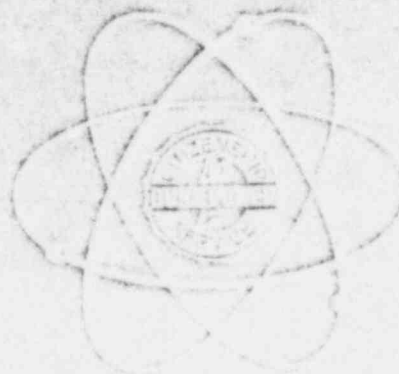


DUKE POWER COMPANY

CRISIS MANAGEMENT PLAN
IMPLEMENTING PROCEDURES

VOLUME 6



DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/O/A/5700/05
Change(s) 0 to
0 Incorporated

- (2) STATION: McGuire Nuclear Station
- (3) PROCEDURE TITLE: Care and Transportation of Contaminated Injured
Individual(s) From Site to Offsite Medical Facility
- (4) PREPARED BY: M. S. Glover DATE: 7/26/83
- (5) REVIEWED BY: [Signature] DATE: 7/26/83
- Cross-Disciplinary Review By: [Signature] M/R: _____
- (6) TEMPORARY APPROVAL (IF NECESSARY):
- By: _____ (SRO) Date: _____
- By: _____ Date: _____
- (7) APPROVED BY: [Signature] Date: 7/27/83
- (8) MISCELLANEOUS:
- Reviewed/Approved By: _____ Date: _____
- Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
CARE AND TRANSPORTATION OF CONTAMINATED INJURED
INDIVIDUAL(S) FROM SITE TO OFF-SITE MEDICAL FACILITY

1.0 Symptoms

- 1.1 An individual in need of offsite medical attention and contaminated to levels greater than 2,000 dpm/100cm² Beta-Gamma (60cpm above background using a thin window "pancake" detector and a count rate meter) or greater than .05 mRad/Hr (measured with a 30 mg/cm² GM detector, E-520 or equivalent).

2.0 Immediate Actions

2.1 Automatic

N/A

2.2 Manual

- 2.2.1 Perform any life saving first aid if necessary.
2.2.2 Notify Shift Supervisor.
2.2.3 Notify Health Physics.

3.0 Subsequent Actions

3.1 The Shift Supervisor shall contact any outside services needed:

- 3.1.1 North Mecklenburg Ambulance Service (See Enclosure 4.3)
3.1.2 North Mecklenburg Rescue Squad (See Enclosure 4.3)

3.2 Health Physics shall accompany the contaminated injured individual(s) to the doctor or hospital.

- 3.2.1 Health Physics shall minimize the spread of contamination during transportation by covering the individual(s) with sheets or blankets and lining the stretcher with poly. This is not to interfere with life saving first aid.

- 3.2.2 Health Physics shall ensure that the Medical Decontamination Kit and an RM-14 with HP-210 probe, accompany the contaminated injured individual(s) to the hospital. (Kit is stored in the Auxiliary Building First Aid Room).

3.3 In case of contamination not involving severe injury, decontamination shall be performed in the first aid room in the Radiation Control Area of the station, prior to transportation to a medical facility.

However, decontamination shall not interfere with or take precedence over proper medical or surgical care as determined by the Station Nurse or First Aid personnel.

- 3.3.1 Decontamination shall be performed by Health Physics with assistance from the Station Nurse or First Aid Personnel.
- 3.3.2 Enclosure 4.2, "Contaminated Victim Checklist" shall be completed for all contaminated injured persons. A copy of the completed checklist will be filed with appropriate Health Physics and Medical records.
- 3.3.3 The requirements of Station Directive 2.10.2, Reporting "On-The-Job" Injuries, shall also be utilized when providing for occupational injury and/or illness at McGuire Nuclear Station.
- 3.4 Commence "Notification of Unusual Event" as per RP/O/A/5700/01.
- 3.5 Request the Health Physics Shift person to ensure Health Physics Management is aware of the emergency and to dispatch appropriate Senior Health Physics personnel to Charlotte Memorial Hospital.
- 3.6 Notify the Corporate Communications Department about the emergency and request them to dispatch a representative to Charlotte Memorial Hospital. (See Enclosure 4.3)
- 3.7 Medical Assistance for contaminated and injured persons is provided by Charlotte Memorial Hospital.
 - 3.7.1 The Shift Supervisor shall contact the Emergency Room at Charlotte Memorial Hospital, and shall provide them with information concerning the contaminated injured individual(s) i.e: burns, fractures, head injuries, levels of contamination. He shall also inform the emergency room as to the mode of emergency transportation utilized. (See Enclosure 4.3).
 - 3.7.2 Charlotte Memorial Hospital may call back to the station for verification.
- 3.8 Back-up Medical Facility
 - 3.8.1 In the event that Charlotte Memorial Hospital cannot provide complete assistance or in the event they may request additional expertise in the management of a radiation accident victim(s), the Shift Supervisor/Emergency Coordinator shall contact the Department of Energy, Radiation Emergency Assistance Center

Training Site (REACTS), in Oak Ridge Tennessee for assistance.
(See Enclosure 4.3).

- 3.9 Personnel taken to Charlotte Memorial Hospital will be delivered to the Emergency Room except in the case of extreme contamination in which case personnel will be delivered as directed by the hospital.

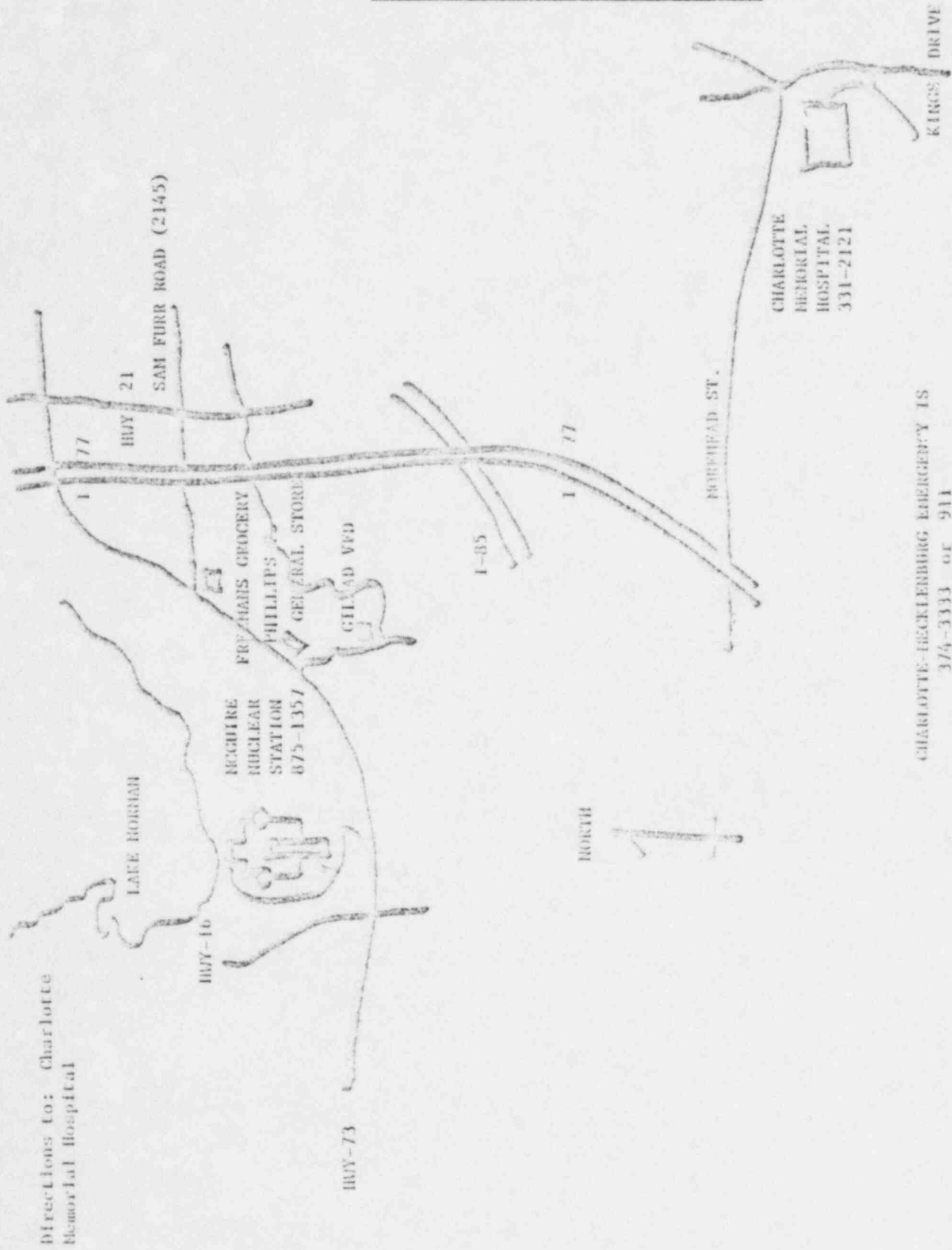
NOTE: The Ambulance Service or Rescue Squad will maintain radio communications with the medical facility while enroute.

- 3.10 Upon completion of transportation, McGuire Health Physics personnel will survey the ambulance/rescue vehicle(s), all involved personnel and equipment, and shall assist in any necessary decontamination of vehicles, personnel and equipment. McGuire Health Physics personnel will also assist the hospital in survey and decontamination of hospital equipment, spaces or personnel as may be requested by hospital Radiation Safety personnel.

