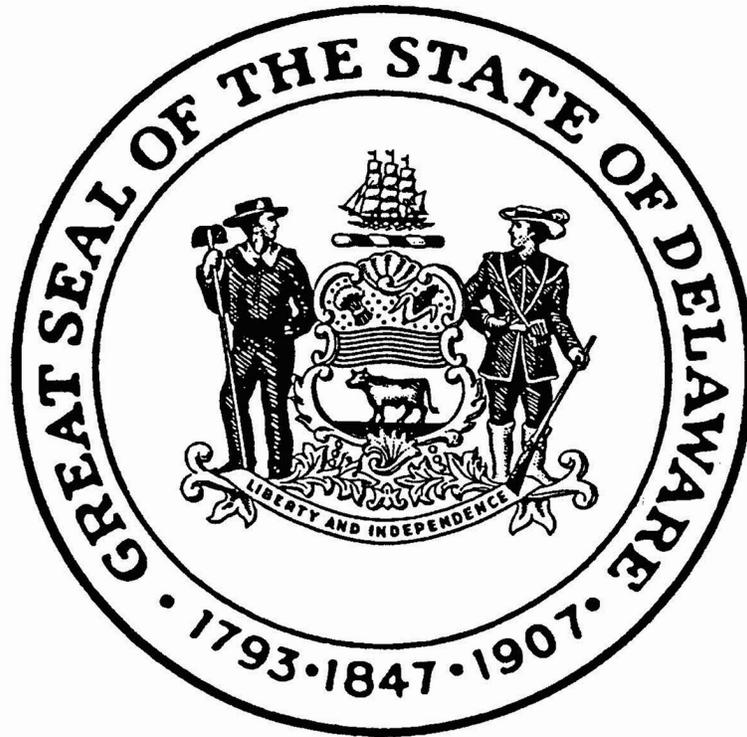


STATE OF DELAWARE



REP STANDARD OPERATING PROCEDURES

TABLE OF CONTENTS

STANDARD OPERATION PROCEDURE (SOP)			SOP REV	LAST UPDATE
SOP	100	Series Notification Procedure	7	11/05
SOP	101	Delaware State Police Notification Procedures for Plant Status Change, Unusual Event, Alert, Site Area Emergency, General Emergency	7	11/05
SOP	102	Delaware State Police Notification Procedures (For Spurious Siren Activations, Malfunctions, or Intrusion Reports)	7	11/05
SOP	103	Delaware Emergency Management Agency (DEMA) Notification Procedures For (EAS) Emergency Alert System Message	7	11/05
SOP	104	SHCGS Notification Procedures for Plant Status Changes	7	11/05
SOP	105	(DEMA) Notification Procedures for Plant Status Changes	7	11/05
SOP	106	Notification of Nuclear Regulatory Commission (NRC) Information From State Liasion Regarding Plant Status Changes	7	11/05
SOP	107	Notification of a Security Event	1	11/05
SOP	108	Notification of a Fast Breaker	1	11/05
SOP	200	Mobilization and Staffing	7	11/05
SOP	300	Accident Assessment Procedures	5	11/05
SOP	301	Accident Assessment Advisory Group	8	11/05
SOP	302	Plume Exposure Pathway Protective Action Recommendations	8	11/05
SOP	303	Preparation of Protective Action Recommendations for the Post	4	11/05
SOP	304	Plume Pathway Dose Projections and Ingestion Pathway Calculations	7	11/05
SOP	305	Not Used		
SOP	306	Field Team Monitoring and Sample Methods	8	11/05
SOP	307	Ingest Team Monitoring and Sample Methods	5	11/05

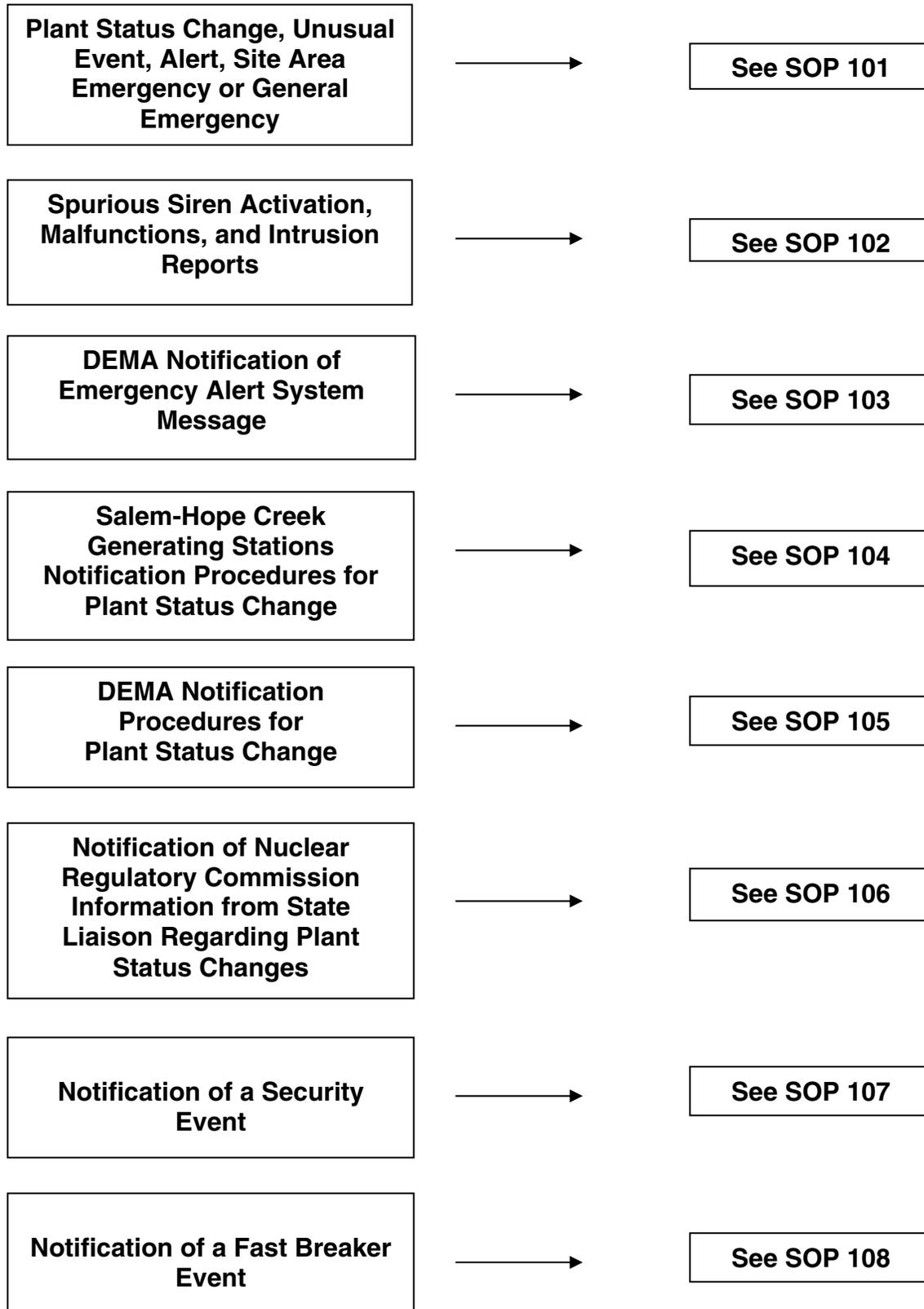
TABLE OF CONTENTS

STANDARD OPERATION PROCEDURE (SOP)			SOP REV	LAST UPDATE
SOP	311	Emergency Operations Facility (EOF) Procedures	6	11/05
SOP	500	Public Alerting and Notification Procedures	5	11/05
SOP	501	Prompt Alert and Notification System	6	11/05
SOP	502	Emergency Alert System Messages	6	11/05
SOP	503	Alert and Notification of the Delaware River and Bay Area	5	11/05
SOP	504	Route Alerting Procedure for Failed Sirens	5	11/05
SOP	505	Public Information Procedure	7	11/05
SOP	600	Predetermined Protection Action Recommendations	7	11/05
SOP	601	Relocation of Vital Documents from Emergency Operations Center	3	11/05
SOP	700	Traffic and Access Control	7	11/05
SOP	800	Radiation Exposure Control Procedures	4	11/05
SOP	801	Radiation Exposure Control Measures	8	11/05
SOP	802	Personnel Monitoring	4	11/05
SOP	803	Decontamination	4	11/05
SOP	900	Emergency Worker Decontamination Facility	5	11/05
SOP	1000	Special Populations	6	11/05
SOP	1100	Protective Action Procedures for Schools	7	11/05
SOP	1200	General Population Evacuation	4	11/05
SOP	1300	Evacuee Registration Centers	6	11/05
SOP	1400	American Red Cross Disaster Shelters	6	11/05
SOP	1501	Transport and Handling of Contaminated and/or Injured Individuals to the Wilmington and Christiana Hospitals, Christiana Care Health System	9	11/05
SOP	1502	Decontamination and Treatment of the Radioactively Contaminated Patient at Wilmington and Christiana Hospitals, Christiana Care Health System	10	11/05

TABLE OF CONTENTS

STANDARD OPERATION PROCEDURE (SOP)			REV	SOP UPDATE	LAST UPDATE
SOP	100	Series Notification Procedure	6	9/01	
SOP	101	Delaware State Police Notification Procedures for Plant Status Change, Unusual Event, Alert, Site Area Emergency, General Emergency	6	9/01	
SOP	102	Delaware State Police Notification Procedures (For Spurious Siren Activations, Malfunctions, or Intrusion Reports)	6	9/01	
SOP	103	Delaware Emergency Management Agency (DEMA) Notification Procedures for a Spurious Siren Activation	6	9/01	
SOP	104	Delaware Emergency Management Agency (DEMA) Notification Procedures	6	9/01	
SOP	105	SHCNGS Notification Procedures for Plant Status Changes	6	9/01	
SOP	106	Delaware Emergency Management Agency (DEMA) Notification Procedures for Plant Status Changes	6	9/01	
SOP	107	Notification of Nuclear Regulatory Commission (NRC) Information From State Liaison Regarding Plant Status Changes	6	9/01	
SOP	200	Mobilization and Staffing	6	8/03	
SOP	300	Accident Assessment Procedures	4	8/03	
SOP	301	Accident Assessment Advisory Group	5	8/03	
SOP	302	Plume Exposure Pathway Protective Action Recommendations	5	8/03	
SOP	303	Preparation of Protective Action Recommendations for the Post	3	8/03	
SOP	304	Plume Pathway Dose Projections and Ingestion Pathway Calculations	6	8/03	
SOP	305	Not Used			
SOP	306	Field Team Monitoring and Sample Methods	6	9/01	
SOP	307	Ingest Team Monitoring and Sample Methods	5	8/03	
SOP	308	Not Used			
SOP	309	Not Used			
SOP	310	Operation and Maintenance of the State Emergency Operations Center HEPA Ventilation System	NOT USED		
SOP	311	Emergency Operations Facility (EOF) Procedures	3	7/97	

SOP 100 Series Notification Procedures



SOP 100 SERIES NOTIFICATION PROCEDURES

1.0 OBJECTIVE

The SOP 100 Series establish initial notification procedures for accident classification levels (Unusual Event, Alert, Site Area Emergency, General Emergency) and spurious siren activation's.

2.0 CONTENTS

- 2.1 SOP 101 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGE, UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY.
- 2.2 SOP 102 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A SPURIOUS SIREN ACTIVATION, MALFUNCTIONS, AND INTRUSION REPORTS. DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION PROCEDURES FOR A SPURIOUS SIREN.
- 2.3 SOP 103 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION OF EMERGENCY ALERT STATION (EAS) MESSAGE.
- 2.4 SOP 104 SALEM-HOPE CREEK GENERATING STATIONS (SHCGS) NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGE.
- 2.5 SOP 105 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGES.
- 2.6 SOP 106 NOTIFICATION OF NUCLEAR REGULATORY COMMISSION (NRC) INFORMATION FROM STATE LIAISON REGARDING PLANT STATUS CHANGES.
- 2.7 SOP 107 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A SECURITY EVENT.
- 2.8 SOP 108 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A FAST BREAKER.

3.0 PREREQUISITES

- 3.1 An emergency exists at Salem-Hope Creek Generating Stations (SHCGS) or in the event of a spurious siren activation.
- 3.2 Notifications of emergencies are from PSEG Nuclear, LLC to Delaware State Police Communications in Smyrna, Delaware.
- 3.3 All notifications are logged using the Initial Contact Message Form.
- 3.4 Initial notification is verified by callback or voice recognition by the DSP Communications or DEMA.

4.0 REFERENCES

- 4.1 State of Delaware, Radiological Emergency Plan
- 4.2 State of Delaware, SOP 500 Series Procedures

5.0 ATTACHMENTS

100-A1 Initial Contact Message Form (ICMF)

6.0 RECORDS

All data, records, forms and logs are to be transmitted to and maintained by DEMA at the State EOC.

INITIAL CONTACT MESSAGE FORM (ICMF)

RECEIVING OPERATOR/DATE/TIME _____

INITIAL PSEG NUCLEAR CALL RECEIVED FROM NAME/DATE/TIME _____

NOTE: IN THE EVENT OF A TEST, DRILL OR EXERCISE, BEGIN AND END EACH MESSAGE WITH THE PHRASE "THIS IS A DRILL".

I. THIS IS _____, COMMUNICATOR IN _____ CONTROL ROOM
_____ TECHNICAL SUPPORT CENTER (TSC)
_____ EMERGENCY OPERATIONS FACILITY (EOF)
_____ DELAWARE STATE POLICE (DSP)
_____ DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)
_____ OTHER _____

THIS IS NOTIFICATION OF: _____ ACTUAL INCIDENT REPORTING: _____ A PLANT STATUS CHANGE
_____ EXERCISE / DRILL _____ AN UNUSUAL EVENT
_____ AN ALERT
_____ A SITE AREA EMERGENCY
_____ A GENERAL EMERGENCY

_____ AT THE SALEM NUCLEAR GENERATING STATION, UNIT NUMBER _____.

_____ AT THE HOPE CREEK NUCLEAR GENERATING STATION.

DECLARED AT _____ (24 HOUR TIME) ON _____ (DATE)
THIS IS A PROTECTIVE ACTION RECOMMENDATION UPDATE.

II. ECG/EAL NUMBER _____ DESCRIPTION OF EVENT: _____

III. _____ THERE IS NO RELEASE IN PROGRESS. _____ THERE IS A RELEASE IN PROGRESS.
33 FT. LEVEL: WIND SPEED (MPH): _____ WIND DIRECTION (FROM DEGREES): _____

IV. _____ NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME.
_____ SECTOR(S) _____ DISTANCE (MILES)
_____ WE RECOMMEND SHELTERING AS FOLLOWS: _____
_____ WE RECOMMEND EVACUATION AS FOLLOWS: _____
_____ WE RECOMMEND THE USE OF KI IN ACCORDANCE WITH STATE PROCEDURES.

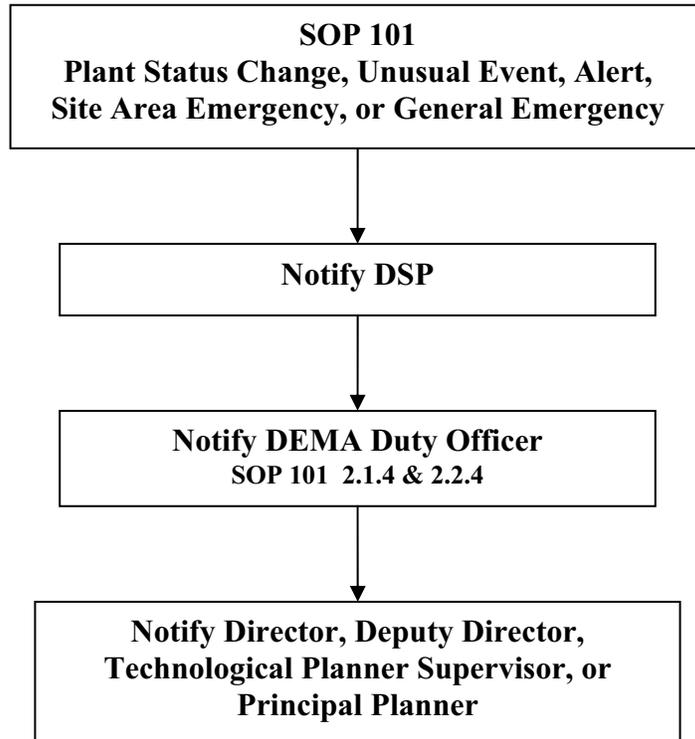
V. _____ THE EVENT HAS BEEN TERMINATED AT _____ (TIME) ON _____ (DATE).

CALL BACK VERIFICATION NUMBERS

LOCATION	SALEM	HOPE CREEK
_____ CONTROL ROOM	PRIMARY: NETS	PRIMARY: NETS
_____ TECHNICAL SUPPORT CENTER (TSC)	SECONDARY:	SECONDARY:
_____ EMERGENCY OPERATIONS FACILITY (EOF)	PRIMARY: NETS	PRIMARY: NETS
_____ DELAWARE STATE POLICE (DSP)	SECONDARY	SECONDARY:
_____ DELAWARE EMERGENCY MANAGEMENT (DEMA)	PRIMARY: NETS	PRIMARY: NETS
_____ OTHER _____ SIMULATOR DRILLS ONLY, USE #856- _____ - _____ OR NETS _____	SECONDARY:	SECONDARY:

NAME/TITLE OF CALLBACK CONTACT _____ TIME OF CALLBACK _____

**SOP 101 Plant Status Change, Unusual Event, Alert,
Site Area Emergency, or General Emergency**



SOP 101 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGE, UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, and GENERAL EMERGENCY

1.0 OBJECTIVE

SOP 101 establishes notification procedures for the Delaware State Police (DSP) in response to an emergency notification from Salem-Hope Creek Generating Stations (SHCGS) for normal working hours and off-hours.

