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

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/A/5500/30
Change(s) 0 to
1 Incorporated

(2) STATION: McGuire Nuclear Station

(3) PROCEDURE TITLE: Earthquake

(4) PREPARED BY: M. S. Glover DATE: 12/20/82

(5) REVIEWED BY: Mims Sample DATE: 12/20/82

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

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: [signature] Date: 12/20/82

(8) MISCELLANEOUS:

Reviewed/Approved By: _____ Date: _____

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
EARTHQUAKE

CASE A - Earthquake less than Operating Basis Earthquake
Acceleration: <.08g Horizontal, <.053g Vertical

CASE B - Earthquake greater than Operating Basis Earthquake but less than Safe Shutdown Earthquake
Acceleration: .08g <.15g Horizontal, .053g <.1g Vertical

CASE C - Earthquake greater than Safe Shutdown Earthquake
Acceleration: >.15g Horizontal, >.1g Vertical

EARTHQUAKE - CASE A
Less than Operating Basis Earthquake

1.0 Symptoms

1.1 Seismic computer alarm.

1.2 Effects of an earthquake may be seen, heard or felt.

1.3 Horizontal acceleration <.08g, Vertical acceleration <.053g as indicated on accelegraph recorder.

2.0 Immediate Actions

2.1 Automatic

2.1.1 Seismic Recorders actuated.

2.2 Manual

2.2.1 Trip the reactor(s) if effects of an earthquake are seen, heard, or felt.

3.0 Subsequent Actions

3.1 For manual trip in 2.0 above, take the unit(s) to Hot Shutdown per OP/O/A/6100/02 (Controlling Procedure for Unit Shutdown).

NOTE: Should horizontal acceleration exceed .08g or vertical acceleration exceed .053g as indicated on the accelerograph recorder, proceed to Case B of this procedure.

3.2 All accelographs and recorders shall be monitored to evaluate extent of earthquake (Enclosure 4.1).

3.2.1 Seismic verification may be obtained by calling U.S. Geological Survey Office (Enclosure 4.2).

3.2.2 Request the I & E shift technician to evaluate the seismic equipment for verification and classification of the event in accordance with IP/O/B/3150/01, IP/O/B/3150/02, and IP/O/B/3150/04.

3.3 All normally monitored plant parameters shall be closely observed to ensure stable plant status.

NOTE: Should a system failure result from the earthquake, refer to the applicable Emergency Procedure.

3.4 Commence EP/O/A/5000/05 (Notification of Unusual Event).

3.5 Tour the station for damages being particularly observant for wall cracks, bent/broken hangers, pipe ruptures, bends or cracks, etc. Include in the tour, but do not limit it to:

3.5.1 Reactor Building (outside).

3.5.2 Auxiliary and Turbine Buildings.

3.5.3 Auxiliary Liquid Waste Processing Building.

3.5.4 Gas and oil storage areas.

3.5.5 Refueling Water Storage Tanks.

3.5.6 Reactor Makeup Water Storage Tanks.

3.5.7 Fuel Pool.

3.6 After evaluating the extent of the earthquake and the results of station tour, the Station Manager shall decide whether or not to preclude startup in order to inspect the following:

3.6.1 Structures Inside Containment.

3.6.2 Reactor Coolant System.

3.6.3 Control Rod Drive Mechanisms.

4.0 Enclosures

4.1 Seismic Instrument Locations.

4.2 Emergency Plan Implementing Procedures Telephone List.

EARTHQUAKE - CASE B
Greater than Operating Basis Earthquake
But less than Safe Shutdown Earthquake

1.0 Symptoms

1.1 Seismic Computer Alarm.

1.2 Effects of an earthquake can be seen, heard, or felt.

1.3 Horizontal acceleration between .08g <.15g, vertical acceleration between .053 <.10g as indicated on accelograph recorder.

2.0 Immediate Actions

2.1 Automatic

2.1.1 Seismic Recorders actuated.

2.2 Manual

2.2.1 Trip the reactor(s).

3.0 Subsequent Actions

3.1 Take the Unit(s) to Cold Shutdown per OP/0/A/6100/02 (Controlling Procedure for Unit Shutdown).

3.2 All normally monitored plant parameters shall be closely observed to ensure safe shutdown and stable plant status.

NOTE: Should a system failure result from the earthquake, refer to applicable Emergency Procedure.

3.3 All accelographs and recorders shall be monitored to evaluate the extent of the earthquake (Enclosure 4.1).

3.3.1 Seismic verification may be obtained by calling U.S. Geological Survey Office (Enclosure 4.2).

3.3.2 Request the I & E shift technician to evaluate the seismic equipment for verification and classification of the event in accordance with IP/0/B/3150/01, IP/0/B/3150/02, and IP/0/B/3150/04.