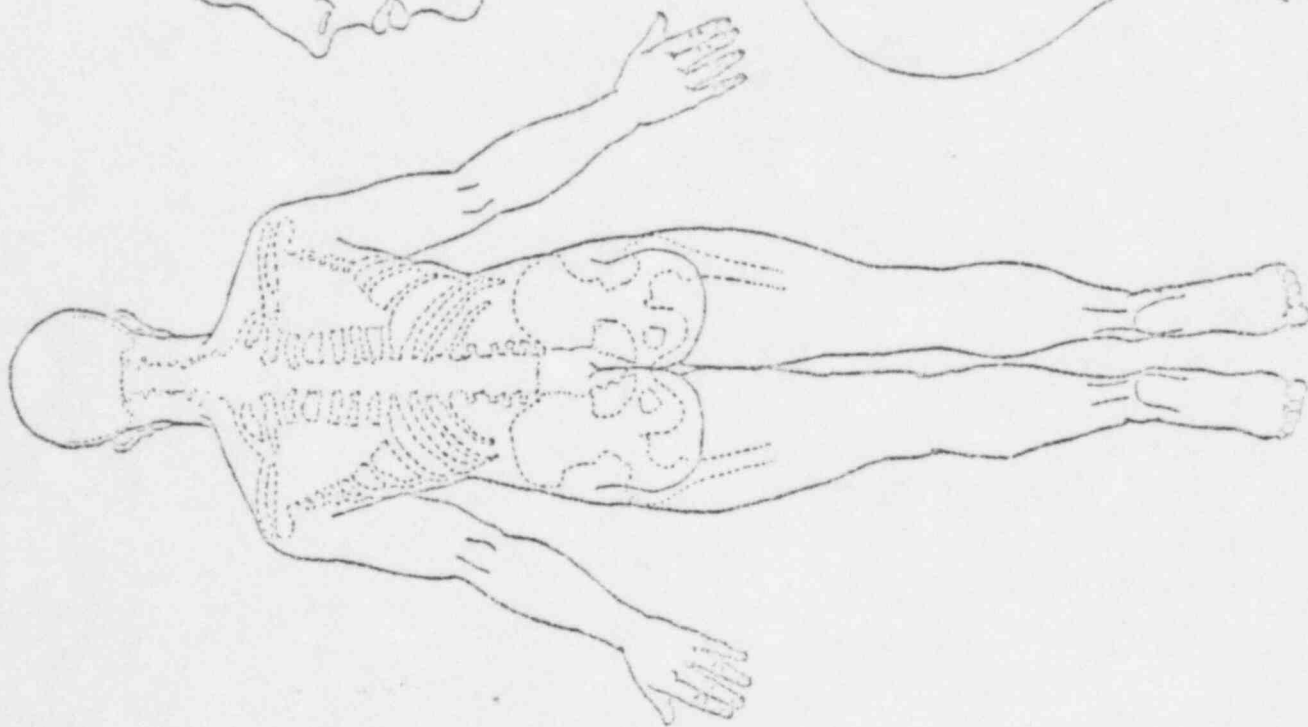
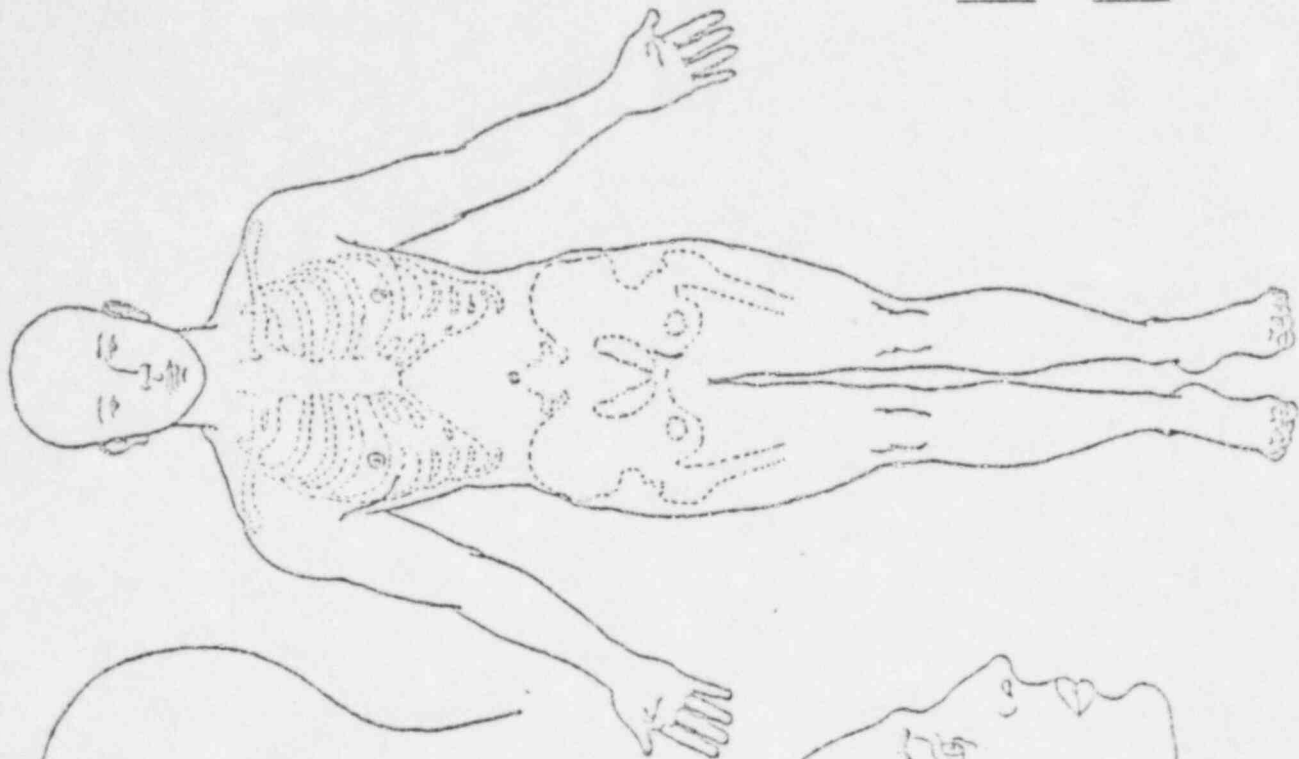
4.0 Enclosures

- 4.1 Map to Charlotte Memorial Hospital
4.2 Contaminated Victim Checklist
4.3 Telephone List

MAP TO CHARLOTTE MEMORIAL HOSPITAL



CHARLOTTE-HECKLERBURG EMERGENCY IS
374-3333 or 911



TELEPHONE LIST

- 4.3.1 Helath Physics - 4283 (Plant Phone)
- 4.3.2 Charlotte Memorial Hospital E.R. - 331-2171,2, 3, 4.
- 4.3.3 Radiation Emergency Assitance Center Training Site (REACTS) 616/576-3098
- 4.3.4 North Mecklenburg Ambulance Service - 704/374-3333
- 4.3.5 North Mecklenburg Rescue Squad - 704/734-3333
- 4.3.6 Corporate Communications (24 hour answering service) 527-5970

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HF/O/B/1009/02
Change(s) 0 to
0 Incorporated

(2) STATION: McGuire Nuclear Station

(3) PROCEDURE TITLE: Alternative Method for Determining Dose Rate Within
the Reactor Building

(4) PREPARED BY: J. L. Lunsom DATE: 7/19/83

(5) REVIEWED BY: J. L. Lunsom DATE: 7-20-83

Cross-Disciplinary Review By: _____ N/R: gms

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tracy Z. McConnell Date: 7/20/83

(8) MISCELLANEOUS:

Reviewed/Approved By: _____ Date: _____

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
ALTERNATIVE METHOD FOR DETERMINING
DOSE RATE WITHIN THE REACTOR BUILDING

1.0 Purpose

This procedure describes an alternative method for determining the dose rate within the reactor building in the event the reactor building monitors (1EMF51A & B or 2EMF51A & B) are inoperable.

2.0 References

- 2.1 System Health Physics Manual.
- 2.2 FSAR, Section 6, Section 15.
- 2.3 HP/O/B/1009/05, First Response Evaluation of a Reactor Coolant Leak Inside Containment (Section 4.1.9).
- 2.4 HP/O/B/1009/08, Evaluation of a Reactor Coolant Leak Inside Containment (Section 4.1.11).

3.0 Limits and Precautions

- 3.1 This procedure is written for use under abnormal conditions which could involve extremely high radiation levels. Only Health Physics management shall authorize the use of this procedure when needed.
- 3.2 The dose rate shall be determined every fifteen (15) minutes for implementation of HP/O/B/1009/05 and/or HP/O/B/1009/08.
- 3.3 Appropriate Surveillance and Control coverage shall be utilized.
- 3.4 The survey instrument to be used shall be calibrated and a daily response check performed.
- 3.5 The method described below for determining the reactor building dose rate is an approximation.

4.0 Procedure

4.1 Determination of Dose Rate

- 4.1.1 Have Security open Cad Door 611 for Unit 1 or 621 for Unit 2 at the respective upper containment personnel hatches.
- 4.1.2 Using a high range survey instrument (Teletector), and standing outside the cad door if possible, obtain a reading by placing the detector in contact

with the exterior center of the outer personnel air lock door.

4.1.3 Forward the following information to the Health Physics Shift Technician in the TSC or the Health Physics Shift Lab:

1. Dose rate reading from tel detector.
2. Tel detector 'MCHPS' number.
3. Your name.

4.1.4 With this dose rate reading, the Health Physics Shift technician shall calculate the reactor building dose rate by use of the following equation:

$$R_B = 740.0 \times R_H$$

Where:

R_B = Reactor Building Dose Rate (R/hr)

R_H = Dose Rate at Upper Personnel Hatch Air Lock Door (R/hr)

4.2 The Health Physics Shift technician shall record all necessary information and results on Enclosure 5.1.

5.0 Enclosures

5.1 Reactor Building Dose Rate Data Sheet

Enclosure 5.1

REACTOP BUILDING DOSE RATE DATA SHEET

[illegible]

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(r) ID No: HP/O/B/1009/03
Change(s) 0 to
1 Incorporated

(2) STATION: McGuire Nuclear Station

(3) PROCEDURE TITLE: Recovery Plan

(4) PREPARED BY: Jeff E. [Signature] DATE: 7 July 83

(5) REVIEWED BY: G. [Signature] DATE: 7/11/83

Cross-Disciplinary Review By: _____ N/R: CS

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tony McInnis Date: 7/17/83

(8) MISCELLANEOUS:

Reviewed/Approved By: _____ Date: _____

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
RECOVERY PLAN

1.0 Purpose

- 1.1 To provide a plan for recovery from, and return to an operational status following either a Notification of Unusual Event, Alert, Site Emergency, or a General Emergency.

2.0 References

- 2.1 Reg. Guide 1.101 Annex B.
2.2 Emergency Plan
2.3 System Health Physics Manual

3.0 Limits and Precautions

- 3.1 Exposure limits established by 10CFR20 shall not be exceeded.
3.2 Normal respiratory protection guidelines shall be followed.
3.3 Normal Health Physics dosimetry procedures shall be followed.
3.4 Protective clothing shall be used whenever loose contamination exists or is suspected to be greater than 1000 dpm/100cm² Beta-Gamma or 20 dpm/100cm² Alpha.

4.0 Discussion

- 4.1 In any plant emergency involving radioactive contamination, the immediate action is directed to limiting the consequences of the incident in a manner that affords maximum protection to the public. Once the immediate protective actions have established an effective control over the incident, the emergency actions shall shift into the recovery phase.
- 4.2 A recovery plan, from a practical standpoint, shall be flexible enough to adapt to existing rather than theoretical conditions. It is not possible to anticipate in advance all of the conditions that may be encountered in an emergency situation, therefore this recovery plan is addressed to general principles that serve as a guide for developing a flexible plan of action. Comprehensive plans for recovery from any major emergency are formulated on agreements between Duke Power and the NRC, the Radiation Protection Branch of the North Carolina Department of Human Resources, the North

Carolina Department of Crime Control and Public Safety and the Mecklenburg County Health Department. In the recovery phase all station actions shall be carefully planned by Duke Power Company management. In the period immediately following an incident, initial radiation monitoring functions shall involve only gross hazard evaluations and isolation of radiological problem areas. These immediate radiation surveys are intended to provide the basic information necessary for the recovery operation.

