TENNESSEE VALLEY AUTHORITY

IMPLEMENTING PROCEDURES DOCUMENT - SEQUOYAH NUCLEAR PLANT

Inserted by: _____ Issue Date: August 18, 1982

Date Inserted: _____

Revision Log Sheet

This log sheet must be retained as the last page of the Sequoyah Nuclear Plant Implementing Procedures Document.

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Revision Log Sheet (Continued)

Issue Date: August 18, 1982

This log sheet must be retained as the last page of the Sequoyah Nuclear Plant Implementing Procedures Document.

Pages to be Removed			New Pages to be Inserted		
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IMPLEMENTING PROCEDURES INDEX

Revised 7/28/82

Sequoyah Nuclear Plant

SQN REP - IMPLEMENTING PROCEDURES DOCUMENT

SQN, IP-6

ACTIVATION OF THE TECHNICAL SUPPORT CENTER

Prepared By: Ron Fortenberry

Revised By: Michael J. Lorek

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Supervisor

PORC Review: 7/14/82
Date

Approved By: O.R. Wallace
Pwr Plt Superintendent

Date Approved: 7/14/82

DISTRIBUTION

1C	81	Plant Master File
1C	83	Asst. Power Plant Supt. (Oper.)
1C	84	Asst. Power Plant Supt. (Maint.)
1C	86	Maintenance Supervisor (M)
1C	87	Maintenance Supervisor (E)
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1C	111	Asst. Power Plant Supt. (H&S)
1C	OC H&S - John Ingwersen - MS	

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	8/5/80	ALL			
1	5/13/81	ALL			
2	12/8/81	1			
3	7/14/82	ALL			

The last page of this instruction is Number 9.

ACTIVATION OF THE TECHNICAL SUPPORT CENTER

1.0 PURPOSE

The purpose of this procedure is to provide a method for activating the Technical Support Center (TSC). The center is activated during an Alert, Site Emergency, or General Emergency.

2.0 INSTRUCTION

2.1 The shift engineer on duty contacts the Plant Duty Supervisor for a Site Emergency or General Emergency during off-hours or an Alert during any hour.

NOTE: During normal working hours, the plant siren automatically activates the TSC for the Site or General Emergency. All designated personnel will report to the TSC during normal working hours.

2.2 The Plant Duty Supervisor calls a person in each section of attachment 1 (preferably the lead engineer) for a Site or General Emergency during off hours or an Alert during any hour. The following notification can be used as a guide:

"We have a (an) _____ condition existing at the plant. Please report to the Technical Support Center immediately."

2.2.1 A roster listing all Technical Support Center staff by name, address, pax and home phone numbers will be supplied to the Plant Duty Superivsor and the shift engineer.

2.2.2 Each responsible section supervisor will assure the roster is current.

2.2.3 Revisions to the roster will not require PORC approval.

2.2.4 All revisions will be coordinated by the Health Physics supervisor.

2.3 Activate the phones in the TSC per Attachment 3. Instructions are also included for restricting all phones in the plant except vital phones (TSC, control room, etc.). Phones should be deactivated when the TSC is deactivated.

2.4 TSC members arriving at the main gatehouse should contact either the TSC (PAX , or the Shift Technical Supervisor (STA) (PAX for assistance on the best route to take to the TSC.

2.5 All necessary materials and equipment are located in the TSC except for hand-held calculators. Hand-held calculators should be obtained from the offices on the way to the TSC. The key to all equipment in the TSC (filing cabinet, chairs, and tables) is located in the SE key cabinet (key #152).

2.6 Unit status update sheets (Attachment 2) should be used to keep the TSC up to date on plant conditions. The TSC supervisor will appoint a member of the TSC to complete Attachment 2. These sheets should be completed at intervals determined by the TSC supervisor. The instruments listed below each parameter are suggested instruments for obtaining the required data. These instruments should be used if possible. However, if these instruments are not available, other instruments may be substituted provided the substituted instrument number and the reason for the substitution are included in the remarks section.

The incore thermocouple switch numbers are listed one per quadrant. To avoid confusion, the following is a list of substitution switches for each quadrant.

Table 2.6.1
Incore Thermocouple Substitution Switch Numbers

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
28	22	12	9
24	58	8	45
56	21	40	6
55	16	4	46
29	63	3	42
61	64	7	36

3.0 REFERENCE MATERIALS AND EQUIPMENT

3.1 The folloiwng reference materials are provided in the TSC:

3.1.1 Sequoyah Nuclear Plant FSAR.

3.1.2 Sequoyah Nuclear Plant Technical Specifications.

3.1.2 Sequoyah Nuclear Plant Technical Specifications.

3.1.3 Surveillance Instructions (Selected).[1]

3.1.4 Technical Instructions (Selected).[1]

[1]Selection to be made by appropriate section supervisor and approved by assistant superintendent.

3.1.5 Radiological Control Instructions.

3.1.6 Hazard Control Instructions.

3.1.7 System Operating Instructions.

3.1.8 General Operating Instructions.

3.1.9 TVA-REP and REP Implementing Procedures Document

3.1.10 Spill Prevention Control Plan

3.1.11 Plant Functional Drawings.

3.1.12 Abnormal Operating Instructions.

3.1.13 Emergency Operating Instructions.

3.2 The following equipment is provided in the TSC.

3.2.1 Three plug-in PAX phones are stored in the file cabinets. The phone jacks are located on the north wall of the TSC. The PAX phone numbers are . To make the PAX phones operable, remove the phones from the filing cabinet and plug into one of the phone jacks.

3.2.2 Two plug-in Bell phones with a speakerphone are stored in one of filing cabinets in the TSC. The Bell phone jacks are located on the west wall. To make the Bell phone operable, plug the phone connector into the jack and plug the speakerphone into an AC outlet. The Bell phone numbers are . On the side of each Bell phone jack is an exclusion switch. With the exclusion switch in the "off" position, the phone is a party line with DPSO being the other party. With the switch in the "on" position, the phone is a private line disconnecting DPSO. Therefore, the normal position for the exclusion switch during TSC activation would be in the "on" position.

3.2.3 Ring-down Phones

3.2.4 An intercom is stored in one of the filing cabinets located in the TSC. The jacks for the intercom are located on the north wall. The intercom is connected to unit 1 operator, unit 2 operator, SE's office, and electrical control disk. To operate, push the button momentarily to ring the control room. Talk (into speaker) when acknowledged from the control room.

3.2.5 A microfiche reader is located in the TSC. The purpose is to read the FSAR which is on microfiche.

3.2.6 Located in one of the filing cabinets is a reasonable supply of office supplies for use in the TSC.

3.2.7 Located in the TSC is enough tables and chairs for 25 people.

3.2.8 Control room closed-circuit TV.

SECTION 1.	a. Reactor Engineer b. Shift Technical Advisor
SECTION 2.	Mechanical Test and Studies
SECTION 3.	Chemical Engineer
SECTION 4.	Instrument Maintenance
SECTION 5.	Mechanical Maintenance
SECTION 6.	Electrical Maintenance

Attachment 2

UNIT STATUS UPDATE

Date_____ Time _____ Unit _____

1. Condensate Storage Tank Level, ft. A_____ (LI-2-230A) B_____ (LI-2-233A)
2. Steam Generator Heat Sink Condenser _____ Atmosphere _____
3. Auxiliary Feedwater Flow Available Yes _____ No _____
4. Steam Generator Level (narrow range), % 1_____ (LI-3-39) 2_____ (LI-3-52) 3_____ (LI-3-94) 4_____ (LI-3-107)
5. Steam Generator Level (wide range) % 1_____ (LI-3-43) 3_____ (LI-3-98) 4_____
6. Steam Generator Pressure, psig 1_____ (PI-1-2A) 2_____ (PI-1-9A) 3_____ (PI-1-20A) 4_____ (PI-1-27A)
7. Source Range, cps N31 _____ (XI-92-5001B) N32 _____ (XI-92-5002B)
8. Intermediate Range, ma N35 _____ (EI-92-5003B) N36 _____ (EI-92-5004B)
9. Pressurizer Level, % _____ (LI-68-335) _____ (LI-68-320)
10. Pressurizer Pressure, psig Wide Range _____ (PI-68-342A) Narrow Range _____ (PI-68-340A)
11. Reactor Coolant Loop 4 Hot Leg Pressure, psig _____ (PR-68-66)
12. Reactor Coolant System T_{Hot} (wide range)°F 1_____ (TR-68-1) 2_____ 3_____ (TR-68-43) 4_____
13. Reactor Coolant System T_{Cold} (wide range)°F 1_____ (TR-68-18) 2_____ 3_____ (TR-68-60) 4_____
14. Reactor Coolant Pumps running 1_____ 2_____ 3_____ 4_____
15. Emergency Core Cooling System Status Standby_____ Injection_____ Recirculation_____
16. RWST Level, % _____ (LI-63-50) _____ (LI-63-51)
17. Containment Sump Level, % _____ (LI-63-176)
18. Containment Spray Flow, gpm A-A_____ (FI-72-13) B-B_____ (FI-72-34)
19. Containment Pressure, psid _____ (PI-30-44) _____ (PI-30-45)
20. Incore Thermocouples, °F 1_____ (60) 2_____ (54) 3_____ (44) 4_____ (41)

REMARKS:

Data by: _____/_____

DIMENSION 400 PBX PHONE SYSTEM

Controlled Restriction Group Activation and Cancellation

Before any programming may be realized, a handset must be plugged into console. The shift engineer and the plant receptionist have handsets if none is available.

Step One - To activate the Technical Support Center phones

1) Press idle loop button (see dwg. item 12)
2) Press start button - dial tone
3) Dial 121
4) Dial 0 - dial tone
5) Dial 10 - confirmation tone (3 beeps)
6) Press release button

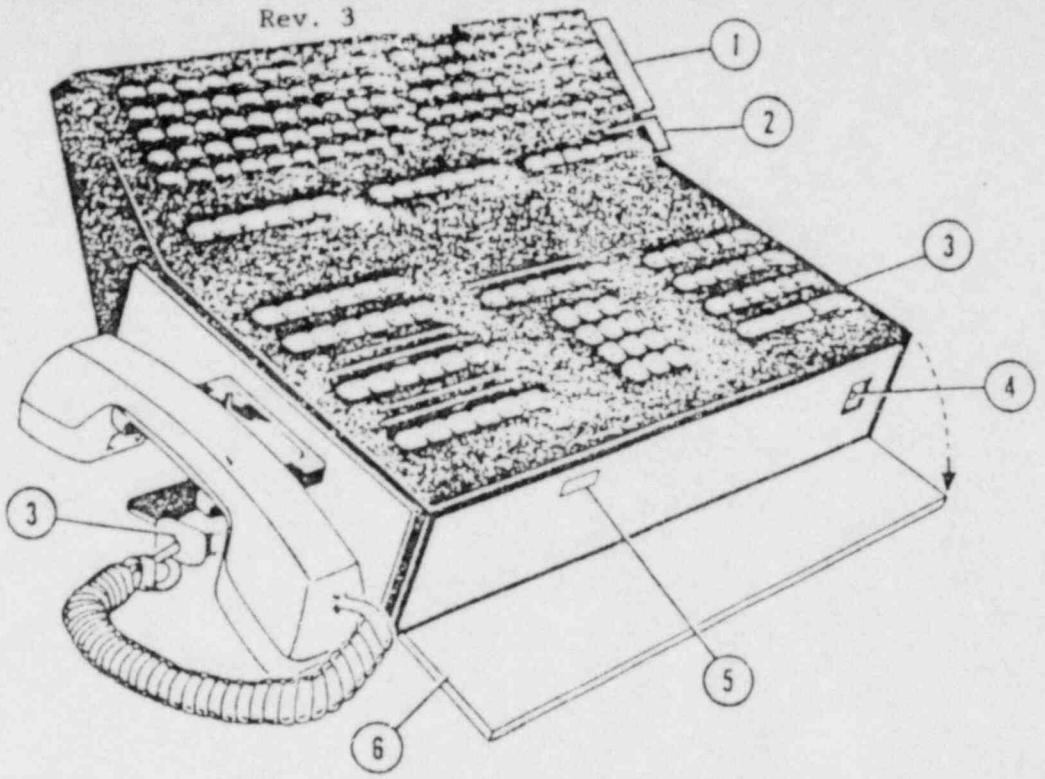
Step Two - To restrict phones by restricting the CRG

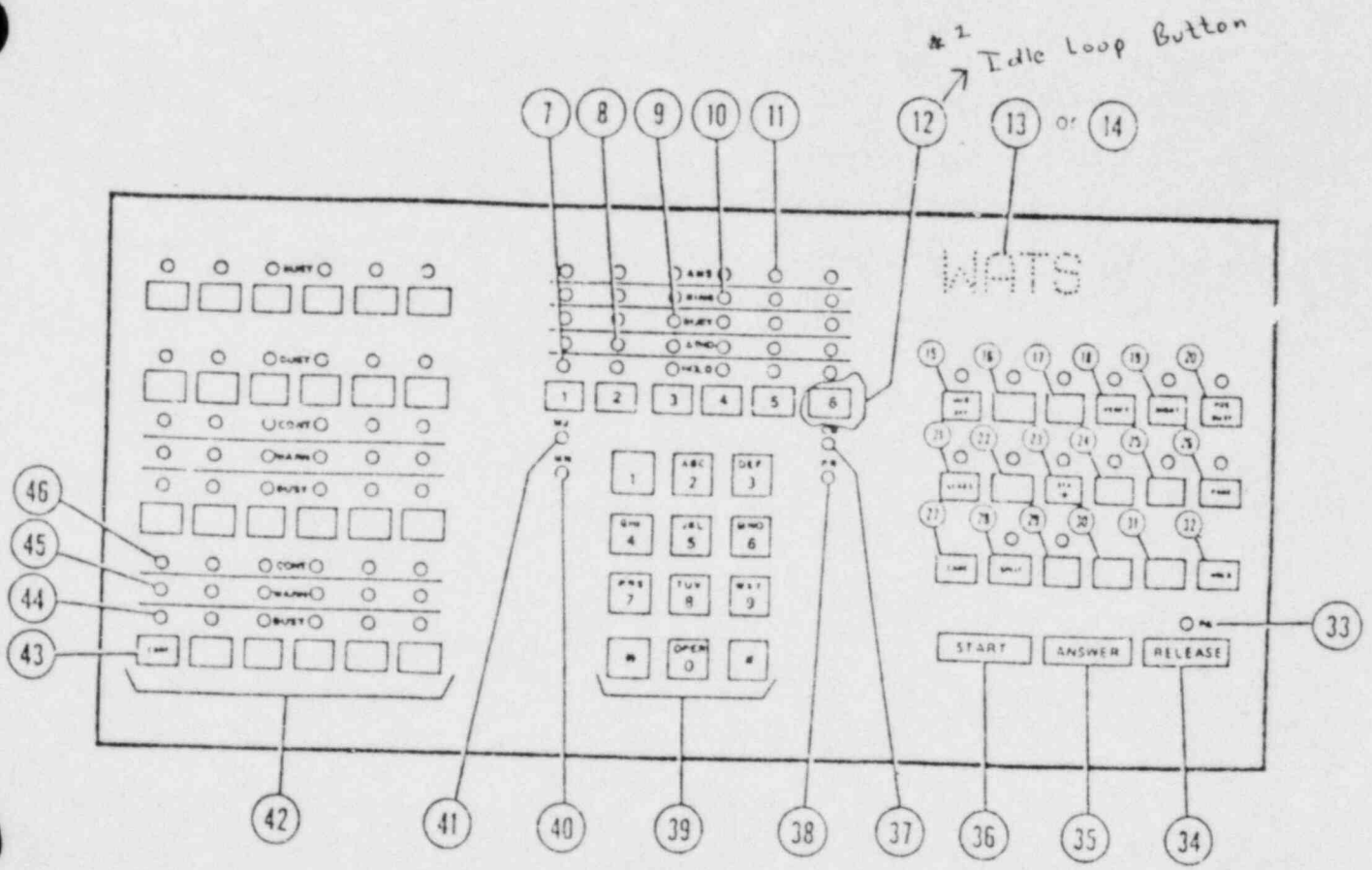
1) Press idle loop button
2) Press start button - dial tone
3) Dial 121
4) Dial 4 - dial tone
5) Dial ____ the appropriate Controlled Restriction Group - confirmation tone
6) Press release button (repeat step two for each Controlled Restriction Group)

Step Three - To activate phones

Follow same procedure as step one <u>but</u> use the appropriate Control Restriction Group number in step #<u>5</u>.

Following is a list of Controlled Restriction Groups and a diagram of the console.


1
2
3
4
3
5
6


* 2
Idle Loop Button
7
8
9
10
11
12
13 or 14
WATS
46
45
44
43
42
41
40
39
38
37
36
35
34
33
START
ANSWER
RELEASE

CONTROLLED RESTRICTION GROUPS (CRG'S)

01 (Bubble Bldg., PSO, Dwg. Cont.)

02 (Fld. Svs.)

03 (Admin. & Office Bldg.)

04 (Pwr. Stores)

05 (HP, Rad. Chem,

06 (Maint. Shop)

07 (Mgt. Svs.)

08 (Nurse)

09 (QA)

10 (TSC)

11 (Plt. Recpt.)

12 (Fld. Svs. Supv., Asst. Supt. Admin.)

Sequoyah Nuclear Plant

SQN REP - IMPLEMENTING PROCEDURES DOCUMENT

SQN, IP-10

MEDICAL EMERGENCY PROCEDURE

Prepared By: M. B. Knight

Revised By: R. J. Kitts

Submitted By: R. J. Kitts
Supervisor

PORC Review: 6/28/82
Date

Approved By: J. E. Cross
Pwr Plt Superintendent

Date Approved: 6/28/82

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1C	95 Outage Director
1C	96 Emergency Cabinet Control Room
1C	97 Emergency Cabinet Communications Room
1C	98 Emergency Van
1C	100 Emergency Cabinet Meteorological Bld.
1C	102 Shift Engineer's Office
1C	103 Unit Control Room
1C	105 Health Physics Laboratory
1C	106 Medical Office
1C	107 Resident NRC Inspector - SNP
1C	108 Technical Support Center
1C	109 Assistant HP Supervisor
1C	110 Plant Duty Supervisor
1C	111 Asst. Power Plant Supt. (H&S)
1C	OC H&S - John Ingwersen - MS

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	8/5/80	ALL	4	3/22/82	11
1	4/22/81	11	5	5/21/82	All
2	7/15/81	11,12	6	6/28/82	1,2,5,6,7,9,10,11, 12,13,14,15
3	10/19/81	12			

The last page of this instruction is Number 16

MEDICAL EMERGENCY PROCEDURE

1.0 PURPOSE

This procedure outlines the action to be followed during medical emergencies at Sequoyah Nuclear Plant.

2.0 PROCEDURE

2.1 Initial Reporting and Response to Accident and Emergency Medical Situations

2.1.1 Anyone discovering a serious injury or other medical emergency should administer aid for any life-threatening situation.

2.1.2 Summon any available personnel in the area for assistance.

2.1.3 Notify the control room on PAX phone and state, "This is A medical emergency and not a fire," so that the control room operator can initiate the appropriate response.

2.1.4 Give the control room operator your name, the location of the emergency (including building, elevation, and column coordinates), the type of medical emergency and the number of people involved. Also, give the PAX telephone number from which you are calling and if the emergency is in a regulated area.