Make all notations (Name, Time Contacted, and Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURE FOR NORMAL WORKING HOURS

2.1 PLANT STATUS CHANGE, UNUSUAL EVENT

2.1.1 Log the emergency call from SHCGS.

2.1.2 Fill-out Initial Contact Message Form.

2.1.3 Verify contact by callback to SHCGS.

Name _____ Time _____ Initial _____

2.1.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Normal working hours call Duty Officer; if not available continue down the list. Do not page Duty Officer. Off Hours contact Duty Officer via telephone or page. If he would not be available continue down the list.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder: Contact One (1) Duty Officer.
Title: Duty Officer, (Normal working hours if Duty Officer not available DO NOT PAGE, continue with list. Off Hours contact Duty Officer)

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Acting Operations Manager, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Technological Supervisor Planner, DEMA

Name: _____

Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

2.2 ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY

2.2.1 Log the emergency call from SHCGS.

2.2.2 Fill-out Initial Contact Message Form.

2.2.3 Verify contact by callback to SHCGS.

Name _____ Time _____ Initial _____

2.2.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder: Contact One (1) Duty Officer.
Title: Duty Officer, (If Duty Officer not available DO NOT page, continue with list)

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Acting Operations Manager, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Supervisor Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

- 2.2.5 Call the pager number first. Call office or home number second, depending on the time of day leave message on any answering machine (if provided). Relay information from initial contact message form.

DEPARTMENT OF SAFETY AND HOMELAND SECURITY

Title: Secretary, DSHS
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

- 2.2.6 Notify DEMA staff to respond to State EOC. Use DEMA call down Telephone Alert List.

Personnel with Pager Time _____ Initial _____

- 2.2.7 If auto dialer not available assign notification responsibilities to DEMA staff, who are now notified as key responders, to contact agencies. Depending on time of day, calls should be completed from office or home and all documentation brought to EOC.

- 2.2.8 Notify the following primary responders and relay information from Initial Contact Message Form.

- 2.2.9 Notify the three county Emergency Communication Centers (ECCs) and the City of Wilmington Emergency Office and relay information from the Initial Contact Message Form.

NCC 911 CENTER (New Castle County Fireboard)

(Remind Fireboard to call staff at NCC Office of Emergency Management)

Number: _____
Name: _____ Time _____ Initial _____

NEW CASTLE RECOM

Number: _____
Name: _____ Time _____ Initial _____

NEW CASTLE COUNTY POLICE CHIEF'S OFFICE

Number: _____
Name: _____ Time _____ Initial _____

KENT COUNTY 911 CENTER (Kent County Fireboard)

NOTE: Inform KENT CENTER 911 to contact Delaware State Fire School (DSFS) Representative on Call.

Number: _____
Name: _____ Time _____ Initial _____

KENTCOM

Number: _____
Name: _____ Time _____ Initial _____

SUSSEX COUNTY 911 CENTER (Sussex County Fireboard)

Number: _____
Name: _____ Time _____ Initial _____

SUSCOM

Number: _____
Name: _____ Time _____ Initial _____

CITY OF WILMINGTON EMERGENCY MANAGEMENT (CITY OF WILMINGTON EOC)

Primary Responder:
Title: Emergency Management Director
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

NEW CASTLE COUNTY OFFICE OF EMERGENCY MANAGEMENT (NCCO EOC)

Primary Responder:
Title: Emergency Coordinator
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
After hours: _____ Time _____ Initial _____

Alternate Responder:
Title: Emergency Preparedness Planner, NCC
Office: _____ Time _____ Initial _____

KENT COUNTY EMERGENCY MANAGEMENT (Kent County EOC)

Primary Responder:
Title: Assistant Director, KC Public Safety
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Director, KC Public Safety
Name: _____

Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

SUSSEX COUNTY EMERGENCY MANAGEMENT (Sussex County EOC)

Primary Responder:
Title: Director, SC
Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Assistant Director, SC
Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

2.2.10 Notify the following primary responders and relay information from Initial Contact Message Form.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

PSEG NUCLEAR

Primary Responder:
Title: Emergency Preparedness Manager
Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____

Alternate Responder:
Title: Emergency Preparedness Supervisor
Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____

Alternate Responder:
Title: Technician Specialist
Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____

Alternate Responder:
Title: Nuclear Adm. Offsite Liaison
Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____

2.2.11 Notify the US Legislators and relay information from the Initial Contact Message Form (DEMA Director/Public Safety Secretary will contact Governor's Office)

GOVERNORS OFFICE

Title: Advisor to the Governor

Name: _____

Office: _____

Pager: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Title: Legal Counsel to the Governor

Name: _____

Office: _____

Pager: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Title: Governor's Communications Director

Name: _____

Office: _____

Pager: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

SENATOR BIDEN'S OFFICE

Title: State Director

Name: _____

Office: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

SENATOR CARPER'S OFFICE

Name: _____

Office: _____

Time _____ Initial _____

REPRESENTATIVE CASTLE'S OFFICE

Name: _____

Office: _____

Time _____ Initial _____

2.2.12 Contact TAC Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

TAC CO-CHAIRPERSON

Primary Responder:

Title: Director of the Office of Radiation Control

Name: _____

Office: _____

Time _____ Initial _____

Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Chief, Health Systems Protection

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

TAC CO-CHAIRPERSON LABORATORY AND SAMPLE COORDINATOR

Primary Responder:

Title: Senior Science Advisory, Division of Water Resources, DWR

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

TAC DATA ANALYSIS

Title: Environmental Scientist III, DWR

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Title: Rad Control Specialist

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

TAC COMPUTER OPERATOR

Title: Environmental Health Specialist, DPH

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Title: Health Program Coordinator, DPH

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

TAC LABORATORY AND SAMPLE COORDINATOR

Primary Responder:
Title: Laboratory Manager I
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Environmental Laboratory Manager, DWR
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

TAC FIELD TEAMS - DELAWARE NATIONAL GUARD

Primary Responder:
Title: Plans, Operations and Military Support Officer, DNG, Team A
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Operations Officer, DNG Team B
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Military Support Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Physical Security, NCO
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

TAC SRC CONSULTING

Primary Responder:

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

2.2.13 Notify the following DFW primary responders and relay information from Initial Contact Message Form.

Call office number first - leave message if necessary. Call home number second – leave message on any answering machines. Call pager number third (if provided) – leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies that could not be contacted without leaving a message.

DIVISION OF FISH AND WILDLIFE, Enforcement Section

Radio Room (Emergencies)
Number: _____
Name: _____ Time _____ Initial _____

Primary Responder:
Title: Enforcement Chief
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Primary Responder:
Title: NC County Captain, DFW
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Southern Captain (Kent County), DFW

Name: _____

Office: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

2.2.14 Notify the following DSP primary responders and relay information from Initial Contact Message Form.

Call pager number first (if provided - leave message) if necessary. Call office or home number second depending on the time of day - leave message on answering machines.

Alternate responders are provided if the primary responder cannot be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

DSP

Primary Responder:

Title: Troop 9 Representative, DSP

Name: Desk Officer

Office: _____ Time _____ Initial _____

Primary Responder:

Title: Troop 9 Troop Commander, DSP

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

DSP OPERATIONS

Primary Responder:

Title: Field Operations Officer, (NCC), DSP

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Primary Responder:

Title: Field Operations Officer, (Kent and Sussex), DSP

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Officer in Charge of Truck Enforcement Unit, OCTEU, DSP

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:

Title: Special Investigations Officer, DSP

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DSP COMMUNICATIONS/ ESF

Primary Responder:

Title: Communications Chief

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Operations Manager, HQ Communications

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

2.2.15 Verify that DSP will contact DSP helicopter crew to stage the river alerting system.

DSP AVIATION

Office/Dispatch Center _____ Time _____ Initial _____

Primary Responder: Officer on Duty

Alternate Responder:

Name: _____

Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

2.2.16 Notify the DEMA Staff responders and relay information from Initial Contact Message Form.

Call pager number first - leave message if necessary. Call office or home number second depending on the time of day - leave message on any answering machines.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

DELAWARE NATIONAL GUARD (PIO)

Primary Responder:

Title: Public Relations Officer

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DELAWARE STATE POLICE

Primary Responder:

Title: Public Relations Officer (PIO), Troop 2

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Public Relations Officer (PIO), Troop 2

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DEPARTMENT OF SAFETY AND HOMELAND SECURITY

Title: Community Relations Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DEPARTMENT OF AGRICULTURE

Primary Responder:
Title: Executive Assistant to the Secretary of Agriculture
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

AGRICULTURE TEAM, University of Delaware

Primary Responder:
Title: Cooperative Extension Safety Specialist
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Director
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

AGRICULTURE TEAM, United States Department of Agriculture (USDA)

Primary Responder:
Title: Farm Loan Program Specialist, USDA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: District Director and Program Specialist

USDA

Name: _____

Office: _____

Home: _____

Time _____ Initial _____

Time _____ Initial _____

DELAWARE RIVER & BAY AUTHORITY

Dispatcher (Emergencies)

Number: _____

Name: _____

Time _____ Initial _____

Primary Responder:

Name: _____

Office: _____

Pager: _____

Home: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

SMYRNA POLICE

Primary Responder:

Title: Chief of Police

Name: _____

Office: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder

Title: Deputy Chief

Name: _____

Office: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

DEPARTMENT OF EDUCATION

Primary Responder:

Title: Education Associate School Planning & Maintenance

Name: _____

Office: _____

Home: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder

Title: Director of Career & Technical Education & School Climate

Name: _____

Office: _____

Home: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

DIVISION OF PARKS AND RECREATION

24 hour Emergency Number: (Kentcom) _____

Primary Responder:
Title: Park Superintendent, DPR

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Chief of Enforcement, DPR

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Regional Ranger Supervisor

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Regional Ranger Enforcement Supervisor

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Duty Officer: # _____

Primary Responder:
Title: Chief, Public Health Preparedness Section

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Administrator, Public Health Preparedness Section

Name: _____ Time _____ Initial _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Primary Responder

Title: Office of Narcotics and Dangerous Drugs, Director

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

DEPARTMENT OF TRANSPORTATION (TRANSPORTATION MANAGEMENT CENTER)

Operations Room: _____ Time _____ Initial _____

Name: _____

AMERICAN RED CROSS OF THE DELMARVA PENINSULA

Primary Responder:

Title: Director of Emergency Services

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Manager, Emergency Services

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Administrator, Emergency Services

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

CIVIL AIR PATROL, Delaware Wing

Primary Responder:

Title: Director of Emergency Services

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Commander, Delaware Wing

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DIVISION OF SOCIAL SERVICES

Primary Responder:

Title: Social Services Sr. Administrator, Div. of Social Services

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Social Services Administrator, Div. of Social Services

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

**OFFICE OF MANAGEMENT & BUDGET
GOVERNMENT SUPPORT SERVICES**

Primary Responder

Title: Manager, Federal Food Commodities Program

Name: _____

Office: _____

Time _____ Initial _____

Home: _____

Time _____ Initial _____

Cell: _____

Time _____ Initial _____

Alternate Responder:

Title: Food Program Supply Storage & Distribution Coordinator

Name: _____

Office: _____

Time _____ Initial _____

Home: _____

Time _____ Initial _____

Cell: _____

Time _____ Initial _____

WDEL - EMERGENCY ALERT SYSTEM

Primary Responder:

Alternate Responder:

Title: News Director, WDEL

Name: _____

Office: _____

Time _____ Initial _____

Home: _____

Time _____ Initial _____

Pager: _____

Time _____ Initial _____

Cell: _____

Time _____ Initial _____

Alternate Responder:

Title: Program Director

Name: _____

Office: _____

Time _____ Initial _____

Home: _____

Time _____ Initial _____

Pager: _____

Time _____ Initial _____

Cell: _____

Time _____ Initial _____

VERIZON

Title: Local Manager

Name: _____

Office: _____

Time _____ Initial _____

Home: _____

Time _____ Initial _____

Pager: _____

Time _____ Initial _____

Cell: _____

Time _____ Initial _____

DELMARVA POWER

Title: System Operations, Supervisor

Name: _____

Office: _____

Time _____ Initial _____

Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: System Operations, Associate Engineer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Senior Project Engineer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: System Operations
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DELAWARE ELECTRIC CO-OP

Operations Section # _____
Name: _____ Time _____ Initial _____

Primary Responder:
Title: Coordinator of Information Services
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Manager, Metering & Power Supply
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

U. S. COAST GUARD

Title: Duty Officer, Philadelphia:
Office: _____ Time _____ Initial _____

ARMY CORPS OF ENGINEERS

Title: Emergency Operations Manager
Office: _____ Time _____ Initial _____

Primary Responder:

Title: Project Engineer, Chesapeake City Project Office
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:

Title: Philadelphia District
Name: _____
Office: _____ Time _____ Initial _____

AMATEUR RADIO

Primary Responder:

Title: Section Manager, ARES/State RACES Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: District Emergency Coordinator, ARES/Asst. State RACES Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:

Title: Assistant Emergency Coordinator, ARES/Asst. State RACES Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

SALVATION ARMY

Primary Responder:

Title: Housing Director, SA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Dover Corps Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Director of Social Services
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

NATIONAL WEATHER SERVICE, Mt. Holly, New Jersey

Title: Meteorologist in Charge, NWS
Name: _____
Office: _____ Time _____ Initial _____

CHRISTIANA CARE HEALTH SERVICES

Dispatcher: _____ Time _____ Initial _____

Title: Chairman, Department of Emergency Medicine
Name: _____
Office: _____ Time _____ Initial _____

Primary Responder
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

TELEDYNE BROWN ENGINEERING, ENVIRONMENTAL SERVICES

Primary Responder:
Title: Laboratory Manager
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Radiation Safety Officer
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Project Manager
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

FEDERAL NUCLEAR REGULATORY COMMISSION (NRC)

Office: _____ Time _____ Initial _____

FEDERAL ENVIRONMENTAL PROTECTION AGENCY (EPA)

Office: _____ Time _____ Initial _____

FEDERAL RADIOLOGICAL MONITORING ASSISTANCE PLAN (FRMAP),

Brookhaven
Office: _____ Time _____ Initial _____

DOVER AIR FORCE BASE

Title: Duty Officer, Command Post
Office: _____ Time _____ Initial _____

FEDERAL EMERGENCY MANAGEMENT AGENCY REGION III

Title: Director
Name: _____
Office: _____ Time _____ Initial _____
SkyPager: _____ Time _____ Initial _____

STATE OF NEW JERSEY OFFICE OF EMERGENCY MANAGEMENT

Primary Responder:
Title: Commanding Officer, NJOEM
Name: _____
Office: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Assistant Section Supervisor
Name: _____
Office: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

STATE OF MARYLAND EMERGENCY MANAGEMENT AGENCY

Title: Director, MEMA

Name: _____

Office: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

STATE OF PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY

Operations Center: _____ Time _____ Initial _____

Primary Responder: Watch Officer

Alternate Responder:

Title: Director, PEMA

Name: _____

Office: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder:

Title: Director, Bureau of Operations & Training

Name: _____

Office: _____

Pager: _____

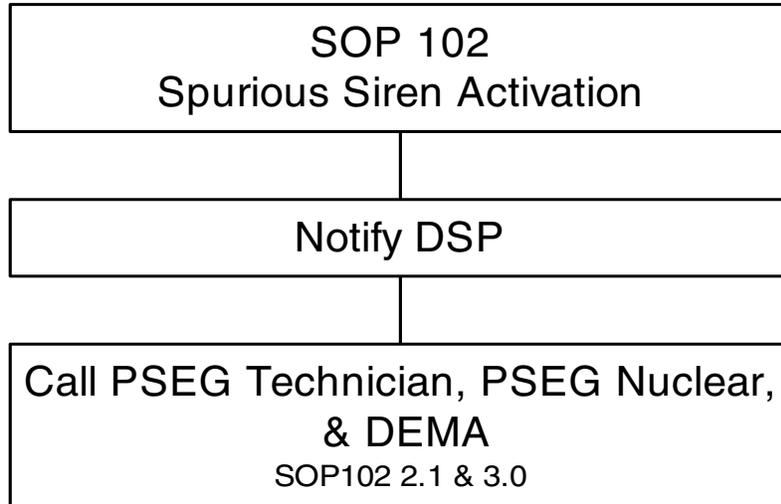
Time _____ Initial _____

Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

**SOP 102 Spurious Siren Activation, Malfunctions,
And Intrusion Reports**



**SOP 102 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES
(For Spurious Siren Activations, Malfunctions or Intrusion Reports)**

1.0 OBJECTIVE

SOP 102 establishes notification procedures for Delaware State Police (DSP) in the event of a spurious siren activation, malfunctions, or intrusion reports (Notification Procedures 2.0).

SOP 102 establishes notification procedures for Delaware Emergency Management Agency (DEMA) in the event of a spurious siren activation (Notification Procedures 6.0).

SOP 102 establishes notification procedures for Delaware Emergency Management in the event of siren malfunctions or intrusion reports. Notifications will be made to DEMA for a period exceeding 24 hours or more (Notification Procedures 6.4).

Make all notations (Name, Time Contacted, and Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURES

2.1 Notify the following primary responders in the event of spurious siren activation.

Call pager number first if using auto dialer. Depending on time of day call office/home number second - leave message on answering machines.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

PSEG NUCLEAR (Technician)

Primary Responder:

Title: NTD Productions Lead

Name: _____

Office: _____

Home: _____

Pager: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder/Technician

Name: _____

Office: _____

Home: _____

Cell: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder:

Title: Technician

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title: Duty Officer, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Acting Operations Officer, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Technological Planner Supervisor, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

PSEG NUCLEAR

Primary Responder:
Title: Emergency Preparedness Manager
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Primary Responder:
Title: Emergency Preparedness Supervisor
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Technician Specialist
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Nuclear Adm. Offsite
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to noncontact after list is completed - try again. Contact DEMA with names of any agencies that could not be contacted without leaving a message.