3.4 Commence EP/0/A/5000/06 (Alert).

3.5 Tour the station for damages being particularly observant for wall cracks, bent/broker hangers, pipe ruptures, bends or cracks, etc. Include in the tour, but do not limit it to:

3.5.1 Reactor, Auxiliary and Turbine Buildings, inside and out.

3.5.2 Auxiliary Liquid Waste Processing Building.

3.5.3 Gas and oil storage areas.

3.5.4 Refueling water and Reactor makeup water storage tanks.

3.5.5 Fuel Pool.

3.5.6 Reactor Coolant System.

3.5.7 Emergency Core Cooling Systems.

3.5.8 Control Rod Drive Mechanisms.

3.5.9 Switch Gear, MCC and cable rooms.

3.5.10 Underground piping such as RC, RF, RL, RN.

3.6 Health Physics shall survey Reactor, Auxiliary and Fuel Pool Buildings to ensure shielding integrity.

3.7 A thorough evaluation of the extent of earthquake damage shall be made prior to startup.

4.0 Enclosures

4.1 Seismic Instrument Locations.

4.2 Emergency Plan Implementing Procedures Telephone List.

EARTHQUAKE - CASE C
Greater than Safe Shutdown Earthquake

1.0 Symptoms

1.1 Seismic Computer Alarms.

1.2 Severe effects of an earthquake are seen, heard, or felt.

1.3 Horizontal acceleration >.15g, vertical acceleration >.1g as indicated on accelograph recorder.

2.0 Immediate Actions

2.1 Automatic

2.1.1 Seismic Recorders actuated.

2.2 Manual

2.2.1 Trip the reactor(s).

3.0 Subsequent Actions

3.1 Promptly take the unit(s) to Cold Shutdown per OP/0/A/6100/02 (Controlling Procedure for Unit Shutdown).

3.2 Closely monitor plant parameters to ensure safe shutdown and cooldown and prevent/minimize potential casualties.

NOTE: Should a system failure result from the earthquake, refer to applicable Emergency Procedure.

3.3 Monitor all accelographs and recorders to evaluate extent of earthquake.

3.3.1 Seismic verification may be obtained by calling the U.S. Geological Survey Office (Enclosure 4.2).

3.3.2 Request the I & E shift technician to evaluate the seismic equipment for verification and classification of the event in accordance with IP/0/B/3150/01, IP/0/B/3150/02, and IP/0/B/3150/04.

3.4 Activate Standby Shutdown Facility should Control Room evacuation become imminent.

3.5 Commence EP/0/A/5000/07 (Site Emergency).

3.6 Should actual core degradation or melting occur or become imminent commence EP/0/A/5000/08 (General Emergency).

3.7 Make an extensive tour of the station being particularly observant for wall cracks, bent/broken hangers, pipe ruptures, bends or cracks, etc. Include in the tour, but do not limit to:

3.7.1 Reactor, Auxiliary, and Turbine Buildings (inside and out).

3.7.2 Auxiliary Liquid Waste Processing Building.

3.7.3 Gas and Oil Storage Areas.

3.7.4 Refueling Water and Reactor makeup Water Storage Tanks.

3.7.5 Fuel Pool.

3.7.6 Reactor Coolant System.

3.7.7 Emergency Core Cooling Systems.

3.7.8 Control Rod Drive Mechanisms.

3.7.9 Switch Gear, MCC and Cable Rooms.

3.7.10 Underground piping such as RC, RF, RL, RN.

3.7.11 Acid and Caustic Storage Tanks.

3.8 Health Physics shall survey Reactor, Auxiliary and Fuel Pool Buildings to ensure shielding integrity.

3.9 A thorough evaluation of the extent of the earthquake damage shall be made prior to startup.

4.0 Enclosures

4.1 Seismic Instrument Locations.

4.2 Emergency Plan Implementing Procedures Telephone List.

SEISMIC INSTRUMENT LOCATIONS
EARTHQUAKE

4.1.1 Time-History accelograph recorder - on 1MC-9.

4.1.2 The seismic switch (MIMT5060), the time-history accelerograph starter unit (MIMT 5020), one of the time-history accelerograph sensor units (MIMT 5000), and the response spectrum recorder to be coupled with the peak shock annunciator (MIMT 5070), all located on the Containment basement slab, in the annulus under the first ring girder at azimuth 0°, (El. 725 $\pm$ 0").

4.1.3 The second time-history accelerograph sensor unit (MIMT 5010) is located directly above the first at azimuth 0°, (El. 786 $\pm$ 5") and bolted to the ring girder at this position.

4.1.4 One Response Spectrum Recorder, instrument number MIMT 5070, on the Pressurizer Lower Support Structure at Elevation 751' 8 1/4".

4.1.5 One Response Spectrum Recorder, instrument number MIMT 5090, in the Auxiliary Building at Elevation 750' 0", column lines QQ and 56.