2.1.5 Initate such actions as may be needed to avoid further injury to the victim or injury to other personnel.

2.1.6 As emergency response personnel arrive, assist them as requested and give any pertinent information they require relating to the injury or illness.

2.1.7 Notify your supervisor and assist as requested in report preparation and followup.

2.2 Activation of Medical Emergency Response Team

2.2.1 The control room operator or the assistant shift engineer shall:

a. Initiate activation of the emergency response team, and announce over the public address system, the location of the medical emergency;

b. Notify the shift engineer of the emergency.

2.2.2 A roster listing all names and telephone numbers of the individuals and local agenies required to either respond to or provide support for the medical emergency will be provided to the Plant Duty Supervisor and the Shift Engineer.

2.2.3 The shift engineer will notify the nurse on duty who, if necessary, will proceed to the emergency site.

2.2.4 The shift engineer will request the necessary information from health physics personnel. Medical and Public Safety may be required to assist the shift engineer in completion of Attachment 1.

2.2.5 When a patient is transported to a hospital, the shift engineer will notify the receiving facility of the patient's condition, the estimated time of arrival, and the radiological status of the patient as determined by health physics.

2.2.6 If necessary, the shift engineer will request that Public Safety arrange for an ambulance (offsite or onsite) for transporting of injured personnel.

2.3 Organization and Duties of the Medical Emergency Response Team

2.3.1 The medical emergency response team consists of a health physics representative, an assistant shift engineer, public safety officer, (or individual trained in first aid or emergency medical response), and nurse. The team will be supported by assistant unit operators who have received supplemental first aid training.

2.3.2 Duties and responsibilities of the various members of the response team:

2.3.2.1 Team Leader (assistant shift engineer)

a. The team leader will take charge and direct the total activities while consulting with members of the team in their area of expertise;

b. Lead the team in and out of the area by the most direct and/or appropriate route (with proper considerations of hazards to members of the team with the operational functioning of the facility). If the patient is located in a contaminated zone, a minimum number of response personnel will enter the area initially. Protective clothing will be as a minimum (shoe covers, gloves, at the discreation of health physics). Additional personnel may be requested by team leader.

2.4.4 A doctor should be requested, when in the nurse's judgment (or other personnel trained in emergency medical care) further professional attention is needed prior to transport such as in a problem with extrication where the patient needs medical attention while extrication is being accomplished. Always keep in mind the goal of maximum benefit to the patient.

2.4.5 Transport patient to the emergency treatment area or health station (or nearby TVA medical office) unless patient's condition is such that immediate transport to a hospital is necessary.

2.4.6 If a patient requires ambulance transportation to a medical office or hospital, utilize the TVA ambulance before contacting a commercial ambulance service. When necessary, the shift engineer will request an ambulance (onsite or offsite) from Public Safety for transporting injured personnel.

2.4.7 The health physic representative(s) will act as advisor to the emergency response team and medical personnel concerning radiological conditions.

2.5 Patient Care Guidelines for Special Conditions

2.5.1 General Guidelines

The care and disposition of all ill and injured persons known or suspected to be associated with radiation exposure or contamination will be coordinated with the health physics representative. The essential aims of the medical-health physics team are:

1. Minimize injury and further radiation exposure to the victim.
2. Protect attending personnel from excessive and unnecessary radiation exposure.
3. Control spread of radioactivity contamination.
4. Access and document the patient's radiological exposure.
5. Immediate lifesaving and disability limiting procedures will take precedence over noncritical decontamination and dosimetry assessment procedures.

2.5.2 Classification and handling of radiologically exposed or contaminated individuals.

2.5.2.1 Irradiated-Noncontaminated

First remove the victim from further exposure providing only essential first aid in the process, then direct attention to medical care of other physical injuries. The patient is then transported wherever necessary for adequate initial care of his illness or injuries. The health physics technician determines and reports the type and level of exposure and the affected area of the body if possible. Medical care of the radiation exposure is governed by the medical status of the patient and the findings of the health physicist. In most cases, the treatment of illness or physical injury takes precedence over treatment for radiation exposure.

In general, the medical treatment for radiation exposure should be related to the total dose received. Therefore, several major decisions points should be looked for:

2.5.2.1.1 Individuals who have received an acute total body dose of less than 5 rem usually require no medical examination or treatment for the radiation exposure.

2.5.2.1.2 Individuals who have received an acute total body dose of between 5 and 75 rem radiation can usually be treated as an outpatient, but should have hematological studies performed to detect chromosomal aberrations and other changes in other blood constituents. Attachments 2 and 3 give laboratory directions for drawing blood samples for chromosomal and hematological studies.

2.5.2.1.3 For individuals who have received an acute total body dose greater than 75 rem, evaluation by a nuclear medicine specialist shall be arranged regardless of physical injuries or illnesses. This is the minimal dose that produces a recognizable reaction in about 10 to 20 percent of the individuals exposed. Blood studies should be drawn per directions (attachments 2 and 3). If the patient is ill or injured requiring attention for physical illnesses or injuries, he should be transported to Erlanger Medical Center (see Attachments 4 & 5) with the information that this patient has received an acute total body dose greater than 75 rem. It is recommended that the attending physician consult REAC/TS. If the patient is not seriously ill or injured enough to require hospitalization for physical illness or injury, and with the recommendation of REAC/TS, referral may be made to Oak Ridge Hospital (see attachment 6) or the United Methodist Church where the patient could be observed and treated by the physicians on the REAC/TS team.

2.5.2.1.4 If a worker's projected cumulative dose to the thyroid from inhalation of radioactive iodine might exceed 10 rems, the Medical Director has authorized responsible health physicists or other qualified individuals to offer the exposed person an immediate first dose of a course of potassium iodine. The time the first dose was administered should be documented and the individual should be referred to the health station or a TVA medical office. Anyone authorized to initiate KI shall be familiar with the Food and Drug Administration approved package insert, and be sure that each proposed recipient is similarly informed. The initial dose of KI should not be delayed and those who begin therapy should continue the 10-day course of KI unless their thyroid dose is determined not to have exceeded 10 rem. An adequate supply of KI is stored at each nuclear facility to supply any personnel exposed to radioactive iodine. It is supplied in bottles which contain a full 10-day dose regimen. Follow dosage schedules as outlined on the package insert accompanying each bottle of KI.

2.5.2.2.1.2 In cases of less severe injuries, the patient will be sent to the personnel decontamination room to remove as much contamination as possible before he is treated in the emergency treatment area or transferred to Erlanger Medical Center.

2.5.3 The health physicist will collect, identify, label and analyze all biological specimens as required and deemed necessary. He will obtain the injured person's personnel dosimetry and replace, with equivalent dosimetry if appropriate.

2.5.4 The health physics group will also maintain supplies to control contamination and protect members of the medical emergency response team during transport within the plant and to the receiving hospital.

Medical emergency response team members and medical personnel will don and maintain whatever personal protective equipment the health physics representative may require. When a contaminated patient is transported to a receiving hospital facility a health physics representative should accompany the patient to the hospital and should furnish as much information as possible about the patient's dose and type of radiological contamination and/or exposure to the receiving facility (see attachment 1). At the hospital, a health physics representative will furnish radiological services to attending physicians and hospital personnel as requested.

2.6 Guidelines for Followup Medical Care

Followup medical care of illnesses or injuries treated in the health station or TVA medical office are usually done in the health station or TVA medical office. If the patient has been referred to a private physician or receiving hospital, followup medical care is usually done by the private physician unless the patient is released or followup medical care is requested from Medical Services by the private physician. In such instances, followup medical care will be arranged through the health stations and TVA medical offices.

2.7 Notification Guidelines

2.7.1 The area medical chief or his designee or the area nursing supervisor or her designee should be notified by the plant nurse or someone designated by her/him in the following instances.

2.7.1.1 If someone is ill or injured to the extent that they require ambulance transportation to a hospital receiving facility.

2.7.1.2 If the number of injuries is above that normally expected to be handled during the normal operation of a health station.

2.7.1.3 Anytime there is a situation existing in the facility which creates a hazardous environment where there is an increased liklihood of radiological exposure and/or contamination or increased physical risk so that injuries are more likely to occur than during normal operating conditions.

2.7.2 If the Area Medical Chief and the Area Chief Nurse or their designee cannot be contacted, then notify the Medical Director or Medical Services Representative of CECC if activated.

2.7.2.1 Health Physics should notify the Area Medical Chief anytime a TVA personnel receives radiation exposure in excess of the recommended TVA occupational exposure limits.

RADIATION AND/OR MEDICAL EMERGENCY NOTIFICATION REPORT

To be used by shift engineer to enter available data for notification of a receiving hospital of the impending admission of a case involving a medical emergency radiation exposure or contamination.

Nature of Accident _____

_____

_____

Extent and Discription of Injuries _____

_____

_____

Treatment Provided _____

Condition: Good _____ Fair _____ Serious _____ Critical _____ Deceased _____

B/P _____ Pulse _____ Respiration _____

Treated in Medical Office: Yes _____ No _____ Time: _____

A. Person Making Notification:

Name _____ Date _____ Time _____

Title _____ Telephone _____

Plant _____

B. Patients to be Admitted: Total Number: _____

Name (if available)	Injury but no Radiation or Contamination	Radiation Exposure	Internal Contamination	External Contamination	Contaminated Wounds

C. Will patients be: Surveyed for Contamination? _____ Decontaminated? _____

D. Expected Time of Arrival at Erlanger Hospital: _____

Notification Taken by: _____

INSTRUCTIONS FOR LYMPHOCYTE CULTURING FOR CYTOGENETIC DOSE ESTIMATION OF LOW-LEVEL WHOLE BODY ACUTE OVER EXPOSURE TO IONIZING RADIATION

TVA has an agreement with the Oak Ridge Associated Universities Cytogenetics Laboratory (ORAU) to perform lymphocyte culturing to provide cytogenetic estimate of radiation dose.

Upon the order of a responsible physician and after arrangements have been coordinated with ORAU/REAC/TS, concerning the transport and arrival time of the specimen, the following procedure should be followed: The blood should be collected in a red top vacutainer (Cat No. 2-657-3, Bd No. 4671) to which has been added 0.1 ml of sodium heparin (Upjohn 1000 units). Mix by inversion 30 times in 30 seconds immediately after collection.

Blood samples must be kept cool (not frozen) during shipping and storage. The vacutainers should be packed in Styrofoam chips, packing straw, etc. Surround packing material with a coolant and ship in a well-insulated container. Do not put the tubes directly on any coolant that may freeze the samples.

Identify the samples with the patient's name, birthdate, social security number, date and location.

Samples should be shipped by the fastest available carrier, such as TVA courier, air, or commercial carrier to:

ORAU/REAC/TS
Cyto Genetics Laboratory
Attn: Gayle Littlefield or Gene Joiner
Medical and Health Sciences Divison
Oak Ridge, Tennessee 37830

LYMPHOCYTE CULTURING

Collection Method:

Blood _____

Serum _____

Plasma _____

Urine _____

Sputum _____

Other _____

Type Container:

Red top vacutainer #4671 to which has been added 0.1 ml of sodium heparin (Upjohn 1000 units).

When: Upon order of responsible TVA M.D. in coordination with REAC/TS, after confirmed exposure exceeding 5 rem of total body ionizing radiation.

Frequency: Once, unless otherwise directed by responsible medical authority.

Special Instructions: Refrigerate, but do not freeze in shipping containers provided for this purpose. See attached memorandum.

Where Sent: ORAU/REAC/TS Cytogenetics Laboratory
Attention: Gayle Littlefield or Gene Joiner
Medical and Health Sciences Division
Oak Ridge, Tennessee 37830

Special Notice: Notify Earl Jordan at extension , Chattanooga

Report Results to: Robert L. Craig, M.D.
Medical Director
320 Edney Building
Chattanooga, TN 37401
Phone:

Label Information:

_____ Yes

_____ No

SS Number Name SS Number

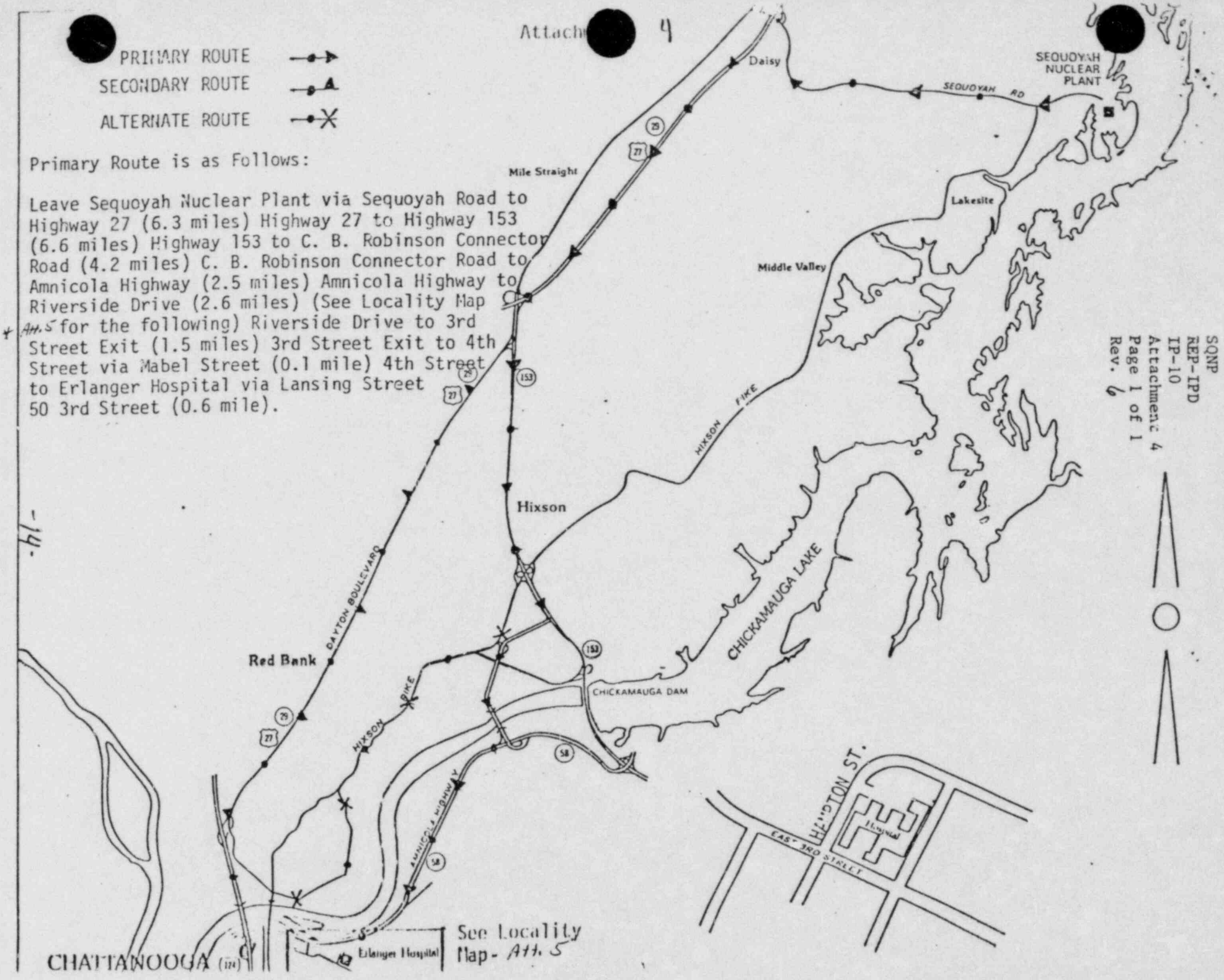
Birthdate Race Sex Loc No. Time Code

LYMPHOCYTE CULTURING

PRIMARY ROUTE
SECONDARY ROUTE
ALTERNATE ROUTE

Primary Route is as Follows:

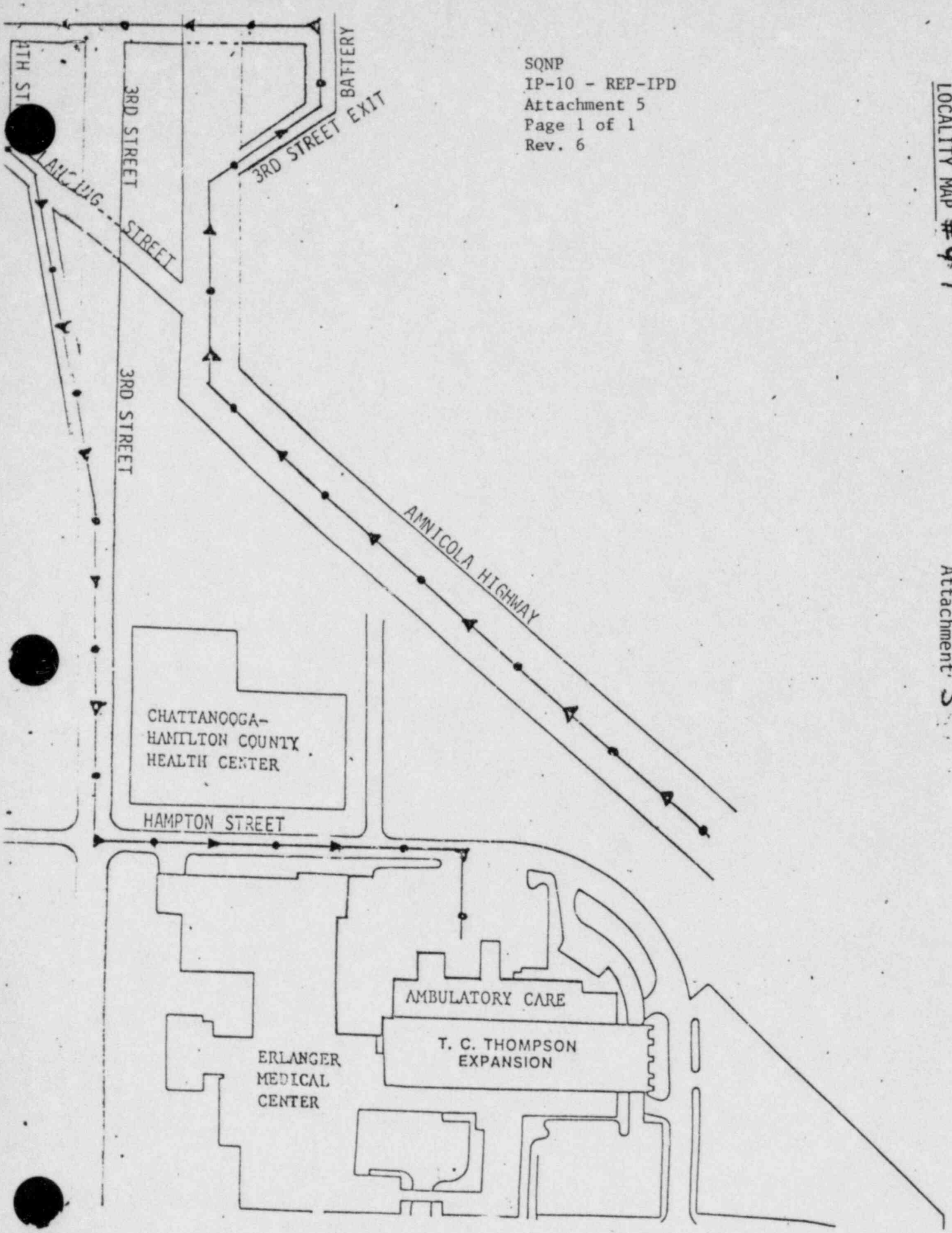
Leave Sequoyah Nuclear Plant via Sequoyah Road to Highway 27 (6.3 miles) Highway 27 to Highway 153 (6.6 miles) Highway 153 to C. B. Robinson Connector Road (4.2 miles) C. B. Robinson Connector Road to Amnicola Highway (2.5 miles) Amnicola Highway to Riverside Drive (2.6 miles) (See Locality Map Att. 5 for the following) Riverside Drive to 3rd Street Exit (1.5 miles) 3rd Street Exit to 4th Street via Mabel Street (0.1 mile) 4th Street to Erlanger Hospital via Lansing Street 50 3rd Street (0.6 mile).