3.0 INTRUSION REPORT

If intrusion report, contact the Emergency Reporting Center for the area involved and have a police unit respond to the siren location. This is in addition to the above calls.

If the siren(s) continues to sound, notify Troop 9 to dispatch a patrol unit to the location(s) to deactivate the siren(s). The combination on file at the troop is _____.

Number: _____ Time _____ Initial _____

Primary Responder:

Title: Coordinator of Emergency Planning

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Emergency Preparedness Planner, NCC

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Emergency Preparedness Planner, NCC

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

KENT COUNTY EMERGENCY MANAGEMENT

Primary Responder:

Title: Assistant Director, KC

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Director, KC Public Safety

Name: _____

Office: _____ Time _____ Initial _____

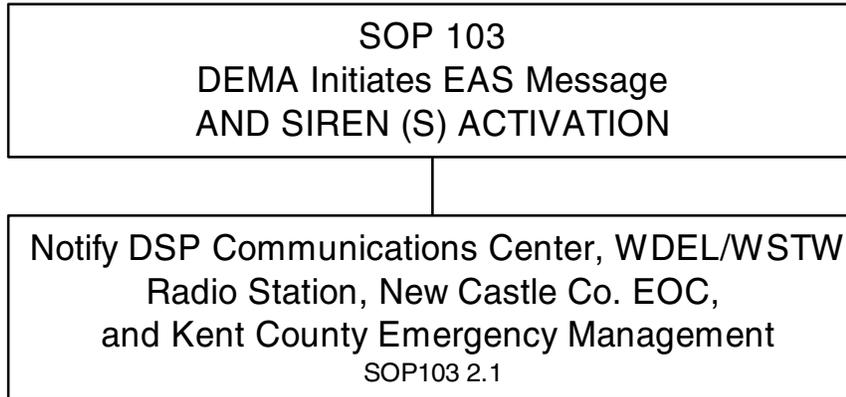
Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Call pager number first (if provided). Call office number/home number second considering time of day. Alternate responders are provided if the primary responder can not be contacted without leaving a message. If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed – try again. Notify DEMA authority of any agencies, which could not be contacted without leaving a message.

**SOP 103 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)
NOTIFICATION PROCEDURES FOR AN EMERGENCY ALERT SYSTEM (EAS)
MESSAGE AND SIREN (S) ACTIVATION**



SOP 103 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION PROCEDURES FOR AN EMERGENCY ALERT SYSTEM (EAS) MESSAGE OR SIREN (S) ACTIVATION

1.0 OBJECTIVE

SOP 103 establishes notification procedures for the Delaware Emergency Management Agency (DEMA) in the event of an Emergency Alert System (EAS) message.

Make all notations (Name, Time Contacted, and Initial) directly on a copy of this SOP or printout from auto dialer.

2.0 NOTIFICATION PROCEDURE

2.1 Notify the following primary responders in the event of an EAS message.

Call office number first - leave message if necessary.

Call home number second - leave message on any answering machines. Call pager number third (if provided) - leave message.

Alternate responders are provided if the primary responder cannot be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies, which could not be contacted without leaving a message.

3.0 RECORDS

Maintain all records including computer printouts and telephone logs.

3.1 Notification to the public. An EAS message may be required. Refer to SOP 500 Series and Individuals listed in Coordinate timing of any siren activation (DSP Communications Center) and EAS message broadcast (WDEL/WSTW radio station). Notify the following:

DSP COMMUNICATIONS CENTER

_____ Time _____ Initial _____

WDEL/WSTW RADIO STATION

_____ Time _____ Initial _____

NEW CASTLE COUNTY OFFICE OF EMERGENCY MANAGEMENT

(NOTE: IF THE NCCEOC HAS BEEN ACTIVATED, CONTACT THE FOLLOWING. IF THE NCCEOC HAS NOT BEEN ACTIVATED, REQUEST THE NCCECC TO CONTACT THE FOLLOWING):

Number: _____ Time _____ Initial _____

Primary Responder:
Title: Coordinator of Emergency Planning
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

KENT COUNTY EMERGENCY MANAGEMENT

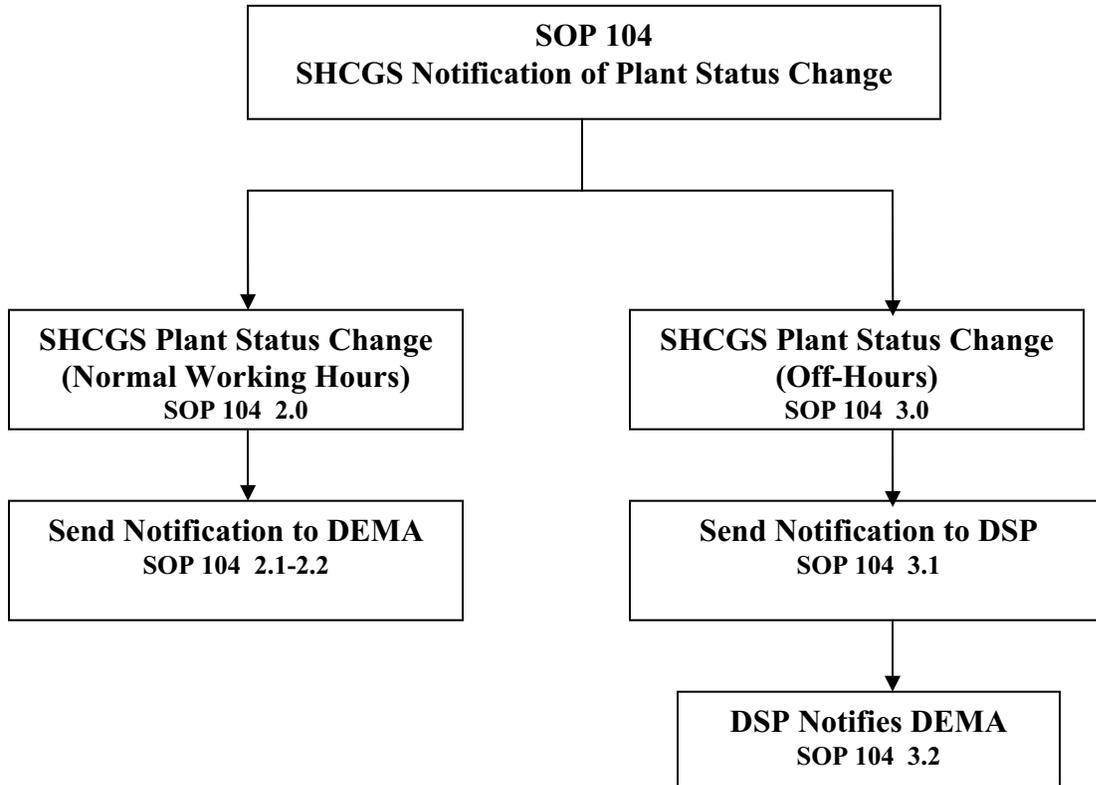
Primary Responder:
Title: Assistant Director, KC
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Director, KC Public Safety
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Notify DEMA authority of any agencies, which could not be contacted without leaving a message.

SOP 104 Salem-Hope Creek Generating Stations Notification Procedures for Plant Status Change



**SOP 104 SHCGS NOTIFICATION PROCEDURES
FOR PLANT STATUS CHANGES**

1.0 OBJECTIVE

SOP 104 establishes notification procedures in response to a plant status change notification from Salem-Hope Creek Generating Stations (SHCGS) for both normal working hours and off-hours.

Plant status changes include those that may be expected to result in a media news release to the public, e.g. reactor start-up or shutdown (both planned and unplanned).

The PSEG Public Affairs office at SHCGS will notify the DEMA or DSP Communications Section Shift Supervisor using the numbers listed in 2.1 or 3.1 of plant status changes involving start-ups and shutdowns.

2.0 NOTIFICATION PROCEDURE FOR PLANT STATUS CHANGE (NORMAL WORKING HOURS)

(Normal Working Hours - 0800 to 1630; Mon to Fri)

2.1 SHCGS will notify Delaware Emergency Management Agency (DEMA) REP Section by telefax.
Number: _____

2.2 In the event that a telephone call is necessary, notify the Delaware Emergency Management Agency (DEMA) primary responder by telephone.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:

Title: Acting Operations Officer, DEMA

Name: _____

Office: _____

Home: _____

Cell: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder:

Title: Deputy Director, DEMA

Name: _____

Office: _____

Home: _____

Cell: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responder:

Title: Director, DEMA

Name: _____

Office: _____

Time _____ Initial _____

Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Technological Planner Supervisor, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

3.0 NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGE (OFF-HOURS)

3.1 SHCGS will notify the DSP Communications Section Shift Supervisor by using telefax _____ or telephone _____.

3.2 DSP will notify the Delaware Emergency Management Agency (DEMA) primary responder.

Call home number first - leave message on any answering machines. Call pager number second (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title: Support Services Administrator, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Acting Operations Officer, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA
Name: _____
Office: _____
Home: _____
Cell: _____
Pager: _____

Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____

Alternate Responder:
Title: Director, DEMA
Name: _____
Office: _____
Home: _____
Cell: _____
Pager: _____

Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____

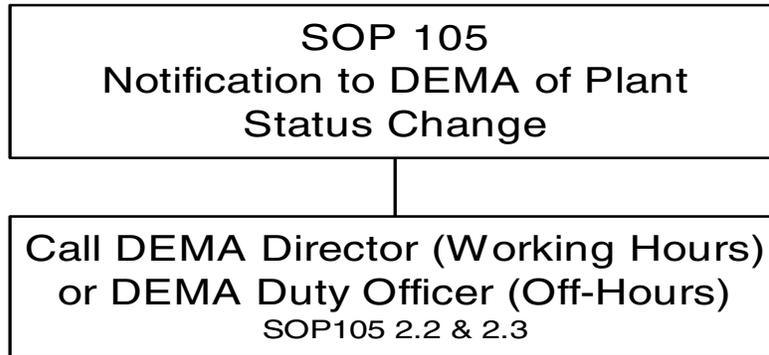
Alternate Responder:
Title: Principal Planner, DEMA
Name: _____
Office: _____
Home: _____
Cell: _____
Pager: _____

Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____

Alternate Responder:
Title: Technological Planner Supervisor, DEMA
Name: _____
Office: _____
Home: _____
Cell: _____
Pager: _____

Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____

**SOP 105 DEMA Notification Procedures for
Plant Status Change**



SOP 105 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGES

1.0 OBJECTIVE

SOP 106 establishes notification procedures for the Delaware Emergency Management Agency (DEMA) in the event of a change in plant status, e.g. reactor start-up or shutdown (planned or unplanned).

2.0 NOTIFICATION PROCEDURE (NORMAL WORKING HOURS)

- 2.1 Log the notification call from DSP and/or SHCGS.
- 2.2 Notify the following and relay information provided from DSP/SHCGS.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Responder:

Title: Director, DEMA

Name: _____

Office: _____

Cell: _____

Pager: _____

Email: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Alternate Responders

Title: Deputy Director, DEMA

Name: _____

Office: _____

Cell: _____

Pager: _____

Email: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Responder:

Title: Acting Operations Officer, DEMA

Name: _____

Office: _____

Cell: _____

Pager: _____

Email: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Responder:

Title: Public Information Officer (PIO), DEMA

Name: _____

Office: _____

Cell: _____

Pager: _____

Email: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

Responder:

Title: Principal Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Responder:
Title: Technological Planner Supervisor, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

DEPARTMENT OF SAFETY AND HOMELAND SECURITY

Title: Secretary, DSHS
Name: _____
Office: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Responder:
Title: TAC Co-Chairperson, DPH
Director, Office of Radiation Control
Name: _____
Office: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Responder:
Title: TAC Co-Chairperson, DNREC NRC State Liaison
Senior Science Advisor
Name: _____
Office: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

3.0 NOTIFICATION PROCEDURES (NON-WORKING HOURS)

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title: Support Services Administrator, DEMA
Name: _____

Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Alternate Responders
Title: Acting Operations, DEMA

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Alternate Responder:
Title: Public Information Officer (PIO), DEMA,

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Alternate Responder:
Title: Director, DEMA,

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Alternate Responder:
Title: Technological Planner Supervisor, DEMA

Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

DEPARTMENT OF SAFETY AND HOMELAND SECURITY

Title: Secretary, DSHS
Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

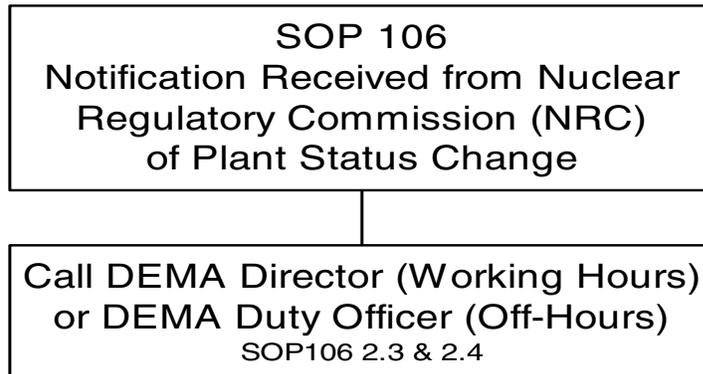
Responder:
Title: TAC Co Chairperson, DPH
Director, Office of Radiation Control
Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

Responder:
Title: TAC Co-Chairperson, DNREC NRC State Liaison
Senior Science Advisor
Name: _____
Home: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Email: _____ Time _____ Initial _____

4.0 RECORDS

Maintain all records including computer printouts and telephone logs.

**SOP 106 Notification of Nuclear Regulatory Commission
Information from State Liaison Regarding
Plant Status Change**



SOP 106 NOTIFICATION OF NUCLEAR REGULATORY COMMISSION (NRC) INFORMATION FROM STATE LIAISON REGARDING PLANT STATUS CHANGES

1.0 OBJECTIVE

SOP 106 establishes notification procedures for the Delaware State NRC Liaison upon receipt of NRC information regarding plant status changes at the Salem-Hope Creek Generating Stations (SHCGS) for both normal working hours and off-hours.

Plant status changes include those that may be expected to result in a media news release to the public ,e.g. reactor start-up or shutdown (both planned and unplanned).

Make all notations (Name, Time Contacted, and Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURE FOR PLANT STATUS CHANGE (NORMAL WORKING HOURS AND NON-WORKING HOURS)

2.1 Log the information from NRC.

2.2 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information provided by the NRC.

Alternate responders are provided if the primary responder can not be contacted.

2.3 Non-Working Hours

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:

Title: Support Services Administrator, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Acting Operations Officer, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Deputy Director, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Director, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Principal Planner, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Technological Planner Supervisor, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

2.4 Normal Working Hours

Primary Responder:

Title: Acting Operations Officer, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Principal Planner, DEMA

Name: _____

Office: _____ Time _____ Initial _____

Home: _____ Time _____ Initial _____

Cell: _____ Time _____ Initial _____

Pager: _____ Time _____ Initial _____

Email: _____ Time _____ Initial _____

Alternate Responder:

Title: Technological Planner, DEMA

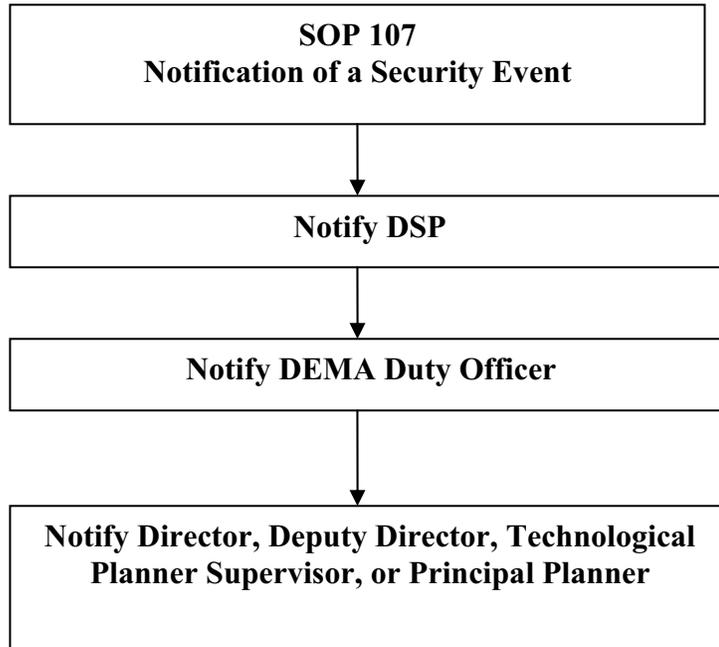
Name: _____

Office: _____ Time _____ Initial _____

Home: _____
Cell: _____
Pager: _____
Email: _____

Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____
Time _____ Initial _____

SOP 107 Notification of a Security Event



SOP 107 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A SECURITY EVENT

1.0 OBJECTIVE

SOP 107 establishes notification procedures for the Delaware State Police (DSP) in response to a security event notification from Salem-Hope Creek Generating Stations (SHCGS) for normal working hours and off-hours.

Make all notations (Name, Time Contacted, and Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURE FOR NORMAL WORKING HOURS

2.1 PLANT NOTIFICATION OF A SECURITY EVENT

2.1.1 Log the emergency call from SHCGS.

2.1.2 Fill-out Initial Contact Message Form.

2.1.3 Verify contact by callback to SHCGS.

Name _____ Time _____ Initial _____

2.1.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Normal working hours call Duty Officer; if not available continue down the list. Do not page Duty Officer. Off Hours contact Duty Officer via telephone or page. If he would not be a available continue down the list.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder: Contact One (1) Duty Officer.