4.1.6 Peak Recording Accelerometer, MIMT 5030, strap mounted near the top of Steam Generator 1D at Elevation 799' 9 9/16".

4.1.7 Peak Recording Accelerometer, MIMT 5040, on a pipe hanger for the Pressurizer Surge Line at Elevation 746' 2 1/2".

4.1.8 Peak Recording Accelerometer, MIMT 5050, at base of NI Pump 1A at Elevation 716'6".

EMERGENCY PLAN IMPLEMENTING PROCEDURES TELEPHONE LIST
EARTHQUAKE

4.2.1 U.S. Geological Survey Office 303/234-3994

Form 34731
(Formerly SPD-1002-.

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) 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: John M. Ingusson DATE: 30 NOVEMBER, 1982

(5) REVIEWED BY: J R Leonard DATE: 12/6/82

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

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tony L. McConnell Date: 12/15/82

(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 will be followed.

3.4 Protective clothing will be used whenever loose contamination exists or is suspected to be greater than 1000 dpm/100cm^2 Beta-Gamma or 20 dpm/100cm^2 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 will afford maximum protection to the public. Once the immediate protective actions have established an effective control over the incident, the emergency actions will shift into the recovery phase.

4.2 A recovery plan, from a practical standpoint, must 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 will be carefully planned by Duke Power Company management. In the period immediately following an incident, initial radiation monitoring functions will 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 will 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 will decide what procedures and precautions will 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 will be evaluated by station management.

5.2.1.10 Upon evaluation of the radiological conditions, station management will determine what procedures area required to restore the site to a normal status.

5.2.1.11 Personnel radiation exposure will be closely controlled and documented.

5.2.1.12 Recovery coordinators will 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 Site Health Physicist will 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 will 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 will 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

APPROVAL _____

REV. 5 DATE 12/14/82

SECTION 18.2 ENVIRONMENTAL MONITORING FOR EMERGENCY CONDITIONS

1.0 Purpose

1.1 To provide environmental monitoring following an accidental release of radioactive material in excess of technical specifications to the environment.

2.0 References

2.1 Station Directive 3.8.1 (Site Assembly and Evacuation).

2.2 HP/O/B/1009/09, Release of Radioactive Materials thru the Unit Vent Exceeding Technical Specifications.

2.3 HP/O/B/1009/10, Release of Liquid Radioactive Materials Exceeding Technical Specifications.

2.4 EP/O/A/5000/06, Alert.

2.5 EP/O/A/5000/07, Site Area Emergency.

2.6 EP/O/A/5000/08, General Emergency.

3.0 Precautions and Limitations

3.1 Environmental sampling during emergency conditions shall not replace, but rather supplement normal environmental monitoring.

3.2 If survey teams expect to be exposed to airborne particulate activity > 3×10^{-9} µC/ml gross βγ, or >6×10^{-13} µC/ml α, they shall don particulate masks.

3.3 If survey teams expect to be exposed to Iodine-131 in excess of 10 x MPC, they shall injest 130 milligrams (1 tablet) of potassium iodide.

3.4 If survey teams expect to be exposed to contamination levels >1000 dpm/100cm^2 βγ, >20 dpm/100cm^2 α, they shall don protective clothing.

3.5 Survey teams shall wear high range personnel dosimetry provided in the kits when entering areas where suspected radiation levels may warrant.

4.0 Procedure

4.1 Upon request for offsite monitoring, Health Physics shall dispatch four (4) predesignated emergency environmental survey teams (at least two technicians/team) to their predesignated emergency vehicles/boat.

4.2 Each survey team shall be equipped with an emergency kit containing as a minimum, the following:

4.2.1 Victoreen 49 or Eberline E-520 with H.P. 260 probe and Xetex Mod 305A.

4.2.2 SAM-2 with RD-22 probe.

4.2.3 Portable air sampler with Silver Zeolite (CP-100G) filter cartridges and particulate filters.

4.2.4 12VDC to 120VAC powerverter or Gasoline Powered Generator.

4.2.5. One Norton 7600 or MSA dual side cartridge type particulate mask per team member.

4.2.6 Emergency TLDs and high range personnel dosimeter.

4.2.7 Emergency radio transmitter/receiver.

4.2.8 Stopwatch.

4.2.9 Flashlight.

4.2.10 Protective clothing.

4.2.11 Assorted poly bags.

4.2.12 Sample bottles.

4.2.13 Limnological samplers.

4.2.14 Smears.

4.2.15 Survey forms.

4.2.16 Potassium Iodide tablets.

4.2.17 Small change for telephone to station.

4.2.18 A copy of Station Health Physics Manual, 18.2, Environmental Monitoring for Emergency Conditions.

4.2.19 Map of Ten Mile Zone Sectors.

4.3 Emergency environmental survey teams shall obtain keys to their respective vehicles at Trailer #7 or the PAP, and <u>before</u> leaving the site shall ensure the following:

4.3.1 Verify communications with the Control Room or Technical Support Center dispatcher.

4.3.2 Ensure DC/AC powerverter, Gasoline powered

generator, and air sampler run satisfactorily.