SQNP
REP-IPD
IP-10
Attachment 4
Page 1 of 1
Rev. 6

LOCALITY MAP # 4 1

Attachment 5



TENNESSEE VALLEY AUTHORITY

MUSCLE SHOALS EMERGENCY CONTROL CENTER

IMPLEMENTING PROCEDURES DOCUMENT
REVISION LOG SHEET

Issue Date: September 1, 1982

This log sheet must be retained as the last page of the Muscle Shoals Emergency Control Center Implementing Procedures Document.

Inserted by: _____ Date Inserted: _____

Pages to be Removed			New Pages to be Inserted		
Part	Page Number	Revision/ Date	Part	Page Number	Revision/ Date
IP-2	Cover Page	Rev. 1	IP-2	Cover Page	Rev. 2
	3 of 4	Rev. 1		3 of 4	Rev. 2
	4 of 4	Rev. 1		4 of 4	Rev. 2
IP-5	Cover Page	Rev. 1	IP-5	Cover Page	Rev. 2
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IP-7	Cover Page	Rev. 1	IP-7	Cover Page	Rev. 2
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	6 of 11	Rev. 0		6 of 11	Rev. 2

MUSCLE SHOALS EMERGENCY CONTROL CENTER

IMPLEMENTING PROCEDURES DOCUMENT

REVISION LOG SHEET

Issue Date: September 1, 1982

Pages to be Removed			New Pages to be Inserted		
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REP-IPD/EC-IPD Cover Page

REP-IPD

MSECC, IP-2

Site Emergency, or General Emergency
MSECC Director

Prepared By: J. Ingram

Approved By: R. D. Maxwell

Date: 9/25/81

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	9/25/81	All			
(IEK 1	2/17/82	All			
2	9/1/82	3 & 4			

The last page of this procedure is Number 6.

6.3.2 Emergency Worker Support

6.3.2.1 Continuous Operation for Long Period of Time (By Materials Support)

The MSEC Material Support Coordinator schedules manpower, supplies, food, etc., to sustain the operations if the MSEC or field teams are staffed for long periods of time. Personnel are scheduled for 24-hour operation until the emergency is terminated. The shifts for the MSEC Director Environs Assessment Supervisor, and Dose Assessment Supervisor are scheduled so that at least one-hour overlap is provided. All other personnel require at least 30-minute overlap. Work schedules will be submitted to the appropriate supervisor to be approved. *

6.3.2.2 The Field Coordinator ensures through the Material Support Coordinator that manpower, equipment, food, etc., are provided for field personnel including screening teams, terrestrial and aquatic monitoring teams and couriers who are on duty for long periods of time. The shifts for the Field Coordinator require a 1-hour overlap. All other field personnel require a 30-minute overlap. The Field Coordinator will provide a list of people for the Material Support Coordinator to call. *

6.3.3 Recommendations for Protective Actions (By Dose Assessment Supervisor)

In the early stages of any accident the Shift Engineer at the plant is prepared and trained to initially recommend protective actions to State and local officials.

When the MSEC is properly staffed, the MSEC Director takes over the responsibility to recommend protective actions to the CECC Health and Safety representative, or in his absence, the CECC Director. The CECC Director is notified of this change in responsibility by the MSEC Director. *

6.3.4 Communications with State Agencies

6.3.4.1 The Dose Assessment Supervisor has the responsibility to keep the State agencies informed of any change in plant status and/or release rate. Hourly or as appropriate, he will provide the State with the information specified in MSEC IP-10, Attachment 3. *

6.3.4.2 The Field Coordinator is in touch with the coordinator of the State environmental monitoring teams. He is responsible for ensuring that the State Coordinator is aware of TVA team positions and for forwarding requests from the State to the MSEC. He is also responsible for providing field data to the MSEC. *

6.4 The MSEC Director decides if it is necessary to request communications assistance from NASA. If the van is needed see the TVA Radiological Emergency Notification Directory for phone numbers.

6.5 Shutdown of the MSEC Upon Accident Termination

6.5.1 The MSEC is shut down on mutual agreement between the MSEC Director and the CECC Director. In general, this should not be considered until (1) all issues of environmental contamination are cleared up and it is known that no further public exposure is occurring, and (2) all abnormal inplant radiation protection problems are under control.

6.5.2 After the MSEC is shutdown, ensure that:

6.5.2.1 All personal logs are placed in lifetime storage.

6.5.2.2 All tapes are placed in lifetime storage.

6.5.2.3 A detailed, written summary of the accident is prepared and forwarded to the State.

7.0 MSEC Director Checklist

A checklist is provided in attachment 2 for quick reference by the MSEC Director. This procedure shall be well understood before use of the checklist.

REP-IPD/EC-IPD Cover Page

REP-IPD

MSECC, IP-5

Training Procedures

Prepared By: J. Ingvarson

Approved By: R. B. Maxwell

Date: 9/25/81

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	9/25/81	All			
CEK 1	12/31/81	7			
2	9/1/82	All			

The last page of this procedure is Number 10.

TRAINING PROCEDURES

1.0 PURPOSE

These procedures specify the training provided emergency control center and offsite support agency personnel and delegates the responsibility for providing the training.

2.0 SCOPE

The procedures cover the training of CECC, DNPEC, KEC, and MSEC staff, and offsite support services; defines responsibility for providing and for ensuring training is provided; and describes the training documentation.

3.0 REFERENCES

BFN Radiological Emergency Plan

4.0 ABBREVIATIONS AND DEFINITIONS

None

5.0 RESPONSIBILITIES

The Division of Occupational Health and Safety (OCH&S) is responsible for training the MSEC staff and coordinating the training among the CECC, DNPEC, KEC, and MSEC staffs. OCH&S is responsible for approving lesson plans for training given the CECC, DNPEC, and KECC staffs. OCH&S is responsible for training designated offsite support agencies.

6.0 PROCEDURE REQUIREMENT

6.1 Training Lessons

The lesson plans for all training are reviewed by OCH&S to assure compatibility among divisions and with the BFN-REP.

6.2 Training Records

Records for training include the lesson plan, class duration, persons attending, and date. These records are maintained by OCH&S.

6.3 Specific Training Requirements

6.3.1 Emergency Control Center Training

The staffs of the CECC, DNPEC, KEC, and MSEC are trained annually on: scope of operations, functions of the various emergency centers, lines of authority, and communications. The overview for this training is prepared by OCH&S and the training administered by the responsible divisions.

6.3.2 MSEC Director

The MSEC Director and alternates are trained at yearly intervals in order to ensure appropriate coordination and response of the MSEC.

The training includes the following:

1. Notification and emergency activation.
2. Probable input information.
3. Protective action options under various circumstances.
4. Communications.
5. Coordination of support personnel.
6. Interagency coordination of response.

6.3.3 MSEC Material Support Coordinator

The MSEC Manpower Coordinator and alternates are trained at yearly intervals to ensure proper scheduling of and supplies to manpower during an emergency.

The training includes the following:

1. Notification and Emergency activation.
2. Scheduling requirements of appropriate personnel.
3. Supply needs of emergency personnel.
4. Resources available to meet supply needs, manpower, and supplies.

6.3.4 Dose Assessors

The Dose Assessors are trained at semiannual intervals in order to ensure each member is capable of estimating doses to the public via the liquid and gaseous pathways.

The training includes the following:

1. Notification and emergency activation.

2. Dose procedures for liquid releases, including Water Systems Development Branch capabilities.

3. Dose procedures for releases to the atmosphere, including input.

4. Review of data notebooks - use of Air Resources Program (ARP) input.

5. Example scenarios.

6.3.5 Environs Coordinator

The Environs Coordinator and alternates are trained at yearly intervals in order to coordinate collection of environs data by TVA and State or DOE teams:

The training includes the following:

1. Notification and Emergency activation.

2. Communications capability.

3. Monitoring team equipment.

4. Manpower resources.

5. Map reading.

6.3.6 Laboratory Supervisor

The Laboratory Supervisor and alternates are trained at yearly intervals in order to ensure proper coordination of laboratory analyses.

The training includes the following:

1. Anticipated kinds of environmental samples.

2. Needed results of analysis, including identification and quantification of important radionuclides.

3. Sample turn-around time requirements.

4. Manpower resources.

5. Coordination of sample collection and delivery.

6.3.7 Dosimetry Supervisor

The Dosimetry Supervisor and alternates are trained at yearly intervals in order to ensure proper coordination of dosimetric analyses.

The training includes the following:

1. Review monitoring locations.

2. Review collection of and readout turn-around times.

3. Manpower and dosimetry resources.

6.3.8 Environs SITE Coordinator

The Environs SITE Coordinator and alternates are trained at yearly intervals to ensure proper staffing and coordination of monitoring teams.

The training includes the following:

1. Notification and emergency activation.

2. Communications.

3. Transportation needs and options.

4. Monitoring team equipment.

5. Manpower resources.

6. Map reading.

6.3.9 Health Physics Group Supervisor

The Health Physics Group Supervisor and alternates are trained at yearly intervals to ensure proper response by plant health physics personnel.

The training includes the following:

1. Notification and Emergency activation.

2. Manpower resources.

3. Anticipated manpower requirements for environmental survey teams.

4. Coordination of inplant and environmental monitoring.

5. Communications.

6. Monitoring equipment.

6.3.10 CRT Operators

Cathode ray terminal operators are trained at yearly intervals to ensure proper communication of data.

The training includes the following:

1. Notification and emergency activation

2. Use of high speed fascimile machines

3. Use of CRT terminals

4. Use of printers

5. Information flow within the MSEC

6.3.11 Communications Coordinator

The communications coordinator ensures that all channels of communication operate properly in the MSEC.

The training includes the following:

1. Notification and emergency activation

2. Use of the 40 channel recorder

3. The Horizon phone system

4. The electronic blackboard

5. The emergency communications data system

6. Repair contacts

7. Information flow within the center

6.3.12 Clerical Support

The clerical support are trained at yearly intervals to ensure proper recording of events.

The training includes the following:

1. Notification and Emergency activation.

2. Recording equipment operation and use.

3. Staffs requiring clerical support.

4. Communications systems operation and use.

5. Use of maps and status boards.

6.3.13 Telephone Operators

The operators who may have to make notifications are trained initially and on a quarterly basis. Training will include terminology to be used and notification procedures.

6.3.14 Division of Water Resources

6.3.14.1 MSEC Representatives

The MSEC representative and alternates of the Divisions of Water Resources (W RES) and Natural Resource Operations (NR OPs) are trained at yearly intervals to ensure proper coordination of matters related to water resources.

The training includes the following:

1. Notification and emergency activation.

2. Communications.

3. Familiarity with specific reservoirs around the plants.

4. Dispersion models.

6.3.14.2 Reservoir Operations Branch (ROB)

The Reservoir Operations Branch will provide support data to W RES as needed for calculations.

Training will be provided as other special data needs arise.

6.3.14.3 Water Systems Development Branch (WSDB)

The WSDB personnel responsible for radiological emergency response are trained at yearly intervals to ensure that appropriate estimates of liquid dispersion are provided to dose assessment personnel at the MSECC.

The training covers the following areas:

1. Dispersion models and procedures.

2. Communications.

3. Notification and emergency activation.

4. Needed input data and contacts.

6.3.14.4 Water Quality Branch

The Water Quality Branch staff are trained at yearly intervals in order to ensure that staff members can supply appropriate advice to Field Operations and the Water Resources Coordinator regarding the effects of radiological contamination of water systems. They are trained in the following areas:

1. Communications.

2. Manpower resources.

6.3.14.5 Fisheries and Aquatic Ecology Branch

The Fisheries and Aquatic Ecology Branch staff are trained at yearly intervals in order to ensure that staff members can supply approprite advice to Field Operations and the Water Resources Coordinator regarding the effects of radiological contaminants on aquatic biota. They are trained in the effects of radiological contaminants on aquatic biota and communications.

6.3.14.6 Field Operations (FO)

The Field Operations staff are trained at yearly intervals in order to ensure that water samples are taken at the appropriate location in the appropriate manner, verifying travel time calculations, and effects of radiological contaminants.

They are trained in the following areas:

1. Radiological movement - surface water and ground water quality and aquatic biota.

2. Communications.

3. Sampling procedures.

6.3.15 Air Resources Program

6.3.15.1 Weather Corporation of America (WCA)

WCA provides forecasts in support of the REP. Forecasts are issued daily for each nuclear plant in order to maintain forecast skill. WCA participates in drills and exercises at least annually to ensure familiarity with forecast format and procedures.

6.3.15.2 Air Resources Assessment Section (ARAS)

The Air Resources Assessment Section staff are trained at yearly intervals in order to ensure that each staff member is capable of realistically representing the dispersion of gaseous radiological effluents.

The training includes the following:

1. Data needs on meteorological conditions and forecast to the MSEC.

2. Supplying advice regarding gaseous radiological effluent dispersion and transport based on meteorological data.

3. Assisting in trajectory analysis of effluent transport.

4. Communicating meteorological information to involved State Health Departments.

6.3.16 Data Service Branch/Environmental Data Station

The Environmental Data Station staff are trained at yearly intervals in order to ensure that each staff member is aware of needed onsite meteorological data provided to the MFC and can assure timely procurement.

6.3.17 Agreement Hospital

Personnel at agreement hospitals are trained annually. The hospital administrator, in consultation with the proper OCH&S representative, determines the site, time, date, and personnel to be trained.

Training includes the following:

1. Radiation fundamentals.

2. Biological effects of Radiation.

3. Portable radiation detection instrumentation.

4. Handling of contaminated patients.

6.3.18 Agreement Ambulance Service and Rescue Squads

Appropriate personnel of ambulance service and rescue squad are trained annually. The ambulance service manager or rescue squad chief, in consultation with the proper RHB representative, determines the site, time, and date of training and personnel to be trained.

The training includes the following:

1. Radiation fundamentals.

2. Portable radiation detection instrumentation.

3. Transportation accidents involving radioactive material.

4. Handling of contaminated patients.

5. Medical facilities which accept radiation accident patients.

6.3.19 Environs Emergency Teams

Each environs emergency team member are trained at yearly intervals.

The training includes the following:

1. Radiation fundamentals

2. Portable radiaton detection instrumentation

3. Environmental sampling

4. Emergency kit contents and usage

5. Communications

6. Map reading

6.4 New Procedures

When new procedures are issued or changes are made to existing procedures, each member of the MSEC needing to know the information receives a copy of the change or procedure.

REP-IPD/EC-IPD Cover Page

REP-IPD

MSECC, IP-7

Air Resources Program Procedures
* Muscle Shoals Emergency Center

Prepared By: J. G. Ingram

Approved By: R. D. Maxwell

Date: 9/25/81

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	9/25/81	All			
1	12/31/81	1, 2, 3, 4, 5			
2	9/1/82	All			

The last page of this procedure is Number 11.

AIR RESOURCES PROGRAM PROCEDURES

MUSCLE SHOALS EMERGENCY CENTER

1.0 PURPOSE

These procedures are designed to direct the activities of the Weather Corporation of America and the Assessment Section personnel during a radiological emergency to provide a timely response, consistent and accurate meteorological data, and assessment advice in the event of a nuclear accident.

2.0 SCOPE

These procedures cover anticipated requirements for meteorological support during emergency conditions. The procedures do not cover additional actions to be taken prior and subsequent to an emergency or drill or to maintain response capabilities routinely.

3.0 REFERENCES

None

4.0 ABBREVIATIONS AND DEFINITIONS

4.1 ARP - Air Resources Program

4.2 WCA - Weather Corporation of America

4.3 AS - Assessment Section of the ARP

4.4 MSEC - Muscle Shoals Emergency Center

4.5 NRC - Nuclear Regulatory Commission

4.6 EDS - Environmental Data Station (at each nuclear plant site)

4.7 FO - Field Operations (NR OPS)

5.0 RESPONSIBILITIES

5.1 Upon notification by the MSEC that an emergency condition exists, the AS Meteorologist notifies individuals and organizations specified in section 6.1 (Initial Notification) of this procedure. In addition, he performs the duties of his position as described in the procedures provided in this document. WCA begins issuing forecasts for the affected plant as described in these procedures.

5.2 WCA and AS emergency personnel are meteorological forecasters and dispersion assessment meteorologists, respectively.

5.2.1 WCA responsibilities include preparation of forecasts of wind speed and direction, stability class, and precipitation type and intensity. WCA is also responsible for applying backup procedures for the replacement of missing or garbled data.

5.2.2 AS responsibilities include transferring real time and forecast meteorological data to the MSEC staff; providing expert advice on combinations of individual measurements (wind speed, wind direction, and stability class interval heights) that most realistically represent dispersion and transport of radiological effluent in the atmosphere, without being nonconservative; and performing trajectory analysis of effluent transport. The AS will advise the MSEC staff whenever backup procedures are in use in lieu of real time data, and will indicate the level of confidence in the procedures being used. Also included are responses to questions from appropriate State officials and maintaining a logbook for recording emergency (or drill) contacts and activities of the AS.

5.2.3 FO is responsible for operation and maintenance of EDS and associated monitoring systems.

6.0 PROCEDURE REQUIREMENTS

6.1 Initial Notification

The WCA Duty Forecaster and a member of the AS emergency team of meteorologists are notified according to the Radiological Emergency Notification Directory.

6.1.1 The AS Meteorologist responding to the emergency notification by the MSEC notifies the AS Supervisor as soon as possible and notifies (directly or by message) the Chief of the ARP or the person acting in his behalf.

6.1.2 The notification time, time of arrival at the MSEC, and name of the plant experiencing the emergency are entered in the AS logbook by the AS Meteorologist as soon after arrival as possible.

6.2 AS Recordkeeping

6.2.1 A logbook is maintained in which the AS meteorologists record pertinent information regarding WCA and AS response and support to the MSEC and communications between AS meteorologists and appropriate State officials.

6.2.2 Pertinent meteorological data are recorded on four forms.

The plant and time of the emergency, the release geometry, and plume transport and dispersion information are entered on the Coversheet for Radiological Emergency (form 2a). This form also provides space for updating such information. Real time 15-minute averages of meteorological data from the plant site are entered on the Report of Raw Meteorological Data and Conversions for Radiological Emergency (form 2b). Hourly average data are also entered on form 2b. The Meteorological Information (form 3) provides the MSEC staff with information for dispersion calculations. Form 4, Meteorological Data for Trajectory Analysis is an optional form consolidating four hours of data for estimating effluent transport.

Copies of these forms are placed in a three-ring binder as the information dissemination is completed. The binder is kept at the AS meteorologist station during an emergency or drill, and in the AS office otherwise.