Title: Duty Officer, (Normal working hours if Duty Officer not available DO NOT PAGE, continue with list. Off Hours contact Duty Officer)

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Principal Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:

Title: Technological Supervisor Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

SOP 107 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A SECURITY EVENT (continued)

Alternate Responder:
Title: Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

2.2 DELAWARE EMERGENCY MANAGEMENT AGENCY NOTIFICATION OF A SECURITY EVENT

2.2.1 Log the emergency call from Duty Officer or alternate

Name _____ Time _____ Initial _____

2.2.2 Notify the Delaware Emergency Management Agency (DEMA) Director or alternate relay information from Initial Contact Message Form.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title: Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:
Title: Technological Supervisor Planner, DEMA
Name: _____

**SOP 107 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A SECURITY
EVENT (continued)**

Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

2.2.3 Call the pager number first. Call office or home number second, depending on the time of day leave message on any answering machine (if provided). Relay information from initial contact message form.

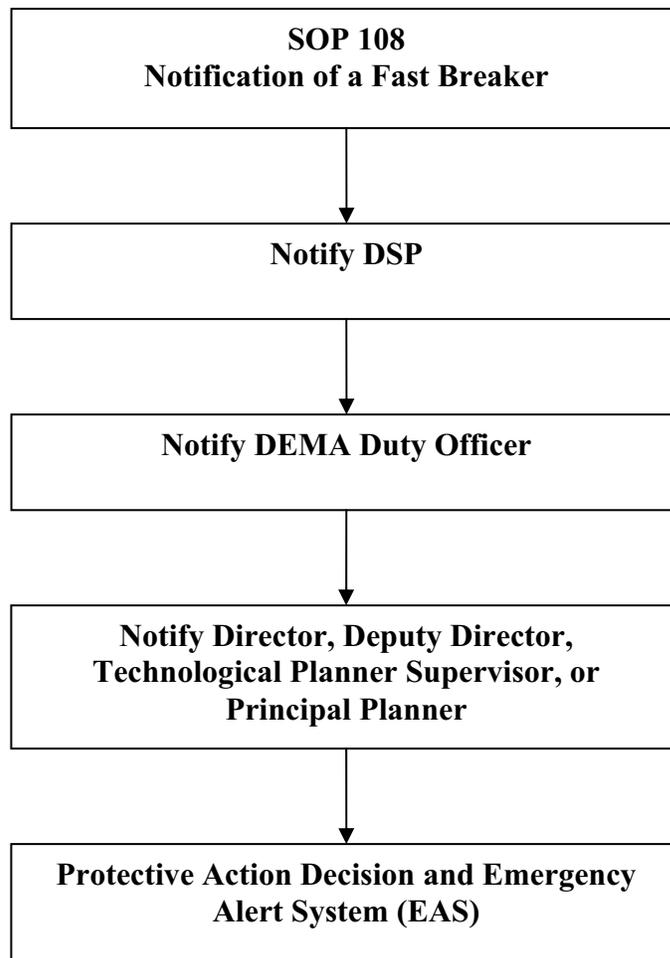
2.3 NOTIFICATION OF A SECURITY EVENT

2.3.1 Director or alternate will notify the Department of Safety and Homeland Security from Initial Contact Message Form. Secretary or alternate will contact Governor's Office.

DEPARTMENT OF SAFETY AND HOMELAND SECURITY

Title: Secretary, DSHS
Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

SOP 108 Notification of a Fast Breaker



SOP 108 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A FAST BREAKER

1.0 OBJECTIVE

SOP 108 establishes notification procedures for the Delaware State Police (DSP) in response to a fast breaker event notification from Salem-Hope Creek Generating Stations (SHCGS) for normal working hours and off-hours.

Make all notations (Name, Time Contacted, and Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURE FOR NORMAL WORKING HOURS

2.1 PLANT NOTIFICATION OF A FAST BREAKER

2.1.1 Log the emergency call from SHCGS.

2.1.2 Fill-out Initial Contact Message Form.

2.1.3 Verify contact by callback to SHCGS.

Name _____ Time _____ Initial _____

2.1.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Normal working hours call Duty Officer; if not available continue down the list. Do not page Duty Officer. Off Hours contact Duty Officer via telephone or page. If he would not be available continue down the list.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder: Contact One (1) Duty Officer.

Title: Duty Officer, (Normal working hours if Duty Officer not available DO NOT PAGE, continue with list. Off Hours contact Duty Officer)

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:

Title: Principal Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

Alternate Responder:

Title: Technological Supervisor Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

**SOP 108 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR A
FAST BREAKER
(Continued)**

Alternate Responder:
Title: Director, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

**2.2 DELAWARE EMERGENCY MANAGEMENT AGENCY NOTIFICATION FOR A
FAST BREAKER**

2.2.1 Log the emergency call from Duty Officer or alternate

Name _____ Time _____ Initial _____

2.2.2 Notify the Delaware Emergency Management Agency (DEMA) Director or alternate relay information from Initial Contact Message Form.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title: Director, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Deputy Director, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____
Cell: _____ Time _____ Initial _____

Alternate Responder:
Title: Principal Planner, DEMA

Name: _____
Office: _____ Time _____ Initial _____
Home: _____ Time _____ Initial _____
Pager: _____ Time _____ Initial _____

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) (Continued)

Alternate Responder:

Title: Technological Supervisor Planner, DEMA

Name: _____

Office: _____

Home: _____

Pager: _____

Time _____ Initial _____

Time _____ Initial _____

Time _____ Initial _____

2.2.3 Call the pager number first. Call office or home number second, depending on the time of day leave message on any answering machine (if provided). Relay information from initial contact message form.

3.0 Fast Breaker Protective Actions - See SOP 600.

SOP 101 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGE, UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY

1.0 OBJECTIVE

SOP 101 establishes notification procedures for the Delaware State Police (DSP) in response to an emergency notification from Salem/Hope Creek Nuclear Generating Stations (SHCNGS) for normal working hours and off-hours.

Make all notations (Name, Time Contacted, Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURE FOR NORMAL WORKING HOURS

2.1 PLANT STATUS CHANGE, UNUSUAL EVENT (Normal Working Hours - 0800 to 1630; Mon to Fri)

2.1.1 Log the emergency call from SHCNGS.

2.1.2 Fill-out Initial Contact Message Form.

2.1.3 Verify contact by call-back to SHCNGS.
Name _____ Time _____ Initial _____

2.1.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Call Duty Officer if not available call a responder in the REP Section . Do not page Duty Officer. Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) Primary Responder:

Title Duty Officer, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

REP Section, REP Administrator, REP Supervisory Planner, Radiation Specialist, Senior Planner, Secretary

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Deputy Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

2.2 ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY
(Normal Working Hours - 0800 to 1630; Mon. to Fri.)

2.2.1 Log the emergency call from SHCNGS.

2.2.2 Fill-out Initial Contact Message Form.

2.2.3 Verify contact by call-back to SHCNGS.

Name _____ Time _____ Initial _____

2.2.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Alternate responders are provided if the primary responder can not be contacted.

**DELAWARE EMERGENCY MANAGEMENT AGENCY, DEMA (If Duty Officer not available
continue on list Rep Section Do Not Page).**

Primary Responder:
Title Duty Officer, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Title REP Section, DEMA (REP Administrator, Supervisory Planner, Radiation Specialist, Senior
Planner, Secretary)

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

2.2.5 Notify the three county Emergency Communication Centers (ECCs) and the City of Wilmington Emergency Office and relay information from the Initial Contact Message Form.

NEW CASTLE COUNTY 911 CENTER (Inform NCC ECC to notify the NCC DPS primary responder or alternate).

Number _____

Name _____ Time _____ Initial _____

RECOM (New Castle County).

Number _____

Name _____ Time _____ Initial _____

KENT COUNTY 911 CENTER

NOTE
Inform KENT CO. 911 to contact
Delaware State Fire School (DSFS)
Representative on Call.

Number _____

Name _____ Time _____ Initial _____

KENTCOM (Kent County)

Number _____

Name _____ Time _____ Initial _____

SUSSEX COUNTY 911 CENTER

Number _____

Name _____ Time _____ Initial _____

SUSCOM (Sussex County)

Number _____

Name _____ Time _____ Initial _____

NEW CASTLE COUNTY DEPARTMENT OF PUBLIC SAFETY

Primary Responder:
Title Coordinator of Emergency Planning

Name _____

Office _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Emergency Preparedness Planner, NCC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

KENT COUNTY EMERGENCY PLANNING AND OPERATIONS

Primary Responder:
Title Director, KC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Director, KC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

SUSSEX COUNTY EMERGENCY MANAGEMENT

Primary Director, SC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Director, SC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

City of Wilmington Emergency Management
Primary Responder:
Title Coordinator

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

2.2.6 Notify the following DSP primary responders and relay information from Initial Contact Message Form.

Call office number first - leave message if necessary. Call home number second - leave message on any answering machines. Call pager number third (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

DSP

Primary Notification:
Title Troop 9 Representative, DSP

Name _____

Office _____ Time _____ Initial _____

Primary Responder:
Title Troop 9 Commander, DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DSP OPERATIONS

PRIMARY RESPONDER:

Title Field Operations Officer, (NCC), DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Field Operations Officer (Kent and Sussex), DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Community Relations Officer, DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Deputy Superintendent, DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

DSP AVIATION

Office _____ Time _____ Initial _____

f unable to contact a primary or alternate, continue notification in sequence and return to non - contacts after is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

3.0 NOTIFICATION PROCEDURES FOR OFF-HOURS

3.1 UNUSUAL EVENT (Off-Hours)

3.1.1 Log the emergency call from SHCNGS.

3.1.2 Fill-out Initial Contact Message Form.

3.1.3 Verify contact by call-back to SHCNGS.

Name _____ Time _____ Initial _____

3.1.4 Notify the following and relay information from Initial Contact Message Form.

Call home number first - leave message on any answering machines. Call pager number second -leave message.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:

Title Duty Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

3.2 ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY (Off-Hours)

3.2.1 Log the emergency call from SHCNGS.

3.2.2 Fill-out Initial Contact Message Form.

3.2.3 Verify contact by call-back to SHCNGS.

Name _____ Time _____ Initial _____

3.2.4 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information from Initial Contact Message Form.

Call home number first - leave message on any answering machines. Call pager number second (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:

Title Duty Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title REP Program Administrator, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Director, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

3.2.5 Notify the three county Emergency Communication Centers (ECCs) and the city of Wilmington Emergency office and relay information from the Initial Contact Message Form.

New Castle ECC (Inform NccECC to notify the NCC DPS primary responder or alternate)

Number _____

Name _____ Time _____ Initial _____

RECOM (New Castle County)

Number _____

Name _____ Time _____ Initial _____

Kent ECC NOTE: Inform Kent Co. 911 to contact Delaware State Fire School (DSFS) Representative on Call.

Number _____

Name _____ Time _____ Initial _____

KENCOM (Kent County)

Number _____

Name _____ Time _____ Initial _____

SUSSEX COUNTY 911 CENTER

Number _____

Name _____ Time _____ Initial _____

SUSCOM (Sussex County DSP)

Number _____

Name _____ Time _____ Initial _____

NEW CASTLE COUNTY DEPARTMENT OF PUBLIC SAFETY

Primary Responder (Notified by NCCECC):
Title Coordinator of Emergency Planning

Name _____

Alternate Responder: (Notified by NCCECC).
Title Emergency Preparedness Planner, NCC

Name _____

KENT COUNTY EMERGENCY PLANNING AND OPERATIONS

Primary Responder:
Title Director, KC

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Director, KC

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

SUSSEX COUNTY EMERGENCY MANAGEMENT

Primary Responder:
Title Director, SC

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Director, SC

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

City of Wilmington Emergency Management
Primary Responder:
Title Coordinator

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non contacts after list is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

3.2.6 Notify the following primary responders and relay information from Initial Contact Message Form.

Call home number first - leave message on any answering machines. Call pager number second (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non contacts after list is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

AAAG CO-CHAIRPERSONS

Primary Responder:
Title Deputy Director of Division of Public Health, DPH

Name _____ (AAAG Co-Chairperson)
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Primary Responder:
Title Environmental Program Administrator, Division of
Water Resources, DWR

Name _____ (AAAG Co-Chairperson)
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

AAAG DATA ANALYSIS COORDINATOR

Primary Responder:
Title Chief, Health Systems Protection, DPH

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

AAAG
Title DWR

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Title Environmental Health Specialist, DPH

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Title Environmental Health Specialist, DPH

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

AAAG LABORATORY AND SAMPLE COORDINATOR

Primary Responder:

Title Environmental Program Manager, DWR

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

AAAG FIELD SAMPLING LEADER

Primary Responder:

Title

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

AAAG FIELD SAMPLING TEAMS - DELAWARE NATIONAL GUARD

Primary Responder:

Title Plans, Operations and Military Support Officer

Team A

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Team B
Alternate Responder:
Title Operations NCO, DNG

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Team A
Alternate Responder:
Title Operations, Officer

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Team B
Alternate Responder:
Title Plans, Operations and Training Officer

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

PSE&G Liaison
Title

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

3.2.7 Notify the following DSP primary responders and relay information from Initial Contact Message Form.

Call office number first - leave message if necessary. Call home number second - leave message on any answering machines. Call pager number third (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

DSP

Primary Responder:
Title Troop 9 Representative, DSP

Name _____

Office _____ Time _____ Initial _____

Primary Responder:
Title Troop 9 Troop Commander, DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DSP OPERATIONS

Primary Responder:
Title Field Operations Officer, (NCC), DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Field Operations Officer, (Kent and Sussex), DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Officer-in-Charge, Comm. Affairs Unit, DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Deputy Superintendent, DSP

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

DSP AVIATION

Office _____ Time _____ Initial _____

**SOP 102 DELAWARE STATE POLICE (DSP) NOTIFICATION PROCEDURES
(For Spurious Siren Activations, Malfunctions, or Intrusion Reports)**

1.0 OBJECTIVE

SOP 102 establishes notification procedures for Delaware State Police (DSP) in the event of a spurious siren activation.

Make all notations (Name, Time Contacted, Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURES

2.1 Notify the following primary responders in the event of spurious siren activation.

Call office number first - leave message if necessary. Call home number second - leave message on any answering machines. Call pager number third (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Contact DEMA with names of any agencies which could not be contacted without leaving a message.

PUBLIC SERVICE ELECTRIC & GAS COMPANY TECHNICIANS

Primary Responder:

Title Technician, PSE&G

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Technician, PSE&G

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Technician, PSE&G

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title Duty Officer, DEMA

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Primary Responder:
Title REP Program Administrator, DEMA

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

ALternate Responder:
Title Director, DEMA

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

PUBLIC SERVICE ELECTRIC AND GAS (PSE&G)

Primary Responder:
Title Delaware Liaison, PSE&G

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Radiological Safety Manager, PSE&G

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again. Contact DEMA with names of any agencies which could not be contacted without leaving a message.

3.0 INTRUSION REPORT

If intrusion report, contact the Emergency Reporting Center for the area involved and have a police unit respond to the siren location. This is in addition to the above calls.

If the siren(s) continues to sound, notify Troop 9 to dispatch a patrol unit to the location(s) to deactivate the siren(s). The combination on file at the troop is 4575.

4.0 Individuals in Section 2.1 should be contacted when situation is corrected.

5.0 RECORDS

Record all spurious activations, intrusion reports and siren malfunctions in the Supervisor's log book and forward the computer printout copy to DEMA Duty Officer.

SOP 103 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION PROCEDURES FOR A SPURIOUS SIREN ACTIVATION

1.0 OBJECTIVE

SOP 103 establishes notification procedures for the Delaware Emergency Management Agency (DEMA) in the event of a spurious siren action.

2.0 NOTIFICATION PROCEDURE

2.1 Verify that the siren(s) sounding are part of the Salem/Hope Creek Nuclear Generating Stations (SHCNGS) system.

2.2 Contact DSP Communications to ensure that SOP 102 was followed. _____

Name _____ Time _____ Initial _____

2.3 Issue appropriate Emergency Alert System (EAS) message, for spurious siren activation (See SOP 502) Inform those listed in SOP 104 section 3.2.7.

2.4 For siren malfunction, notify appropriate fire company through fireboard (See SOP 504) to be on-call for route alerting should an emergency occur.

New Castle County Fireboard

Number _____

Name _____ Time _____ Initial _____

Kent County Fireboard

Number _____

Name _____ Time _____ Initial _____

2.5 Notify appropriate individuals.

3.0 RECORDS

Maintain all records including computer printouts and telephone logs.

**SOP 104 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)
NOTIFICATION PROCEDURES**

1.0 OBJECTIVE

SOP 104 outlines the DEMA Notification Procedure in response to an emergency notification from Salem/Hope Creek Nuclear Generating Stations (SHCNGS) and/or Delaware State Police (DSP).

Make all notations (Name, Time Contacted, Initial) directly on a copy of this SOP.

2.0 NOTIFICATION FOR NORMAL WORKING HOURS

2.1 UNUSUAL EVENT (Normal Working Hours)

2.1.1 Log the emergency call from SHCNGS and/or DSP.

2.1.2 Fill-out Initial Contact Message Form.

2.1.3 Verify contact by call-back to SHCNGS or DSP Communications.

Name _____ Time _____ Initial _____

2.2 ALERT, SITE AREA EMERGENCY, GENERAL EMERGENCY (Normal Working hours)

2.2.1 Log the emergency call from SHCNGS and/or DSP.

2.2.2 Fill-out Initial Contact Message Form.

2.2.3 Verify contact by call-back to SHCNGS or DSP Communications.

Name _____ Time _____ Initial _____

2.2.4 Notify the following and relay information from Initial Contact Message Form.

Call office number first - leave message if necessary. Call pager/mobile number second - leave message.