4.3.3 Ensure stopwatch and flashlight are in working order.

4.3.4 Battery check survey instruments and response check if applicable.

4.3.5 Ensure vehicle is fueled to maximum.

4.4 Upon ensuring that their equipment is in satisfactory working order, the survey teams shall proceed to the predetermined survey points within the sectors designated by the Control Room or Technical Support Center dispatcher.

4.5 The survey teams shall maintain open communications with the Control Room or Technical Support Center dispatcher informing him of sample results at each predetermined survey point.

4.6 At each survey point, the survey teams shall:

4.6.1 Take an air sample (10^6 ml) utilizing a Silver Zeolite (CP-100G) cartridge and particulate filter.

4.6.1.1 Using the SAM-2, count the sample for I^{131}. Record results. Report corrected counts, count time, and efficiency factor to the Technical Support Center who will calculate the I^{131} concentration using the following formula:

$$\frac{(\text{Corrected Counts})\left(\frac{1}{\text{Time}}\right)(\text{Eff. Factor})(4.50\text{E-}7)}{(\text{Vol. in ml})\left(\frac{1}{1}\right)\left(\frac{1}{1}\right)} = \mu\text{Ci/ml}$$

4.6.2 Perform a general area $\beta\gamma$ survey. Record results.

4.6.3 Take smears and water samples as directed by the Technical Support Center dispatcher. Record time and location.

4.6.4 The Environmental Monitoring Coordinator in the Technical Support Center will transmit the field results to the Data Evaluation Coordinator for comparison of projected offsite doses to the actual measurements in the field.

4.6.5 Retain all sample for future analysis.

4.7 In the course of their monitoring, the survey teams may be utilized to inform unknowing persons they come across, should area evacuations become imminent.

4.8 Once the extent of the release is known, survey teams shall continue to monitor survey points as directed by the Control Room or the Technical Support Center dispatcher in order to observe changes in radiation/contamination levels or locations.

4.9 The emergency environmental survey teams shall be supplemented, relieved, or secured as directed by the Station Health Physicist.

4.9.1 The Environmental Survey Teams designations and vehicles are:

ALPHA - Chemistry Vehicle
BRAVO - Health Physics Vehicle
CHARLIE - Administrative Station Vehicle
DELTA - Maintenance Pickup (Spare)
ECHO - Health Physics Boat

NOTE: Upon notification by the Crisis Management Center that members of the Crisis Management Center (CMC) survey teams have assembled, the assigned emergency environmental monitoring survey teams from the station will report in to the FMC at the CMC to turn over the offsite sampling responsibilities at the earliest convenient time.

5.0 Enclosures

5.1 List of Designated Survey Points.

5.2 List of Designated Limnological Sample Points.

5.3 Map with Designated Survey Points Marked (Original located in TSC).

5.4 Map of Exclusion Area Survey Points.

5.5 Field Monitoring Team Log Sheet.

Enclosure 5.1
List of Designated Survey Points
McGuire Nuclear Station

Example: A 3 - 1
A = Evacuation Zone
3 = Mile Radius
1 = Sample Point

X - 1	Flagpole at Technical Training Center
X - 2	South end of bridge over discharge canal
X - 3	Intersection of Construction Access Road and SR2182 (Hager Ferry Road)
X - 4	Construction Access Road at the construction yard just north of the clearing, viewing the Standby Nuclear Service Water Pond.
X - 5	Entrance to McGuire firing range on N.C. Highway 73.
X - 6	South side of N.C. Highway 73, 20 yards east of the McGuire Steam Production entrance.
X - 7	North side of N.C. Highway 73 where railroad tracks and the highway become parallel.
X - 8	Dam at Waste Water Collection Basin. Access through O.C. Gate #5 (South River Gate)*
A - 2-1	Southwest end of Belle Isle Drive off SR 2149.
A - 3-1	West end of SR 2151.
A - 3-2	Intersection of SR 2151 and SR 2149.
A - 3-3	South end of SR 2148 (Nance Road).
A - 5-1	Intersection of SR 2189 (Bethel Church Road) and Staghorn Drive.
A - 5-2	Knox Grill at intersection of N.C. Highway 73 and SR 2159 (Knox Road).

* Contact the Shift Lieutenant at Ext. 4432 or via emergency radio for access.

NOTE: Sampling locations denoted with "X" indicate locations within the Exclusion Area Boundary.

