, contaminated individual should be warned not to swallow the rinses.

PERSONNEL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Flushing	Wounds	Physical removal by flushing.	Wash wound with large amounts of water and spread edges to stimulate bleeding. If not profuse. If profuse, stop bleeding first, clean edges of wound, bandage, and if any contamination remains, it may be removed by normal cleaning methods, as above.	Quick and efficient if wound not severe.	May spread contamination to other areas of body if not done carefully.
Sweating	Skin of hands and feet	Physical removal by sweating.	Place hand or foot in plastic glove or boot. Tape shut. Place near source of heat for 10-15 minutes or until hand or foot is sweating profusely. Remove glove and then wash using standard techniques. Or gloves can be worn for several hours using only body heat.	Cleansing action is from inside out. Hand does not dry out.	If glove or boot is not removed shortly after profuse sweating starts and part washed with soap and water immediately, contamination may seep into the pores.

AREA AND MATERIAL DECONTAMINATION

Method*	Surface	Action	Technique	Advantages	Disadvantages
Vacuum cleaning	Dry surfaces	Removes contaminated dust by suction.	Use conventional vacuum technique with efficient filter.	Good on dry, porous surfaces. Avoids water reactions.	All dust must be filtered out of exhaust. Machine is contaminated.
Water	All nonporous surfaces (metal, painted, plastic etc.).	Dissolves and erodes.	For large surfaces Hose with high-pressure water at an optimum distance of 15 to 20 feet. Spray vertical surfaces at an angle of incidence of 30° to 40°; work from top to bottom to avoid recontamination. Work upwind to avoid spray. Determine cleaning rate experimentally, if possible; otherwise, use a rate of 4 square feet per minute.	All water equipment may be utilized. Allows operation to be carried out from a distance. Contamination may be reduced by 50%. Water equipment may be used for solutions of other decontaminating agents.	Drainage must be controlled. Not suitable for porous materials. Oiled surfaces cannot be decontaminated. Not applicable on dry contaminated surfaces (use vacuum); not applicable on porous surfaces such as wood, concrete, canvas, etc. Spray will be contaminated.

AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Water (Cont'd)	All surfaces	Dissolves and erodes.	For small surfaces Blot up liquid and hand-wipe with water and appropriate commercial detergent.	Extremely effective if done immediately after spill and on nonporous surfaces.	Of little value in the decontamination of large areas, longstanding contaminants and porous surfaces.
Steam	Nonporous surfaces (especially painted or oiled surfaces).	Same as above.	Work from top to bottom and from upwind. Clean surface at a rate of 4 square feet per minute. The cleaning efficiency of steam will be greatly increased by using detergents.	Contamination may be reduced approximately 90% on painted surfaces.	Steam subject to same limitations as water. Spray hazard makes the wearing of water-proof outfits necessary.
Detergents	Nonporous surfaces (metal, painted, glass, plastic, etc.).	Emulsifies contaminant and increases wetting power of water and cleaning efficiency of steam.	Rub surface 1 minute with a rag moistened with detergent solution then wipe with dry rag; use clean surface of the rag for each application. Use a power rotary brush with pressure feed for more efficient cleaning. Apply solution from a distance with a pressure proportioner. Do not allow solution to drip onto other surfaces. Mist application is all that is necessary.	Dissolve industrial film and other materials which hold contamination. Contamination may be reduced by 90%.	May require personal contact with surface. May not be efficient on longstanding contamination.
Complexing agents	Nonporous surfaces (especially unweathered surfaces; i.e., no rust or calcareous growth).	Forms soluble complexes with contaminated material.	Complexing agent solution should contain 3% (by weight) of agent. Spray surface with solution. Keep surface moist 30 minutes by spraying with solution periodically. After 30 minutes, flush material off with water. Complexing agents may be used on vertical and overhead surfaces by adding chemical foam (sodium carbonate or aluminum sulfate).	Holds contamination in solution. Contamination may be reduced by 75% in 4 minutes on unweathered surfaces. Easily stored; carbonates and citrates are nontoxic, noncorrosive.	Requires application for 5 to 30 minutes. Little penetrating power; of small value on weathered surfaces.

AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Organic solvents	Nonporous surfaces (greasy or waxed surfaces, paint or plastic finishes, etc.)	Dissolves organic materials (oil, paint, etc.).	Immerse entire unit in solvent or apply by wiping procedure (see Detergents).	Quick dissolving action. Recovery of solvent possible by distillation.	Requires good ventilation and fire precautions. Toxic to personnel. Material bulky.
Inorganic acids	Metal surfaces (especially with porous deposits; i.e., rust or calcareous growth); circulatory pipe systems.	Dissolves porous deposits.	Use dip-bath procedure for movable items. Acid should be kept at a concentration of 1 to 2 normal (9 to 18% hydrochloric, 3 to 6% sulfuric acid). Leave on weathered surfaces for 1 hour. Flush surface with water, scrub with a water-detergent solution, and rinse. Leave in pipe circulatory system 2 to 4 hours; flush with plain water, a water-detergent solution, then again with plain water.	Corrosive action on metal and porous deposits.	Personal hazard. Wear goggles, rubber boots, gloves and aprons. Good ventilation required because of toxicity and explosive gases. Acid mixtures should not be heated. Possibility of excessive corrosion if used without inhibitors. Sulfuric acid not effective on calcareous deposits.
Acid mixtures: hydrochloric, sulfuric, acetic, citric acids.	Nonporous surfaces (especially with porous deposits); circulatory pipe systems.	Dissolves porous deposits.	Same as for inorganic acids. A typical mixture consists of 0.1 gal. hydrochloric acid, 0.2 lb. sodium acetate and 1 gal. water.	Contamination may be reduced by 90% in 1 hour (unweathered surfaces). More easily handled than inorganic acid solutions.	Weathered surfaces may require prolonged treatment. Same safety precautions as required for inorganic acids.
Caustics: lye (sodium hydroxide), calcium hydroxide, potassium hydroxide	Painted surfaces (horizontal).	Softens paint (harsh method).	Allow paint remover solution to remain on surface until paint is softened to the point where it may be washed off with water. Remove remaining paint with long-handled scrapers. Typical paint remover solution: 10 gal. water, 4 lb. lye, 6 lb. boiler compound, 0.75 lb. cornstarch.	Minimum contact with contaminated surfaces. Easily stored.	Personal hazard (will cause burns). Reaction slow; thus, it is not efficient on vertical or overhead surfaces. Should not be used on aluminum or magnesium.
Trisodium phosphate	Painted surfaces (vertical, overhead).	Softens paint (mild method).	Apply hot 10% solution by rubbing and wiping procedure (see Detergent).	Contamination may be reduced to tolerance in one or two applications.	Destructive effect on paint. Should not be used on aluminum or magnesium.

AREA AND MATERIAL DECONTAMINATION--Continued

Method*	Surface	Action	Technique	Advantages	Disadvantages
Abrasion	Nonporous surfaces.	Removes surface.	Use conventional procedures, such as sanding, filing, and chipping; keep surface damp to avoid dust hazard.	Contamination may be reduced to as low a level as desired.	Impracticable for porous surfaces because of penetration by moisture.
Sandblasting	Nonporous surfaces.	Removes surface.	Keep sand wet to lessen spread of contamination. Collect used abrasive or flush away with water.	Practical for large surface areas.	Contamination spread over area must be removed. Contaminated dust is personnel hazard.
Vacuum blasting	Porous and nonporous surfaces.	Removes surface; traps and controls contaminated waste.	Hold tool flush to surface to prevent escape of contamination.	Contaminated waste ready for disposal. Safest abrasion method.	Contamination of equipment.