6.3 Meteorological Data Communications Equipment

6.3.1 Communications equipment consists of an Alden weather facsimile recorder and teletypewriter terminals which receive real-time meteorological data via dedicated telephone lines (one each for Browns Ferry, Sequoyah, and Watts Bar to date) from the onsite environmental data stations (EDS). Real time meteorological data are provided to the MSEC and WCA via an interrogable remote access system.

6.3.2 Equipment repair in case of malfunction is effected by contacting TVA or private contract repairmen for NWS data equipment, and NUC PR for the real time data transmission system. Onsite data can be obtained by telephone from the EDS, if necessary.

6.3.3 A portable generator for backup power capability allows the restoration of power if regular power is lost.

6.4 Basic Procedures of Operation

6.4.1 All communications, including entries in logbooks and on forms, use Central time (either Daylight Savings Time or Standard Time, as applicable).

6.4.2 Within 30 minutes of notification, WCA will prepare an initial forecast for 1 and 2 hours in the future. The forecast parameters are wind speed and direction for three onsite tower levels, stability class for two layers, and precipitation type and intensity. The forecast data will be transmitted via the remote access system. Backup transmission will be by telecopier or by voice. An example of the forecast format is given on page 6. The information sheet on page 7 provides basic information for use in forecast preparation.

6.4.3 The AS Meteorologist will report to the MSEC as soon as possible after being notified (within 15 minutes during work hours). He will complete form 2a, extract wind and stability data from the most recent 15-minute averages from the plant site, and enter the data and conversions on form 2b. The forecast data (form 1) and converted real time data (form 2b) are entered on form 3. Copies of form 3 are provided to the MSEC staff every 15 minutes. Pertinent information is entered on the weather status board in the MSEC.

6.4.4 Within one hour after notification, the WCA Forecaster will prepare an updated and expanded forecast for the same parameters and levels as the initial forecast. The forecast will be for 1, 2, 4, 6, and 8 hours in the future. These forecasts will be updated each hour until the end of the emergency, or upon request. An outlook for hours 9 through 24 in the future will also be provided in the hourly updates. The outlook will indicate either persistence or change for each parameter (wind direction, wind speed, stability, and precipitation). The approximate time of change(s) and the approximate magnitude of the change(s) will be given.

6.4.5 The AS Meteorologist provides 15-minute average meteorological data for every 15-minute period (form 3) to the MSEC. Hourly average data, converted for MSEC use (form 2b), are also entered on form 3 and provided for every hour, beginning with the first hour received after provision of the first set of 15-minute averages.

6.4.6 The AS Meteorologist or AS Supervisor plots 15-minute vector sequence trajectories, on the appropriate site map at the MSEC.

6.4.7 The AS Meteorologist responds to questions from State officials concerning meteorological information.

6.4.8 As meteorological conditions change or are projected to change, the AS Meteorologist provides recommendations for altering the combination of parameter levels being used for atmospheric dispersion and transport calculations to reflect the new conditions.

6.4.9 The AS Meteorologist documents decisions, recommendations, and pertinent communications in the AS Logbook and inserts all completed copies of forms 2a through 4 in the AS ring binder.

6.4.10 If the real time wind speed, wind direction, or stability class used for dose calculations are missing or garbled, WCA or the AS meteorologist will apply backup procedures provided by TVA or approved by TVA to determine estimated values for the missing variables. The estimated values will be entered into the remote access system within five minutes of the observation time, as feasible.

6.5 Requirements for Shift Relief

6.5.1 WCA maintains a forecast staff on duty 24 hours a day. Additional forecasters are called in if needed.

6.5.2 The AS Meteorologist will normally work a 9-hour shift, with a one-hour overlap between shift periods. In addition, a second AS Meteorologist (not notified initially) is available to assist, if necessary.

****

TITLE 1 MET DATA REPORT 29-JAN-82 07:17:14

PAGE NUMBER 1 29-JAN-82 07:17:14 CDT SEQ. NO. 5 OUTBOUND
1 MET DATA REPORT
WEATHER CORPORATION OF AMERICA
SPECIAL RADIOLOGICAL EMERGENCY
METEOROLOGICAL FORECAST

BROWNS FERRY DATE : 29-JAN-82

LEVELS: UPPER-U INTERMEDAITE-I LOWER-L

BASE TIME OF FORCAST 0700

TIME	WIND DIRECTION ANS SPEED (M/S) U		I		L		STABILITY CLASS U-I/I-L	* PRECIPITATION (RATE CATEGORY)
0700	114/	6.4	92/	4.0	75/	1.6	F / E	NONE
0800	120/	6.2	100/	4.3	90/	1.9	E / D	NONE
0900	115/	6.5	105/	4.4	100/	2.2	D / D	NONE
1100	137/	5.6	135/	5.3	120/	4.9	D / D	NONE
1300	147/	7.2	145/	6.7	130/	6.5	D / D	NONE
1500	157/	7.7	155/	7.1	140/	7.0	D / D	NONE

PAGE NUMBER 2 29-JAN-82 07:17:14 CDT SEQ. NO. 5 OUTBOUND
1 MET DATA REPORT

1900	167/	10.1	165/	6.8	150/	5.4	D / D	LR
2300	172/	10.8	170/	7.3	155/	5.9	D / D	LR
0300	192/	9.3	190/	6.3	175/	4.9	D / D	LR
0700	207/	10.8	205/	7.3	190/	5.9	D / D	LR

COMMENTS

AIR FLOW TO CONTINUE TO CHANGE THRU THE SOUTHEAST
AS CENTER OF HIGH PRESSURE MOVES FROM THE APPALACHIAN
RIDGES TO THE EAST COAST TODAY. INCREASINGLY MOIST
AIR TO LEAD TO RAIN SHOWER DEVELOPMENT LATER TODAY,
BUT THE PEAK RAINS ARE FORECAST FOR SATURDAY.
GG/PL 0717 CST END

.STOP.

****

INSTRUCTION SHEET FOR SPECIAL RADIOLOGICAL EMERGENCY METEOROLOGICAL FORECAST

Pasquill Stability Index

Pasquill Categories	Temperature Change with Height (°C/100m)
A	$\Delta T/\Delta Z \leq -1.9$
B	$-1.9 < \Delta T/\Delta Z \leq -1.7$
C	$-1.7 < \Delta T/\Delta Z \leq -1.5$
D	$-1.5 < \Delta T/\Delta Z \leq -0.5$
E	$-0.5 < \Delta T/\Delta Z \leq -1.5$
F	$1.5 < \Delta T/\Delta Z \leq 4.0$
G	$4.0 < \Delta T/\Delta Z$

Sensor Heights (Meters)

	Browns Ferry			Sequoyah			Watts Bar		
	U	I	L	U	I	L	U	I	L
Wind Direction and Speed	92.6	45.7	10.4	91.4	46.6	9.7	91.5	46.4	9.7
Temperature	89.6	45.3	10.0	90.8	46.0	9.3	91.2	45.6	9.5

Class Limits

Precipitation: None, LR (0.3 - 2.5 mm/hr)
MR (2.8 - 7.6 mm/hr)
HR (>7.6 mm/hr)

Comments

Used to qualify precipitation as follows: Continuous (Intensity changes gradually, if at all); Intermittent (Intensity changes gradually, if at all, but precipitation stops and starts at least once per hour); Showery (Precipitation changes intensity or starts and stops abruptly). Other comments and qualifiers may be added as necessary.

Comments pertaining to wind direction variability and assessments of forecast confidence will be especially valuable.

Actual/Simulated

Form 2a

Coversheet for Radiological Emergency

Nuclear Plant_____ Date_____

Time of Emergency_____ Preparer_____

Instrument Levels: U_____ M_____ L_____

Release Point_____ Release Time_____

Release Geometry_____

Level of Transport Wind Measurement: _____Meters U M L

Level of Wind Speed for Dispersion: _____Meters U M L

Stability Layer for Dispersion: _____to_____Meters U-L U-M M-L

Update Time:_____ Preparer_____

Release Geometry_____

Level of Transport Wind Measurement: _____Meters U M L

Level of Wind Speed for Dispersion: _____Meters U M L

Stability Layer for Dispersion: _____to_____Meters U-L U-M M-L

Update Time:_____ Preparer_____

Release Geometry_____

Level of Transport Wind Measurement: _____Meters U M L

Level of Wind Speed for Dispersion: _____Meters U M L

Stability Layer for Dispersion: _____to_____Meters U-L U-M M-L

Form 2b

Report of Raw Meteorological Data and Conversions for Radiological Emergency

Date_____ Nuclear Plant_____ Preparer_____

Level of Transport Wind Measurement: U I L

Level of Wind Speed: U I L
Stability Layer: U-L, U-I, I-L

		15-Minute Observation			Trajectory		Dispersion		
Time[a]	Level	dd (deg)	ff (m/s)	TT (°C)	Plume dir (deg/sect)	15 min Travel[b] (miles)	ff[c] (m/s)	ΔT/ΔZ (°C/100m)	Stab
14	U							U-L	
	I							U-I	
	L							I-L	
29	U							U-L	
	I							U-I	
	L							I-L	
44	U							U-L	
	I							U-I	
	L							I-L	
59	U							U-L	
	I							U-I	
	L							I-L	

Hourly Observation

Time[d]	Level	dd (deg)	Pers (Pct)	ff (m/s)	TT (°C)	Plume dir (deg/sect)	1 Hr Travel[e] (miles)	ff[c] (m/s)	ΔT/ΔZ (°C/100m)	Stab
00	U								U-L	
	I								U-I	
	L								I-L	

Sol Rad_____ Rnf (mm)_____

a. Observed data are 15 minute averages ending at the time indicated.
b. Equals wind speed (m/s) x 0.559 mi s/m.
d. Observed data are 1 hr averages ending at the time indicated.
e. Equals wind speed (m/s) x 2.236 mi s/m.

Form 3

Meteorological Information

Distribution: MSECC Director
NRC
Dose Assessment
Environs Assessment

Date: _____
Person transmitting data: _____
Person receiving data: _____
Nuclear Plant: _____

Release geometry: _____
Level of transport wind direction[a]: _____
Level of wind speed for dispersion[a]: _____
Stability layer for dispersion[a]: _____ to _____

Observed Data[b] (15-minute averages)

Central Time	Plume Direction (22.5° Sector)	Dispersion Wind Speed (m/s)	Stability Class

Observed Data[b] (1-hour average)

Central Time	Plume Direction (22.5° Sector)	Dispersion Wind Speed (m/s)	Stability Class	Precip.[c]

Comments: _____

Forecast Data

Central Time for which Forecast is made	Plume Direction (22.5° Sector)	Dispersion Wind Speed (m/s)	Stability Class	Precip.[c]

Outlook for hours 9 through 24 in the future:

Valid	Plume Direction (22.5° Sector)	Dispersion Wind Speed	Stability Class	Precip.[c]

a. Indicate as upper, middle, or lower.
b. Conditions for period ending at indicated time.
c. Light rain (LR), moderate rain (MR), and heavy rain (HR); hourly value for 0.01 in $\leq$ LR $\leq$ 0.10 in; for MR, 0.11 in $\leq$ MR $\leq$ 0.30 in; and for HR$>$0.30 in.

Form 4

Meteorological Data for Trajectory Analysis - Radiological Emergency Drill

Date_____ Preparer_____

Plant_____

Release Point_____

Release Time_____

Level of wind measurement_____meters

Time	Plume direction (degrees)	15-minute* travel (miles)
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____

*Equals wind speed (mph) ÷ 4 or wind speed (m/s) · 0.559.

REP-IPD/EC-IPD Cover Page

REP-IPD

MSECC, IP-8

WATER RESOURCES RADIOLOGICAL EMERGENCY PROCEDURES

Prepared By: R. D. Urban R.D. Urban

* Prepared By: A. H. Smalley A.H. Smalley

* Approved By: R. H. Brooks Robert H. Brooks

* Approved By: M. G. Msarsa M.G. Msarsa

Date: September 29, 1981

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	11/13/81	All			
1	09/01/82	Cover Page			

The last page of this procedure is Number 21.

REP-IPD/EC-IPD Cover Page

REP-IPD

MSECC, IP-10

Dose Assessment Staff Activities During
Nuclear Plant Radiological Emergencies

Prepared by: [signature]

Approved by: R. B. Maxwell

Date: 4/29/82

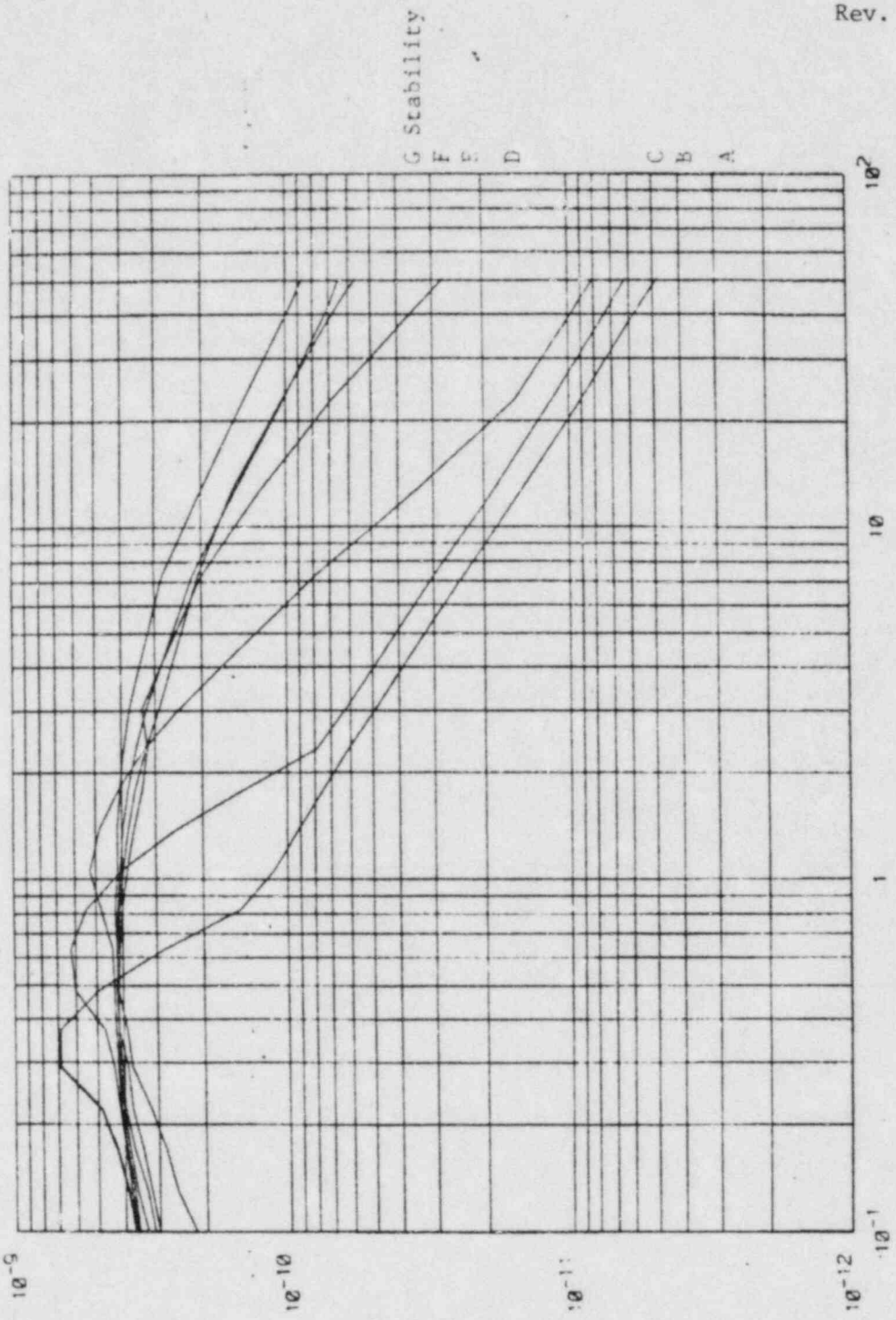
Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	9/25/81	All			
1	3/02/82	Add 56			
2	4/29/82	All			
3	9/1/82	31-33,43,44, 60-62,71-73, 78,79,117,118			

The last page of this procedure is Number 125.