B - 1-1 One mile from plant on Lake Norman.

B - 1-2 One mile from plant on Lake Norman.

B - 1-3 One mile from plant on Lake Norman.

B - 1-4 One mile from plant on Lake Norman.

B - 1-5 One mile from plant on Lake Norman.

B - 1-6 Emergency boathouse at boat dock.

C - 1-1 Approximately one mile on Hubbard Road off Highway 73.

C - 1-2 End of Hubbard Road.

C - 1-3 Approximately one mile west on SR 2133.

C - 1-4 Catawba River, access through O.C. Gate 7 (Lower Dam Access)*

C - 1-5 River bank at north tip of island, access thru O.C. Gate 7 (Lower Dam Access)*

C - 2-1 Intersection of SR 2138 (Beatties Ford Road) and SR 2133 (Stevens Road).

C - 2-2 West end of SR 2132.

D - 2-1 Intersection of SR 2128 (Beatties Ford Road) and SR 2136 (Gilead Road).

D - 3-1 East end of SR 2148 (Babe Stillwell Farm Road).

D - 3-2 Intersection of SR 2136 (Gilead Road) and SR 2131 (Bud Henderson Road).

D - 3-3 Intersection of SR 2128 (Beatties Ford Road) and SR 2129 (Jim Kidd Road).

D - 3-4 Intersection of SR 2074 (Meck Road) and SR 2127 (Allison Ferry Road).

D - 3-5 West end of SR 2127 (Allison Ferry Road).

D - 5-1 Intersection of SR 2136 (Gilead Road) and SR 2139 (Remson Road).

D - 5-2 Intersection of SR 2117 (Hambright Road) and SR 2120 (McCoy Road).

D - 5-3 Intersection of SR 2074 (Beatties Ford Road) and SR 2117 (Hambright Road).

D - 5-4 Intersection of SR 2074 (Beatties Ford Road) and SR 2125.

E - 6-1 Intersection of SR 2004 (Mt. Holly-Huntersville Road) and SR 2075 (Riverview Road).

E - 7-1 Intersection of SR 2004 (Mt. Holly-Huntersville Road) and SR 2001 (Pump Station Road).

E - 8-1 Intersection of SR 2025 (Miranda Road) and SR 2043.

E - 8-2 Bridge over Long Creek on N.C. Highway 16 between SR 1664 and SR 2005.

E - 10-1 Intersection of SR 2619 (Peachtree Road) and SR 2027 (Cora Ave).

E - 10-2 Intersection of SR 1771 (Cathey Road) and SR 1769 (Tom Saddler Road).

F - 5-1 Intersection of U.S. Highway 21 and SR 2004 (Mt. Holly-Huntersville Road).

F - 7-1 Intersection of SR 2004 (Mt. Holly-Huntersville Road) and SR 2116 (Alexanderana Road).

F - 8-1 Intersection of Interstate 77 and SR 2110 (Reames Road).

F - 9-1 Intersection of SR 2442 (Asbury Church Road) and SR 2426 (Huntersville-Concord Road).

F - 9-2 Intersection of SR 2442 (Asbury Church Road) and SR 2445.

F - 10-1 Intersection of SR 2459 (Eastfield Road) and SR 2475 (Prosperity Church Road).

F - 10-2 Intersection of N.C. Highway 115 and SR 2631 (Beechwood Mobile Home Park Road).

G - 5-1 Intersection of U.S. Highway 21 and SR 2145 (Sam Furr Road).

G - 6-1 South end of SR 2438 (Hagers Road) - right fork.

G - 6-2 Intersection of N.C. Highway 115 and SR 2416 (Bailey Road).

G - 8-1 Bridge over Rocky River on N.C. Highway 73 between SR 2420 and SR 2422.

G - 8-2 Intersection of SR 2427 (McCord Road) and Sr 2439 (Ramah Church Road).

G - 10-1 Intersection of SR 2418 (Shearer Road) and SR 2419.

H - 5-1 Intersection of U.S. Highway 21 and SR 2147.

H - 7-1 Intersection of Interstate Highway 77 and SR 2158 (Goodrum Drive).

I - 5-1 South end of SR 2160.

I - 6-1 Intersection of SR 1100 (Mayhew Road) and SR 2065.

I - 7-1 Intersection of SR 1100 (Mayhew Road) and SR 1111 (Tom White Road).

I - 7-2 South end of SR 1113 (Isle of Pines Road).

I - 8-1 South end of SR 1459.

I - 9-1 Intersection of SR 1100 (Mayhew Road) and SR 1177 (Chuckwood Road).

I - 10-1 Intersection of SR 1115 and SR 1455.

J - 6-1 West end of SR 1102 (Williamson Chapel Road) in All Seasons Campground.

J - 9-1 Intersection of N.C. Highway 115 and SR 1137 (Midway Lake Road).