5.0 Procedure

5.1 The initial re-entry into the affected area shall be conducted by Health Physics personnel to evaluate radiological hazards and contamination levels.

5.2 Subsequent to the initial entry and after the radiological hazards have been identified the recovery operation may proceed in accordance with the following case examples:

5.2.1 CASE "A" -- General emergencies that have resulted in the spread of contamination, evacuation of an area of the station, injured personnel or a change in the operating status of the station.

5.2.1.1 The Station Manager, Station Group Superintendents, Station Health Physicist and his staff, the Recovery Manager at the Crisis Management Center, and any other offsite agencies who may be involved shall decide what procedures and precautions shall be taken in the recovery plan.

5.2.1.2 Review all available radiation survey data. Determine station areas potentially affected by radiological hazards.

5.2.1.3 Review radiation exposure history of all personnel scheduled to participate in the recovery operations. Determine the need for additional personnel.

5.2.1.4 Review the adequacy of radiation survey

equipment available. Determine the need for additional equipment and a source of procurement.

- 5.2.1.5 Pre-plan survey team activities, including areas to be surveyed, anticipated radiation levels, survey equipment required, protective clothing requirements, access control procedures, exposure control procedures, and communication capabilities.
- 5.2.1.6 Conduct comprehensive radiation survey of station facilities and define all radiological problem areas.
- 5.2.1.7 Isolate and post with appropriate warning signs all "High Radiation Areas" and areas of contamination.
- 5.2.1.8 Perform visual inspection of station areas and equipment.
- 5.2.1.9 All radiological conditions discovered and existing in the facility as determined by the re-entry survey shall be evaluated by station management.
- 5.2.1.10 Upon evaluation of the radiological conditions, station management shall determine what procedures are required to restore the site to a normal status.
- 5.2.1.11 Personnel radiation exposure shall be closely controlled and documented.
- 5.2.1.12 Recovery coordinators shall take appropriate actions to insure that emergency personnel and equipment leaving the radiation control area are not contaminated, that radiological conditions at the scene of the emergency are properly defined, barricaded, and posted with appropriate signs.
- 5.2.1.13 The Station Manager, Station Group

Superintendents, and Station Health Physicist shall make all necessary decisions to return the unit to normal status and to prevent a recurring problem.

5.2.2 CASE "B" - Site emergencies that have resulted in the evacuation of a station area, the spread of contamination, and/or change in the operating status of the station.

5.2.2.1 The Station Manager, Group Superintendents and Site Health Physicist shall make decisions related to their areas of responsibility to recover and normalize any affected areas. All paragraphs of CASE "A" may also be applicable for unit emergencies.

5.2.2.2 Follow all Limits and Precautions prescribed to ensure the safety of all recovery personnel.

5.2.2.3 On completion of recovery operations ensure proper documentation of the accident and include all pertinent data involving the incident and the recovery operation.

5.2.3 CASE "C" - Alert conditions or Unusual Events that may have resulted in the spread of contamination, unsafe conditions, and/or evacuation of an area due to noxious gases being present.

5.2.3.1 The Station Manager, Station Health Physicist, Station Safety Supervisor and Station Chemist shall make decisions related to their areas of responsibility to recover and normalize any affected areas. Applicable paragraphs of CASE "A" may become pertinent in this case.

5.2.3.2 Follow all limits and precautions prescribed, to ensure the safety of all recovery personnel.

5.3 Formal reporting of the emergency and recovery shall be completed as required by the Duke Power Company Nuclear Production Department Administrative Policy Manual for Nuclear Stations.

6.0 Enclosures

N/A

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: PT/O/A/4600/06
Change(s) 0 to
0 Incorporated

(2) STATION: McGuire Nuclear Station

(3) PROCEDURE TITLE: Exercises and Drills

(4) PREPARED BY: M.S. Glover

DATE: 7/26/83

(5) REVIEWED BY: Ty Lample

DATE: 7/26/83

Cross-Disciplinary Review By: _____

N/R: 7/26/83

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO)

Date: _____

By: _____

Date: _____

(7) APPROVED BY: Ty Lample

Date: 7/27/83

(8) MISCELLANEOUS:

Reviewed/Approved By: _____

Date: _____

Reviewed/Approved By: _____

Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
EXERCISES AND DRILLS

1.0 Purpose

This procedure provides for periodic exercises/drills to be conducted to evaluate major portions of the emergency response capability, and to develop and maintain key skills. Corrective actions and recommendations identified as a result of an exercise or drill will be corrected, and records maintained in accordance with this procedure.

2.0 References

2.1 McGuire Nuclear Station Emergency Plan

3.0 Time Required

2 hours

4.0 Prerequisite Tests

N/A

5.0 Test Equipment

N/A

6.0 Limits and Precautions

6.1 Exercise scenario's should be varied from year to year to test emergency team response to many of the initiating conditions listed in Procedures RP/O/A/5700/01, RP/O/A/5700/02, RP/O/A/5700/03, and RP/O/A/5700/04.

6.2 Exercises should be scheduled to start between 6:00 P.M. and midnight and another between midnight and 6:00 A.M. once every six years.

6.3 Drills should be conducted more frequently than exercises and shall be supervised and evaluated by a drill instructor.

7.0 Required Station Status

N/A

8.0 Prerequisite System Conditions

N/A

9.0 Test Method

N/A

10.0 Data Required

Enclosure 13.1, Exercise/Drill Format and Critique Findings

Enclosure 13.2, Exercise/Drill, Controller/Evaluator Report

11.0 Acceptance Criteria

11.1 Completion of required exercise or drill and the subsequent critique.

12.0 Procedure

12.1 Exercises

12.1.1 A full-scale exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. A full-scale exercise shall include mobilization of state and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. A full-scale exercise will be supervised and evaluated by a qualified exercise director. A full-scale exercise will be held no less than once every 5 years.

12.1.2 A small-scale exercise is an event which tests the adequacy of communication links, establishes that response agencies at the utility and local level understand the emergency action levels, and test at least one other component (e.g.: medical or offsite monitoring) of the emergency plan. A small-scale exercise will be conducted each year that a full-scale exercise is not held at the station. A small-scale exercise will be supervised and evaluated by a qualified exercise director.

12.1.3 An exercise will simulate an emergency that results in offsite protective actions and requires response by offsite agencies.

12.1.4 An exercise scenario shall provide for a critique of the exercise by all concerned personnel and organizations.

12.2 Drills

12.2.1 A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. A drill is often a component of an exercise. A drill will be supervised and evaluated by a qualified drill instructor.

12.2.2 Drills will be conducted at the frequencies indicated below:

- (a) Communication drills with state and local government located within the 10 mile Emergency Planning Zone shall be conducted monthly. This communication check will include contact with the NRC headquarters via the ENS (Emergency Notification System) telephone from the Control Room and TSC.
- (b) Communication drills with Federal emergency response organizations and states within the 50 mile Ingestion Pathway shall be conducted quarterly.
- (c) Communication drills with state and local emergency operations centers and field assessment teams shall be conducted annually.

NOTE: Sample message information for the above communication drills shall test the ability to understand the content of messages.

- (d) Fire drills shall be conducted in accordance with Station Directive 2.11.1 and documented by the Safety Department.
- (e) Medical emergency drills involving a simulated contaminated individual shall be conducted annually. This drill will involve participation by the North Mecklenburg Ambulance Service and the North Mecklenburg Rescue Squad and Charlotte Memorial Hospital. A communication check to Oak Ridge REACTS as the provider of backup medical support shall be conducted during this drill.
- (f) A radiological monitoring drill involving onsite and offsite radiological monitoring teams will be conducted annually. The monitoring teams will actually collect

and analyze air samples, as appropriate. Soil, vegetation and water samples will not be taken as this is done on a weekly basis at the station. The exercise controllers will provide them simulated analysis results indicative of contamination or plume location.

- (g) Health Physics drills shall be conducted semi-annually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.
- (h) Health Physics drills shall also be conducted annually which involve analysis of inplant liquid samples with actual radiation levels, including use of the post-accident sampling system.
- (i) Site assembly drills shall be conducted semi-annually. These drills shall provide for the capability to account for all individuals onsite at the time of the emergency and to ascertain the names of missing individuals within 30 minutes of the start of an emergency condition. The capability to account for onsite individuals continuously after the initial accountability shall be included.

12.2.3 File Enclosure(s) 13.1 and 13.2 with completed procedure process record.

13.0 Enclosures

- 13.1 Exercise/Drill Format and Critique Findings.
- 13.2 Exercise/Drill, Controller/Evaluator Report.

EXERCISE/DRILL FORMAT AND CRITIQUE FINDINGS

1.0 Classification of Exercise/Drill. (Check appropriate box) ☒

- ☐ - Emergency Exercise, 12.1
- ☐ - Communication Drill (state and local government within 10 mile EPZ and NRC Headquarters from the Control Room and TSC), 12.2.2.a. (monthly)
- ☐ - Communication Drill (Emergency response organizations and state within 50 mile I.P.Z.), 12.2.2.b. (quarterly)
- ☐ - Communication Drill (state and local Emergency Operations Centers and Field Assessment Teams), 12.2.2.c. (annually)
- ☐ - Medical Emergency Drill, 12.2.2.e. (annually)
- ☐ - Radiological Monitoring Drill, 12.2.2.f. (annually)
- ☐ - Health Physics Drill, 12.2.2.g. (semi-annually)
- ☐ - Health Physics Drill, 12.2.2.h. (annually)
- ☐ - Site Assembly Drill, 12.2.2.i. (semi-annually)

2.0 Drill Instructor/Exercise Director _____
(Name)

Critique Director: _____
(Name)

3.0 Date/Time Exercise/Drill to be conducted: _____ / _____
(Date) (Time)

4.0 Exercise/Drill Objectives: _____

5.0 Plant system/area(s) affected: _____

6.0 Work groups to be involved: _____

7.0 Time sequence of postulated events: _____

8.0 Assigned Observers (Controllers/Evaluators) and their station: _____

9.0 Critique to be conducted at: _____ / _____
(Date) (Time) (Location)

10.0 Personnel to attend critique:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

11.0 Critique Findings, Recommendations, Required Action(s), Etc.: _____

12.0 Corrective Actions Taken: (List actions taken to ensure all findings in 11.0 above are identified and corrected): _____

NOTE: Include all Exercise/Drill data or other information provided as an attachment.