Figure 1S

D•U/Q Values - Type I Releases

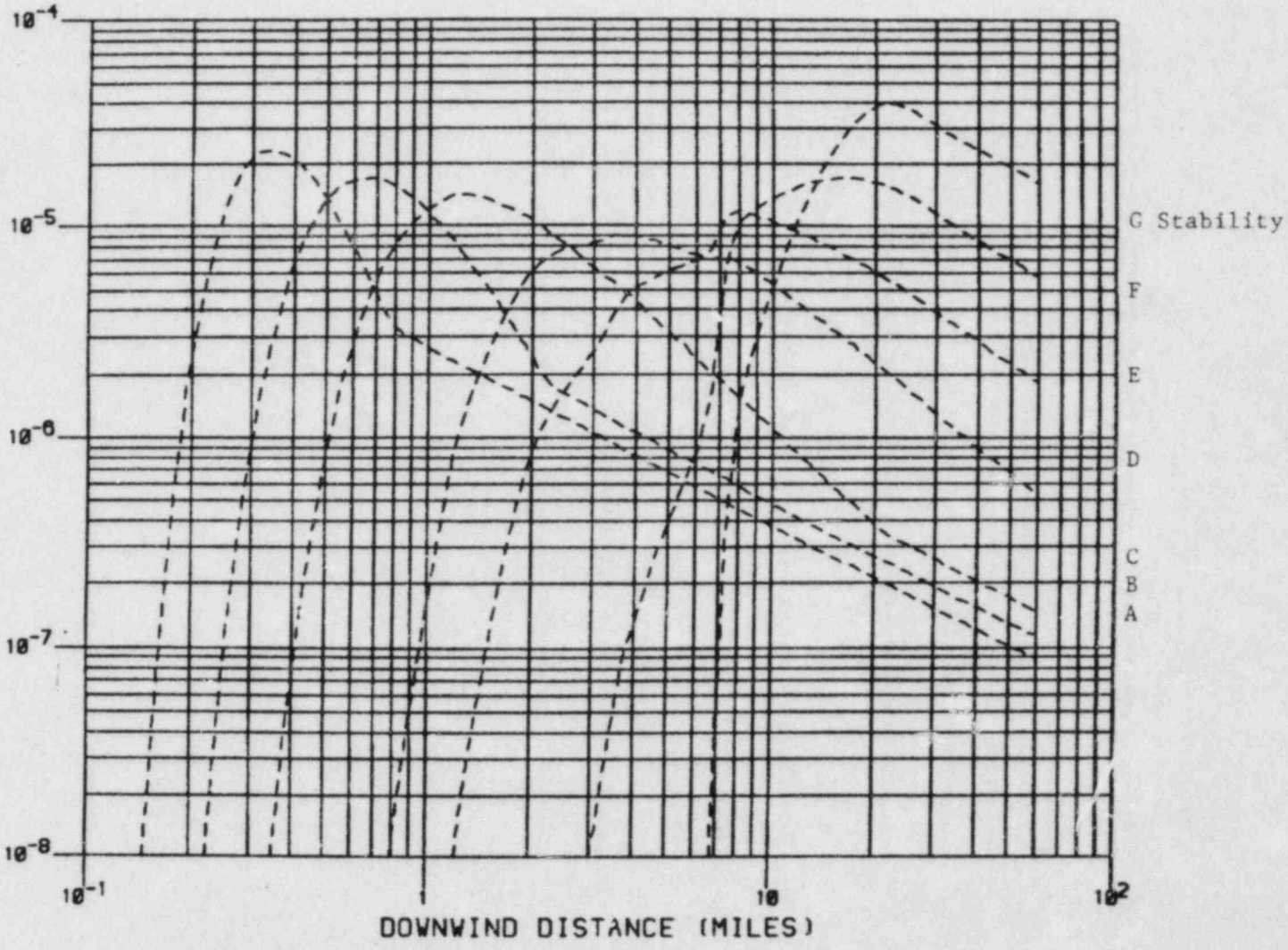
Stack



*Revised Complete Page

Figure 2S

D•U/Q Values -
Inhalation of Iodine-131



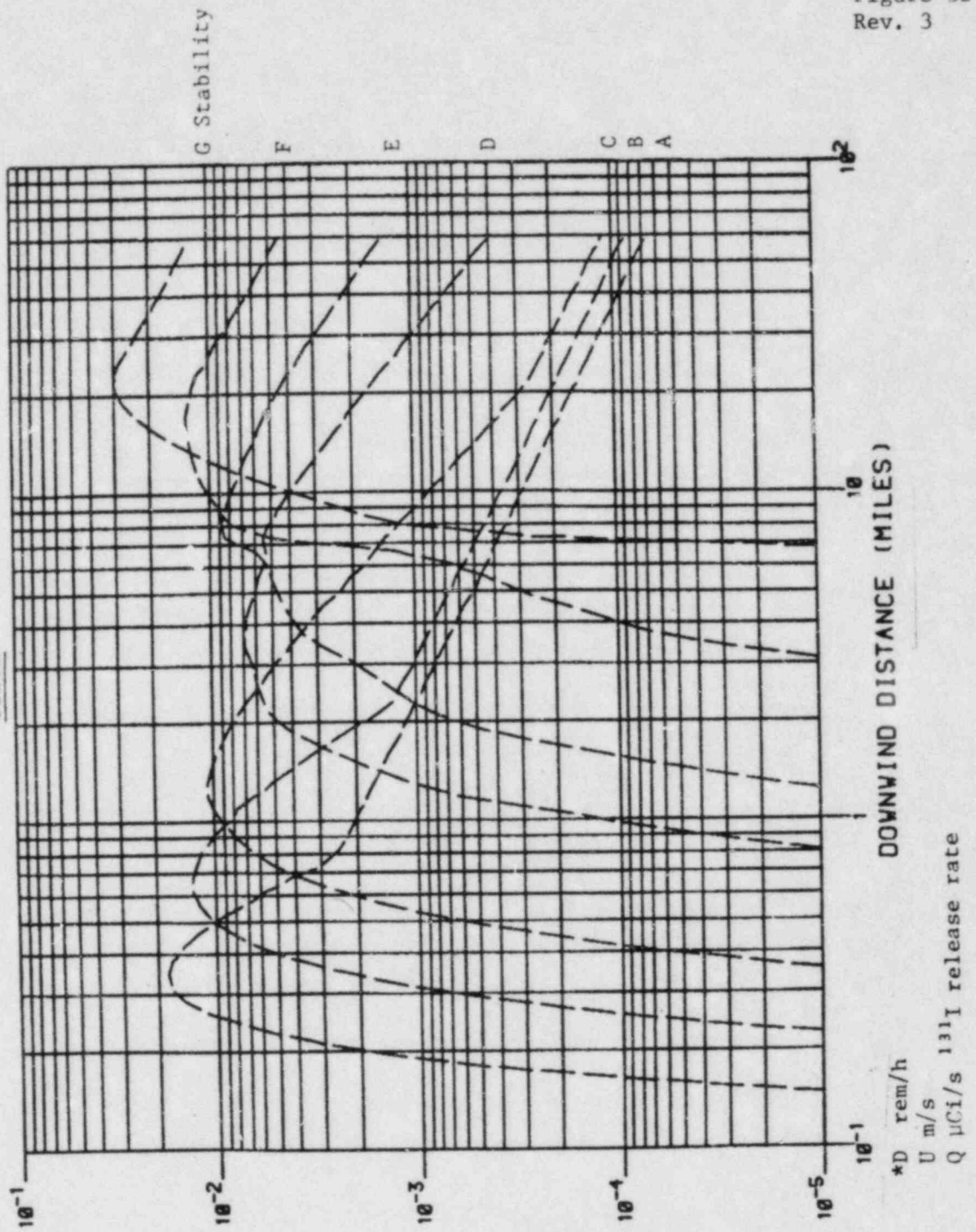
*D rem/h
U m/s
Q μCi/s ^{131}I release rate

*Revised Complete Page

Figure 3S

D·U/Q Values -
Drinking Cow Milk

Stack



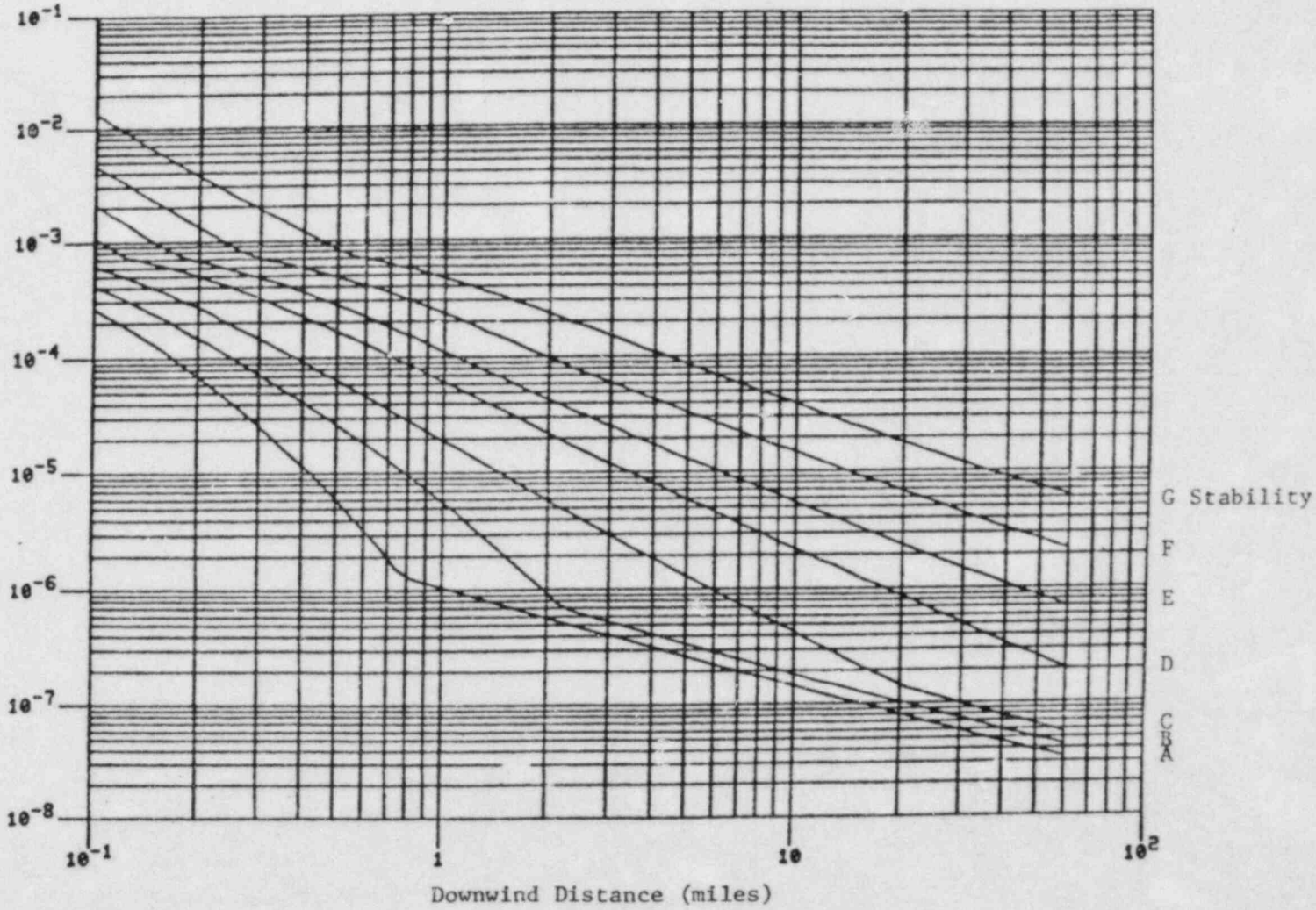
D·U/Q (rem/h)/(µCi/m)*

*Revised Complete Page

Figure 7 G

χ·U/Q Values

Ground Level



*χ µCi/m^3
U m/s
Q µCi/s

*Revised Complete Page

Figure 7 S

$\chi \cdot U/Q$ Values

Stack

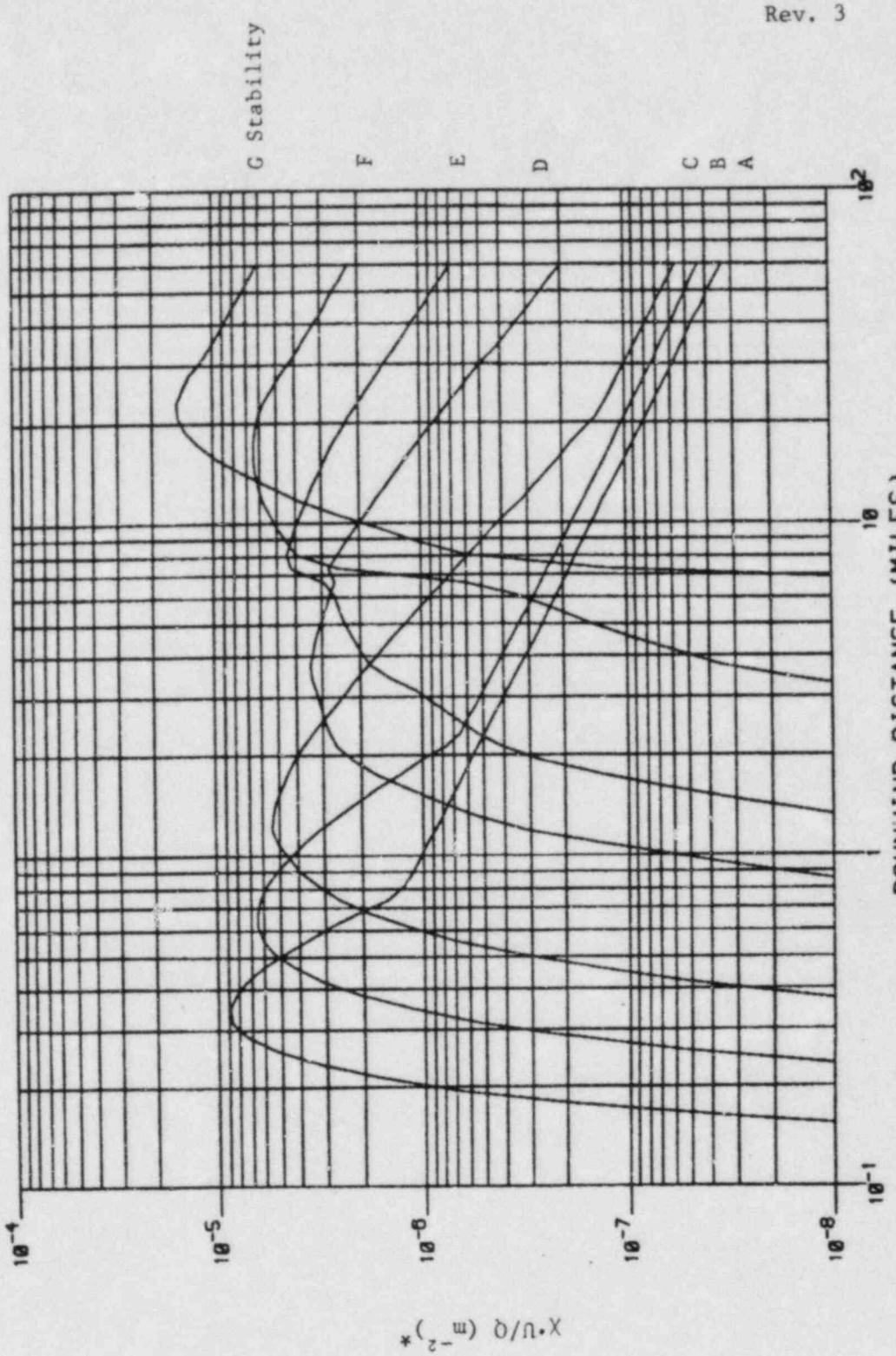


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Table 1S

D·U/Q Values* -
Type I Releases

Stack
Total Body Doses

MILES	STABILITY CLASS A	B	C	D	E	F	G
0.5	4.49E-10	5.99E-10	4.25E-10	4.12E-10	4.14E-10	4.14E-10	4.11E-10
0.6	3.05E-10	6.12E-10	4.30E-10	4.07E-10	4.11E-10	4.15E-10	4.15E-10
0.7	2.12E-10	5.84E-10	4.48E-10	4.01E-10	4.08E-10	4.13E-10	4.18E-10
0.8	1.53E-10	5.46E-10	4.70E-10	3.95E-10	4.04E-10	4.11E-10	4.21E-10
0.9	1.31E-10	4.81E-10	4.92E-10	3.88E-10	3.99E-10	4.07E-10	4.18E-10
1.0	1.18E-10	4.23E-10	5.13E-10	3.82E-10	3.94E-10	4.04E-10	4.15E-10
1.5	8.52E-11	2.07E-10	4.57E-10	3.48E-10	3.66E-10	3.84E-10	4.06E-10
2.0	6.78E-11	1.09E-10	3.69E-10	3.25E-10	3.37E-10	3.62E-10	3.95E-10
2.5	5.68E-11	7.31E-11	2.99E-10	3.19E-10	3.12E-10	3.40E-10	3.81E-10
3.0	4.90E-11	6.24E-11	2.46E-10	3.30E-10	2.89E-10	3.19E-10	3.68E-10
3.5	4.31E-11	5.48E-11	2.02E-10	3.04E-10	2.72E-10	2.98E-10	3.51E-10
4.0	3.85E-11	4.90E-11	1.70E-10	2.81E-10	2.58E-10	2.80E-10	3.36E-10
4.5	3.49E-11	4.44E-11	1.46E-10	2.63E-10	2.47E-10	2.66E-10	3.24E-10
5.0	3.20E-11	4.07E-11	1.27E-10	2.47E-10	2.37E-10	2.53E-10	3.13E-10
6.0	2.74E-11	3.49E-11	1.00E-10	2.22E-10	2.21E-10	2.33E-10	2.95E-10
7.0	2.41E-11	3.07E-11	8.20E-11	2.03E-10	2.08E-10	2.17E-10	2.81E-10
8.0	2.16E-11	2.74E-11	6.76E-11	1.82E-10	1.94E-10	2.00E-10	2.61E-10
9.0	1.95E-11	2.47E-11	5.69E-11	1.64E-10	1.83E-10	1.86E-10	2.44E-10
10.0	1.79E-11	2.26E-11	4.88E-11	1.50E-10	1.73E-10	1.74E-10	2.30E-10
12.0	1.53E-11	1.93E-11	3.74E-11	1.28E-10	1.58E-10	1.55E-10	2.07E-10
14.0	1.35E-11	1.70E-11	3.01E-11	1.10E-10	1.43E-10	1.40E-10	1.89E-10
16.0	1.21E-11	1.52E-11	2.51E-11	9.64E-11	1.31E-10	1.28E-10	1.74E-10
18.0	1.09E-11	1.38E-11	2.14E-11	8.54E-11	1.21E-10	1.19E-10	1.62E-10
20.0	1.00E-11	1.27E-11	1.85E-11	7.67E-11	1.12E-10	1.10E-10	1.52E-10
25.0	8.33E-12	1.06E-11	1.43E-11	6.04E-11	9.57E-11	9.53E-11	1.32E-10
30.0	7.19E-12	9.16E-12	1.23E-11	4.91E-11	8.32E-11	8.49E-11	1.18E-10
35.0	6.35E-12	8.09E-12	1.08E-11	4.11E-11	7.40E-11	7.69E-11	1.07E-10
40.0	5.70E-12	7.26E-12	9.81E-12	3.53E-11	6.68E-11	7.04E-11	9.84E-11
45.0	5.19E-12	6.63E-12	8.71E-12	3.09E-11	6.10E-11	6.66E-11	9.17E-11
50.0	4.77E-12	6.12E-12	7.98E-12	2.73E-11	5.61E-11	6.36E-11	8.62E-11

*D·U/Q (rem/h)/(μCi/m)
D rem/h
U m/s
Q μCi/s

*Revised Complete Page

Table 2S

D•U/Q Values* -
Inhalation of Iodine-131

Stack

Miles	Stability Class A	B	C	D	E	F	G
0.5	1.30E-05	1.35E-05	8.32E-07	0.0	0.0	0.0	0.0
0.6	7.82E-06	1.65E-05	2.86E-06	1.14E-10	0.0	0.0	0.0
0.7	4.79E-06	1.67E-05	5.64E-06	1.91E-09	0.0	0.0	0.0
0.8	3.34E-06	1.53E-05	8.29E-06	1.31E-08	0.0	0.0	0.0
0.9	2.94E-06	1.34E-05	1.04E-05	5.30E-08	2.09E-11	0.0	0.0
1.0	2.67E-06	1.14E-05	1.19E-05	1.53E-07	2.07E-10	0.0	0.0
1.5	1.88E-06	4.93E-06	1.32E-05	2.55E-06	9.79E-08	0.0	0.0
2.0	1.47E-06	2.37E-06	1.05E-05	6.11E-06	8.40E-07	1.51E-10	0.0
2.5	1.22E-06	1.59E-06	8.04E-06	7.67E-06	1.70E-06	1.95E-09	0.0
3.0	1.05E-06	1.35E-06	6.32E-06	8.31E-06	2.58E-06	1.03E-08	0.0
3.5	9.16E-07	1.18E-06	5.18E-06	8.95E-06	4.02E-06	5.19E-08	0.0
4.0	8.16E-07	1.06E-06	4.30E-06	8.85E-06	5.04E-06	1.34E-07	0.0
4.5	7.37E-07	9.57E-07	3.63E-06	8.44E-06	5.67E-06	2.46E-07	1.04E-11
5.0	6.73E-07	8.75E-07	3.11E-06	7.99E-06	6.15E-06	4.01E-07	5.22E-11
6.0	5.77E-07	7.45E-07	2.36E-06	7.19E-06	6.85E-06	8.51E-07	6.74E-10
7.0	5.09E-07	6.51E-07	1.88E-06	7.06E-06	9.50E-06	3.63E-06	5.86E-08
8.0	4.56E-07	5.79E-07	1.54E-06	6.70E-06	1.17E-05	1.03E-05	1.51E-06
9.0	4.13E-07	5.23E-07	1.28E-06	5.90E-06	1.10E-05	1.20E-05	2.99E-06
10.0	3.78E-07	4.78E-07	1.09E-06	5.24E-06	1.04E-05	1.34E-05	5.06E-06
12.0	3.24E-07	4.09E-07	8.20E-07	4.24E-06	9.18E-06	1.54E-05	1.10E-05
14.0	2.85E-07	3.60E-07	6.47E-07	3.51E-06	8.18E-06	1.65E-05	1.86E-05
16.0	2.55E-07	3.23E-07	5.32E-07	2.98E-06	7.37E-06	1.69E-05	2.65E-05
18.0	2.31E-07	2.94E-07	4.48E-07	2.57E-06	6.66E-06	1.68E-05	3.31E-05
20.0	2.12E-07	2.70E-07	3.84E-07	2.24E-06	6.04E-06	1.62E-05	3.74E-05
25.0	1.76E-07	2.25E-07	3.03E-07	1.67E-06	4.78E-06	1.38E-05	3.69E-05
30.0	1.52E-07	1.94E-07	2.60E-07	1.30E-06	3.90E-06	1.13E-05	3.07E-05
35.0	1.34E-07	1.71E-07	2.28E-07	1.05E-06	3.28E-06	9.62E-06	2.62E-05
40.0	1.21E-07	1.54E-07	2.04E-07	8.79E-07	2.83E-06	8.42E-06	2.31E-05
45.0	1.10E-07	1.40E-07	1.85E-07	7.55E-07	2.49E-06	7.54E-06	2.08E-05
50.0	1.01E-07	1.30E-07	1.69E-07	6.59E-07	2.21E-06	6.83E-06	1.89E-05