J - 10-1 West end of SR 1194.

J - 10-2 Intersection of SR 1132 (Midway Lake Road) and SR 1136 (J.P. White Road).

L - 9-1 Barclay's Mini-Market and Texaco on SR 1373.

L - 9-2 South end of SR 1841 (Webbs Chapel Road).

M - 3-1 Highway 16 at Turbyfill Nursery.

M - 4-1 Beatties Ford Access Area on SR 1439.

M - 4-2 Picnic Area south of railroad crossing on N.C. Highway 16 between SR 1394 and SR 1397.

M - 5-1 East end of SR 1495 in Westport Community.

M - 5-2 Railroad Crossing east of Forney Creek on SR 1380 (Triangle Road) between SR 1386 and SR 1387.

M - 5-3 East Lincoln High School at intersection of N.C. Highway 73 and SR 1386.

M - 5-4 Bridge over Killian's Creek on SR 1545 (Old Plank Road) between N.C. Highway 16 and SR 1398.

M - 6-1 Bridge over Anderson Creek on SR 1385 (Anderson Branch Road) between N.C. Highway 73 and SR 1383.

N - 6-1 Intersection of SR 1379 and SR 1376.

N - 6-2 Intersection of SR 1380 (Triangle Road) and SR 1381.

N - 8-1 Bridge over Anderson Creek on SR 1360 (Tucker's Campground Road) between SR 1382 and SR 1384.

N - 8-2 Bridge over Killian's Creek on SR 1373 (Denver Road) between N.C. Highway 16 and SR 1360.

N - 8-3 Intersection of SR 1375 and SR 1635.

N - 10-1 Intersection of SR 1360 (Tucker's Campground Road) and SR 1349.

O - 10-1 Intersection of SR 1362 (Mechpelah Road) and N.C. Highway 73.

P - 6-1 Intersection of SR 1545 (Old Plank Road) and SR 1412 (Mariposa Road).

P - 8-1 Bridge over Leeper's Creek (North Branch) on SR 1404 between SR 1535 and SR 1403.

P - 10-1 Intersection of SR 1360 (Tucker's Campground Road) and SR 1361.

Q - 1-1 Cowans Ford Dam - east end, access through O.C. Gate # 10*.

Q - 1-2 SR 1395 at Lake Norman Overlook.

Q - 1-3 Intersection of Highway 73 and SR 1528.

Q - 2-1 Bill's Marina on SR 1395.

Q - 2-2 Intersection of N.C. Highway 73 and SR 1393.

Q - 2-3 Intersection of N.C. Highway 73 and SR 1543.

Q - 2-4 Railroad crossing on SR 1386 (Killian Road) between SR 1397 and SR 1909.

Q - 3-1 East end of SR 1441.

Q - 3-2 Intersection of SR 1393 and SR 1568 (Nixon Heights entrance).

Q - 3-3 Bridge over Johnsons Creek on SR 1397 (Sifford Road) between SR 1396 and SR 1652.

R - 8-1 Intersection of SR 1902 (Mariposa Road) and SR 1906.

R - 9-1 Intersection of N.C. Highway 27 and SR 1903 (Lawrence Road).

S - 8-1 Intersection of SR 1935 (Stanley Road) and SR 1923 (Old N.C. 27).

U - 10-1 Intersection of N.C. Highway 273 and N.C. Highway 27.

V - 3-1 Intersection of SR 1968 and SR 1909 approximately 0.5 mile past Gaston County line.

V - 5-1 Intersection of N.C. Highway 16 and SR 1911.

V - 5-2 Lucia Fire Department in Lucia on N.C. Highway 16.

V - 5-3 Water tower across from Riverbend Steam Station on SR 1912.

V - 5-4 Intersection of SR 1912 (Horseshoe Bend Beach Road) and SR 1913.

V - 7-1 Bridge over Leepers Creek on SR 1820 (Alexis-Lucia Road) between SR 1907 and SR 1902.

V - 7-2 Bridge over Dutchman's Creek on SR 1905 (Upper Stanley Road) between SR 1820 and SR 1919.

V - 8-1 Intersection of SR 1919 (Stanley Road) and SR 1918 (Sandy Ford Road).

V - 8-2 Pinewood Elementary School on N.C. Highway 273 south of entrance to Mt. Island dam.