Alternate responders are provided if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non contacts after list is completed - try again.

Notify DEMA authority of any agencies which could not be contacted without leaving a message.

DEMA Director will notify Secretary of Public Safety.

Secretary of Public Safety or DEMA Director will notify Governor's Office.

DEPARTMENT OF PUBLIC SAFETY (DEMA Director will notify)

Title Secretary, DPS

Name _____
Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

GOVERNORS OFFICE (Secretary of Public Safety or DEMO Director)

Chief of Staff

Director of Planning and Policy

Name _____
Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Legal Counsel to the Governor

Name _____
Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Governor's Press Secretary

Name _____
Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Senator Biden's Office

Name _____
Office _____ Time _____ Initial _____

Sky Pager _____ Time _____ Initial _____

Senator Roth's Office

Name _____
Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Representative Castle's Office

Name _____
Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

AAAG CO-CHAIRPERSONS (Confirm from DSP if AAAG Called)

Primary Responder:
Title Deputy Director of Division of Public
Health, DPH
Name _____ (AAAG Chairperson)
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Primary Responder:
Title Environmental Program Administrator, Division
of Water Resources, DWR
Name _____ (AAAG Chairperson)
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

AAAG DATA ANALYSIS COORDINATOR

Primary Responder:
Title Chief, Health System Protection, DPH
Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Environmental Health Specialist, DPH
Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Environmental Health Specialist, DPH
Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

AAAG LABORATORY AND SAMPLE COORDINATOR

Primary Responder:
Title Environmental Program Manager
Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

AAAG FIELD SAMPLING TEAMS LEADER

Primary Responder:

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Name _____

Office _____ Time _____ Initial _____

AAAG FIELD SAMPLING TEAMS - DELAWARE NATIONAL GUARD

Primary Responder:

Title Plans, Operations and Military Support Officer, DNG

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title OPS NCO

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title OPS Officer

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Plans Operations and Training Officer

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

PSE&G Liaison

Title _____
Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

If unable to contact a primary or alternate,
continue notification in sequence and return to non
contacts after list is completed - try again.

Contact DEMA with names of any agencies which could
not be contacted without leaving a message.

DEPARTMENT OF Public Safety

Primary Responder:

Title PIO

Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DEPARTMENT OF AGRICULTURE

Primary Responder:

Title Executive Assistant to the Secretary of Agriculture

Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

AGRICULTURE TEAM, University of Delaware

Primary Responder:

Title Cooperative Extension Safety Specialist

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Research and Education Center Director

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

**AGRICULTURE TEAM, United States Department of
Agriculture (USDA), Farm Service Agency (FSA)**

Primary Responder:

Title State Executive Director, USDA-FSA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title District Director and Program Specialist, USDA-FSA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DELAWARE RIVER & BAY AUTHORITY

Dispatcher

Number _____

Name _____ Time _____ Initial _____

Primary Responder:

Title

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

DIVISION OF FISH AND WILDLIFE, Enforcement Section

Radio Room (Emergencies)

Number _____

Name _____ Time _____ Initial _____

Primary Responder:

Title Enforcement Administrator

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Primary Responder:

Title NCC Supervisor, DFW

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title KC Supervisor, DFW

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DEPARTMENT OF EDUCATION

Primary Responder:

Title Education Associate, Physical Education,
Safety and Driver's Education, DPI

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Education Associate, Maintenance, DPI

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DIVISION OF PARKS AND RECREATION

24 hour Emergency Number _____

Primary Responder:

Fort Delaware State Park
Title Park Superintendent, DPR

Name _____

Office _____ Time _____ Initial _____

Alternate Responder:

Title Chief of Enforcement, DPR

Name _____

Office _____ Time _____ Initial _____

Alternate Responder:

Fort Delaware State Park:
Title Assistant Superintendent

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Park Rangers, DPR

Bellevue State Park:

Name _____

Office _____ Time _____ Initial _____

Brandywine Creek State Park:

Name _____

Office _____ Time _____ Initial _____

White Clay Creek:

Name _____

Office _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Primary Responder:
Title Disaster Coordinator, DPH

Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Primary Responder:
Title PH Environmental Services Coordinator, DPH

Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Alternate Responder:
Title Environmental Services Coordinator, DPH

Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

DIVISION OF HIGHWAYS

Primary Responder:
Title Chief Safety Officer, Highway Operations

Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Alternate Responder:
Title Safety Officer, DH

Name _____
Office _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

Primary Responder:
Title Disaster Coordinator

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Senior Planner

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

Primary Responder:
Title Chief Administrator

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Social Services Administrator

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

WDEL - EMERGENCY ALERT SYSTEM

Primary Responder:
Title Program Director, WDEL

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant News Director, WDEL

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title On Duty - Disc Jockey, WDEL
Number _____

Name _____ Time _____ Initial _____

AMERICAN RED CROSS

Primary Responder:
Title Manager Emergency Services, ARC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Manager of Disaster, ARC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Administrator, ARC

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DELMARVA POWER

Primary Responder:

Title Assistant Operations Officer, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

CIVIL AIR PATROL, Delaware Wing

Primary Responder:

Title Captain

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title Captain

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

BELL ATLANTIC OF DELAWARE

Title Emergency Preparedness Coordinator

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

U. S. COAST GUARD

Title Duty Officer, Philadelphia:

Office _____ Time _____ Initial _____

ARMY CORPS OF ENGINEERS

Title Emergency Operations Manager

Office _____ Time _____ Initial _____
Primary Responder:

Title Project Engineer, Chesapeake City Project Office

Name _____

Office _____ Time _____ Initial _____

24 Hr. _____ Time _____ Initial _____

AMATEUR RADIO (RACES)

Primary Responder:

Title Section Manager, ARES

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title District Emergency Coordinator, ARES

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Assistant Emergency Coordinator, ARES

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

NATIONAL WEATHER SERVICE, Mt. Holly, New Jersey

Title Meteorologist in Charge, NWS

Office _____ Time _____ Initial _____

Weather Service, DEMA

Title

Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

SALVATION ARMY

Primary Responder:
Title Associate Corp Officer, SA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Business Administrator, SA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

MEDICAL CENTER OF DELAWARE

TRIAGE - Wilmington Hospital Emergency Room
_____ Time _____ Initial _____

Title Chairman, Department of Emergency Medicine
Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

TELEDYNE BROWN ENGINEERING, ENVIRONMENTAL SERVICES

Office _____

Primary Responder:
Title Manager, Environmental Analysis, TI

Name _____

Pager _____ Time _____ Initial _____

Alternate Responders:
Title Manager, TLD, TI

Name _____

Title Technical Admn. Badge Service, TI
Name _____

Title Manager, Badge Service, TI
Name _____

**FEDERAL RADIOLOGICAL MONITORING ASSISTANCE PLAN (FRMAP),
Brookhaven**

Office _____ Time _____ Initial _____
(24 hour)

DOVER AIR FORCE BASE

Title Duty Officer, Command Post

Office _____ Time _____ Initial _____
(24 hour)

U. S. NUCLEAR REGULATORY COMMISSION (NRC),

Office _____ Time _____ Initial _____
24 Hour

U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA),

Office _____ Time _____ Initial _____
24 Hour

FEDERAL EMERGENCY MANAGEMENT AGENCY REGION III

Title Acting Director

Name _____

Office _____ Time _____ Initial _____
(24 hour)

STATE OF NEW JERSEY OFFICE OF EMERGENCY MANAGEMENT

Title Director, NJOEM

Name _____

Office _____ Time _____ Initial _____
(24 hour)

STATE OF MARYLAND EMERGENCY MANAGEMENT AGENCY

Title Director, MEMA

Name _____

Office _____ Time _____ Initial _____
(24 hour)

STATE OF PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY

Title Director, PEMA

Name _____

Office _____ Time _____ Initial _____
(24 hour)

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again. Notify DEMA authority of any agencies which could not be contacted without leaving a message.

3.0 NOTIFICATION PROCEDURE FOR OFF-HOURS

3.1 UNUSUAL EVENT (Off-Hours)

3.1.1 Log the emergency call from SHCNGS and/or DSP.

3.1.2 Fill-out Initial Contact Message Form.

3.1.3 Verify contact by call-back to SHCNGS or DSP Communications.

Name _____ Time _____ Initial _____

3.2 ALERT SITE AREA EMERGENCY, GENERAL EMERGENCY (Off-Hours)

3.2.1 Log the emergency call from SHCNGS and/or DSP.

3.2.2 Fill-out Initial Contact Message Form.

3.2.3 Verify contact by call-back to SHCNGS or DSP Communications.

Name _____ Time _____ Initial _____

3.2.4 Verify that DSP will contact all AAAG members and relayed information from Initial Contact Message Form.

3.2.5 Verify that DSP will contact DSP New Castle County helicopter crew and DSP airboat crew - aviation duty hours 0800 to 2400, on call 2400 to 0800 to stage the river alerting system.

3.2.6 Notify the following primary responders and relay information from Initial Contact Message Form.

Call Home number first - leave message on any answering machines. Call pager number second (if provided) - leave message.

Contact alternate responder (if provided) if the primary responder can not be contacted without leaving a message.

If unable to contact a primary or alternate, continue notification in sequence and return to non contacts after list is completed - try again.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:

Title Duty Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:

Title REP Program Administrator, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Director, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

DEPARTMENT OF PUBLIC SAFETY

Title Secretary, DPS
Name _____

Home _____ Time _____ Initial _____
Car _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

GOVERNOR'S OFFICE (24 hour number)

Chief of Staff
Name _____

Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Director of Planning & Policy
Name _____

Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Legal Counsel to the Governor
Name _____

Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Governor's Press Secretary
Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

3.2.7

Notification to the public. An EAS message may be required. Refer to SOP 500 Series and Rep-Off Hours Procedures Manual.

Coordinate timing of any siren activation (DSP Communications Center) and EAS message broadcast (WDEL/WSTW radio station). Notify the following:

DSP COMMUNICATIONS CENTER

_____ Time _____ Initial _____

WDEL/WSTW RADIO STATION

_____ Time _____ Initial _____

NEW CASTLE COUNTY EMERGENCY OPERATIONS CENTER

Note: If the NCCEOC has been activated, contact the following. If the NCCEOC (Number _____) has not been activated request the NCCECC to contact the following.)

Number _____

Primary Responder:
Title Coordinator of Emergency Planning
Name _____

Alternate Responder:
Title Emergency Preparedness Planner, NCC
Name _____

KENT COUNTY EMERGENCY PLANNING AND OPERATIONS

Primary Responder:
Title Director, KC

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Director, KC

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

STATE OF NEW JERSEY EMERGENCY MANAGEMENT AGENCY

Title Director, NJOEM

Name _____ Time ____ Initial _____

Office _____ Time ____ Initial _____

Home _____ Time _____ Initial _____

PUBLIC SERVICE ELECTRIC AND GAS (PSE&G)

Primary Responder:

Title Delaware Liaison, PSE&G

Name _____

Office _____ Time ____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time ____ Initial _____

Alternate Responder:

Title Emergency Preparedness Manager, PSE&G

Alternate Responder:

Title

Name _____ Time ____ Initial _____

Office _____ Time ____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time ____ Initial _____

Alternate Responder:

Title Radiological Safety Manager, PSE&G

Name _____ Time ____ Initial _____

Office _____ Time ____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time ____ Initial _____

3.2.8 Notify DEMA staff to respond to State EOC. Use DEMA call down Telephone Alert List (REP Off-Hours Procedures Manual). Other DEMA staff can assist with notifications.

Personnel with Pager Time _____ Initial _____

Other DEMA Personnel Time _____ Initial _____

3.2.9 Assign notification responsibilities to DEMA staff, who are not notified as key responders, to contact agencies listed in section 3.2.10. Calls should be completed from home and all documentation brought to EOC.

3.2.10 Notify the following primary responders and relay information from Initial Contact Message Form.

Call home number first - leave message on any answering machines. Call pager number second (if provided) - leave message. Alternate responders are provided if the primary responder can not be contacted without leaving a message.

AGRICULTURE TEAM, Department of Agriculture

Title Executive Assistant, Secretary of Agriculture

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Agricultural Specialist

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

AGRICULTURE TEAM, University of Delaware

Primary Responder:

Title Cooperative Extension Safety Specialist

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Research and Education Center Director

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

**AGRICULTURE TEAM, United States Department of
Agriculture (USDA), Farm Service Agency (FSA)**

Primary Responder:
Title State Executive Director, USDA-FSA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title District Director and Program Specialist, USDA-FSA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

DELAWARE RIVER AND BAY AUTHORITY (DRBA)

DispatcherE Number _____

Name _____ Time _____ Initial _____

Primary Responder:
Title
Name _____

Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

DIVISION OF FISH AND WILDLIFE, Enforcement Section

Radio Room (Emergencies) Number _____

Name _____ Time _____ Initial _____

Primary Responder:
Title Enforcement Administrator
Name _____

Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Primary Responder:
Title NCC Supervisor, DFW
Name _____

Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title KC Supervisor, DFW
Name _____

Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

DEPARTMENT OF EDUCATION

Primary Responder:

Title Education Associate, Physical Education
Safety and Driver's Education, DPI

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title State Supervisor Education Associate, School Plant
Planning and Operation, DPI

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DIVISION OF PARKS AND RECREATION

24 hour Emergency Number _____

Primary Responder:

Fort Delaware State Park
Title Parks Superintendent, DPR

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Chief of Enforcement, DPR

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Fort Delaware State Park, DPR
Title Assistant Superintendent

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:

Title Park Rangers, DPR
Bellevue State Park: Team B

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Brandywine Creek State Park:
Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

White Clay Creek:
Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Primary Responder:
Title Emergency Medical Services Director, DPH

Name _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Disaster Coordinator, DPH

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DIVISION OF PUBLIC HEALTH

Primary Responder:
Title Environmental Services Coordinator, DPH

Name _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Disaster Coordinator, DPH

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DIVISION OF HIGHWAYS

Primary Responder:
Title Chief Safety Officer, Highway Operations

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Safety Officer, DH

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

Primary Responder:
Title Disaster Coordinator, DHSS

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Senior Planner, DHSS

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

Primary Responder:
Title Chief Administrator

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Social Services Administrator

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

WDEL - EMERGENCY ALERT SYSTEM

Primary Responder:
Title Program Director, WDEL
Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant News Director, WDEL

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title On Duty - Disc Jockey, WDEL

Number _____

Name _____ Time _____ Initial _____

AMERICAN RED CROSS

Primary Responder:
Title Manager of Emergency Services, ARC

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Manager of Disaster, ARC

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Administrator, ARC

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DELMARVA POWER

Primary Responder:
Title Assistant Operations Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

CIVIL AIR PATROL, Delaware Wing

Primary Responder:
Title Major

Name _____

Home _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Major

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

BELL ATLANTIC

Title Emergency Preparedness Coordinator

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

U. S. COAST GUARD

Title Duty Officer, Philadelphia:

Office _____ Time _____ Initial _____

ARMY CORPS OF ENGINEERS

Title Emergency Operations Manager

Office _____ Time _____ Initial _____

Primary Responder:
Title Project Engineer, Chesapeake City Project Office

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

AMATEUR RADIO (RACES)

Primary Responder:
Title Section Manager, ARES

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title District Emergency Coordinator, ARES

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Assistant Emergency Coordinator, ARES

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

NATIONAL WEATHER SERVICE, Mt. Holly, New Jersey

Title Meteorologist in Charge, NWS

Office _____ Time _____ Initial _____

Weather Service, DEMA
Title

Name _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

SALVATION ARMY

Primary Responder:
Title Associate Corp. Officer, SA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Business Administrator, SA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

MEDICAL CENTER OF DELAWARE
TRIAGE - Wilmington Hospital Emergency Room

_____ Time _____ Initial _____

TELEDYNE BROWN ENGINEERING, ENVIRONMENTAL SERVICES

Primary Responder:
Title Manager, Environmental Analysis, TI

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Primary Responder:
Title Manager, TLD, TI

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Technical Admn., Badge Service, TI

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Alternate Responder:
Title Manager, Badge Service, TI

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

**FEDERAL RADIOLOGICAL MONITORING ASSISTANCE PLAN (FRMAP),
Brookhaven**

Office _____ Time _____ Initial _____
24 Hour

U. S. NUCLEAR REGULATORY COMMISSION (NRC),

Office _____ Time _____ Initial _____
24 Hour

U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Office _____ Time _____ Initial _____
24 Hour

DOVER AIR FORCE BASE

Title Duty Officer, Command Post

Office _____ Time _____ Initial _____
(24 Hour)

FEDERAL EMERGENCY MANAGEMENT AGENCY REGION III

Title Director

Name _____

Office _____ Time _____ Initial _____
(24 hour)

STATE OF NEW JERSEY OFFICE OF EMERGENCY MANAGEMENT

Title Director, NJOEM

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

STATE OF MARYLAND EMERGENCY MANAGEMENT AGENCY

Title Director, MEMA

Name _____

Office _____ Time _____ Initial _____
(24 hour)

STATE OF PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY

Title Director, PEMA

Name _____

Office _____ Time _____ Initial _____
(24 hour)

If unable to contact a primary or alternate, continue notification in sequence and return to non-contacts after list is completed - try again.

Notify DEMA authority of any agencies which could be contacted without leaving a message.

**SOP 105 SHCNGS NOTIFICATION PROCEDURES
FOR PLANT STATUS CHANGES**

1.0 OBJECTIVE

SOP 105 establishes notification procedures in response to a plant status change notification from Salem/Hope Creek Nuclear Generating Stations (SHCNGS) for both normal working hours and off-hours.

Plant status changes include those which may be expected to result in a media news release to the public, e.g. reactor start-up or shutdown (both planned and unplanned).