(Drill Instructor/Exercise Director)
(Signature)

(Critique Director)
(Signature)

EXERCISE/DRILL CONTROLLER/EVALUATOR REPORT

- 1.0 Drill Classification: _____

- 2.0 Summary of Exercise/Drill: _____

- 3.0 Exercise/Drill initiated: _____ / _____
(Date) (Time)
- 4.0 Observation/Comments/Recommendation: _____

- 5.0 Exercise/Drill completed at: _____ / _____
(Date) (Time)

Controller/Evaluator
(Signature)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: PT/O/A/4600/11
Change(s) 0 to
2 Incorporated

(2) STATION: McGuire Nuclear Station

(3) PROCEDURE TITLE: Function Check of Emergency Vehicle and Equipment

(4) PREPARED BY: Scott E. Luman DATE: 1 July 83

(5) REVIEWED BY: G. Turner DATE: 7/11/83

Cross-Disciplinary Review By: _____ N/R: GT

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Thy L. McInnis Date: 7/12/83

(8) MISCELLANEOUS:

Reviewed/Approved By: _____ Date: _____

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
FUNCTION CHECK OF EMERGENCY VEHICLE AND EQUIPMENT

1.0 Purpose

- 1.1 To ensure that protective equipment and supplies are operational, and that communications capability exists with the various emergency personnel and emergency organizations at all times in the support of an emergency condition at the station.

2.0 References

- 2.1 NUREG-0654 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants).

3.0 Time Required

- 3.1 Sixteen (16) manhours.

4.0 Prerequisite Tests

N/A

5.0 Test Equipment

N/A

6.0 Precautions and Limitations

- 6.1 A minimum of two people shall be aboard the emergency boat when in use.
- 6.2 Emergency boat operators shall maintain radio communications with the McGuire Nuclear Station at all times and shall verify this capability by performing a radio check every 30 minutes during the period the boat is being operated.
- 6.3 Personnel aboard the emergency boat shall wear flotation vests at all times and semi-dry suits when Condenser Circulating Water (CCW) inlet temperature drops below 60°F., and outside air temperature is below 55°F.
- 6.4 Emergency boat fuel tank level shall be maintained at $\geq \frac{3}{4}$ full at all times.
- 6.5 Personnel using an emergency vehicle shall wear seat belts.
- 6.6 Personnel shall follow all FCC regulations during radio transmissions.

7.0 Required Station Status

N/A

8.0 Prerequisite System Conditions

N/A

9.0 Test Method

N/A

10.0 Data Required

- 10.1 Equipment Check-Off List - Emergency Vehicles (Enclosure 13.1)
- 10.2 Equipment Check-Off List - Emergency Boat (Enclosure 13.2)
- 10.3 Post Accident Containment Air Sampling Equipment (Enclosure 13.3)
- 10.4 Protective Equipment and Supplies Locations (Enclosure 13.4)
- 10.5 Protective Equipment and Supplies Check-Off List - Recovery Kits (Enclosure 13.5)
- 10.6 Protective Equipment and Supplies Check-Off List - Environmental Survey Kits (Enclosure 13.6, 13.7, 13.8, 13.9, 13.10)
- 10.7 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - Construction Post #1 (Enclosure 13.11)
- 10.8 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - Brass Shack (Enclosure 13.12)
- 10.9 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - PAP Area (Enclosure 13.13)
- 10.10 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - Evacuation Facility (Enclosure 13.14)
- 10.11 Technical Support Center Kit Check List (Enclosure 13.15)
- 10.12 Medical Decontamination Kit Check-Off List (Enclosure 13.16)
- 10.13 Medical Decontamination Kit Check-Off List, Charlotte Memorial Hospital (Enclosure 13.17)
- 10.14 Operation Support Center Kit Check List (Enclosure 13.18)
- 10.15 Fuel Shipment Kit (Enclosure 13.19)
- 10.16 Verification of Emergency Communications (Enclosure 13.20)

10.17 National Weather Service and Onsite Weather (Enclosure
13.21)

11.0 Acceptance Criteria

N/A

12.0 Procedure

12.1 Emergency Vehicles

Date/Initials

____/____ 12.1.1 Once during each month and after emergency use,
the emergency vehicles shall be inventoried per
Enclosure 13.1 (Equipment Check-Off List -
Emergency Vehicles).

____/____ 12.1.2 With each inventory a check-off list shall be
completed and any discrepancies shall be noted
on the list and reported to the emergency plan
group immediately.

____/____ 12.1.3 Preventive maintenance shall be the
responsibility of the Emergency Planning group
of Health Physics and be performed by
predesignated service areas.

12.2 Emergency Boat

____/____ 12.2.1 Once during each month and after use, the
emergency boat shall be inventoried per
enclosure 13.2 (Equipment Check-Off List -
Emergency Boat).

NOTE: Run Time (Minimum 2 hours per month
may be postponed up to, but not more
than 3 months due to inclement
weather.

____/____ 12.2.2 With each inventory the check-off list shall be
completed and any discrepancies shall be noted
on the list and reported to the emergency plan
group immediately.

____/____ 12.2.3 Every 100 hours of operation, the emergency
boat shall be delivered to an authorized
service representative for routine preventative

maintenance as per the owner's-operators' manual.

12.3 Protective Equipment Kits

- _____/_____ 12.3.1 Once during each month and after use, each emergency kit listed in enclosure 13.4 (Protective Equipment Kit Locations) shall be inventoried per applicable enclosure 13.5 - 13.10 (Protective Equipment Kit Check-Off Lists).
- _____/_____ 12.3.2 With each inventory the check-off list shall be completed and a copy placed in the applicable kit. (The original shall be filed with the completed procedure records). Any discrepancies shall be noted on the check-off list and reported to the emergency plan group immediately.
- _____/_____ 12.3.3 Check all batteries in kits monthly for strength and condition.
- _____/_____ 12.3.4 Verify calibration data and functional check each instrument during inventory.
- _____/_____ 12.3.5 Verify that silver zeolite cartridges are sealed air tight and not more than two (2) years have passed from the date on the package.

12.4 Telephone Communications

- _____/_____ 12.4.1 Once per calendar quarter, all telephone numbers and pagers utilized in emergency procedures RP/C/A/5700/01-04, and Station Directives 3.8.1, 3.8.2 shall be verified correct and in working order.

12.5 Radio Communications

- _____/_____ 12.5.1 Once during each month, McGuire emergency radio transmitter/receivers shall be operationally checked as follows:
- _____/_____ 12.5.1.1 McGuire Emergency Base Station - verify capable communications with all county Emergency Operations Centers.

12.5.1.2 Once a month, a call shall be made to the National Weather Service located at the Charlotte Airport and McGuire Control Room to obtain the wind direction, speed and cloud cover.

12.5.2 Verification of capable emergency communications shall be documented per enclosure 13.20 (Verification of Emergency Communications) and maintained on file by the Emergency Plan Group.

12.6 Gasoline powered generators shall be operationally checked quarterly and preventative maintenance done as described in Section 4 of the owners' manual.

13.0 Enclosures

- 13.1 Equipment Check-Off List - Emergency Vehicles
- 13.2 Equipment Check-Off List - Emergency Boat
- 13.3 Post Accident Containment Air Sampling Equipment List.
- 13.4 Protective Equipment and Supplies Locations
- 13.5 Protective Equipment and Supplies Check-Off List - Recovery Kits
- 13.6 Protective Equipment and Supplies Check-Off List - Environmental Survey Kits Health Physics Vehicle
- 13.7 Protective Equipment and Supplies Check-Off List - Environmental Survey Kits Station Manager's Vehicle
- 13.8 Protective Equipment and Supplies Check-Off List - Environmental Survey Kits Chemistry Vehicle
- 13.9 Protective Equipment and Supplies Check-Off List - Environmental Survey Kits Planning Pickup
- 13.10 Environmental Survey Kit (Boat)
- 13.11 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - Construction Post #1
- 13.12 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - Brass Shack
- 13.13 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit PAP Area
- 13.14 Protective Equipment and Supplies Check-Off List - Personnel Survey Kit - Evacuation Facility

13.15 Technical Support Center Kit Check List

13.16 Medical Decontamination Kit Check-Off List

13.17 Medical Decontamination Kit Check-Off List, Charlotte
Memorial Hospital

13.18 Operational Support Center Kit Check-Off List

13.19 Fuel Shipment Kits Check-Off List

13.20 Verification of Emergency Communications

13.20 National and On-Site Weather Information

PT/O/A/4600/11
Enclosure 13.1

EQUIPMENT CHECK-OFF LIST
EMERGENCY VEHICLES

Vehicle #

7632 Health Physics Vehicle
4352 Chemistry Vehicle
8031 Planning Vehicle
8937 Station Manager's Vehicle

<u>ITEM</u>	<u>AMOUNT</u>
Fire Extinguisher	1
First Aid Kit	1
Vehicle Accident Form	1
Keys (PAP)	1 set each
Keys (Trailer #7)	1 set each

Discrepancies:

Signature/Data

EQUIPMENT CHECK-OFF LIST
EMERGENCY BOAT

INVENTORY

<u>TIME</u>	<u>AMOUNT</u>
Floatation Vest (one per person)	4
Semi-Dry Suits (one per person as required)	4
Buoyant Jacket (one per person as required)	4
Fire Extinguisher	1
Paddles	2
First Aid Kit	1
Anchor and Line	1
Snake Bite Kit	1
Loud Hailer	1

OPERATIONAL CHECKS

	Check <u>✓</u>
Bilge Pump	_____
Loud Hailer	_____
Horn	_____
Siren	_____
Navigation Lights	_____
Search Lights	_____
Fuel Tank Level $\geq \frac{1}{2}$ full	_____
Run Time (Minimum - 2 hours by log)	_____

Discrepancies:

Signature/Date

PT/O/A/4600/11
Enclosure 13.3

POST ACCIDENT CONTAINMENT
AIR SAMPLING EQUIPMENT

Check ☒ _____

Nalgene 500 ml Bottles of NAOH with Accompanying Vial of $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$	6	_____
Nalgene 500 ml Thiosulfate Sample Bottles	6	_____
Stainless Steel 100cc Gas Bombs	6	_____
Poly Bags	6	_____
Stop Watch	1	_____

Location:

Health Physics Shift Lab in File Drawer Labeled "Post Accident Air
Sampling Equipment."