List of Designated Limnological Sample Points

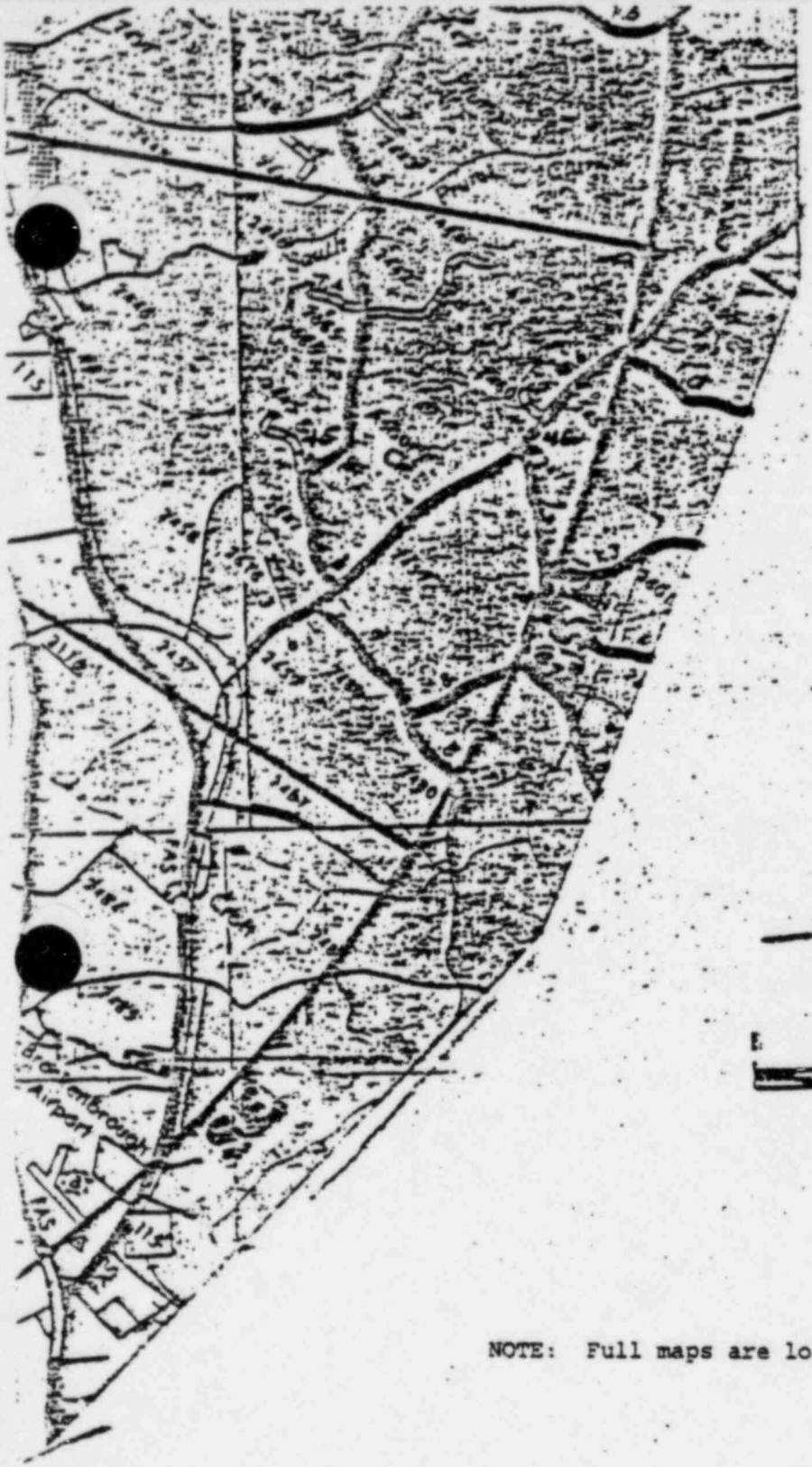
Huntersville Intakes - Sector D (East-Northeast) 2-3 miles.
Sample elevation - 742'
Accessable by land on SR 2145 (Norman Island Road)

Davidson Intakes - Sector B (North-Northeast) 5-6 miles
Sample elevation - 736'
Accessable by land on SR 2195 (Torrence Church Road)

Charlotte Intakes - Sector I (South) 5-6 miles
Sample elevation 635' - Unit 1 intake
640' - Unit 2 intake
637' - Unit 3 intake
Accessable by land on SR 2004 (Mt. Holly-Huntersville Road)

NOTE: 1. Full lake elevation is 760'

2. Catawba River spillway elevation (for Charlotte intakes) is 647' 6"



SCALE OF MILES

0 1 2

NOTE: Full maps are located in the emergency kits.

McGUIRE NUCLEAR S

HP MANUAL SECTION 18.2

ENCLOSURE 5.2

FIELD MONITORING TEAM LOG SHEET

ENCLOSURE 5.5

TEAM	LOCATION NO.	CC /MIN.	SAM-2 EFF. FACTOR	AIR SAMPLER FLOW RATE/ CFM	SAMPLE TIME FROM:	SAMPLE TIME TO:	DOSE RATE mR/hr	SMEAR SURVEY C/MIN.