The PSE&G Public Affairs office at SHCNGS will notify the DEMA or DSP Communications Section Shift Supervisor using the numbers listed in 2.1 or 3.1 of plant status changes involving start-ups and shutdowns.

2.0 NOTIFICATION PROCEDURE FOR PLANT STATUS CHANGE (NORMAL WORKING HOURS)
(Normal Working Hours - 0800 to 1700; Mon to Fri)

2.1 SHCNGS will notify Delaware Emergency Management Agency (DEMA) REP Section by telefax _____.

2.2 In the event that a telephone call is necessary, notify the Delaware Emergency Management Agency (DEMA) primary responder by telephone.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:

Title REP Section, DEMA

Name _____

Office _____ Time _____ Initial _____

Alternate Responder:
Title Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title Deputy Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

3.0 NOTIFICATION PROCEDURES FOR PLANT STATUS CHANGE (OFF-HOURS)

3.1 SHCNGS will notify the DSP Communications Section Shift Supervisor using telefax _____ or telephone _____.

3.2 DSP will notify the Delaware Emergency Management Agency (DEMA) primary responder.

Call home number first - leave message on any answering machines. Call pager number second (if provided) - leave message.

Alternate responders are provided if the primary responder can not be contacted.

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title Duty Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title REP Program Administrator, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Alternate Responder:
Title Director, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Alternate Responder:
Title Deputy Director, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

**SOP 106 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) NOTIFICATION PROCEDURES
FOR PLANT STATUS CHANGES**

1.0 OBJECTIVE

SOP 106 establishes notification procedures for the Delaware Emergency Management Agency (DEMA) in the event of a change in plant status, e.g. reactor start-up or shutdown (planned or unplanned).

2.0 NOTIFICATION PROCEDURE (NORMAL WORKING HOURS AND NON-WORKING HOURS)

2.1 Log the notification call from DSP and/or SHCNGS.

2.2 Notify the following and relay information provided from DSP/SHCNGS.

2.3 Normal Working Hours

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Responder:

Title Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Responder:

Title Deputy Director, DEMA

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Responder:

Title REP Program Administrator, DEMA,

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Responder:
Title Public Information Officer (PIO), DEMA

Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

DEPARTMENT OF PUBLIC SAFETY

Title Secretary, DPS

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Mobile _____ Time _____ Initial _____

Division of Public Health, DHSS

Title AAAG Co-Chairperson, DPH

Name _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Division of Water Resources, DNREC

Title AAAG Co-Chairperson, DNREC NRC State Liaison

Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Division of Public Health, DHSS

AAAG Data Analysis Coordinator

Title Chief, Health Systems Protection, DPH

Name _____ Time _____ Initial _____

Office _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

2.4 Non-Working Hours

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Responder:

Title Duty Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Responder:

Title Director, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Responder:
Title Deputy Director, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Responder:
Title REP Administrator, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Responder:
Title Public Information Officer (PIO), DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

DEPARTMENT OF PUBLIC SAFETY
Title Secretary, DPS

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Department of Public Health
Title AAAG Co-Chairperson, DPH

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

Division of Water Resources, DNREC

Title AAAG Co-Chairperson, DNREC NRC State Liaison

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Division of Public Health, DHSS

AAAG Data Analysis Coordinator

Title Chief, Health Systems Protection

Name _____ Time _____ Initial _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

3.0 RECORDS

Maintain all records including computer printouts and telephone logs.

**SOP 107 NOTIFICATION OF NUCLEAR REGULATORY COMMISSION (NRC) INFORMATION
FROM STATE LIAISON REGARDING PLANT STATUS CHANGES**

1.0 OBJECTIVE

SOP 107 establishes notification procedures for the Delaware State NRC Liaison upon receipt of NRC information regarding plant status changes at the Salem/Hope Creek Nuclear Generating Stations (SHCNGS) for both normal working hours and off-hours.

Plant status changes include those which may be expected to result in a media news release to the public, e.g. reactor start-up or shutdown (both planned and unplanned).

Make all notations (Name, Time Contacted, Initial) directly on a copy of this SOP.

2.0 NOTIFICATION PROCEDURE FOR PLANT STATUS CHANGE
(NORMAL WORKING HOURS AND NON-WORKING HOURS)

2.1 Log the information from NRC.

2.2 Notify the Delaware Emergency Management Agency (DEMA) primary responder and relay information provided by the NRC.

Alternate responders are provided if the primary responder can not be contacted.

2.3 Non-Working Hours

DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

Primary Responder:
Title Duty Officer, DEMA

Name _____

Home _____ Time _____ Initial _____

Pager _____ Time _____ Initial _____

Car _____ Time _____ Initial _____

Alternate Responder:
Title REP Program Administrator, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Director, DEMA

Name _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

2.4 Normal Working Hours

Responder:
Title REP Program Administrator, DEMA

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____

Alternate Responder:
Title Director, DEMA

Name _____
Office _____ Time _____ Initial _____
Home _____ Time _____ Initial _____
Pager _____ Time _____ Initial _____
Car _____ Time _____ Initial _____

SOP 200: MOBILIZATION AND STAFFING

1.0 OBJECTIVE

This procedure provides the methods for mobilization of emergency response personnel and identifies the emergency response staffing by position and location.

2.0 CONTENTS

SOP 200-A State Agencies

SOP 200-B County Agencies

SOP 200-C Volunteer and Private Agencies

SOP 200-D Federal Agencies

3.0 PREREQUISITES

3.1 An emergency condition exists which requires mobilization of emergency response personnel.

4.0 REFERENCES

4.1 State of Delaware, Radiological Emergency Plan

4.2 State of Delaware, SOP 100 Series Procedures

5.0 ATTACHMENTS

6.0 RECORDS

All data, records, forms and logs are to be transmitted to and maintained by DEMA at the State EOC for historical files.

SOP 200-A: STATE AGENCIES

1.0 GENERAL

- 1.1 All agencies will maintain personnel rosters and the capability to provide staff members on a 24 hour basis for their assigned emergency response duties and responsibilities.
- 1.2 Only the Delaware State Police (DSP) Communications and Delaware Emergency Management Agency (DEMA) will be notified of an unusual event, and no mobilization will occur.

2.0 GOVERNOR

2.1 MOBILIZATION

- 2.1.1 The Governor or alternate will be notified by DEMA in accordance with initial notification procedures, SOP 100 Series.
- 2.1.2 The Governor or designee will notify the support staff to report to the location specified by the Governor to assume emergency response duties.

2.2 STAFFING

2.2.1 Governor or Alternate

- a. Overall command of the emergency response.
- b. Response location, as determined by the Governor.

2.2.2 Support Staff

- a. The number and type of staff members is as directed by the Governor.
- b. Response location, as determined by the Governor.

3.0 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA)

3.1 MOBILIZATION

- 3.1.1 The DEMA Director or alternate will be notified by the Delaware State Police (DSP) Communications and given the information from the Initial Contact Message Form.
- 3.1.2 The DEMA Director or alternate will notify and direct the activation of the DEMA staff members and the SOP 100 Series Initial Notification Procedures.
- 3.1.3 All DEMA staff members will initially report to the State EOC.
- 3.1.4 DEMA personnel will assume their emergency response duties at the State EOC or be dispatched to other locations.

**SOP 200-A: STATE AGENCIES
(Continued)**

3.0 DELAWARE EMERGENCY MANAGEMENT AGENCY (DEMA) (Continued)

3.2 STAFFING

3.2.1 State EOC

- a. DEMA Director/Incident Commander Lead
- b. Operations Section Chief/Assistant Operations Chief
- c. Communications Coordinator
- d. Information Officer/EAS Coordinator
- e. Rumor Control Staff
- f. Technical/Administrative Support Staff (TAC)
- g. Field Monitoring Team Coordinator (TAC)
- h. Messaging/Displays Staff
- i. Logistics/Security and Switchboard Staff

3.2.2 Emergency Operations Facility (EOF), Salem, NJ

- a. Delaware Liaison
- b. Technical Representative/Communicator

**3.2.3 Emergency News Center (ENC) and Joint Information Center (JIC),
Woodstown, NJ**

- a. Spokesperson
- b. Support Staff

4.0 DELAWARE STATE POLICE (DSP)

4.1 MOBILIZATION

- 4.1.1 DSP Communications will be notified directly by the utility.
- 4.1.2 The DSP primary or alternate responder will be notified by DSP Communications and given the information from the Initial Contact Message Form.
- 4.1.3 DSP Headquarters Communications will contact the DSP Administrative Officer or alternate. This officer will respond to the State EOC as Headquarters Representative for DSP.

**SOP 200-A: STATE AGENCIES
(Continued)**

4.0 DELAWARE STATE POLICE (DSP) (Continued)

4.1 MOBILIZATION (Continued)

4.1.4 DSP Headquarters Communications will contact Troop 9 (Odessa). Troop 9 will dispatch to the State EOC, the Deputy Troop Commander, Troop Lieutenant, or Patrol Officer.

4.1.5 DSP Headquarters Communications will notify the DSP Aviation Section. Officers will report to the appropriate aviation hangers and standby for further instructions.

4.2 STAFFING

4.2.1 State EOC

- a. Administrative Officer – Headquarters Representative
- b. Staff Support - Headquarters Representative
- c. OIC Truck Enforcement Unit – Headquarters Representative

4.2.2 Troop 9

- a. Troop Commander
- b. Deputy Troop Commander
- c. Troop Lieutenant

4.2.3 Aviation Hanger

- a. Pilot
- b. Co-Pilot

5.0 DIVISION OF PUBLIC HEALTH (DPH)

5.1 MOBILIZATION

5.1.1 The DPH Deputy Director or alternate, DPH TAC Co-Chairperson or alternate and the DPH Preparedness Section Director or alternate DPH Data Analysis Coordinator and DPH-TAC Computer Support Staff will be notified by DEMA or DSP Communications and briefed on the emergency at SHCSG or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

5.1.2 The DPH Preparedness Section Director or alternate will notify the following:

- a. DPH Public Health Nurses

**SOP 200-A: STATE AGENCIES
(Continued)**

5.0 DIVISION OF PUBLIC HEALTH (DPH) (Continued)

5.2 STAFFING

5.2.1 State EOC

- a. DPH – TAC Co-Chairperson
- b. DPH Emergency Preparedness Section Staff
- c. DPH - TAC Data Analysis Coordinator
- d. DPH Staff – TAC Computer Support Staff

5.2.2 American Red Cross Shelters

DPH Public Health Nurse staffing

5.2.3 Reception Centers

DPH - Pharmacist

6.0 DELAWARE DEPARTMENT OF AGRICULTURE (DDA)

6.1 MOBILIZATION

6.1.1 The Secretary's Executive Assistant, or alternate, will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

6.1.2 The Executive Assistant, or alternate, will notify the following:

- a. DDA Secretary
- b. Deputy DDA Secretary

6.2 STAFFING

6.2.1 State EOC

DDA Executive Assistant or alternate

7.0 DIVISION OF WATER RESOURCES (DWR)

7.1 MOBILIZATION

7.1.1 The Senior Science Advisory/Alternate will be notified by DEMA or DSP Communications and briefed on the emergency. The notification will be verified by return telephone call or voice recognition.

**SOP 200-A: STATE AGENCIES
(Continued)**

7.0 DIVISION OF WATER RESOURCES (DWR) (Continued)

7.1 MOBILIZATION (Continued)

7.1.2 The Senior Science Advisory or Alternate will notify the following:

- a. DWR Director
- b. DNREC Secretary

7.2 STAFFING

7.2.1 State EOC

- a. Senior Science Advisor - TAC Co-Chairperson
- b. Environmental Laboratory Section (ELS)
Environmental Laboratory Manager - TAC Laboratory Coordinator
- c. ELS Environmental Scientist - TAC Data Analysis Coordinator

8.0 UNIVERSITY OF DELAWARE (COOPERATIVE EXTENSION)

8.1 MOBILIZATION

The Cooperative Extension Safety Specialist will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

8.2 STAFFING

State EOC

Cooperative Extension Safety Specialist - TAC Agriculture Coordinator.

**SOP 200-A: STATE AGENCIES
(Continued)**

9.0 DELAWARE NATIONAL GUARD (DNG)

9.1 MOBILIZATION

9.1.1 The Plans, Operations and Military Support Officer (POMSO) or alternate will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

NOTE:

The POMSO or alternate may also receive notification through the Adjutant General.

9.1.2 The POMSO or alternate will notify the following:

- a. Adjutant General
- b. Plans, Operations and Training Officer
- c. Air National Guard
- d. 261st Signal Command (SOP 900 and 1300)
- e. Troop Command, DE ARNG
- f. Commander, Army Aviation Support Facility (SOP 503)
- g. Field Monitoring Team (SOP 306 and SOP 307)

9.2 STAFFING

9.2.1 State EOC

- a. Liaison Officer
- b. Operations Officer
- c. DNG Staff – TAC Field Monitoring Team Coordinator (SOP 301 and 302)
- d. Field Team Communicators

9.2.2 DNG Headquarters EOC

- a. Staff Duty Officer or NCO
- b. Telephone Operator

9.2.3 Armories

- a. National Guard Readiness Center in Marshallton
- b. National Guard Readiness Center in Middletown
- c. National Guard Readiness Center in Smyrna

**SOP 200-A: STATE AGENCIES
(Continued)**

9.0 DELAWARE NATIONAL GUARD (DNG) (continued)

9.2.4 Field Monitoring Teams

- a. 2 Air Sampling Teams
- b. 2 Ingestion Sampling Teams

10.0 DEPARTMENT OF HEALTH AND SOCIAL SERVICES (DHSS)

10.1 MOBILIZATION

10.1.1 The DHSS Disaster Coordinator will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

10.1.2 The DHSS Disaster Coordinator will notify the following:

- a. Secretary DHSS
- b. Counseling Coordinator (ADAMH)
- c. Disaster Officer, Division of Social Services (DSS)
- d. Internal DHSS notification (For information only)

10.1.3 The Counseling Coordinator will notify the crisis counselors.

10.1.4 The DSS Disaster Officer will notify the following:

- a. DSS Headquarters Coordinator
- b. DSS Operations Administrator

10.2 STAFFING

10.2.1 State EOC

- a. DHSS Disaster Coordinator - Division Disaster Liaison
- b. DHSS Disaster Officer

10.2.2 Disaster Shelters

- a. DPH Nurses
- b. DHSS Staff

SOP 200-A: STATE AGENCIES (Continued)

10.0 DEPARTMENT OF HEALTH AND SOCIAL SERVICES (DHSS) (Continued)

10.2 STAFFING (Continued)

10.2.3 Reception Centers

- a. Crisis Counselors
- b. DHSS Staff

11.0 DIVISION OF FISH AND WILDLIFE (DFW)

11.1 MOBILIZATION

11.1.1 The DFW Chief of Law Enforcement and DFW New Castle County Supervisor will be notified by DEMA or DSP Communications and briefed on the emergency.

11.1.2 The DFW New Castle County Captain will notify the following:

- a. Director of Fish and Wildlife
- b. Secretary of DNREC
- c. DFW Watch List

11.2 STAFFING

11.2.1 State EOC

- a. DFW Chief of Law Enforcement
- b. DFW New Castle County Captain

11.2.2 Locations as Directed

- a. DFW Staff
- b. Fish & Wildlife Enforcement Agents

12.0 DEPARTMENT OF EDUCATION (DOE)

12.1 MOBILIZATION

The DOE Education Associate School Planning & Maintenance or alternate will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

12.1.2 The DOE Education Associate School Planning & Maintenance or alternate will notify the following:

- a. State Superintendent
- b. District Superintendent

SOP 200-A: STATE AGENCIES (Continued)

12.0 DEPARTMENT OF EDUCATION (DOE) (Continued)

12.1 MOBILIZATION (Continued)

12.1.3 The District Superintendent will notify the school principals.

12.1.4 The school principals will notify the school staff members.

12.2 STAFFING

12.2.1 State EOC

Education Associate School Planning & Maintenance - Nuclear Disaster Planning Officer (NUDPO)

12.2.2 DOE Administrative Office

- a. District Superintendent - Disaster Emergency Coordinator
- b. Chief School Officer of District

12.2.3 Disaster Shelters

- a. School Principals
- b. School Staff

13.0 DIVISION OF PARKS AND RECREATION (DPR)

13.1 MOBILIZATION

13.1.1 The Kent County 911 Center or DPR Parks Primary Responders will be notified by DEMA or DSP Communications and briefed on the emergency. The notification will be verified by return telephone call or voice recognition.

13.1.2 The DPR Parks Primary Responder will notify the following:

- a. Chief of Enforcement
- b. Manager of Parks
- c. Director of DPR
- d. Superintendent, Fort Delaware State Park

13.2 STAFFING

13.2.1 State EOC

DPR Parks Primary Responder

**SOP 200-A: STATE AGENCIES
(Continued)**

13.0 DIVISION OF PARKS AND RECREATION (DPR) (Continued)

13.2 STAFFING (Continued)

13.2.2 Dover Office (DPR)

- a. Chief of Enforcement
- b. Manager of Parks
- c. Director of DPR

14.0 DELAWARE STATE FIRE SCHOOL (DSFS)

14.1 MOBILIZATION

14.1.1 The Kent County 911 Center will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

14.1.2 The Kent County 911 Center will notify the DSFS SERT Representative on call.

14.1.3 The DSFS Representative will notify the Director and Senior Instructors.

14.2 STAFFING

14.2.1 State EOC

DSFS SERT Responder and other personnel, as necessary.