Signature/Date

PROTECTIVE EQUIPMENT AND SUPPLIES

<u>KITS</u>	<u>LOCATION</u>
Recovery Kits (4)	Control Room Station Manager's Office Training & Technology Cent. Cowans Ford Dam
Environmental Survey Kits (5)	Trailer #7
Personnel Survey Kits (5) Construction Post #1 Brass Shack PAP Area Evacuation Facility (2)	Unit 2 PAP Unit 2 PAP Security - PAP Area Cowans Ford Dam, and Training & Technology Center
Medical Decontamination Kit	Auxiliary Building First Aid Room and Charlotte Memorial Hosp.
Operational Support Center Kit	Operational Support Center
Technical Support Center Kit	Technical Support Center
Fuel Shipment Kits (2)	Trailer #7

RECOVERY KITS CHECK LIST

ITEM	AMOUNT
Ketax Mod 305B	1
High Range Dosimeters	2
Dosimeter Charger	1
Boundary Ribbon or Rope (50 yd. roll)	1
Masking Tape (roll)	1
Rain Suits (set)	2
Protective Clothing (set)	2
Poly Bags (various)	12
Caution Signs w/inserts	2
Legal Pads	1
HP Form #2 (Smear Survey Form)	5
Pens	2
Grease Pencil	1
Norton 7600 Respirators w/7500-83 Chemical Cartridges	2
First Aid Kit	1
Potassium Iodide Tablets	470 Bottles-Cowans Ford, 150 Bottles-Control Room, Station Manager's Office, Training & Technology Cent.
Smears (box)	1
NuCon Smears	30
Soap (bar)	6
Flashlight	1
Batteries	4
Pocket Knife	1
Small Sample Bottles	200 Cowans Ford 60 Station Managers Office Training & Technology Cent. Control Room

Discrepancies:

Signature/Date

PT/O/A/4600/11
Enclosure 13.6

ENVIRONMENTAL SURVEY CHECK LIST
HEALTH PHYSICS VEHICLE

ITEM	AMOUNT
Xetax Mod 305B and Eberline E-520 or E-120 w/260 probe	1 each
Sam-2 w/RD-22 probe	1
Emergency Radio Transmitter/Receiver	1
Radeco H809V Air Sampler	1
High Range Dosimeter	2
Dosimeter Charger	1
TLD (in separate labeled container)	2
Norton 7600 Respirator w/7500-83 Chemical Cartridges	2
Potassium Iodide Tablets (bottle)	1
Protective Clothing (full set)	3
Poly Bags (various sizes)	6
Masking Tape (roll)	1
Limnological Samplar	1
Cubitainers	6
Hand Gardening Spade	1
Stopwatch	1
Flashlight	1
Batteries	4
Silver Zeolite (CP100G or GT130) Filter Cartridges and Particulate Filters	30
Labels for Filter Cartridges	30
Smears (box)	1
NuCon Smears	30
HP Form #2 (Smear Survey Form)	10
HP Form #6 (Air Survey Form)	10
Map of Ten Mile Zone Sectors	1
Legal Pad	1
Snake Bite Kit	1
Pen	2
Grease Pencil	1
Dime Roll	1
Pocket Knife	1
Health Physics Manual - Section 13.2	1
Grass Clippers	1
Gasoline Powered Generators	1

Signature/Date

Discrepancies:

PT/O/A/4600/11
Enclosure 13.7

ENVIRONMENTAL SURVEY CHECK LIST
STATION MANAGER'S VEHICLE

ITEM	AMOUNT
Xetax Mod 305B and Eberline E-520 or E-120 w/260 probe	1 each
San-2 w/RD-22 probe	1
Emergency Radio Transmitter/Receiver	1
Radeco H809V Air Sampler	1
High Range Dosimeter	2
Dosimeter Charger	1
TLD (in separate labeled container)	2
Norton 7600 Respirator w/7500-83 Chemical Cartridges	2
Potassium Iodide Tablets (bottle)	1
Protective Clothing (full set)	3
Poly Bags (various sizes)	6
Masking Tape (roll)	1
Cubitainers	6
Hand Gardening Spade	1
Stopwatch	1
Flashlight	1
Batteries	4
Silver Zeolite (CP100G or GY130) Filter Cartridges and Particulate Filters	30
Labels for Filter Cartridges	30
Smears (box)	1
NuCon Smears	30
HP Form #2 (Smear Survey Form)	10
HP Form #6 (Air Survey Form)	10
Map of Ten Mile Zone Sectors	1
Legal Pad	1
Snake Bite Kit	1
Pen	2
Grease Pencil	1
Dime Roll	1
Pocket Knife	1
Health Physics Manual - Section 18.2	1
Grass Clippers	1
Gasoline Powered Generators	1

Signature/Date

Discrepancies:

ENVIRONMENTAL SURVEY CHECK LIST
CHEMISTRY VEHICLE

ITEM	AMOUNT
Ketex Mod 305B and Eberline E-520 or E-120 w/260 probe	1 each
Sam-2 w/RD-22 probe	1
Emergency Radio Transmitter/Receiver	1
Radeco H809V Air Sampler	1
High Range Dosimeter	2
Dosimeter Charger	1
TLD (in separate labeled container)	2
Norton 7600 Respirator w/7500-83 Chemical Cartridges	2
Potassium Iodide Tablets (bottle)	1
Protective Clothing (full set)	3
Poly Bags (various sizes)	6
Masking Tape (roll)	1
Cubitrainers	6
Hand Gardening Spade	1
Stopwatch	1
Flashlight	1
Batteries	4
Silver Zeolite (CP100G or GY130) Filter Cartridges and Particulate Filters	30
Labels for Filter Cartridges	30
Smears (box)	1
NuCon Smears	30
EP Form #2 (Smear Survey Form)	10
EP Form #6 (Air Survey Form)	10
Map of Ten Mile Zone Sectors	1
Legal Pad	1
Snake Bite Kit	1
Pen	2
Grease Pencil	1
Dime Roll	1
Pocket Knife	1
Health Physics Manual - Section 18.2	1
Grass Clippers	1
Gasoline Powered Generator	1

Signature/Date

Discrepancies:

PT/O/A/4600/11
Enclosure 13.9

ENVIRONMENTAL SURVEY CHECK LIST
PLANNING PICKUP VEHICLE

ITEM	AMOUNT
Necox Mod 305B and Eberline E-320 or E-120 w/260 probe	1 each
Sam-2 w/RD-22 probe	1
Emergency Radio Transmitter/Receiver	1
Radeco HS09V Air Sampler	1
High Range Dosimeter	2
Dosimeter Charger	1
TLD (in separate labeled container)	2
Norton 7600 Respirator w/7500-83 Chemical Cartridges	2
Potassium Iodide Tablets (bottle)	1
Protective Clothing (full set)	2
Poly Bags (various sizes)	6
Masking Tape (roll)	1
Limnological Sampler	1
Cubitainers	6
Hand Gardening Spade	1
Stopwatch	1
Flashlight	1
Batteries	4
Silver Zeolite (CP100G or GY130) Filter Cartridges and Particulate Filters	30
Labels for Filter Cartridges	30
Smears (box)	1
NuCon Smears	30
EP Form #2 (Smear Survey Form)	10
EP Form #6 (Air Survey Form)	10
Map of Ten Mile Zone Sectors	1
Legal Pad	1
Snake Bite Kit	1
Pen	2
Grease Pencil	1
Dime Roll	1
Pocket Knife	1
Health Physics Manual - Section 13.2	1
Grass Clippers	1
Gasoline Powered Generators	1

Signature/Data

Discrepancies:

PT/O/A/4600/11

Enclosure 13.10

ENVIRONMENTAL SURVEY CHECK LIST

BCAT

ITEM	AMOUNT
Xetax Mod 305B and Eberline E-520 or E-120 w/250 Probe	1
Porta-Mobile Radio Transmitter/Receiver	1
Radeco Air Sampler H809V	1
Trippa FV1000FC Powerverter	1
High Range Dosimeters	2
TLD (in seperate labeled container)	2
Norton 7600 Respirator w/7500-83 Chem. PGS.	2
Potassium Iodide Tablets (Bottle)	1
Protective Clothing (Full Set)	2
Masking Tape (roll)	1
Limnological Sampler	1
Cubitainers	10
Flashlight	1
Batteries	4
Silver Zeolite Filter Cnvs. and Particulate Filters	20
Labels for Filter Cnvs.	20
Map of 10 Mile Zone Sectors	1
Legal Pad	1
Pen	3
Graase Pencil	2

Discrepancies:

Signature/Data

PT/O/A/4600/11
Enclosure 13.11

PERSONNEL SURVEY KIT
CONSTRUCTION POST #1

CHECK LIST

ITEM	AMOUNT
Eberline E-520 or E-120 w/HP-260 probe	1
Emergency Radio Transmitter/Receiver, provided by Security	1
High Range Dosimeters	1
Dosimeter Charger	1
Norton 7600 Respirator w/7500-83 Chemical Cartridges	1
Potassium Iodine Tablets (bottle)	1
Protective Clothing (full set)	6
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs w/inserts	4
Masking Tape (roll)	1
Poly Bags (various)	6
Smears (box)	1
NuCon Smears	25
HP Form #2 (Smear Survey Form)	10
Pens	2
Grease Pencil	1
Health Physics Manual, Section 18.1	1
Legal Pad	1
Pocket Knife	1

Discrepancies:

Signature/Date

PT/O/A/4600/11
Enclosure 13.12

PERSONNEL SURVEY KIT
BRASS SHACK
CHECK LIST

ITEM	AMOUNT
Eberline E-520 or E-120 w/HP-250 probe	1
Emergency Radio Transmitter/Receiver, provided by Security	1
High Range Dosimeters	1
Dosimeter Charger	1
Norton 7600 Respirator w/7500-83 Chemical Cartridges	1
Potassium Iodide Tablets (bottle)	1
Protective Clothing (full sat)	6
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs w/inserts	4
Masking Tape (roll)	1
Poly Bags (various)	6
Smears (box)	1
NuCon Smears	25
HP Form #2 (Smear Survey Form)	10
Pens	2
Grease Pencil	1
Health Physics Manual, Section 13.1	1
Legal Pad	1
Pocket Knife	1

Discrepancies:

Signature/Date

PT/O/B/4600/11
Enclosure 13.13

PERSONNEL SURVEY KIT
PAP AREA
CHECK LIST

ITEM	AMOUNT
Eberline E-520 or E-120 w/HP260 probe	2
Emergency Radio Transmitter/Receiver, provided by Security	1
High Range Dosimeters	2
Dosimeter Charger	1
Norton 7600 Respirator w/7500-83 Chemical Cartridges	2
Potassium Iodide Tablets (bottle)	1
Protective Clothing (full set)	6
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs w/inserts	4
Masking Tape (roll)	1
Poly Bags (various)	6
Smears (box)	1
NuCon Smears	25
HP Form #2 (Smear Survey Form)	10
Pens	2
Grease Pencil	2
Health Physics Manual, Section 18.1 and Section 11.3	1 each
Legal Pad	1
Pocket Knife	1
Hand Soap	10
Hand Brushes	2
Atomic Swipes	12
Citric Acid (1 lb.)	1
Disposable Towels	1 pk.
Fingernail Clippers	1
Disposable Coveralls	40
Phisohex	1 quart

Discrepancies:

Signature/Data

PT/O/A/4600/11
Enclosure 13.14

PERSONNEL SURVEY KIT
EVACUATION FACILITY
CHECK LIST

ITEM	AMOUNT
Eberline E-520 or E-120 w/HP260 probe	2
Emergency Radio Transmitter/Receiver, provided by Security	1
High Range Dosimeters	4
Dosimeter Charger	1
Norton 7600 Respirator w/7500-83 Chemical Cartridges	4
Potassium Iodide Tablets (bottle)	2
Small Sample Bottles	4
Protective Clothing (full set)	6
Boundary Ribbon or Rope (50 yd. roll)	2
Caution Signs w/inserts	6
Masking Tape (roll)	1
Poly Bags (various)	6
Smears (box)	1
NuCon Smears	25
HP Form #2 (Smear Survey Form)	10
Pens	2
Grease Pencil	2
Health Physics Manual, Section 18.1 and Section 11.3	1 each
Legal Pad	1
Pocket Knife	1
Hand Soap	10
Hand Brushes	2
Atomic Swipes	12
Citric Acid (1 lb.)	1
Disposable Towels	1 pk.
Fingernail Clippers	1
Disposable Coveralls	40
Phisohex	1 quart

Discrepancies:

Signature/Date

PT/O/A/4600/11
Enclosure 13.15

TECHNICAL SUPPORT CENTER KIT
CHECK LIST

ITEM	AMOUNT
Protective Clothing (set)	6
Norton 7600 Respirators w/7500-83 Chem. Ctgs.	6
Katex Mod 305B or PIC 6A	1
Radeco H809V Air Sampler	1
Silver Zeolite (CP-100G or GY-130) Filter Cartridges & Particulate Filters	25
Labels for Filter Cartridges	25
SAM-2 w/RD-22 Probe	1
Potassium Iodide Tablets (bottle)	25
Small Sample Bottles	10
Caution Signs w/inserts	3
Rad Tape	2
Smears	30
Plastic Bags	6
Masking Tape (roll)	1
Pen	2
Grease Pencil	1
Discrepancies:	

Signature/Date

PT/O/A/4600/11
Enclosure 13.16

MEDICAL DECONTAMINATION KIT CHECK-OFF LIST

ITEM	AMOUNT
Eberline RM-14 w/HP-210 Probe (H.P. Lab)	1
Decon Cleaner	3
Disposable Towels	10
Poly Bags 20" x 40"	2
Poly Bags 12" x 18"	4
Fingernail Clippers	1
Smears	25
NuCon Smears	25
Hand Brushes	2
Hand Soap	10
Protective Clothing (full set)	4
Disposable Rain Suits	2
Tape, Radioactive Material	1
Tape, Masking 2"	1
Tape, Duct 2"	1
HP Form #2	4
RP/O/A/5700/05	1
Swipes, Atomic (Kotex)	12
Citric Acid (1 lb.)	1
Phisohex	1 gallon
Discrepancies:	

Signature/Data

PT/O/A/4600/11
Enclosure 13.17

MEDICAL DECONTAMINATION KIT CHECK-OFF LIST
CHARLOTTE MEMORIAL HOSPITAL

ITEM	AMOUNT
Eberline E-120 w/HP210 and HP270 Probes	2
Decon Cleaner	3
Disposable Towels	10
Poly Bags 20" x 40"	2
Poly Bags 12" x 18"	4
Fingernail Clippers	1
Smears	25
NuCon Smears	25
Hand Brushes	2
Hand Soap	10
Protective Clothing, provided by Hospital	4
Disposable Rain Suits	2
Tape, Radioactive Material	1
Tape, Masking 2"	6
Tape, Duct 2"	6
HP Form #2	4
RP/O/A/5700/05	1
Swipes, Atomic (Kotax)	36
Citric Acid (1 lb.)	1
Hair Clippers, Electric	1
Absorbent Paper	150
Caution Signs w/inserts	5
Rad Rope	1
Pocket Dosimeters 0-200 mR	25
Dosimeter Charger	1

Discrepancies:

Signature/Data

PT/O/A/4600/11
Enclosure 13.18

OPERATION SUPPORT CENTER KIT
CHECK-OFF LIST

ITEM	AMOUNT
Protective Clothing (set)	4
Norton 7600 Respirators w/7500-83 Chemical Cartridges	4
Flashlight	4
Batteries	8
Portable Radiac Instrument (PIC 6-A) or Ketax	2
Camera	1
Film Pacs	2
Masking Tape (roll)	2
Dosimeters (0-5R) (0-50R)	4 each
Dosimeter Charger	1
Rain Suits	4
Poly Bags	12
Batteries (Camera)	1
Flashbulbs (Camera)	8
Pkg. Blank RWPs	1
Pkg. Respirator Cards	1
Log Book	1
HP Form #2 (Smear Survey Form)	10
HP Form #6 (Air Survey Form)	10
Smears (Box)	1
P&C Filter Cartridges	30
Particulate Filters	30
Labels for Filter Cartridges	30
Plastic Bags for Cartridges	30
Extension Cord	1
Tape Recorder	1

Discrepancies:

Signature/Date

PT/O/A/4600/11
Enclosure 13.19

FUEL SHIPMENT KIT

ITEM	AMOUNT
Air Purifying Respirator	2
Coveralls	4
Rubber Shoe Covers, pairs	6
Rubber Gloves, pairs	6
Poly Bags 20" x 40"	12
Step Off Pads	3
50 yd. Roll of Barricade Tape (Magenta & Yellow)	4
Roll of Duct Tape	2
Box of Small Kimwipes	2
TLD Badges in Separate Labeled Container	5
Personnel Dosimeters	5
Dosimeter Charger	1
Steno Pad with 2 Ink Pens	1
NuCon Smears	100
Cotton Gloves, Bundle	1
Shoe Covers, disposable, pair	20
All Purpose Marker	2
Scotch Tape Roll and Dispenser	1
Masking Tape, 1 roll 1" and 1 roll 2"	2
Eberline E-20 w/HP-270 probe	1
Rain Suit, disposable	2
Hood, disposable	4
Weather-Proof Caution Signs with Inserts	4
Radioactive Waste Signs (4" x 6")	25
Caution: Radiation/Radioactive Material Tags	12
Binoculars	1
Coins for Telephone (roll of dimes)	1
Plastic Sample Bottles	12
Safety Glasses	3
Hard Hats	3
Contact Pyrometer	2
Flashlight and extra batteries	2
Portable Air Sampler	1
Silver Zeolite Cartridges and Labels	10 each
Eberline E-520 or E-120 w/HP260 Probe	1
Tripp PV100FC Powerverter or Gasoline Powered Generator	1

Discrepancias:

Signature/Date

VERIFICATION OF EMERGENCY COMMUNICATIONS

This document shall serve as written verification that on the date below all telephone numbers and pages enclosed in emergency procedures RP/O/A/5700/01 thru RP/O/A/5700/04, Station Directive 3.3.1 and Station Directive 3.3.2 are correct and in working order, and that all jack-in telephones in the Technical Support Center are in working order. (To be done quarterly).

Signature/Date

Furthermore, this document shall serve as written verification that McGuire Nuclear Station's emergency radio transmitter/receivers have been successfully checked for operation at the distances prescribed by this procedure. (To be done monthly).

Signature/Date

Discrepancies Note: _____

Corrective Actions Taken: _____

PT/O/A/4600/11
Enclosure 13.21

WEATHER INFORMATION

NATIONAL WEATHER SERVICE

ONSITE DATA

Wind Direction

Wind Speed

Cloud Cover

Time

Discrepancies:

Signature/Data

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: OP/1/A/6200/48
Change(s) 0 to
2 Incorporated

- (2) STATION: McGUIRE NUCLEAR STATION
- (3) PROCEDURE TITLE: OPERATING PROCEDURE FOR THE OPERATION OF THE POST
ACCIDENT LIQUID SAMPLE SYSTEM (Unit I)
- (4) PREPARED BY: James R. Kimmey DATE: 7-20-83
- (5) REVIEWED BY: R. P. McNeill DATE: 7-20-83
- Cross-Disciplinary Review By: GF Ferrell N/R: _____
- (6) TEMPORARY APPROVAL (IF NECESSARY):
- By: _____ (SRO) Date: _____
- By: _____ Date: _____
- (7) APPROVED BY: Tony McNeill Date: 3/5/83
- (8) MISCELLANEOUS:
- Reviewed/Approved By: _____ Date: _____
- Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
OPERATING PROCEDURE FOR THE OPERATION OF THE
POST ACCIDENT LIQUID SAMPLE SYSTEM (Unit 1)

1.0 Purpose

The Post Accident Liquid Sampling System (PALS) provides the capacity to promptly obtain a reactor coolant sample under a nuclear reactor accident condition.

Sample acquisition during accident conditions (normal sampling area being inaccessible) will help evaluate information related to:

- 1) The extent of core damage which has occurred or is occurring.
- 2) Types and quantities of fission products released to containment liquid and gas phases.
- 3) Reactor Coolant chemistry and radiochemistry.

2.0 Limits

2.1 The Post Accident Liquid Sampling System should not be used unless one or more of the following conditions exist:

- (a) The Reactor Coolant System (NC) Gross Specific Activity is expected to be or is known to be greater than 200 uCi/ml. This corresponds to a reading on EMF-48 of equal to or greater than 1.3×10^6 counts per minute.
- (b) Health Physics has determined the radiation levels in the Nuclear Sampling Laboratory (NM Lab) prohibits access and use of the Nuclear Sampling System (NM) and local sample points for the Residual Heat Removal System (ND) are not accessible due to radiation levels, NC activity levels (see (a) above), or can not be used for other identified reasons. Refer to CP/1/B/8600/04, Identification and Instruction in the use of Primary Area Local Sample Points.
- (c) Specifically requested by the Station Chemist or his designee.
- (d) Operation required to perform monthly operational verification or for maintenance and training purposes.

2.2 The undiluted sample volume is 1.25 ml. and the final dilution volume shall be controlled between 250-3500 ml.

- 5.1.4 Press the "Panel Prep. - Drain" button and hold for 30 sec. and release.
- 5.1.5 Press the "Panel Prep. - Calibration" button and hold until the conductivity and pH meters stabilize.
(Approximately 1 minute)
- 5.1.6 Record the specific conductivity reading on Enclosure 9.2, the measured specific conductivity should correspond with the specific conductivity of the pH standard which was prepared in the lab. If not, repeat section 5.1.3 and 5.1.5. Contact the Station Chemist or Primary Supervisor if this measure does not work in the event of an accident. (If this is a routine test, replace the probe and then submit a work request as a final repair measure.)
NOTE: Multiply conductivity meter reading by 1000 to obtain proper specific conductivity value.
- 5.1.7 Adjust the pH meter to the known pH of the standard.
- 5.1.8 Press the "Panel Prep - Purge" button and hold for 30 seconds then release.
- 5.1.9 Press the "Panel Prep - Flush" button and hold until the conductivity and pH meters stabilize (specific conductivity and pH of demineralized water) approximately 2-3 minutes, then release.
- 5.1.10 Press the "Panel Prep - Purge" button for 30 seconds and release.
- 5.1.11 Press the "Panel Prep - Drain" button for 60 seconds and release.
- 5.1.12 Repeat Steps 5.1.9, 5.1.10, 5.1.11 and then continue to Section 5.2.
- 5.2 Sample Collection (Position 2)
 - 5.2.1 Turn the selector knob to "Sample Recirculation", position 2.
 - 5.2.2 Set the temperature selector, located on the instrument panel, to Tc 1.
 - 5.2.3 Record the radiation monitor reading on Enclosure 9.2 (Background).