*D•U/Q (rem/h)/(μCi/m)
D rem/h
U m/s
Q μCi/s

*Revised Complete Page

Table 3S

D·U/Q Values* -
Drinking Cow Milk

Stack

Miles	Stability Class A	B	C	D	E	F	G
0.3	9.86E-03	1.02E-02	6.28E-04	6.64E-10	0.0	0.0	0.0
0.6	5.90E-03	1.25E-02	2.16E-03	8.61E-08	0.0	0.0	0.0
0.7	3.62E-03	1.26E-02	4.26E-03	1.44E-06	0.0	0.0	0.0
0.8	2.52E-03	1.16E-02	6.24E-03	9.93E-06	3.57E-10	0.0	0.0
0.9	2.22E-03	1.01E-02	7.87E-03	4.00E-05	1.58E-08	0.0	0.0
1.0	2.02E-03	8.61E-03	9.01E-03	1.16E-04	1.57E-07	0.0	0.0
1.5	1.42E-03	3.72E-03	9.94E-03	1.92E-03	7.40E-05	0.0	0.0
2.0	1.11E-03	1.79E-03	7.91E-03	4.61E-03	6.34E-04	1.14E-07	0.0
2.5	9.22E-04	1.20E-03	6.08E-03	5.80E-03	1.28E-03	1.47E-06	0.0
3.0	7.90E-04	1.02E-03	4.78E-03	6.28E-03	1.95E-03	7.79E-06	0.0
3.5	6.92E-04	8.92E-04	3.91E-03	6.76E-03	3.04E-03	3.92E-05	0.0
4.0	6.16E-04	7.98E-04	3.25E-03	6.68E-03	3.81E-03	1.01E-04	1.96E-10
4.5	5.56E-04	7.23E-04	2.74E-03	6.37E-03	4.28E-03	1.86E-04	7.89E-09
5.0	5.08E-04	6.61E-04	2.35E-03	6.03E-03	4.64E-03	3.03E-04	3.94E-08
6.0	4.36E-04	5.63E-04	1.78E-03	5.43E-03	5.17E-03	6.43E-04	5.09E-07
7.0	3.84E-04	4.92E-04	1.42E-03	5.33E-03	7.18E-03	2.74E-03	4.43E-05
8.0	3.44E-04	4.37E-04	1.16E-03	5.06E-03	8.82E-03	7.75E-03	1.14E-03
9.0	3.12E-04	3.95E-04	9.67E-04	4.46E-03	8.33E-03	9.05E-03	2.24E-03
10.0	2.86E-04	3.61E-04	8.22E-04	3.96E-03	7.83E-03	1.01E-02	3.82E-03
12.0	2.45E-04	3.09E-04	6.20E-04	3.20E-03	6.93E-03	1.16E-02	8.33E-03
14.0	2.15E-04	2.72E-04	4.89E-04	2.65E-03	6.18E-03	1.25E-02	1.41E-02
16.0	1.93E-04	2.44E-04	4.02E-04	2.25E-03	5.57E-03	1.28E-02	2.00E-02
18.0	1.75E-04	2.22E-04	3.38E-04	1.94E-03	5.03E-03	1.27E-02	2.50E-02
20.0	1.60E-04	2.04E-04	2.90E-04	1.70E-03	4.56E-03	1.23E-02	2.83E-02
25.0	1.33E-04	1.70E-04	2.29E-04	1.26E-03	3.61E-03	1.04E-02	2.79E-02
30.0	1.15E-04	1.46E-04	1.96E-04	9.79E-04	2.95E-03	8.57E-03	2.32E-02
35.0	1.01E-04	1.29E-04	1.72E-04	7.92E-04	2.48E-03	7.27E-03	1.98E-02
40.0	9.12E-05	1.16E-04	1.54E-04	6.64E-04	2.14E-03	6.36E-03	1.74E-02
45.0	8.31E-05	1.06E-04	1.40E-04	5.70E-04	1.88E-03	5.70E-03	1.57E-02
50.0	7.64E-05	9.79E-05	1.28E-04	4.98E-04	1.67E-03	5.16E-03	1.43E-02

*D·U/Q (rem/h)/(μCi/m)
D rem/h
U m/s
Q μCi/s ^{131}I release rate

*Revised Complete Page

$\chi \cdot U/Q$

Plume Width

Multiplication Factors

Limits of Detection

Table 7G

χ·U/Q Values[1]
Ground Level

Miles	Stability Class A	B	C	D	E	F	G
0.5	5.65E-06	2.56E-05	6.15E-05	1.61E-04	2.74E-04	4.82E-04	8.10E-04
0.6	3.12E-06	1.76E-05	4.48E-05	1.26E-04	2.17E-04	4.08E-04	6.91E-04
0.7	1.83E-06	1.26E-05	3.43E-05	1.01E-04	1.77E-04	3.48E-04	6.21E-04
0.8	1.33E-06	9.24E-06	2.72E-05	8.34E-05	1.48E-04	3.00E-04	5.62E-04
0.9	1.13E-06	7.00E-06	2.23E-05	7.01E-05	1.26E-04	2.62E-04	5.12E-04
1.0	1.02E-06	5.45E-06	1.86E-05	5.99E-05	1.09E-04	2.30E-04	4.66E-04
1.5	7.19E-07	1.96E-06	9.18E-06	3.27E-05	6.23E-05	1.38E-04	3.15E-04
2.0	5.63E-07	9.11E-07	5.59E-06	2.12E-05	4.18E-05	9.55E-05	2.31E-04
2.5	4.66E-07	6.06E-07	3.86E-06	1.53E-05	3.10E-05	7.24E-05	1.79E-04
3.0	3.99E-07	5.14E-07	2.86E-06	1.17E-05	2.43E-05	5.77E-05	1.46E-04
3.5	3.49E-07	4.50E-07	2.23E-06	9.38E-06	1.99E-05	4.82E-05	1.23E-04
4.0	3.11E-07	4.02E-07	1.80E-06	7.76E-06	1.68E-05	4.14E-05	1.06E-04
4.5	2.81E-07	3.64E-07	1.49E-06	6.57E-06	1.45E-05	3.62E-05	9.34E-05
5.0	2.56E-07	3.33E-07	1.26E-06	5.67E-06	1.27E-05	3.21E-05	8.30E-05
6.0	2.20E-07	2.84E-07	9.37E-07	4.39E-06	1.01E-05	2.60E-05	6.74E-05
7.0	1.93E-07	2.47E-07	7.30E-07	3.55E-06	8.31E-06	2.17E-05	5.64E-05
8.0	1.73E-07	2.19E-07	5.88E-07	2.95E-06	7.03E-06	1.85E-05	4.83E-05
9.0	1.56E-07	1.98E-07	4.89E-07	2.51E-06	6.07E-06	1.62E-05	4.22E-05
10.0	1.43E-07	1.81E-07	4.14E-07	2.17E-06	5.33E-06	1.43E-05	3.73E-05
12.0	1.23E-07	1.55E-07	3.11E-07	1.69E-06	4.25E-06	1.16E-05	3.03E-05
14.0	1.08E-07	1.36E-07	2.45E-07	1.37E-06	3.51E-06	9.76E-06	2.54E-05
16.0	9.64E-08	1.22E-07	2.01E-07	1.15E-06	3.01E-06	8.43E-06	2.20E-05
18.0	8.74E-08	1.11E-07	1.69E-07	9.80E-07	2.63E-06	7.41E-06	1.95E-05
20.0	8.00E-08	1.02E-07	1.45E-07	8.51E-07	2.33E-06	6.60E-06	1.74E-05
25.0	6.66E-08	8.48E-08	1.14E-07	6.28E-07	1.80E-06	5.18E-06	1.38E-05
30.0	5.74E-08	7.31E-08	9.80E-08	4.89E-07	1.47E-06	4.26E-06	1.15E-05
35.0	5.07E-08	6.44E-08	8.60E-08	3.96E-07	1.24E-06	3.62E-06	9.81E-06
40.0	4.56E-08	5.80E-08	7.69E-08	3.32E-07	1.07E-06	3.17E-06	8.65E-06
45.0	4.15E-08	5.30E-08	6.97E-08	2.85E-07	9.37E-07	2.84E-06	7.78E-06
50.0	3.82E-08	4.89E-08	6.39E-08	2.49E-07	8.35E-07	2.57E-06	7.09E-06

[1] χ·U/Q (m^{-2})
χ $\mu Ci/m^3$
U m/s
Q $\mu Ci/s$

Table 7S

χ•U/Q Values [1]

Stack

Miles	Stability Class A	B	C	D	E	F	G
0.5	4.92E-06	5.09E-06	3.14E-07	0.0	0.0	0.0	0.0
0.6	2.95E-06	6.24E-06	1.08E-06	4.30E-11	0.0	0.0	0.0
0.7	1.81E-06	6.29E-06	2.13E-06	7.21E-10	0.0	0.0	0.0
0.8	1.26E-06	5.79E-06	3.13E-06	4.96E-09	0.0	0.0	0.0
0.9	1.11E-06	5.05E-06	3.93E-06	2.00E-08	0.0	0.0	0.0
1.0	1.01E-06	4.30E-06	4.50E-06	5.78E-08	7.83E-11	0.0	0.0
1.5	7.11E-07	1.86E-06	4.97E-06	9.62E-07	3.70E-08	0.0	0.0
2.0	5.56E-07	8.94E-07	3.95E-06	2.31E-06	3.17E-07	5.69E-11	0.0
2.5	4.60E-07	5.99E-07	3.04E-06	2.90E-06	6.40E-07	7.35E-10	0.0
3.0	3.94E-07	5.08E-07	2.39E-06	3.14E-06	9.74E-07	3.89E-09	0.0
3.5	3.46E-07	4.46E-07	1.95E-06	3.38E-06	1.52E-06	1.96E-08	0.0
4.0	3.08E-07	3.98E-07	1.62E-06	3.34E-06	1.90E-06	5.06E-08	0.0
4.5	2.78E-07	3.61E-07	1.37E-06	3.18E-06	2.14E-06	9.29E-08	0.0
5.0	2.54E-07	3.30E-07	1.17E-06	3.01E-06	2.32E-06	1.51E-07	1.97E-11
6.0	2.18E-07	2.81E-07	8.90E-07	2.71E-06	2.59E-06	3.21E-07	2.54E-10
7.0	1.92E-07	2.46E-07	7.09E-07	2.66E-06	3.59E-06	1.37E-06	2.21E-08
8.0	1.72E-07	2.19E-07	5.80E-07	2.53E-06	4.41E-06	3.87E-06	5.70E-07
9.0	1.56E-07	1.97E-07	4.83E-07	2.23E-06	4.16E-06	4.52E-06	1.13E-06
10.0	1.43E-07	1.80E-07	4.10E-07	1.98E-06	3.91E-06	5.04E-06	1.91E-06
12.0	1.22E-07	1.55E-07	3.10E-07	1.60E-06	3.46E-06	5.81E-06	4.16E-06
14.0	1.08E-07	1.36E-07	2.44E-07	1.33E-06	3.09E-06	6.23E-06	7.03E-06
16.0	9.63E-08	1.22E-07	2.01E-07	1.12E-06	2.78E-06	6.39E-06	1.00E-05
18.0	8.73E-08	1.11E-07	1.69E-07	9.70E-07	2.51E-06	6.33E-06	1.25E-05
20.0	8.00E-08	1.02E-07	1.45E-07	8.47E-07	2.28E-06	6.13E-06	1.41E-05
25.0	6.66E-08	8.49E-08	1.14E-07	6.29E-07	1.81E-06	5.20E-06	1.39E-05
30.0	5.74E-08	7.31E-08	9.80E-08	4.89E-07	1.47E-06	4.28E-06	1.16E-05
35.0	5.07E-08	6.44E-08	8.60E-08	3.96E-07	1.24E-06	3.63E-06	9.88E-06
40.0	4.55E-08	5.80E-08	7.69E-08	3.32E-07	1.07E-06	3.18E-06	8.70E-06
45.0	4.15E-08	5.30E-08	6.97E-08	2.85E-07	9.38E-07	2.85E-06	7.83E-06
50.0	3.82E-08	4.89E-08	6.39E-08	2.49E-07	8.36E-07	2.58E-06	7.13E-06

[1] χ•U/Q (m^{-2})
χ $\mu Ci/m^3$
U m/s
Q $\mu Ci/s$

*Revised Complete Page

INPUT DATA SHEET A

Meteorological Information

Date: _____

Person transmitting data: _____

Person receiving data: _____

Nuclear Plant: _____

Release geometry: _____

Level of transport wind direction[a]: _____

Level of wind speed for dispersion[a]: _____

Stability layer for dispersion[a]: _____ to _____

Observed Data[b] (15-minute averages)

Central Time	Plume Direction (22.5° Sector)	Dispersion Wind Speed (m/s)	Stability Class

Observed Data[b] (1-hour average)

Central Time	Plume Direction (22.5° Sector)	Dispersion Wind Speed (m/s)	Stability Class	Precip.[c]

Forecast Data

Central Time for which Forecast is made	Plume Direction (22.5° Sector)	Dispersion Wind Speed (m/s)	Stability Class	Precip.[c]

Outlook for hours 9 through 24 in the future:

Valid	Plume Direction (45° Sector)	Dispersion Wind Speed[d]	Stability Class[e]	Precip.[c]

Comments: _____

a. Indicate as upper, middle, or lower.
b. Conditions for period ending at indicated time.
c. Light rain (LR), moderate rain (MR), and heavy rain (HR); hourly value for 0.01 in $\leq$ LR $\leq$ 0.10 in; for MR, 0.11 in $\leq$ MR $\leq$ 0.30 in; and for HR>0.30 in.
d. VL - Very Light (0-1.5 m/s), L - Light (1.6-3.5 m/s), M - Moderate (3.6-5.5 m/s), S - Strong (5.6-8.0 m/s), H - High (8.1-11.0 m/s), VH - Very High (>11.0 m/s).
e. U - Unstable (A, B, C), N - Neutral (D), S - Stable (E, F, G)

*Revised Complete Page

Date: / /

Time: : (central time)

WORK SHEET A

Release Data

air

A. Release Point _____

B. Radioactivity Released

1. Continuous Release

Time _____ (central time) *

Release Rates Noble gas _____ µCi/s

I-131 _____ µCi/s

_____ _____ µCi/s

2. Puff Release

Time started _____ (central time)

Time stopped _____ (central time)

Total Release Noble gas _____ µCi

I-131 _____ µCi

_____ _____ µCi

C. Supplemental Information (release geometry, system(s) affected, anticipated end or changes in releases, flow rates, effluent concentrations, comments, etc.).

_____

_____

_____

_____

_____

_____

_____

Table 7

Nominal Limits of Detection and Concentration Limits

Nuclide	Detection Limit[a] (pCi/l)	MPC Value[b] (pCi/l)
chrominum-51	90	2,000,000
manganese-54	10	100,000
cobalt-58	10	100,000
cobalt-60	10	50,000
zinc-65	20	10,000
zirconium-95	20	600,000
niobium-95	10	100,000
ruthenium-106	80	100,000
iodine-131	20	300
cesium-134	50	9,000
cesium-137	10	20,000
barium-140	50	30,000
lanthanum-140	10	20,000

a. Emergency laboratory analysis procedures (3.5ℓ sample).
b. 10CFR20 limits for average annual concentrations of radioactivity in undiluted releases of water to unrestricted areas (for reference purposes only). Approximate dose commitment rate is 1.4 mrem/d. Multiply by 10^{-9} to obtain equivalent μCi/mℓ.

Worksheet A

Date: ____/____/____

Time: _____
(central time)

RELEASE DATA
WATER

A. Short-Term Release (duration <24 hours)

Time started: _____(central time)

Time stopped: _____(central time)

Volume released: _____ft^3 (if terminated)

_____ft^3/s (if continuing, see note)

Note: If of undetermined duration, assume 1 hour. The resulting dose will be rem per hour of release. *

B. Long-Term Release (duration >24 hours)

Time started: _____ (central time)

Time stopped: _____ (central time)

Release rate: _____ft^3/s

C. Release path to the river: _____

D. Source Term

Nuclide	Release Concentration (μCi/ml)

TENNESSEE VALLEY AUTHORITY

IMPLEMENTING PROCEDURES DOCUMENT - SEQUOYAH NUCLEAR PLANT

Inserted by: _____ Issue Date: July 21, 1982

Date Inserted: _____

Revision Log Sheet

This log sheet must be retained as the last page of the Sequoyah Nuclear Plant Implementing Procedures Document.

Pages to be Removed			New Pages to be Inserted		
Part	Page Number	Revision/ Date	Part	Page Number	Revision/ Date
IP-7	Cover Page	Rev. 0	IP-7	Cover Page	Rev. 1
	1 of 1	Rev. 0		1 of 1	Rev. 1
IP-10	Cover Page	Rev. 4	IP-10	Cover Page	Rev. 5
	1 of 10	Rev. 0		1 of 10	Rev. 5
	2 of 10	Rev. 0		2 of 10	Rev. 5
	3 of 10	Rev. 0		3 of 10	Rev. 5
	4 of 10	Rev. 0		4 of 10	Rev. 5
	5 of 10	Rev. 0		5 of 10	Rev. 5
	6 of 10	Rev. 0		6 of 10	Rev. 5
	7 of 10	Rev. 0		7 of 10	Rev. 5
	8 of 10	Rev. 0		8 of 10	Rev. 5
	9 of 10	Rev. 0		9 of 10	Rev. 5
	10 of 10	Rev. 0		10 of 10	Rev. 5
	Attachment 1			Attachment 1	
	1 of 2	Rev. 4		1 of 1	Rev. 5
	2 of 2	Rev. 3			
	Attachment 2			Attachment 2	
	1 of 1	Rev. 0		1 of 1	Rev. 5
	Attachment 3			Attachment 3	
	1 of 1	Rev. 0		1 of 1	Rev. 5

Revision Log Sheet (Continued)

This log sheet must be retained as the last page of the Sequoyah Nuclear Plant Implementing Procedures Document.