15.0 DEPARTMENT OF TRANSPORTATION (DOT)

15.1 MOBILIZATION

15.1.1 The DOT Transportation Management Center (TMC) will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

15.1.2 The DOT TMC will notify the following:

- a. Secretary DOT
- b. Director
- c. North District Engineer
- d. Central District Engineer
- e. Operations Manager, DTC
- f. Expressway District Manager

SOP 200-A: STATE AGENCIES (Continued)

DEPARTMENT OF TRANSPORTATION (DOT) (Continued)

15.1. MOBILIZATION (Continued)

15.1.3 North District Engineer will notify the following:

- a. Maintenance Engineer
- b. Dispatcher
- c. Maintenance Engineer, Area 10
- d. Dispatcher, Area 10

15.1.4 Central District Engineer will notify the following:

- a. Maintenance Superintendent, Dover
- b. Dispatcher
- c. Maintenance Superintendent, Area 9
- d. Dispatcher, Area 9
- e. Maintenance Superintendent, Area 8
- f. Dispatcher, Area 8

15.1.5 Expressway District Manger will notify the following:

- a. Maintenance Superintendent
- b. Dispatcher

15.1.6 Operations Manager, DTC will notify the following:

- a. DAST/DART Dispatchers
- b. DAST/DART Staff Members

15.2 STAFFING

15.2.1 State EOC

- a. DelDOT Representatives
 1. TMC Chief Safety Officer
 2. DTC Representative

15.2.2 Bear Yard

- a. Maintenance Engineer
- b. Dispatcher

SOP 200-A: STATE AGENCIES (Continued)

DEPARTMENT OF TRANSPORTATION (DOT) (Continued)

15.2 STAFFING (Continued)

15.2.3 Area 10

- a. Maintenance Engineer
- b. Dispatcher

15.2.4 Central District Yard

- a. Maintenance Superintendent
- b. Dispatcher

15.2.5 Area 9

- a. Maintenance Superintendent
- b. Dispatcher

15.2.6 Area 8

- a. Maintenance Superintendent
- b. Dispatcher

15.2.7 Expressway District

- a. Maintenance Supervisor
- b. Dispatcher

SOP 200-B: COUNTY AGENCIES

1.0 GENERAL

- 1.1 All county agencies that respond to emergencies will maintain personnel rosters and the capability to provide staff members on a 24-hour basis, for their assigned emergency response position.

2.0 NEW CASTLE COUNTY

2.1 MOBILIZATION

- 2.1.1 The New Castle County Assistant Manager of Emergency Communications through Fireboard will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.
- 2.1.2 The New Castle County Assistant Manager of Emergency Communications will notify or request Fireboard to notify emergency response personnel using the emergency notification list.

2.2 STAFFING

2.2.1 County EOC

a. Alert

- 1) Public Safety Director (or alternate)
- 2) Deputy Chief of Emergency Communications (or alternate)
- 3) EOC Support Personnel

b. Site Area Emergency and General Emergency

- 1) All of those listed at Alert.
- 2) Chief of Police (or alternate)
- 3) Deputy Chief of Emergency Medical Services (or alternate)
- 4) General Manager of Special Services (or alternate)
- 5) General Manager of Community Services (or alternate)

2.2.2 State EOC

New Castle County Liaison Representative

3.0 KENT COUNTY

3.1 MOBILIZATION

- 3.1.1 The Kent County 911 Center/Kent County Emergency Management will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

SOP 200-B: COUNTY AGENCIES (Continued)

3.0 KENT COUNTY (Continued)

3.1 MOBILIZATION (Continued)

3.1.2 The Kent County 911 Center will notify the EOC Director/Alternate.

3.1.3 The EOC Director/alternate will notify County Emergency Response Personnel using the Alert Call Down list.

3.2 STAFFING

3.2.1 County EOC

- a. Levy Court President
- b. Director Public Safety
- c. Computer Operator
- d. Operations
- e. Security
- f. Radio Club
- g. Messenger

3.2.2 State EOC

Kent County Liaison Representative

4.0 SUSSEX COUNTY

4.1 MOBILIZATION

4.1.1 The Sussex County Fire and Ambulance Call-board/Sussex County EOC will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

4.1.2 The Sussex County Fire and Ambulance Call-board will notify county emergency respond personnel.

4.2 STAFFING

4.2.1 County EOC

- a. EOC Director
- b. EOC Support Staff
- c. Agriculture Representative

SOP 200-B: COUNTY AGENCIES (Continued)

4.0 SUSSEX COUNTY (Continued)

4.2 STAFFING (Continued)

4.2.2 State EOC

Sussex County Liaison Representative

1.0 AMERICAN RED CROSS (ARC DMVP) in Delaware

1.1 MOBILIZATION

- 1.1.1** The Director of Emergency Services or designee, Administrator(s) Disaster Services, State Disaster Relations Liaison will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.
- 1.1.2** The Disaster Action Team Coordinator will notify Disaster Action Team members using their emergency notification lists.

1.2 STAFFING

1.2.1 ARC DMVP Headquarters

- a.** Manager, Emergency Services
- b.** Administrator(s), Disaster Services

1.2.2 State EOC

State Disaster Relations Liaison

1.2.3 Disaster Shelters

Disaster Action Teams

2.0 SALVATION ARMY

2.1 MOBILIZATION

- 2.1.1** The Salvation Army will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.
- 2.1.2** The Salvation Army will notify emergency response personnel using their call out list.

2.2 STAFFING

2.2.1 SA Administrative Headquarters

Administrator

2.2.2 State EOC

Regional Commander/Alternate

2.0 SALVATION ARMY (Continued)

2.2 STAFFING (Continued)

2.2.3 ARC Disaster Shelters

- a. Cooks
- b. Drivers
- c. Counselors

3.0 CHRISTIANA CARE HEALTH SERVICES (CCHS)

3.1 MOBILIZATION

- 3.1.1 The duty Triage Nurse at CCHS will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.
- 3.1.2 The duty Triage Nurse will notify the Nursing Supervisor.
- 3.1.3 The Head Nurse will notify the appropriate staff members. Backed up by Assistant Head Nurse and then by the Unit Coordinator after calling for CODE GREEN.

3.2 STAFFING

3.2.1 CCHS

- a. Physician(s)
- b. Nurse(s)
- c. Clerical
- d. Buffer Zone Nurse
- e. Emergency Room Administration
- f. Security
- g. Housekeeping - Wilmington only
- h. Engineering - Wilmington only
- i. Radiation Safety Officer
- j. Charge Clerk

SOP 200-C: VOLUNTEER AND PRIVATE AGENCIES (Continued)

4.0 CIVIL AIR PATROL (CAP)

4.1 MOBILIZATION

4.1.1 The designated CAP officer will be notified by DEMA and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

4.1.2 The designated CAP officer will notify CAP emergency response personnel.

4.2 STAFFING

4.2.1 State EOC

- a. Wing Commander/Alternate
- b. Senior Members

4.2.2 DE Wing Headquarters

- a. Mission Coordinator
- b. Drivers
- c. Pilots
- d. Radio Operator

5.0 VOLUNTEER FIRE COMPANIES

5.1 MOBILIZATION

5.1.1 The Fireboard, Call-board and/or 911 Center in the applicable County will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

5.1.2 The Fireboard, Call-board and/or 911 Center in the applicable area will notify the Volunteer Fire Company emergency response personnel.

5.2 STAFFING

5.2.1 Volunteer Fire Company personnel will report to their stations for assignment.

6.0 RADIO AMATEUR COMMUNICATIONS EMERGENCY SYSTEM (RACES)

6.1 MOBILIZATION

6.1.1 The Amateur Radio designated representative will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

SOP 200-C: VOLUNTEER AND PRIVATE AGENCIES (Continued)

**6.0 RADIO AMATEUR COMMUNICATIONS EMERGENCY SYSTEM (RACES)
(Continued)**

6.1 MOBILIZATION (Continued)

6.1.2 The Amateur Radio designated representative will notify designated Amateur Radio emergency response personnel.

6.2 STAFFING

6.2.1 Amateur Radio personnel will operate from various locations through out the State.

7.0 RADIO STATION WDEL/WSTW

7.1 MOBILIZATION

7.1.1 The News and Program Director will be notified by DEMA and briefed on the emergency. The notification will be verified by return telephone call or voice recognition.

7.1.2 The News and Program Director will notify radio station personnel as appropriate.

7.2 STAFFING

7.2.1 WDEL/WSTW

- a. News and Program Director/Alternate
- b. Station Operations Personnel

**8.0 TELEDYNE BROWN ENGINEERING, ENVIRONMENTAL SERVICES
(KNOXVILLE, TN)**

8.1 MOBILIZATION

8.1.1 The Teledyne Laboratory will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

8.1.2 Laboratory personnel will be notified by the internal communication methods at Teledyne.

8.2 STAFFING

8.2.1 Knoxville Laboratory

- a. Lab Staff Members
- b. Lab Technicians

SOP 200-D: FEDERAL AGENCIES

1.0 USDA, FARM SERVICE AGENCY (USDA - FSA)

1.1 MOBILIZATION

1.1.1 The FSA Executive Director or alternate will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

1.1.2 The FSA Extension Safety Specialist Coordinator will notify the following:

- a. FSA County Executive Director, New Castle County
- b. FSA County Executive Director, Kent County
- c. FSA County Executive Director, Sussex County

1.2 STAFFING

1.2.1 State EOC

FSA Executive Director or alternate (TAC Agriculture Coordinator).

1.2.2 County FSA Office

FSA County Executive Directors

2.0 NATIONAL WEATHER SERVICE (NWS) - MT. HOLLY, N.J.

2.1 MOBILIZATION

2.1.1 The NWS - Mt. Holly, NJ. Duty Weather Service Specialist will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

2.2 STAFFING

2.2.1 NWS - Mt. Holly, N.J.

Duty Weather Service Specialist

3.0 U.S. ARMY CORP OF ENGINEERS (ACE)

3.1 MOBILIZATION

3.1.1 The ACE - Chesapeake City Project Office will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

3.1.2 The ACE Dispatcher will notify emergency response personnel.

SOP 200-D: FEDERAL AGENCIES (Continued)

3.0 U.S. ARMY CORP OF ENGINEERS (ACE) (Continued)

3.2 STAFFING

3.2.1 Chesapeake City Project Office

- a. Project Superintendent
- b. Dispatcher

3.2.2 Other ACE Locations

ACE Staff as required/assigned

4.0 USAF - DOVER AIR FORCE BASE (DAFB)

4.1 MOBILIZATION

4.1.1 The DAFB Command Post Duty Officer will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

4.1.2 The DAFB Command Post Duty officer will notify DAFB emergency response personnel.

4.2 STAFFING

4.2.1 State EOC

USAF Representative

4.2.2 DAFB

- a. Commanding Officer
- b. Executive Officer
- c. Duty Officer
- d. Flight Crew(s)

5.0 U.S. COAST GUARD (USCG)

5.1 MOBILIZATION

5.1.1 The USCG Command Duty Officer in Philadelphia will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.

5.1.2 The Duty Officer will notify emergency response personnel.

SOP 200-D: FEDERAL AGENCIES (Continued)

5.0 U.S. COAST GUARD (USCG) (Continued)

5.2 STAFFING

5.2.1 State EOC

USCG Representative

5.2.2 USCG Base – Marine Safety Group Philadelphia

- a. Commanding Officer
- b. Executive Officer
- c. Duty Officer
- d. Tug Boat Operator(s)
- e. Small Boat Operator(s)

5.2.3 USCG Group - Cape May

- a. Helicopter Pilot
- b. Flight Crew

5.2.4 USCG - Fifth District

Duty Officer

6.0 RADIOLOGICAL ASSISTANCE PROGRAM (RAP)

6.1 MOBILIZATION

- 6.1.1 The RAP will be notified by DEMA or DSP Communications and briefed on the emergency at SHCGS or other commercial nuclear power plant affecting Delaware. The notification will be verified by return telephone call or voice recognition.
- 6.1.2 The RAP personnel will notify each federal agency, should an accident call for the implementation of the National Response Plan.

6.2 STAFFING

6.2.1 State EOC

NRP Liaison(s)

6.2.2 Various Locations

- a. RAP Staff
- b. Technical Support Personnel
- c. Sampling and Analysis Technicians

SOP 300 ACCIDENT ASSESSMENT PROCEDURES

1.0 OBJECTIVE

SOP 300 Series contains accident assessment procedures to be used in making protective action decisions.

2.0 CONTENTS

- | | | |
|------|---------|---|
| 2.1 | SOP 301 | Technical Assessment Center (TAC). |
| 2.2 | SOP 302 | Plume Exposure Pathway Protective Action Recommendations |
| 2.3 | SOP 303 | Preparation of Protective Action Recommendations for the Post
Emergency Phase (Ingestion and Relocation) |
| 2.4 | SOP 304 | Plume Pathway Dose Projections |
| 2.5 | SOP 305 | Not Used |
| 2.6 | SOP 306 | Field Team Monitoring and Sample Methods |
| 2.7 | SOP 307 | Ingest Team Monitoring and Sample Methods |
| 2.8 | SOP 308 | Not Used |
| 2.9 | SOP 309 | Not Used |
| 2.10 | SOP 310 | Not Used |
| 2.11 | SOP 311 | Emergency Operations Facility (EOF) Procedure |

SOP 301 – TECHNICAL ASSESSMENT CENTER (TAC)

1.0 **OBJECTIVE**

This procedure identifies the TAC staffing, describes duties and responsibilities of the TAC members, and provides the guidance to implement each member's assigned tasks.

2.0 **CONTENTS**

SOP 301-A TAC Staffing
SOP 301-B TAC Duties and Responsibilities

3.0 **PREREQUISITES**

3.1 An emergency condition exists which requires evaluation and assessment by the State of Delaware.

3.2 The TAC organization has been activated and mobilized.

4.0 **REFERENCES**

4.1 FEMA - CPG 1-8, October 1985, Guide for Development of State and Local Emergency Operations Plans

4.2 State of Delaware Radiological Emergency Plan

4.3 State of Delaware, SOP 100 Series Procedures

4.4 State of Delaware, SOP 200 Series Procedures

5.0 **ATTACHMENTS**

301-B1, TAC Chairperson Checklists

301-B1A, TAC Chairperson Briefing Checklist

301-B2, Field Monitoring Coordinator Checklist

301-B3, Lab and Sample Coordinator Checklist

301-B4, Data Analysis Coordinator Checklist

301-B5, PSEG Liaison Checklist

301-B6, Administrative Support Staff Checklist

301-B7, TAC Chairperson Briefing for the DEMA Director

6.0 **RECORDS**

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by DEMA Technical/Administrative Support for historical files.

SOP 301-A TECHNICAL ASSESSMENT CENTER (TAC) STAFFING

1.0 The following is a staffing list for key TAC positions. Primary and alternate responders are designated where possible. Minimum staffing would include representation by one individual for each TAC title listed below.

1.1 Chairperson(s)

The TAC may be chaired by either State agency representative or co-chaired . Depending on the duration of the event, the chairpersons may decide to alternate staffing. Either TAC co-chair can make Protective Action Recommendations (PARs) in the absence of the other. [Note: only the S/DPH designee can make recommendations regarding the administration of stable iodine and increases to emergency worker exposure limits]

1.1.1 Primary responder – Division of Public Health (DPH) Office of Radiation Control Administrator or DPH

1.1.2 Primary responder - Senior Science Advisor/NRC Liaison, Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources

1.2 Field Monitoring Coordinator

1.2.1 Primary responder – Staff member, Delaware National Guard

1.2.2 Alternate - Staff member, Delaware Emergency Management Agency

1.3 Lab and Sample Coordinator

1.3.1 Primary responder – Laboratory Manager II, Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources

1.3.2 Alternate - Environmental Laboratory Manager I, Department of Natural Resources and Environmental Control, Division of Water Resources

1.4 Data Analysis Coordinator

1.4.1 Primary responder - Environmental Scientist, Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources

1.4.2 Alternate responder - Office of Radiation Control, Senior Radiation Control Specialist, Division of Public Health or DPH designee

1.4.3 Alternate - Health Program Coordinator, Division of Public Health or DPH designee

1.4.4 Alternate - Division of Public Health or DPH designee

1.4.5 Alternate - Staff member, Delaware Emergency Management Agency

**SOP 301-A TECHNICAL ASSESSMENT CENTER (TAC) STAFFING
(Continued)**

1.5 Computer Support Staff

- 1.5.1** Primary responder (MIDAS) - , Environmental Health Specialist , Division of Public Health or DPH designee
- 1.5.2** Alternate responder (MIDAS) – Laboratory Manager I, Department of Natural Resources and Environmental Controls, Division of Water Resources
- 1.5.3** Primary responder (ERDS) - Staff member, Delaware Emergency Management Agency
- 1.5.4** Alternate (ERDS) - Staff member or DPH

1.6 Technical/Administrative Support Staff

- 1.6.1** Administrative support - Staff member(s), Delaware Emergency Management Agency
- 1.6.2** Technical support – PSEG Nuclear, LLC representative
- 1.6.3** Technical liaisons –United States Nuclear Regulatory Commission (NRC) , Department of Energy (US DOE), United States Department of Agriculture (USDA) and United States Environmental Protection Agency (EPA) representatives, as required

SOP 301-B TAC DUTIES AND RESPONSIBILITIES

1.0 This section describes the duties and responsibilities of the TAC organization. In addition, checklists are provided as guidance to implement each set of tasks.

1.1 CHAIRPERSON

Responsible for the overall oversight of TAC activities and tasking, as listed in Attachment 301-B1 and below:

1.1.1 Verify that staff members are present in the facility for each function.

- a.** Field Monitoring Coordinator
- b.** Lab and Sample Coordinator
- c.** Data Analysis Coordinator
- d.** Support Staff
 - Computer Support [MIDAS, ERDS]
 - Technical Support [PSEG, NRC, US DOE, USDA, US EPA]
 - Administrative Support

1.1.2 Provide oversight to see that all positions are staffed for the duration of the event.

1.1.3 Provide oversight to see that facility communications are operational and established.

1.1.4 Obtain a status of the emergency as follows:

- a.** Review Initial Contact Message Forms (ICMF).
- b.** Review Station Status Checklists (SSCL).