APPROVAL [signature]

REV. 3 DATE 12/14/82

SECTION 18.3 PERSONNEL MONITORING FOR EMERGENCY CONDITIONS

1.0 Purpose

1.1 To provide personnel monitoring during a Site Evacuation due to a radiological emergency.

2.0 References

2.1 Station Directive 3.8.1 (Site Assembly and Evacuation).

3.0 Precautions and Limitations

3.1 Survey teams shall don particulate masks when airborne particulate activity > 3×10^{9} uc/ml gross, $\beta\gamma$, or > 6×10^{13} uc/ml α.

3.2 If survey teams expect to be exposed to Iodine -131 in excess of 10 x MPC they shall injest 130 milligrams (1 tablet) of potassium iodine.

3.3 Survey teams shall don protective clothing at contamination levels > 1000 dpm/100 cm^2 $\beta\gamma$, > 20 dpm/100 cm^2 α.

3.4 Survey teams shall wear high range personnel dosimetry provided in the kits when entering areas where suspected radiation levels may warrant.

4.0 Procedure

4.1 Upon initiation of a Site Assembly or Site Evacuation due to a radiological emergency, Health Physics shall dispatch four (4) predesignated emergency personnel survey teams to the following locations.

4.1.1 Construction Admin. - 2 technicians.

4.1.2 Brass Shack - 4 technicians.

4.1.3 PAP Area - 4 technicians.

4.1.4 Evacuation Facility - 4 technicians.

4.2 Each survey team shall be equipped with an emergency kit containing the following:

4.2.1 One Eberline E-520 or Victoreen 491 with HP-260 probe per technician.

4.2.2 Emergency radio transmitter/receiver.

4.2.3 One Norton 7600 or MSA dual side cartridge type particulate mask per technician.

4.2.4 Emergency TLDs and high range personnel dosimeters.

4.2.5 Six (6) sets of protective clothing.

4.2.6 Radiation boundary ribbon or rope and cautions signs with inserts.

4.2.7 Potassium Iodide tablets.

4.2.8 A copy of Station Health Physics Manual, 18.3, (Personnel Monitoring for Emergency Conditions).

4.2.9 Two (2) cases of disposable coveralls at each of the four (4) locations.

4.3 Upon reaching their predesignated locations the survey teams shall verify communications with the Control Room or Technical Support Center dispatcher and maintain open communications.

4.4 The Construction Post #1 and Brass Shack survey teams shall monitor all personnel and vehicles leaving via these gates to insure there is no spread of contamination outside of the protected area.

4.4.1 In the event that a vehicle and/or its passengers are found to be contaminated, the survey team shall:

4.4.1.1 Notify the Control Room or Technical Support Center dispatcher.

4.4.1.2 Dress the contaminated individual(s) in the appropriate protective clothing and isolate that individual(s) until proper decontamination can be accomplished.

4.4.1.3 Escort the contaminated person(s) to the contaminated change room for decontamination. If unable to return to the station, proceed to the Evacuation Facility (Technical Training Center) for decontamination.

4.4.1.4 Prevent movement of the vehicle especially from leaving the protected area.

4.5 The PAP area survey team shall commence to monitor personnel in this area to facilitate timely and orderly passage to the evacuation facility in the event of a subsequent Site Evacuation.

4.5.1 In the event that an individual(s) is found to be contaminated, the survey team shall:

4.5.1.1 Notify the Control Room or Technical Support Center dispatcher.

4.5.1.2 Dress the contaminated individual(s) in the appropriate protective clothing and isolate that individual(s) until proper decontamination can be accomplished.

4.5.1.3 Escort the contaminated person(s) to the contaminated change room for decontamination. If unable to return to the contaminated change room, the shower in the dressing room near the PAP will be used for decontamination purposes.

4.5.1.4 Survey the area to determine the existance of further contamination.

4.6 The Evacuation Facility survey team shall stand by at the designated evacuation facility in preparation for monitoring incoming personnel in the event of a subsequent Site Evacuation.

4.6.1 In the event that an individual(s) or vehicle(s) is found to be contaminated, the survey team shall:

4.6.1.1 Notify the Control Room or Technical Support Center dispatcher and the Administrative Services Superintendent.

4.6.1.2 Dress the contaminated individual(s) in the appropriate protective clothing and isolate that individual(s) until proper decontamination can be accomplished.

4.6.1.3 Escort the contaminated person(s) to the contaminated change room at McGuire. If unable to return to the contaminated

change room at McGuire, use the showers at the Evacuation Facility, i.e. Technical Training Center or Cowans Ford Dam.

4.6.1.4 Post a Radiation Control Zone around the contaminated vehicle.

4.6.1.5 Survey the area to determine the existance of further contamination.

4.7 Survey teams shall be supplemented, relieved, or secured as directed by the Station Health Physicist.

5.0 Enclosures

None