5.2.4 Press the "Selection Power - Activate" button. Record the starting time on Enclosure 9.2. The radiation monitor should show an increased activity level and Tc 1 should show temperature increase as sample enters the liquid panel.

5.2.5 If Tc1 goes above 190°F, sample is not being cooled sufficiently. Turn selector to "Reset". Press "Reset" button and turn Power Key to vertical position. Call Station Chemist or his designee.

5.2.6 Turn the selector knob to "sample", position 3, when the sample temperature at Tc 1 stabilizes. Record the temperature on Enclosure 9.2. (Approximately 7-8 minutes)

NOTE: Tc 3 monitors KC Coolant outlet from the PALS HX and can be monitored during Tc 1 and Tc 2 stabilization.

5.3 Sample (Position 3)

5.3.1 Turn the temperature selector to Tc 2.

5.3.2 Press the "Selection Power - Activate" button.

5.3.3 Monitor the temperature gauge and when Tc 2 stabilizes record the temperature and radiation readings on Enclosure 9.2. (Approximately 7-8 minutes)

5.3.4 Subtract initial background activity from sample activity found during Tc 2 stabilization and record reading on Enclosure 9.2. This is the radiation due to the sample.

5.3.5 Press the "Sample - 1 Tc 2 Stabilize" button. When pressure stabilizes record the reading on Enclosure 9.2.

5.3.6 Press the "Sample - 2 Pressure Stabilize" button. Record the time sample flow stops on Enclosure 9.2.

5.3.7 Turn the selector knob to "Depressurization", position 4.

5.3.8 Request Operations to close the valves opened in section 4.1. If an ND Pump Discharge sample is being taken, press "close" switch for the ND Pump Discharge Isolation Valve, either 1ND39 or 1ND40 and place the "Remote/Local" switch in the "Remote" position.

5.4 Depressurization (Position 4)

- 5.4.1 Press the "Reset" button on the nitrogen flow totalizer to zero the readout. Preset the counter on the totalizer to 99999.
- 5.4.2 Press the "Selection Power - Activate" button. Verify the level gauge on the instrument panel indicates a vacuum of -25 inches of mercury (-25 level). Wait 60 seconds and insure 3000 psig pressure gauge indicates 0 psig pressure.
- 5.4.3 Press the "Start" button on the nitrogen flow totalizer and monitor the level gauge. Press the "Stop" button on the totalizer when the Level gauge needle first begins to move (approximately 5 minutes). Press "Start" button and "Stop" button to add small amounts of nitrogen and continue small adds until level meter reads 0-2 inches in level. If 5 inches is exceeded, a new stripped gas sample will need to be taken (ie) start from Section 4.1.
- 5.4.4 Turn the selector knob to "Liquid Sample", position 5.
- 5.5 Liquid Sample (Position 5)
 - 5.5.1 Press the "Selection Power - Activate" button.
 - 5.5.2 Press the "Liquid Sample - 1) Conductivity" button and hold until the conductivity meter stabilizes (approximately 5 seconds). Record the specific conductivity on Enclosure 9.2.
 - 5.5.3 Press both the "Liquid Sample - 1) Conductivity" and "Liquid Sample - 2) Log pH" buttons and hold until the pH meter stabilizes. If meter does not stabilize in 30 seconds, release both buttons and take a reading. Record the pH on Enclosure 9.2.
 - 5.5.4 Press the "Gas Sample - 1) Activate" button. Note level gauge should decrease.
 - 5.5.5 Press the "Gas Sample - 3) Diluted Gas Sample Grab" button.
 - 5.5.6 Turn the selector knob to "Liquid Sample Prep.", position 6.
- 5.6 Liquid Sample Prep (Position 6)
 - 5.6.1 Press the "Selection Power - Activate" button.

- 5.6.2 Press the "Liquid Sample Prep - B Activate to desired ml. volume" button and wait 5 seconds, after depressing. This deposits 1.25 ml of sample for dilution.
- 5.6.3 Press the "Reset" button on the dilution water flow totalizer and preset the meter for 250 mls of dilution water.
Press the "Start" button and let dilution continue to completion. Record the dilution volume on Enclosure 9.2.
- 5.6.4 Press the "Liquid Sample Prep - 3) Activate Mix" button and hold for 10 seconds.
- 5.6.5 Turn the selector knob to "Liquid Sample", position 7.
- 5.7 Liquid Sample (Position 7)
 - 5.7.1 Press the "Selection Power - Activate" button.
 - 5.7.2 Press the "Liquid Sample - Activate" button. Wait 15 seconds.
 - 5.7.3 Immediately after 15 seconds press the "Liquid Sample - Diluted Sample Grab" button.
 - 5.7.4 Turn the selector knob to "Flush", position 8.
- 5.8 Flush (Position 8)
 - 5.8.1 Press the "Selection Power - Activate" button.
 - 5.8.2 Press the "Flush - Activate" button and wait 4 - 5 minutes, 1st flush cycle.
 - 5.8.3 Press the "Flush - Activate" button and monitor pH and conductivity meters until they reach equilibrium of demineralized water, 2nd flush cycle. (Approx. 10 minutes.)
 - 5.8.4 Press the "Flush - Activate" button and wait 3 minutes, 3rd flush cycle.
 - 5.8.5 Press the "Flush - Activate" button. The "Complete" light must illuminate. If light doesn't illuminate continue and write a work request after sampling is completed.
 - 5.8.6 Turn the selector knob to "Drain", position 9.
- 5.9 Drain (Position 9)
 - 5.9.1 Press the "Selection Power - Activate" button.
 - 5.9.2 Press the "Drain - Activate" button. Wait 120 seconds.

- 5.9.3 Press the "Drain - Activate" button. Wait 120 seconds.
- 5.9.4 Press the "Drain - Activate" button. Wait 13 minutes.
- 5.9.5 Press the "Drain - Activate" button and the "Complete" light should illuminate.
- 5.9.6 Turn the selector knob to "reset" and press the "reset" button.
- 5.9.7 Turn the System Power Key to the left to operate the sump pump: Allow pump to run for 15 minutes to insure sump is pumped dry.
- 5.9.8 Turn the System Power Key to the right to re-energize the PALS. Record the radiation level on Enclosure 9.2.
- 5.9.9 If the field at the panel is greater than 3 Rem/hr, continue to section 5.10, otherwise turn the System Power Key to the vertical off position and proceed to section 6.0.

5.10 Decontamination

- 5.10.1 Turn the selector knob to "Panel Prep", position 1.
- 5.10.2 Press the "Selection Power - Activate" button.
- 5.10.3 Press and hold the "Flush" button for 2 minutes.
- 5.10.4 Repeat Panel Flush and Drain modes starting Section 5.8 through 5.9.8.
- 5.10.5 If radiation level is less than 3 Rem/hour, turn the System Power Key to the vertical position and continue to Section 6.0. If however, the radiation level remains greater than 3 Rem/hour, go back to step 4.1 and repeat the sequence using a larger dilution volume. See Enclosure 9.3 to determine the dilution volume. If with a 3500 ml dilution volume the radiation level is still greater than 3 Rem/hour, contact the Station Chemist or his designee.

6.0 Sampling

- 6.1 Verify the operability of 2-1 ml and 2-5 ml glass locking syringes located in the Hot Lab and label them.
- 6.2 Contact Health Physics Surveillance and Control Group and request surveillance while taking gas and liquid samples from the sample portion of the PALS located on 716'el. Aux. Bldg. FF-54.

- 6.3 Collect 2 - 1.0 ml stripped gas samples at the gas sample panel septum located on the north side of the sample panel and place syringes in plastic bag.
- 6.4 Collect 2 - 5 ml liquid samples from the liquid sample septum located on the south side of the sample panel and place syringes in plastic bag.
- 6.5 Replace the septa after collecting the syringe samples prior to returning to the Hot Lab, time permitting.
- 6.6 Take syringes to Hot Lab in a sample carrier and place in operating fume hood behind a lead brick shield to await analysis.

7.0 Sample Analysis

- 7.1 One syringe of stripped gas will be analyzed via Chemistry procedure CP/O/B/8100/31, Chemistry Procedure for the Analysis of Gases From the Reactor Coolant System Gas Mixtures. No averaging of gas samples will be done as in the procedure as only one syringe of sample will be pulled. Analyze the sample for % H₂ and O₂ and report results as follows:

$$\% \text{H}_2 \times \frac{1000 \text{ cc}}{0.170 \text{ kg}} \times \frac{1}{100} = \text{cc/kg H}_2 \quad (\text{ie}) \quad \% \text{H}_2 \times 58.3 = \text{cc/Kg H}_2$$

$$\% \text{O}_2 \times \frac{1000 \text{ cc}}{0.170 \text{ kg}} \times \frac{1}{100} = \text{cc/kg O}_2 \quad (\text{ie}) \quad \% \text{O}_2 \times 58.3 = \text{cc/Kg O}_2$$

Where: % gas is determined via CP/O/B/8100/31

1000 cc = stripped gas bomb volume

0.170 kg = reactor coolant sample size

1/100 = conversion of percent to decimal

Report cc/kg H₂ and O₂ on Enclosure 9.2.

- 7.2 Take the remaining 1 ml. syringe with stripped gas sample, withdraw 1 ml air from septum stoppered glass vial and load 1 ml stripped gas. Analyze by GeLi Spectral Analysis following CP/O/A/8200/05, Chemistry Procedure for Radioisotope Analysis.

Report the actual sample volume on the bottom of the sample analysis form under remarks and submit to Health Physics so that they may adjust isotope activities from diluted samples to reflect reactor coolant activity. The calculation is as follows:

$$\text{Sample Volume} = \frac{170 \text{ ml.}}{1000} = 0.17 \text{ ml.}$$

Where: 1000 cc = stripped gas bomb volume
170 cc = reactor coolant sample size

- 7.3 Take 1 ml of liquid sample and dilute to 50 mls with Super Q Water in a 60 ml poly bottle. Analyze by GeLi Spectral Analysis following CP/O/A/8200/05. Report the actual sample volume being counted on the bottom of the sample analysis form under remarks and submit to Health Physics so that appropriate adjustment of isotope activities occurs. The calculation of sample volume is as follows:

$$\text{Sample Volume} = \frac{1.25 \text{ ml}}{\text{Total Dilution Volume}}$$

Where: 1.25 ml. = Reactor Coolant Volume
Total Dilution Volume = mls water added in Part II #11 of
Enclosure 9.2 + 1.25 mls.