Pages to be Removed			New Pages to be Inserted		
Part	Page Number	Revision/ Date	Part	Page Number	Revision/ Date
IP-10	Attachment 4 1 of 1	Rev. 0		Attachment 4 1 of 1	Rev. 5
	Attahcment 5 1 of 1	Rev. 0		Attachment 5 1 of 1	Rev. 5
	Attachment 6 1 of 1	Rev. 0		Attachment 6 1 of 1	Rev. 5
IP-14	Cover Page	Rev. 6		Cover Page	Rev. 7
	3 of 5	Rev. 0		3 of 5	Rev. 7
	4 of 5	Rev. 5		4 of 5	Rev. 5

Sequoyah Nuclear Plant

SQN REP - IMPLEMENTING PROCEDURES DOCUMENT

SQN, IP-7

ACTIVATION OF THE OPERATIONS SUPPORT CENTER

Prepared By: J.R. Walker

Revised By: L.M. Nobles

Submitted By: R.J. Kelly
Supervisor

PORC Review: 5/27/82
Date

Approved By: P.R. Wallace
Pwr Plt Superintendent

Date Approved: 5/27/82

DISTRIBUTION

1C	81 Plant Master File
1C	83 Asst. Power Plant Supt. (Oper.)
1C	84 Asst. Power Plant Supt. (Maint.)
1C	86 Maintenance Supervisor (M)
1C	87 Maintenance Supervisor (E)
1C	88 Maintenance Supervisor (I)
1C	89 Results Supervisor
1C	90 Operations Supervisor
1C	92 Health Physics Supervisor
1C	93 Public Safety Services Supv.
1C	95 Outage Director
1C	96 Emergency Cabinet Control Room
1C	97 Emergency Cabinet Communications Room
1C	98 Emergency Van
1C	100 Emergency Cabinet Meteorological Bld.
1C	102 Shift Engineer's Office
1C	103 Unit Control Room
1C	105 Health Physics Laboratory
1C	106 Medical Office
1C	107 Resident NRC Inspector - SNP
1C	108 Technical Support Center
1C	109 Assistant HP Supervisor
1C	110 Plant Duty Supervisor
1C	111 Asst. Power Plant Supt. (H&S)
1C	OC H&S - John Ingwersen - MS

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	8/5/80	ALL			
1	5/27/82	Revised 1			

The last page of this instruction is Number 1.

ACTIVATION OF THE OPERATIONS SUPPORT CENTER

1.0 PURPOSE

The purpose of this procedure is to outline the requirements related to activating the Operations Support Center (OSC). The OSC is activated during an Alert, Site Emergency or General Emergency.

2.0 INSTRUCTION

2.1 Alert

The public address system is utilized as directed by the shift engineer to request all operations personnel not assinged to the control room to secure the operation in which they are engaged and proceed to the OSC for further instructions.

2.2 Site Emergency and General Emergency

Upon hearing the emergency sirens, all operations personnel not assigned to the control room secure the operation in which they are engaged and proceed to the OSC for further instructions.

2.3 The Site Emergency Director may request additional plant personnel to report to the OSC.

3.0 RESPONSIBILITIES

3.1 The common ASE is responsible for keeping personnel in the OSC briefed on plant status.

3.2 The shift engineer will keep the common ASE briefed on plant status.

3.3 The shift engineer will assign a team leader each time personnel from the OSC are dispatched into the plant. The entire team will be briefed on the assigned task prior to leaving the control building.

Sequoyah Nuclear Plant

SQN REP - IMPLEMENTING PROCEDURES DOCUMENT

SQN, IP-10

MEDICAL EMERGENCY PROCEDURE

Prepared By: M. B. Knight

Revised By: J. R. Everett

Submitted By: R. J. Kelly
Supervisor

PORC Review: 5/21/82
Date

Approved By: J. E. Cross
Pwr Plt Superintendent

Date Approved: 5/21/82

DISTRIBUTION

1C	81	Plant Master File
1C	83	Asst. Power Plant Supt. (Oper.)
1C	84	Asst. Power Plant Supt. (Maint.)
1C	86	Maintenance Supervisor (M)
1C	87	Maintenance Supervisor (E)
1C	88	Maintenance Supervisor (I)
1C	89	Results Supervisor
1C	90	Operations Supervisor
1C	92	Health Physics Supervisor
1C	93	Public Safety Services Supv.
1C	95	Outage Director
1C	96	Emergency Cabinet Control Room
1C	97	Emergency Cabinet Communications Room
1C	98	Emergency Van
1C	100	Emergency Cabinet Meteorological Kit
1C	102	Shift Engineer's Office
1C	103	Unit Control Room
1C	105	Health Physics Laboratory
1C	106	Medical Office
1C	107	Resident NRC Inspector - SNP
1C	108	Technical Support Center
1C	109	Assistant HP Supervisor
1C	110	Plant Duty Supervisor
1C	111	Asst. Power Plant Supt. (H&S)
1C	OC H&S - John Ingwersen - MS	

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	8/5/80	ALL	4	3/22/82	11
1	4/22/81	11	5	5/21/82	All
2	7/15/81	11,12			
3	10/19/81	12			

The last page of this instruction is Number 16

MEDICAL EMERGENCY PROCEDURE

1.0 PURPOSE

This procedure outlines the action to be followed during medical emergencies at Sequoyah Nuclear Plant.

2.0 PROCEDURE

2.1 Initial Reporting and Response to Accident and Emergency Medical Situations

2.1.1 Anyone discovering a serious injury or other medical emergency should administer aid for any life-threatening situation.

2.1.2 Summon any available personnel in the area for assistance.

2.1.3 Notify the control room on PAX phone and state, "This is A medical emergency and not fire," so that the control room operator can initiate appropriate response.

2.1.4 Give the control room operator your name, the location of the emergency (including building, elevation, and column coordinates), the type of medical emergency and the number of people involved. Also, give the PAX telephone number from which you are calling and if the emergency is in a regulated area.

2.1.5 Initate such actions as may be needed to avoid further injury to the victim or injury to other personnel.

2.1.6 As emergency response personnel arrive, assist them as requested and give any pertinent information they require relating to the injury or illness.

2.1.7 Notify your supervisor and assist as requested in report preparation and followup.

2.2 Activation of Medical Emergency Response Team

2.2.1 The control room operator or the assistant shift engineer shall:

a. Initiate activation of the emergency response team, and announce over the public address system, the location of medical emergency;

b. Notify the shift engineer of the emergency.

2.2.2 A roster listing all names and telephone numbers of the individuals and local agenies required to either respond to provide support for the medical emergency will be provided to the Plant Duty Supervisor and the Shift Engineer.

2.2.3 The shift engineer will notify the nurse on duty who, if necessary, will proceed to the emergency site.

2.2.4 The shift engineer will request the necessary information from health physics personnel. Medical and Public Safety may be required to assist the shift engineer in completion of Attachment 1.

2.2.5 When a patient is transported to a hospital, the shift engineer will notify the receiving facility of the patient's condition, the estimated time of arrival, and the radiological status of the patient as determined by health physics.

2.2.6 If necessary, the shift engineer will request that Public Safety arrange for an ambulance (offsite or onsite) for transporting of injured personnel.

2.3 Organization and Duties of the Medical Emergency Response Team

2.3.1 The medical emergency response team consists of a health physics representative, an assistant shift engineer, public safety officer, (or individual trained in first aid or emergency medical response), and nurse. The team will be supported by assistant unit operators who have received supplemental first aid training.

2.3.2 Duties and responsibilities of the various members of the response team:

2.3.2.1 Team Leader (assistant shift engineer)

a. The team leader will take charge and direct the total activities while consulting with members of the team in their area of expertise;

b. Lead the team in and out of the area by the most direct and/or appropriate route (with proper considerations of hazards to members of the team with the operational functioning of the facility). If the patient is located in a contaminated zone, a minimum number of response personnel will enter the area initially. Protective clothing will be a minimum (shoe covers, gloves at the discreation of health physics). Additional personnel may be requested by team leader.

c. Assist and consult with the nurse, individuals trained in emergency medical response, and the health physics representative when needed and aid in extrication and/or transportion of patient to the health station, medical office, or ambulance as appropriate.

d. Maintain communication with the shift engineer and keep him advised of situations, needs, and progress of team; request that the shift engineer contact the appropriate hospital or a receiving facility when patient transportation is necessary.

e. Upon advice from Medical or other appropriate personnel, notify control room that an ambulance is needed.

2.3.2.2 Public Safety Officer (or individual trained in emergency medical response).

a. Proceed to the emergency with a medical kit.

b. Administer medical treatment.

c. Perform crowd control upon instruction of team leader.

d. Provide information to the shift engineer to complete Attachment 6.

e. Provide escort for nurse if requsted to report to emergency scene.

2.3.2.4 Health Physics Representative will:

a. Proceed to the emergency

b. Monitor environment and patient as needed.

c. Advise team members concerning proper protective clothing, equipment and occupancy time needed for their protection.

d. Advise team concerning protective measures and decontamination needed for patient.

e. Be available to answer questions concerning radiation exposure and/or contamination of the patient asked by the nurse, shift engineer, and receiving facility (see Attachment 1).

f. Advise the shift engineer and medical of all radiological conditions and any possible exposure of personnel as appropriate.

g. Assist in patient care when not otherwise occupied with radiation concerns and responsibilities.

2.3.2.5 Nurse will:

a. Proceed to the emergency if determination made that he/she is needed at scene.

b. Administer emergency care as required.

c. Will make a followup phone call to hospital outlining additional information concerning patient's condition.

d. Provide information to shift engineer for completion of Attachment 1.

2.4 General Patient Care Guidelines

2.4.1 First aid and emergency medical care should be provided for onsite personnel at the facility to preserve life and to minimize injury and suffering.

2.4.2 The medical emergency response team will check the patient's condition and take appropriate medical action as directed by the nurse, or other team member trained in emergency medical care.

2.4.3 The medical emergency response team shall assist the nurse or other team member trained in emergency care and at his/her direction, evaluate, stabilize, and transport any seriously ill or acutely injured person to the nearest health station, TVA medical office, or hospital receiving facility as appropriate.

2.4.4 A doctor should be requested, when in the nurse's judgment (or other personnel trained in emergency medical care) further professional attention is needed prior to transport such as in a problem with extrication where the patient needs medical attention while extrication is being accomplished. Always keep in mind the goal of maximum benefit to the patient.

2.4.5 Transport patient to the emergency treatment area or health station (or nearby TVA medical office) unless patient's condition is such that he needs immediate transport to a hospital.

2.4.6 If a patient requires ambulance transportation to a medical office or hospital, utilize the TVA ambulance before contacting a commercial ambulance service. When necessary, the shift engineer will request an ambulance (onsite or offsite) from Public Safety for transporting injured personnel.

2.4.7 The health physic representative(s) will act as advisor to the emergency response team and medical personnel concerning radiological conditions.

2.5 Patient Care Guidelines for Special Conditions

2.5.1 General Guidelines

The care and disposition of all ill and injured persons known or suspected to be associated with radiation exposure or contamination will be coordinated with the health physics representative. The essential aims of the medical-health physics team are:

1. Minimize injury and further radiation exposure to the victim.
2. Protect attending personnel from excessive and unnecessary radiation exposure.
3. Control spread of radioactivity contamination.
4. Access and document the patient's radiological exposure.
5. Immediate lifesaving and disability limiting procedures will take precedence over noncritical decontamination and dosimetry assessment procedures.

2.5.2 Classification and handling of radiologically exposed or contaminated individuals.

2.5.2.1 Irradiated-Noncontaminated

First remove the victim from further exposure providing only essential first aid in the process, then direct attention to medical care of other physical injuries. The patient is then transported wherever necessary for adequate initial care of his illness or injuries. The health physics technician determines and reports the type and level of exposure and the affected area of the body if possible. Medical care of the radiation exposure is governed by the medical status of the patient and the findings of the health physicist. In most cases, the treatment of illness or physical injury takes precedence over treatment for radiation exposure.

In general, the medical treatment for radiation exposure should be related to the total dose received. Therefore, several major decisions points should be looked for:

2.5.2.1.1 Individuals who have received an acute total body dose of less than 5 rem usually require no medical examination or treatment for the radiation exposure.

2.5.2.1.2 Individuals who have received an acuate total body dose of between 5 and 75 rem radiation can usually be treated as an outpatient, but should have hematological studies performed to detect chromosomal aberrations and other changes in other blood constituents. Attachments 2 and 5 give laboratory directions for drawing blood samples for chromosomal and hematological studies.

2.5.2.1.3 For individuals who have received an acute total body dose greater than 75 rem, evaluation by a nuclear medicine specialist shall be arranged regardless of physical injuries or illnesses. This is the minimal dose that produces a recognizable reaction in about 10 to 20 percent of the individuals exposed. Blood studies should be drawn per directions (attachments 2 and 4). If the patient is ill or injured requiring attention for physical ilnesses or injuries, he should be transported to Erlanger Medical Center (see Attachment 4) with the information that this patient has received an acute total body dose greater than 75 rem. It is recommended that the attending physician consult REAC/TS. If the patient is not seriously ill or injured enough to require hospitalization for physical illness or injury, and with the recommendation of REAC/TS, referral may be made to Oak Ridge Hospital (see attachment 5) or the Unit Methodist Church where the patient could be observed and treated by the physicians on the REAC/TS team.

2.5.2.1.4 If a worker's projected cumulative dose to the thyroid from inhalation of radioactive iodine might exceed 10 rems, the Medical Director has authorized responsible health physicists or other qualified individuals to offer the exposed person an immediate first dose of a course of potassium iodine. The time the first dose was administered should be documented and the individual should be referred to the health station or a TVA medical office. Anyone authorized to initiate KI shall be familiar with the Food and Drug Administration approved package insert, and be sure that each proposed recipient is similarly informed. The initial dose of KI should not be delayed and those who begin therapy should continue the 10-day course of KI unless their thyroid dose is determined not to have exceeded 10 rem. An adequate supply of KI is stored at each nuclear facility to supply any personnel exposed to radioactive iodine. It is supplied in bottles which contain a full 10-day dose regimen. Follow dosage schedules as outlined on the package insert accompanying each bottle of KI.

2.5.2.1.5 Any personnel known or suspected of receiving radiation exposure in excess of the TVA occupational dose limits should be reported to TVA medical and the area medical chief as soon as possible. Health physics should document the amount and type of radiation and assist MED SV in followup by supplying them with this information.

2.5.2.2 Contaminated Patients

2.5.2.2.1 The patient should be identified, given initial first aid and transported by the medical emergency response team. All decontamination that the medical status of the patient will allow should be accomplished. The appropriate sequence of care must be determined on an individual basis by the medical-health physics team.

The injured person may be decontaminated on the spot by removal of contaminated clothing if possible, or may be removed to the personnel decontamination facility in the service building where contaminated clothing and skin transferrable contamination may be removed. At that point, the injured person will be transported and treated in one of two ways.

2.5.2.2.1.1 If the person is severely injured, they may be transported directly to Erlanger Medical Center provided that every reasonable effort has been made to reduce the radioactive contamination level to less than .5 R per hour at one foot. If clothing and contamination cannot be safely removed, spread of contamination may be minimized by removing the patient's excess clothing and wrapping him in a sheet, as his injuries permit.

2.5.2.2.1.2 In cases of less severe injuries, the patient will be sent to the personnel decontamination room to remove as much contamination as possible before he is treated in the emergency treatment area of transferred to Erlanger Medical Center.

2.5.3 The health physicist will collect, identify, label and analyze all biological specimens as required and deemed necessary. He will obtain the injured person's personnel dosimetry and replace, with equivalent dosimetry if appropriate.

2.5.4 The health physics group will also maintain supplies to control contamination and protect members of the medical emergency response team during transport within the plant and to the receiving hospital.

Medical emergency response team members and medical personnel will don and maintain whatever personal protective equpment the health physics representative should accompany the patient to the hospital and should furnish as much information as possible about the patient's dose and type of radiological contamination and/or exposure to the receiving facility (see attachment 1). At the hospital, a health physics representative will furnish radiological services to attending physicians and hospital personnel as requested.

2.6 Guidelines for Followup Medical Care

Followup medical care of illnesses or injuries treated in the health station or TVA medical office are usually done in the health station or TVA medical office. If the patient has been referred to a provide physician or receiving hospital, followup medical care is usually done by the private physician unless the patient is released or followup medical care is requested from Medical Services by the private physician. In such instances, followup medical care will be arranged through the health stations and TVA medical offices.

2.7 Notification Guidelines

2.7.1 The area medical chief or his designee or the area nursing supervisor or her designee should be notified by the plant nurse or someone designated by her/him in the following instances.

2.7.1.1 If some is ill or injured to the extent that they require ambulance transportation to a hospital receiving facility.

2.7.1.2 If the number of injuries is above that normally expected to be handled during the normal operation of a health station.

2.7.1.3 Anytime there is a situation existing in the facility which creates a hazardous environment where there is an increases liklihood of radiological exposure and/or contamination or increased physical risk so that injuries are more likely to occur than during normal operating conditions.

2.7.2 If the Area Medical Chief and the Area Chief Nurse or their designee cannot be contacted, then notify the Medical Director or Medical Services Representative to CECC if activated.

2.7.2.1 Health Physics should notify the Area Medical Chief anytime any TVA occupational exposure limits.

RADIATION AND/OR MEDICAL EMERGENCY NOTIFICATION REPORT

To be used by shift engineer to enter available data for notification of a receiving hospital of the impending admission of a case involving a medical emergency radiation exposure or contamination.

Nature of Accident _____

_____

_____

Extent and Discription of Injuries _____

_____

_____

Treatment Provided _____

Condition: Good _____ Fair _____ Serious _____ Critical _____ Deceased _____

B/P _____ Pulse _____ Respiration _____

Treated in Medical Office: Yes _____ No _____ Time: _____

A. Person Making Notification:

Name _____ Date _____ Time _____

Title _____ Telephone _____

Plant _____

B. Patients to be Admitted: Total Number: _____

Name (if available)	Injury but no Radiation or Contamination	Radiation Exposure	Internal Contamination	External Contamination	Contaminated Wounds

C. Will patients be: Surveyed for Contamination? _____ Decontaminated? _____

D. Expected Time or Arrival at Erlanger Hospital: _____

Notification Taken by: _____

INSTRUCTIONS FOR LYMPHOCYTE CULTURING FOR CYTOGENETIC DOSE ESTIMATION OF LOW LEVEL WHOLE BODY ACUTE OVER EXPOSURE TO IONIZING RADIATION

TVA has an agreement with the Oak Ridge Associated Universities Cytogenetics Laboratory (ORAU) to perform lympocyte culturing to provide cytogenetic estimate of radiation dose.

Upon the order of a responsible physician and after arrangements have been coordinated with ORAU/REAC/TS, concerning the transport and arrival time of the specimen, the following procedure should be followed: The blood should be collected in a red top vacutainer (Cat No. 2-657-3, Bd No. 4671) to which has been added 0.1 ml of sodium heparin (Upjohn 1000 units). Mix by inversion 30 times in 30 seconds immediately after collection.

Blood samples must be kept cool (not frozen) during shipping and storage. The vacutainers should be packed in Styrofoam chips, packing straw, etc. Surround packing material with a coolant and ship in a well-insulated container. Do not put the tubes directly on any coolant that may freeze the samples.

Identify the samples with the patient's name, birthdate, social security number, date and location.

Samples should be shipped by the fastest available carrier, such as TVA courier, air, or commercial carrier to:

ORAU/REAC/TS
Cyto Genetics Laboratory
Attn: Gayle Littlefield or Gene Joiner
Medical and Health Sciences Divison
Oak Ridge Tennessee 37830

LYPHOCYTE CULTURING

Collection Method:

Blood _____

Serum _____

Plasma _____

Urine _____

Sputum _____

Other _____

Type Container:

Red top vacutainer #4671 to which has been added 0.1 ml of sodium heparin (Upjohn 1000 units).

When: Upon order of responsible TVA M.D. in coordination with REAC/TS, after confirmed exposure exceeding 5 rem of total body ionizing radiation.

Frequency: Once, unless otherwise directed by responsible medical authority.

Special Instructions: Refrigerate, but do not freeze in shipping containers provided for this purpose. See attached memorandum.

Where Sent: ORAU/REAC/TS Cytogenetics Laboratory
Attention: Gayle Littlefield or Gene Joiner
Medical and Health Sciences Division
Oak Ridge, Tennessee 37830

Special Notice: Notify Earl Jordan at extension , Chattanooga

Report Results to: Robert L. Craig, M.D., Medical Director
Medical Director
320 Edney Building
Chattanooga, TN 37401
Phone:

Label Information:

_____ Yes

_____ No

SS Number Name SS Number

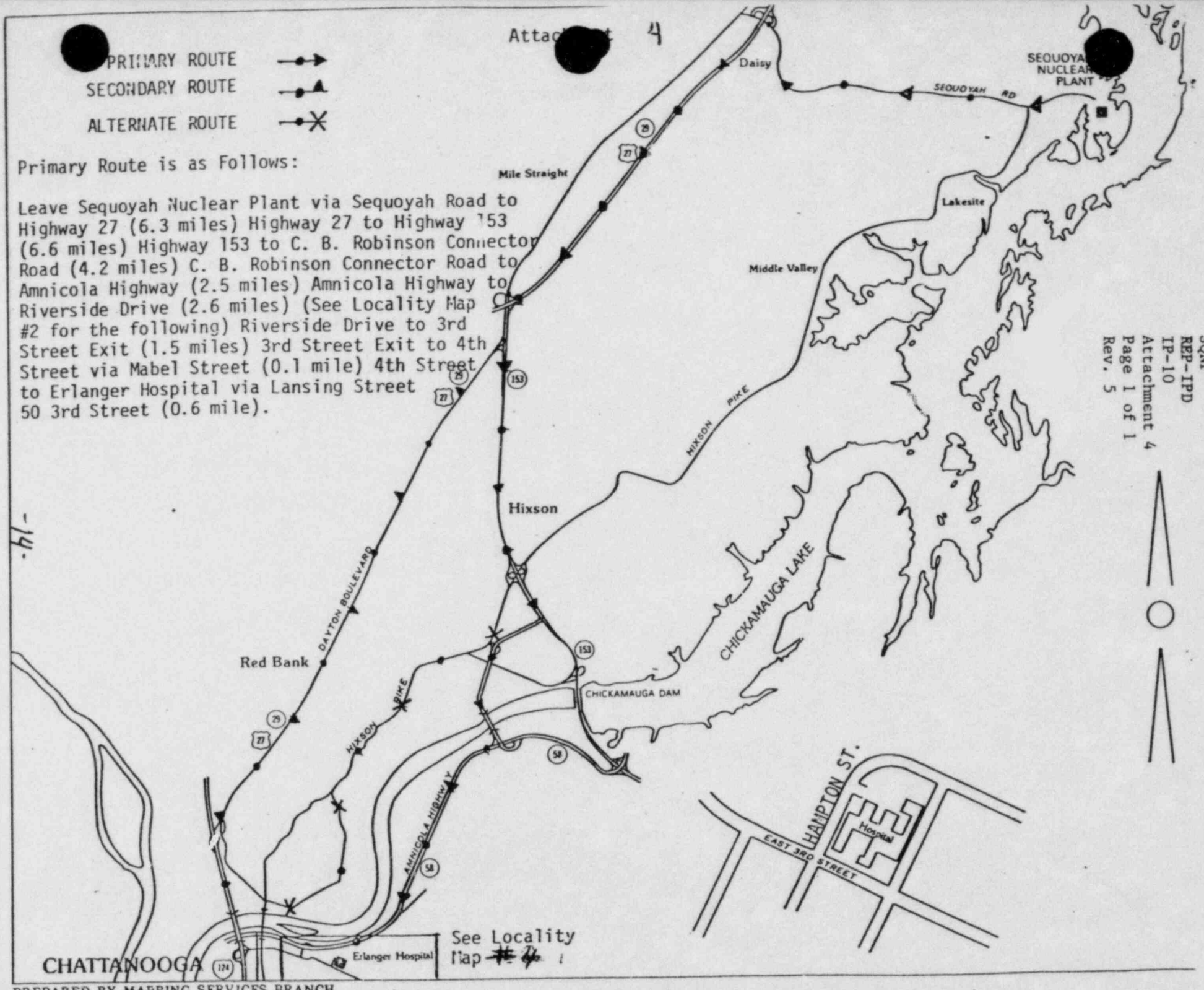
Birthdate Race Sex Loc No. Time Code

LYMPHOCYTE CULTURING

PRIMARY ROUTE
SECONDARY ROUTE
ALTERNATE ROUTE

Primary Route is as Follows:

Leave Sequoyah Nuclear Plant via Sequoyah Road to Highway 27 (6.3 miles) Highway 27 to Highway 153 (6.6 miles) Highway 153 to C. B. Robinson Connector Road (4.2 miles) C. B. Robinson Connector Road to Amnicola Highway (2.5 miles) Amnicola Highway to Riverside Drive (2.6 miles) (See Locality Map #2 for the following) Riverside Drive to 3rd Street Exit (1.5 miles) 3rd Street Exit to 4th Street via Mabel Street (0.1 mile) 4th Street to Erlanger Hospital via Lansing Street 50 3rd Street (0.6 mile).



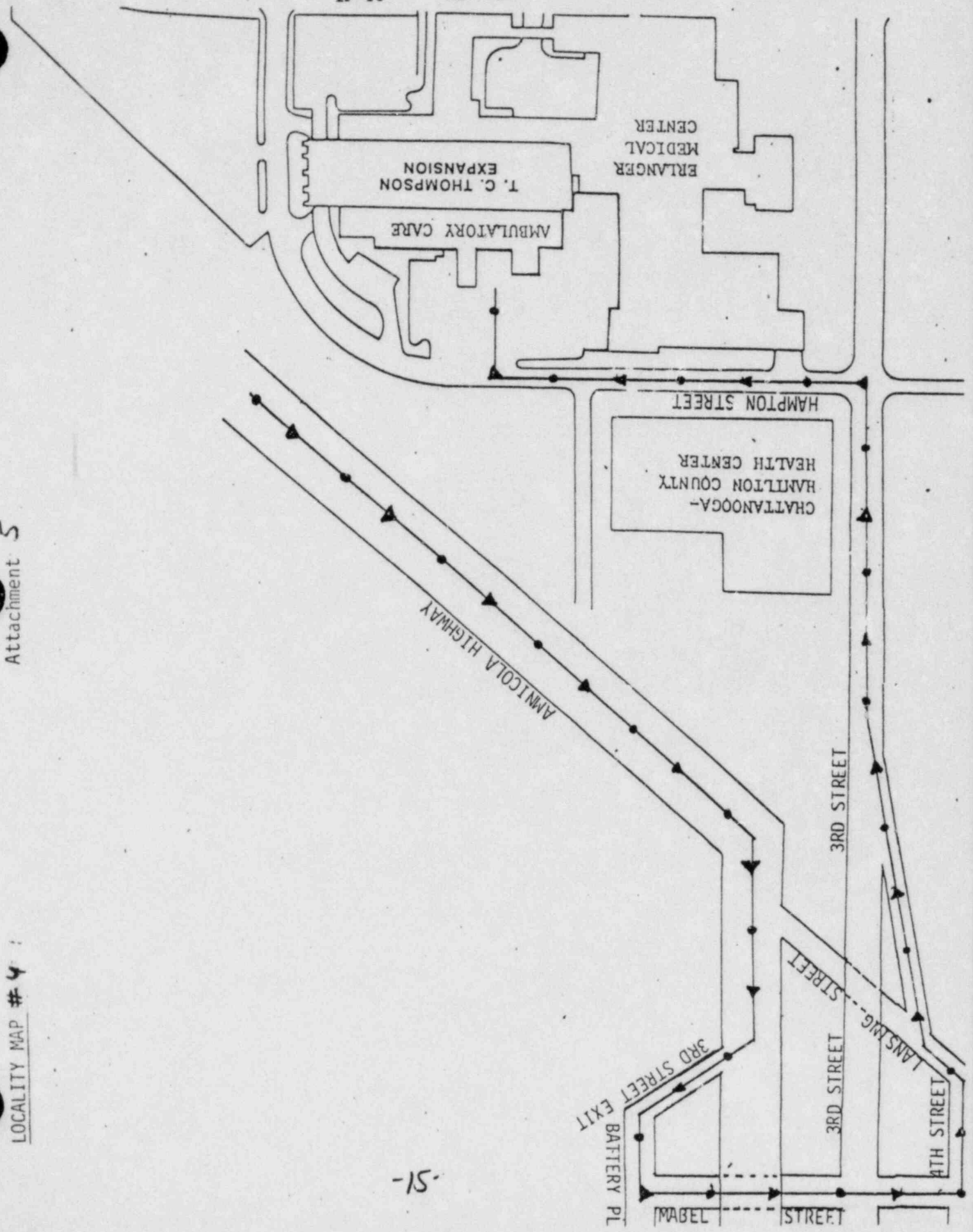
SQNP
REP-IPD
IP-10
Attachment 4
Page 1 of 1
Rev. 5

-14-

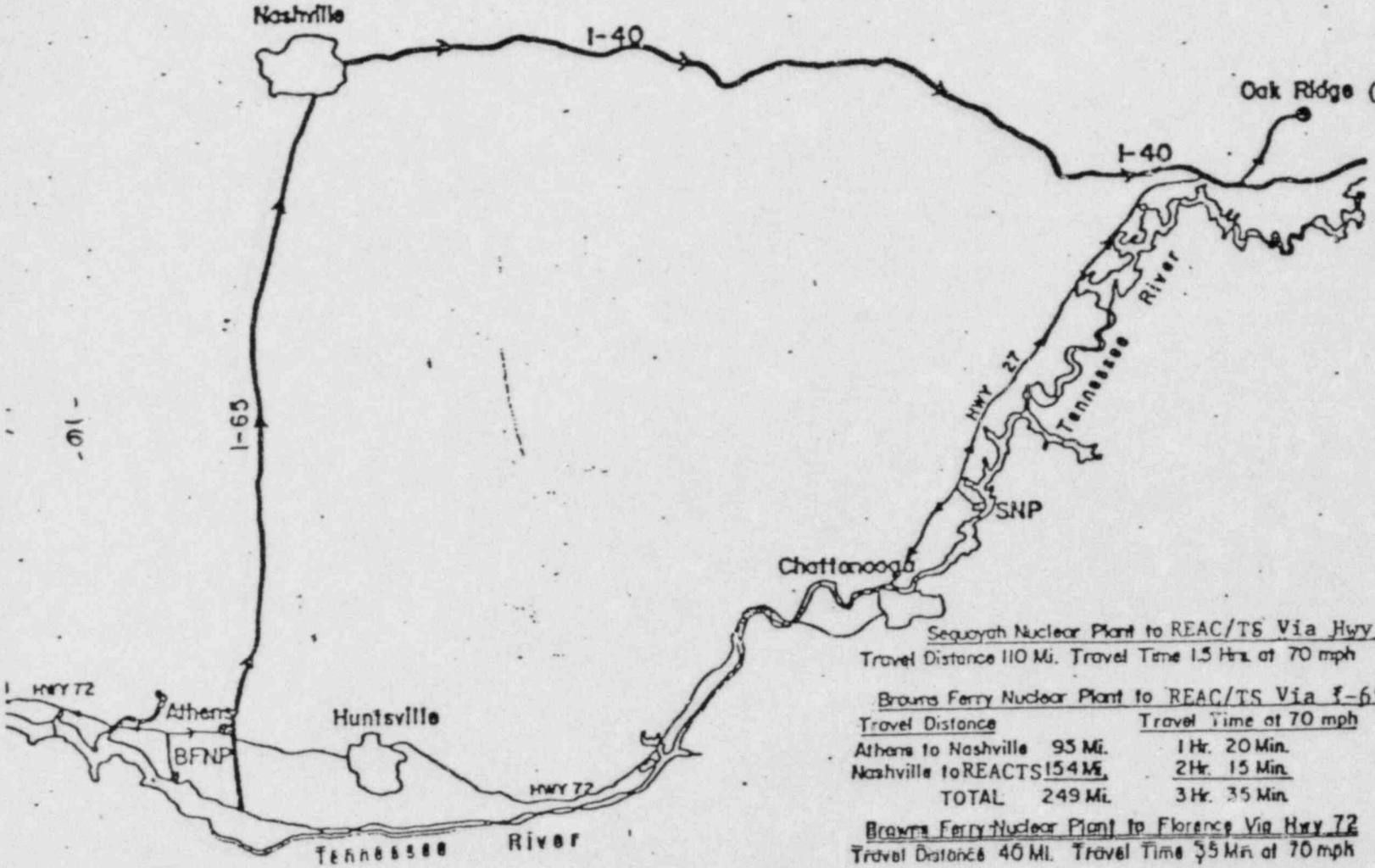
PREPARED BY MAPPING SERVICES BRANCH

Attachment 5

LOCALITY MAP #4



LOCALITY MAP



Sequoyah Nuclear Plant to REAC/TS Via Hwy. 27
Travel Distance 110 Mi. Travel Time 1.5 Hrs. at 70 mph

Browns Ferry Nuclear Plant to REAC/TS Via I-65 & I-40

Travel Distance		Travel Time at 70 mph
Athens to Nashville	93 Mi.	1 Hr. 20 Min.
Nashville to REACTS	154 Mi.	2 Hr. 15 Min.
TOTAL	249 Mi.	3 Hr. 35 Min.

Browns Ferry Nuclear Plant to Florence Via Hwy 72
Travel Distance 40 Mi. Travel Time 35 Min. at 70 mph

Sequoyah Nuclear Plant

SQN REP - IMPLEMENTING PROCEDURES DOCUMENT

SQN, IP-14

HEALTH PHYSICS PROCEDURE

Prepared By: R.J. Prince

Revised By: Stephen P. Holdefer

Submitted By: R.J. Kitts
Supervisor

PORC Review: 5/27/82
Date

Approved By: P.R. Wells
Pwr Plt Superintendent

Date Approved: 5/27/82

DISTRIBUTION

1C	81 Plant Master File
1C	83 Asst. Power Plant Supt. (Oper.)
1C	84 Asst. Power Plant Supt. (Maint.)
1C	86 Maintenance Supervisor (M)
1C	87 Maintenance Supervisor (E)
1C	88 Maintenance Supervisor (I)
1C	89 Results Supervisor
1C	90 Operations Supervisor
1C	92 Health Physics Supervisor
1C	93 Public Safety Services Supv.
1C	95 Outage Director
1C	96 Emergency Cabinet Control Room
1C	97 Emergency Cabinet Communications Room
1C	98 Emergency Van
1C	100 Emergency Cabinet Meteorological Bld.
1C	102 Shift Engineer's Office
1C	103 Unit Control Room
1C	105 Health Physics Laboratory
1C	106 Medical Office
1C	107 Resident NRC Inspector - SNP
1C	108 Technical Support Center
1C	109 Assistant HP Supervisor
1C	110 Plant Duty Supervisor
1C	111 Asst. Power Plant Supt. (H&S)
1C	OC H&S - John Ingwersen - MS

Rev. No.	Date	Revised Pages	Rev. No.	Date	Revised Pages
0	8/5/80	All	4	12/15/81	Revise 5A,Add 5B.5C
1	2/11/81	1	5	2/5/82	2,4,5,5A,5B,5C
2	8/3/81	6	6	3/22/82	6
3	12/1/81	Revise 5,Add 5A	7	5/27/82	Revised 3

The last page of this instruction is Number 10 .

5.5 As reports become available regarding the details of the emergency, Health Physics personnel shall prepare all necessary equipment needed during recovery and ready a survey team(s) for entry into the affected area(s).

5.6 Upon notification from the HP representative in the control center, the survey team may proceed to the specified area. It should be noted that depending on the type of accident, this initial survey may not be performed until hours or perhaps even days after the event. In this case, procedures may be developed describing the re-entry steps to be followed. Other essential personnel may be required to assist in re-entry surveys.

5.7 A site boundary survey may be required. This survey should not be done without prior consultation with the Site Emergency Director.

5.8 The emergency van will be utilized during site boundary surveys. The van is equipped with numerous supplies; however, the equipment listed in attachment 1 should be transported to the van.

5.9 When instructed to do so, travel to the site boundary in the down wind direction and measure the dose rate with an ionization chamber or similar survey instrument. If possible, air sampling should also be performed at the same time. If weather conditions exist which may result in the air sampling apparatus being exposed to moisture, the samples shall be taken in an area which minimizes this exposure.

5.10 Precautions must be taken to prevent overexposure if there are high concentrations of radioactive particulates or radioiodine being released (see section 7.0).

5.11 Record all survey results. All findings shall be reported to the emergency control center. If results indicate offsite contamination, the survey areas may need to be extended. Obtain further instructions and perform required surveillance.

5.12 Arrangements have been made for manpower support and equipment for offsite surveys from the WBNP should it be needed until the environs survey teams arrive from MSECC.

6.0 GENERAL EMERGENCY

6.1 During a general emergency, there may be radiation releases to the environment requiring Health Physics response. These releases may require evacuation procedures to be implented.

6.2 An extensive Health Physics response will probably be required during a general emergency.

6.3 The actions descirbed under site emergency (paragraphs 5.3 to 5.11) will be applicable to a general emergency condition as well.

6.4 During a general emergency (and perhaps during a site emergency), conditions in the Health Physics laboratory may be such that evacuation is warranted. If this situation develops, a Health Physics laboratory would need to be established within the technical support center. This lab would be equipeed with wll necessary supplies and instrumentation needed t' perform minimum radiological surveys and analyses required during an emergency.

6.5 If it is necessary to evacuate the HP lab, then the HP technicians stationed in the lab will secure the equipment listed in attachment 2. This equipment will be brought to the technical support center by Health Physics. This list is a minimum and if time permits and manpower allows then efforts should be made to trasnport additional equipment and supplies to the technical support center. The Site Emergency Director shall be informed when it becomes necessary to evacuate the HP lab.

6.6 All subsequent offsite activities must be coordinated with all offsite support agency survey teams. Make the best use of available manpower. Report all survey results as soon as possible to the emergency center so they can make recommendations to the proper agencies to initiate any required protective actions.

7.0 ISSUANCE OF POTASSIUM IODIDE (KI)

7.1 If a responsible health physicist or other knowledgeable individual has reason to believe that a person's projected cumulative dose to the thyroid from inhalation of radioactive iodine might exceed 10 rems, the exposed person should be started immediately on a dose regimen of potassium iodide (KI). Anyone authorized to initiate KI shall be familiar with the Food and Drug Administration approved package insert and be sure that each proposed recipient is similarly informed. The initial dose of KI should not be delayed and those who begin therapy should continue the