Example: 250 ml. dilution water added

$$\text{Sample Volume} = \frac{1.25 \text{ ml}}{251.25 \text{ ml}} = 4.98 \times 10^{-3} \text{ ml.}$$

- 7.4 Take 2 ml. of liquid sample and analyze for Boron using CP/O/B/8100/5E, Chemistry Procedure for the Determination of Boron in Water and Wastewater, Colormetric Method.
The value received must be corrected for dilution as follows:

$$\text{ppm Boron in reactor coolant} = \text{ppm measured} \times \frac{\text{Total Dilution Volume}}{1.25 \text{ ml.}}$$

Where: ppm Boron measured = value obtained via CP/O/B/8100/5E
Total Dilution Volume = mls water added Part II #11 of
Enclosure 9.2 + 1.25 ml.

1.25 ml. = reactor coolant sample

- 7.5 If dilution proves inadequate for any of the above analyses, contact Station Chemist or his designee.
7.6 Report all results in the Primary Chemistry Data Log and Enclosure 9.2.
7.7 A minimum of 3 mls. of liquid will be needed for halide analysis (chloride). If insufficient sample remains after that needed for Boron and GeLi Spectral Analysis, the panel will be operated again

within 10 hrs. after initial sampling and 2-5 ml. syringes of liquid sample taken for halide analysis. One technicon cup of liquid sample will be analyzed via CP/O/A/8100/06, Chemistry Procedure for the Determination of Chloride in High Purity Water. Results must be adjusted via the calculation in Section 7.4, substituting ppb Cl- for ppm B, so that dilution is taken into account. Record value in Primary Chemistry Data Log.

NOTE: Chloride sample to be taken only in an accident situation.

7.8 Clean 5 ml. syringes with Super Q Water after use.

8.0 References

- 8.1 Duke Power Company Nuclear Station Post Accident Liquid Sample Panel.
- 8.2 MC-1572-4.0 LL, Rev. 1
- 8.3 CP/O/B/8100/31, Chemistry Procedure for the Analysis of Gases from Reactor Coolant System Gas Mixtures.
- 8.4 CP/O/B/8100/05E, Chemistry Procedure for the Determination of Boron in Water and Wastewater.
- 8.5 CP/O/A/8200/05, Chemistry Procedure for Radioisotope Analysis.
- 8.6 CP/O/A/8100/06, Chemistry Procedure for the Determination of Chloride in High Purity Water.

9.0 Enclosures

- 9.1 PALS Monthly Checklist
- 9.2 PALS Data Sheet
- 9.3 Correction of Dilution Volume
- 9.4 PALS Control Panel Diagram
- 9.5 General Information

OP/1/A/6200/48
ENCLOSURE 9.1
PALS MONTHLY CHECKLIST

1. pH 7.0 buffer solution must be replaced once a month. Prepare pH 7.0 buffer (4 liters) as per CP/O/B/8100/43. Measure specific conductivity and log in Primary Chemical Data Log.

buffer expiration date: _____
specific conductivity: _____ umhos/cm
Technician/Date: _____/_____

2. Verify that the 1000 ppm Boron Standard Stock Solution used in CP/O/B/8100/05E, Chemistry Procedure for the Determination of Boron in Water and Wasterwater, will not expire prior to next monthly inspection. If so, replace as stated in the above procedure.

1000 ppm Boron std. expiration date: _____
Technician/Date: _____/_____

Carminic Acid and 10 ppm Boron std are to be made prior to sampling.

3. The following valves should remain open:
- | | | <u>Location</u> | <u>Date</u> |
|-----------------------------------|--------|--|-------------|
| Instrument Air Supply Isolation | 1VI399 | 716 e1' FF-54 | |
| Nitrogen Supply Isolation | 1GN124 | 716 e1' above NB Panel | |
| KC Supply Isolation to PALS HX | 1KC329 | 733 e1' in front of
"A" train pumps | |
| DI Water Supply Isolation | 1NM376 | 716 e1' FF-54 | |
| Panel DI Water Inlet Isolation | LATER | 716 e1' south side of panel | |
| Panel Nitrogen Inlet Isolation | LATER | 716 e1' south side of panel | |
| Panel Instrument Air Inlet Isol. | LATER | 716 e1' south side of panel | |
| Panel Sample Return Isolation | 1NM411 | 716 e1' inside panel | |
| Panel KC Inlet to HX Isolation | 1KC957 | 716 e1' FF-54 | |
| Panel KC Outlet from HX Isolation | LATER | 716 e1' inside panel | |
| KC Return to System | 1KC873 | 733 e1' by EMF-46 | |

4. pH and conductivity meters must be checked when buffer solution is renewed. Complete PALS operating procedure sections 4.2.1, 4.2.6, 4.2.7, 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.1.6 5.1.7, 5.1.8, 5.1.9, 5.1.10, and 5.1.11. Turn System Power Key to vertical position to deenergize panel.

calibration date: _____
Technician: _____

5. Go to section 3.0 and take a reactor coolant sample using the PALS, analyzing the sample as stated in the procedure.

ENCLOSURE 9.2

OP/1/A/6200/48

PALS DATA SHEET PART I (Complete prior to going to

control panel)

Time

- 1 - Verify 1KC "A" Train is in operation.
- 2 - Sample valves opened as per 4.1.1 for the
respective sample.
- 3 - Health Physics notified for monitoring support.
- 4 - Specific Conductivity of pH 7.0 buffer (reference
Primary Chemistry Log).

umhos/cm

PART II (Complete at the control panel)

- 1 - Specific Conductivity of pH 7.0 buffer(measured).
- 2 - pH meter standardized.
- 3 - Radiation field (presample background)
- 4 - Time sample purge started.
- 5 - Temperature: Tc 1
Temperature: Tc 2
- 6 - Radiation field (at sampling)
- Radiation field (background)
Radiation due to sample
- 7 - Pressure at Isolation
- 8 - Time sample purge isolated
- 9 - Specific Conductivity of sample
- 10- pH of sample (measured)
- 11- Dilution volume (mls. H₂O added)
- 12- Radiation field (postsample)
- 13- *pH of sample (boron corrected)

umhos/cm

rem/hr

hrs

°F

°F

rem/hr

rem/hr

rem/hr

psig

hrs

umhos/cm

mls

rem/hr

*NOTE: If boron is present in sample, pH can be adjusted for boron by referring to boron curve in CP/O/B/8100/43. If this is a post accident sump sample, do not correct pH for boron.

PART III (Complete in Hot Lab)

- 1 - Gas Analysis
- 2 - GeLi Spectral Analysis (Gas)
- 3 - GeLi Spectral Analysis (Liquid)
- 4 - Boron Concentration
- 5 - Chloride Concentration

cc/kg H₂cc/kg O₂

ppm B

ppm Cl-

DATE: _____

TECHNICIAN _____

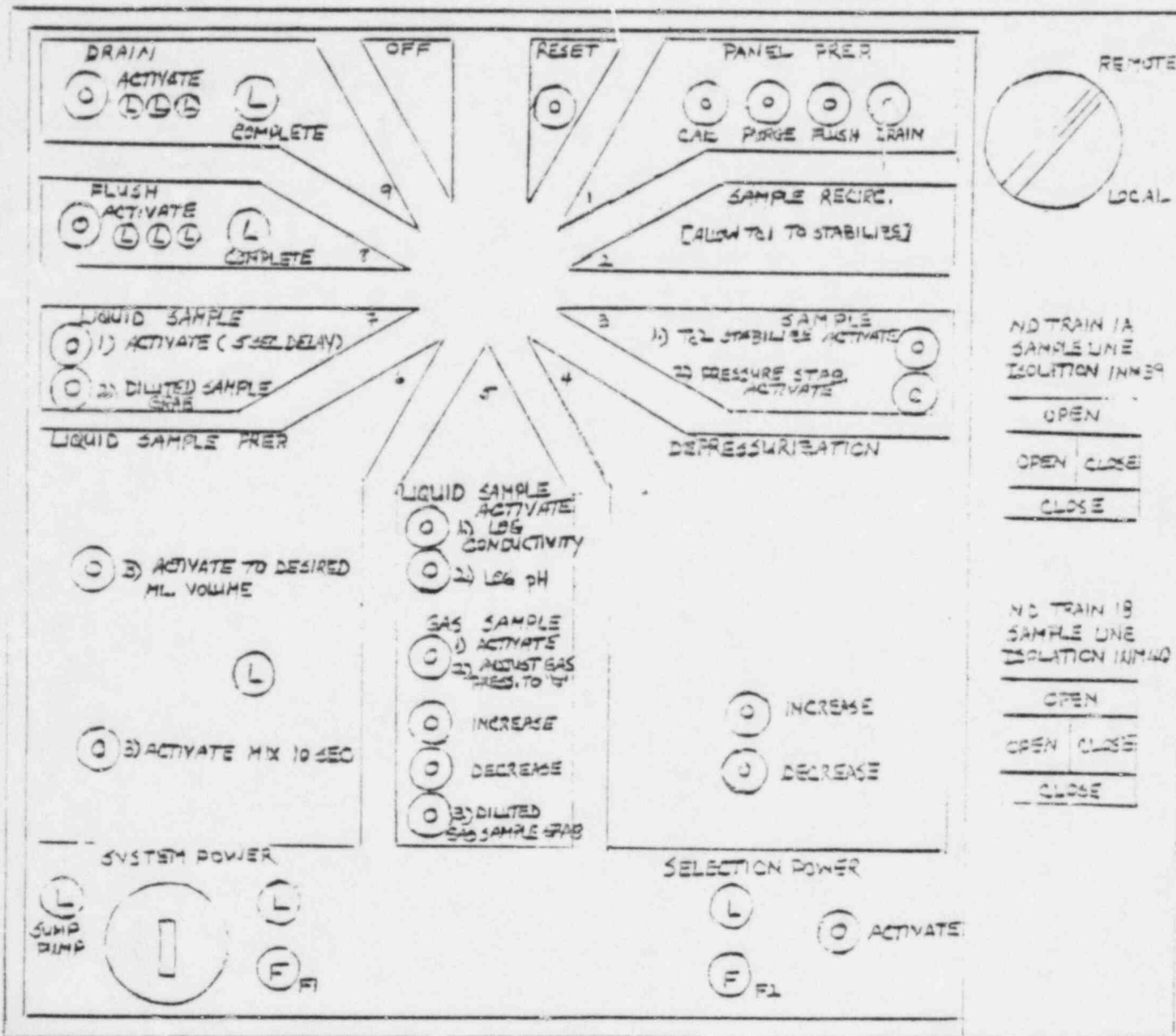
CORRECTION OF DILUTION VOLUME

To correct the dilution volume, divide the final radiation reading (Section 5.10.5) by 3 rem/hr, then multiply this by 250 ml to obtain desired dilution volume in Section 5.6.3.

Example: Reading in Section 5.10.5 = 10 rem/hr
then $\frac{10 \text{ rem/hr}}{3} \times 250 = 833 \text{ ml}$ -

Go back to Section 5.2 and repeat the sample sequence, using a dilution volume of 833 ml in Section 5.6.3 instead of 250 mls.

PALS CONTROL PANEL DIAGRAM



PALS CONTROL PANEL DIAGRAM