1.1.5 Hold briefings with the TAC Staff at activation and at least every hour or at significant changes in event status.

1.1.6 Brief the DEMA Director on the TAC's assessment of the event. Use the TAC Chairperson Briefing for the DEMA Director, Attachment 301-B7.

1.1.7 Provide oversight and direction to determine that each member of the TAC organization implements his/her assigned tasks.

1.1.8 On a periodic basis, review the overall status of the emergency and/or the event.

- a.** Plant conditions/status.
- b.** Plume pathway projections and data.
- c.** Field monitoring data.
- d.** EOC habitability.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.1 CHAIRPERSON (Continued)

- 1.1.9** Develop plume pathway Protective Action Recommendations (PARs) based on information, conditions, data and guidance from the TAC Staff as outlined in SOP-302. Update PARs as conditions and data warrant.
- 1.1.10** Present the Plume Pathway PARs to the DEMA Director.
- 1.1.11** Authorize the use of potassium iodide (KI), when applicable. (Note: Only the DHSS/DPH Representative can issue a PAR to authorize use of KI)
- 1.1.12** Authorize emergency workers to exceed administrative exposure limits, when applicable as outlined in SOP 801. (Note: Only the DPH Representative can authorize an increase in exposure limits)
- 1.1.13** Evaluate the need for assistance from the federal government for radiological monitoring and assessment. If assistance is necessary, make the request through the DEMA Director.
- 1.1.14** Utilize SOP 303 when applicable for Ingestion Pathway and Relocation PARs.
- 1.1.15** Present ingestion and relocation PARs to the DEMA Director.
- 1.1.16** Review contamination incidents of evacuated persons at Reception Centers and the Emergency Worker Decon Center, as reported by the Delaware National Guard. Summarize incident information and present main points to the DEMA Director.
- 1.1.17** If shift turnover is required, ensure that each topic in this section is addressed in the TAC briefing.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.2 FIELD MONITORING COORDINATOR

Responsible for the overall coordination of field teams as listed in Attachment 301-B2 and below:

- 1.2.1 Obtain a status of the emergency. Review ICMFs and SSCLs.
- 1.2.2 Determine the actual or projected plume path and the affected area.
- 1.2.3 Establish communications with the DNG Headquarters regarding field monitoring teams.
- 1.2.4 Coordinate and assemble all field monitoring teams (SOP 306 and 307).
- 1.2.5 Obtain current weather conditions and forecasts on a routine basis.
- 1.2.6 Brief all field monitoring teams prior to dispatch (SOP 306).
- 1.2.7 Develop the field monitoring program in cooperation with the Data Analysis Coordinator.
- 1.2.8 Display the field monitoring program.
- 1.2.9 Display the affected area on the EPZ map.
- 1.2.10 Ensure that the field monitoring teams are informed as needed of changes in the following: plant status, Emergency Classification Level (ECL), radiological releases, weather, and other relevant information.
- 1.2.11 Ensure that exposure control is provided for all field monitoring personnel. Computer support personnel may assist as needed.
- 1.2.12 Instruct field monitoring teams to take KI as recommended by the TAC Chairperson and directed by the DEMA Director. Ensure KI issuance log is maintained for field team personnel instructed to take KI.
- 1.2.13 Interface with the Data Analysis Coordinator and the Lab and Sample Coordinator to expedite transportation and analysis of field samples.
- 1.2.14 Display field monitoring results.
- 1.2.15 Consult with the TAC Chairperson regarding the need for federal assistance for field monitoring and assessment.
- 1.2.16 Request utility and adjacent state(s) field monitoring data as appropriate.
- 1.2.17 If shift turnover is required, ensure that each topic in this section is addressed in the briefing.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.3 LAB AND SAMPLE COORDINATOR

Responsible for overall coordination of sample analysis as listed in Attachment 301-B3 and below:

- 1.3.1 Obtain a status of the emergency. Review ICMFs and SSCLs.
- 1.3.2 Ensure that telephone and FAX communications are operational.
- 1.3.3 Establish communications with primary radiochemistry lab and confirm staffing and readiness.
- 1.3.4 Coordinate the use of other lab facilities, as appropriate.
- 1.3.5 Coordinate and direct the proper transport, custody, counting, tracking and results of samples.
- 1.3.6 Establish analysis priorities of samples.
- 1.3.7 Ensure that analysis results are transmitted to the TAC as soon as available.
- 1.3.8 If shift turnover is required, ensure that each topic in this section is addressed in the briefing.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.4 DATA ANALYSIS COORDINATOR

Responsible for the evaluation and analysis of data as listed in Attachment 301-B4 and below:

- 1.4.1 Obtain a status of the emergency. Review ICMFs and SSCLs.
- 1.4.2 Ensure that Computer Support is staffed and operational. If necessary, coordinate 24-hour staffing.
- 1.4.3 Coordinate with the Field Monitoring Coordinator to develop a field monitoring plan.
- 1.4.4 Review and evaluate projected dose data.
- 1.4.5 Review and evaluate field monitoring data from all sources [utility, adjacent states and federal].
- 1.4.6 Direct computer support personnel to calculate plume pathway projections (SOP 304).
- 1.4.7 Notify the TAC Chairperson if the EOC is located in the plume path or affected area.
- 1.4.8 Complete the Protective Action Recommendations Form (SOP 302-A5 or SOP 303) as required.
- 1.4.9 Ensure that PARs and PADs are communicated to the EOF staff.
- 1.4.10 Direct computer support personnel to use the INGEST program to evaluate environmental samples for relocation and ingestion protective actions.
- 1.4.11 Review, evaluate and make recommendations for exposure control for emergency workers.
- 1.4.12 Review and evaluate the need for relocation and ingestion pathway protective actions (SOP 303).
- 1.4.13 If shift turnover is required, ensure that each topic in this section is addressed in the briefing.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.5 COMPUTER SUPPORT STAFF (MIDAS & ERDS)

- 1.5.1** Perform calculations and analysis of data using the MIDAS program and SOP 304.
- 1.5.2** Calculate plume dose projections using the MIDAS program and plant data supplied by utility.
- 1.5.3** Obtain field-monitoring data from the Field Monitoring Coordinator for calculation and analysis.
- 1.5.4** Obtain environmental sample data from the laboratory and Sample Coordinator. Use the INGEST program to analyze samples for relocation and ingestion PAGS and provide results to the Data Analysis Coordinator.
- 1.5.5** Display projection results and release pathway.
- 1.5.6** Provide the Data Analysis Coordinator with calculational results, and assist with evaluations as requested.
- 1.5.7** Obtain technical information from the Emergency Response Data System (ERDS) as requested by the TAC (if available).
- 1.5.8** If shift turnover is required, ensure that each topic in this section is addressed in the briefing.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.6 ADMINISTRATIVE SUPPORT STAFF

Responsible for TAC support as listed in Attachment 301-B6 and below:

1.6.1 Set up the TAC for operation.

1.6.2 Maintain sign-in board.

1.6.3 Receive, organize and distribute copies of the following documents:

Initial Contact Message Forms
Station Status Checklists
Major Equipment and Electrical Status
NRC Data sheet
Plant Vent Monitoring Data

Consult with the TAC Chair to determine the distribution of documents within the TAC and if documents other than those listed above will be needed.

1.6.4 Ensure that information and data flow properly within the TAC Organization.

1.6.5 Assist with posting/logging information in the TAC as directed by the TAC chairperson.

1.6.6 Provide a communications interface between the utility, federal agencies and the TAC as necessary.

1.6.7 Provide support as requested to the TAC.

1.6.8 Ensure that all information, data, records, evaluations, forms, and checklists are maintained as historical records.

1.6.9 If shift turnover is required, ensure that each topic in this section is addressed in the briefing.

**SOP 301-B TAC DUTIES AND RESPONSIBILITIES
(Continued)**

1.7 TECHNICAL SUPPORT STAFF

Technical support for the TAC could include representatives from the utility, other State agencies and the federal government. Federal agencies could include, but are not limited to: US Nuclear Regulatory Commission, US Department of Energy, Environmental Protection Agency, US Department of Agriculture.

- 1.7.1 Meet with TAC Chairperson upon arrival.
- 1.7.2 PSEG Representative should utilize the checklist in Attachment 301-B5.
- 1.7.3 Provide a communications interface between your agency and the TAC.
- 1.7.4 Provide technical and regulatory reference guidance as requested by the TAC.
- 1.7.5 Ensure that all information, data, records, evaluations, forms, and checklists are maintained as historical records.
- 1.7.6 If shift turnover is required, ensure that each topic in this section is addressed in the briefing.

ATTACHMENT 301-B1
TAC CHAIRPERSON CHECKLIST
(INITIAL)

Initials

1. Ensure that staff members are present in the following positions.

- _____ Field Monitoring Coordinator
- _____ Lab and Sample Coordinator
- _____ Data Analysis Coordinator

- Support Staff
- _____ Computer Support - MIDAS
- _____ Computer Support - ERDS
- _____ Technical Support - PSEG
- _____ Administrative Support

2. Communications are operational and established.

3. Obtain a status of the emergency.

a) Review ICMFs and SSCLs.

4. Provide initial staff briefing using Attachment 301 - B1A, TAC Chairperson Briefing Checklist.

5. Ensure that staff members are implementing their assigned tasks. (See Attachment 301-B2 through 301-B6).

6. Ensure that additional personnel are available to relieve staff members on a 24-hour per day basis if necessary.

Determine if immediate action on the following items is necessary:

7. Brief the DEMA Director on the TAC's assessment of the event. Use the TAC Chairperson Briefing for the DEMA Director, Attachment 301-B7.

8. Develop plume pathway PARs (SOP-302) and present plume pathway PARs to the Director of DEMA.

9. Review contamination incidences at reception/decon centers.

Completed:

Date: _____

Time: _____

Proceed to TAC Chairperson Ongoing Checklist

ATTACHMENT 301-B1
TAC CHAIRPERSON CHECKLIST
(ONGOING)

1. On a periodic basis review the overall status of the accident and/or event.
 - a) Plant conditions/status
 - b) Plume pathway projections/data
2. Conduct periodic staff briefings (at least every hour) or when event status changes significantly. Use TAC Chairperson Briefing Checklist. Attachment 301 - B1A.
3. As requested, brief the DEMA Director on the TAC's assessment of the event. Use the TAC Chairperson Briefing for the DEMA Director, Attachment 301-B7.
4. Evaluate the need for plume pathway PARs (SOP 302). Update PARs as conditions warrant.
5. Evaluate the need for ingestion and relocation protective actions (SOP 303).
6. Review contamination incidences at reception/decon centers.

ATTACHMENT 301 – B1A
TAC CHAIRPERSON BRIEFING CHECKLIST
(page 1)

Date: _____ **Time:** _____

Plant Status/Condition (utility rep):

Assessment/Trend: _____

Utility Actions (mitigation etc.): _____

Meteorology: _____

Affected Area(s): _____

Current Delaware Protective Actions: _____

Current Utility PAR's: _____

Adjacent State (s) Protective Actions: _____

ATTACHMENT 301 – B1A

**TAC CHAIRPERSON BRIEFING CHECKLIST
(page 2)**

Field Monitoring Update - [Field Monitoring Coordinator]

Dose Assessment Update [Data Analysis Coordinator]

Lab Update [Lab and Sample Coordinator]

Unresolved Issues/Questions (note responsible party)

New Questions/Issues

ATTACHMENT 301-B2

TAC - FIELD MONITORING COORDINATOR CHECKLIST

Initials

- _____ 1. Obtain a status of the emergency. Review ICMFs and SSCLs.
- _____ 2. Determine the actual or projected plume path and the affected area.
- _____ 3. Establish communications with the DNG Headquarters regarding field-monitoring teams.
- _____ 4. Coordinate and assemble all field-monitoring teams.
- _____ 5. Obtain current weather conditions and forecasts.
- _____ 6. Brief all field-monitoring teams prior to dispatch. (SOP 306)
- _____ 7. Develop the field-monitoring program (SOP 301, Attachment 301-B6).
- _____ 8. Display the field-monitoring program.
- _____ 9. Display the affected area on EPZ map.
- _____ 10. Notify the TAC Chairperson if the EOC is in the affected area.
- _____ 11. Ensure that Field Monitoring Teams are kept informed of changes in the following: plant status, Emergency Classification Level (ECL), radiological releases, weather, and other relevant information.
- _____ 12. Maintain exposure control for the field monitoring teams.
- _____ 13. Interface with the Data Analysis Coordinator and the Lab and Sample Coordinator to expedite transportation and analysis of field samples.
- _____ 14. Display the field monitoring results.
- _____ 15. Consult with the TAC Chairperson regarding the need for federal assistance for field monitoring and assessment
- _____ 16. Request utility and contiguous state field monitoring data.
- _____ 17. Transmit all data, records, evaluations, forms and checklist to DEMA Technical/Administrative support for historical files.
- _____ 18. If shift turnover is required, ensure that all topics in this attachment are addressed in the briefing.

ATTACHMENT 301-B3

TAC - LAB AND SAMPLE COORDINATOR CHECKLIST

Initials

- | | |
|-------|---|
| _____ | 1. Obtain a status of the emergency. Review ICMFs and SSCLs. |
| _____ | 2. Establish communications with primary radiochemistry lab and confirm staffing and readiness. |
| _____ | 3. Ensure that telephone and FAX communications are operational. |
| _____ | 4. Coordinate the use of other lab facilities, as appropriate. |
| _____ | 5. Coordinate and direct proper transport, custody, counting and storage of samples. |
| _____ | 6. Establish analysis priorities of samples. |
| _____ | 7. Track samples and ensure that analysis results are transmitted to the TAC as soon as available. |
| _____ | 8. Transmit all data, records, evaluations, forms and checklists to DEMA Technical/Administrative Support for historical files. |
| _____ | 9. If shift turnover is required, ensure that all topics in this attachment are addressed in the briefing. |

ATTACHMENT 301-B4

TAC - DATA ANALYSIS COORDINATOR CHECKLIST

Initials

- | | | |
|-------|-----|--|
| _____ | 1. | Obtain a status of the emergency. Review ICMFs and SSCLs. |
| _____ | 2. | Ensure that Computer Support is staffed and computers are operational. |
| _____ | 3. | Direct computer support personnel to calculate plume pathway dose projections using SOP 304. |
| _____ | 4. | Coordinate with the Field Monitoring Coordinator to develop a field monitoring plan. |
| _____ | 5. | Review and evaluate projected data. |
| _____ | 6. | Track and trend plant parameters relevant to assessment. |
| _____ | 7. | Complete the Protective Action Assessment Form (SOP302-A1), as required. |
| _____ | 8. | Complete the Protective Action Recommendation Form (SOP302-A5), as required. |
| _____ | 9. | Transmit PAR and PAD information to DEMA staff at the EOF. |
| _____ | 10. | Review, evaluate and make recommendations for exposure control for emergency workers to the TAC Chairperson. |
| _____ | 11. | Review and evaluate the need for relocation and ingestion pathway protective actions (SOP 303) |
| _____ | 12. | Direct computer support personnel to use the INGEST program to evaluate environmental samples for relocation and ingestion protective actions. |
| _____ | 13. | Transmit all data, records, evaluations, forms and checklists to Technical/administrative support for historical files. |
| _____ | 14. | If shift turnover is required, ensure that all topics in this attachment are addressed in the briefing. |

ATTACHMENT 301-B5
TAC - PSEG LIAISON CHECKLIST

Initials

- _____ 1. Establish communications with the PSEG Emergency Preparedness Administrator at the TSC or the EOF.
- _____ 2. Review technical data:

Initial Contact Message Forms
Station Status Checklists
Major Equipment and Electrical Status
Operations Status Board
Dose Assessment and RMS Status Board - Source Term and Flow data
Emergency Response Data System (ERDS)(if available)
- _____ 3. Coordinate information with MIDAS Operators.
- _____ 4. Monitor plant conditions and notify TAC Chairperson of significant changes, particularly those affecting fission product barriers.
- _____ 5. Provide technical assessments to TAC.
- _____ 6. Provide technical briefings to TAC and Director, as required.
- _____ 7. Assist with resolving technical issues, information inconsistencies, etc.
- _____ 8. Transmit all data, records, evaluations, forms and checklists to Technical/administrative support for historical files.
- _____ 9. If shift turnover is required, ensure that all topics in this attachment are addressed in the briefing.

ATTACHMENT 301-B6

TAC ADMINISTRATIVE SUPPORT CHECKLIST

Initials

- _____ 1. Set up the TAC for operation.
- _____ 2. Maintain sign in board.
- _____ 3. Receive, organize and distribute copies of the following documents and as directed by the TAC Chair:
- Initial Contact Message Forms
Station Status Checklists
Major Equipment and Electrical Status
NRC Data sheet
- _____ 4. Assist with posting/logging information as directed by the TAC Chairperson.
- _____ 5. Provide support as directed by TAC Chairperson.
- _____ 6. Provide communication interface as needed
- _____ 7. Ensure that all information, data, records, evaluations, forms and checklists are maintained as historical records.
- _____ 8. Transmit all data, records, evaluations, forms and checklists to Technical/administrative support for historical files.
- _____ 9. If shift turnover is required, ensure that all topics in this attachment are addressed in the briefing.

ATTACHMENT 301-B7
TAC Chairperson Briefing for the DEMA Director
(page 1 of 2)

- **Unit, Emergency Classification Level (ECL) & Time of Declaration**

- **ECG Section & Description of Event**

- **Current Status of Affected Unit**

at power: ____ % shutting down: _____ (rate) shutdown

- **Status of Other Units:**

- **Escalation Potential/Pathway (note uncertainty):**

ATTACHMENT 301-B7
TAC Chairperson Briefing for the DEMA Director
(page 2 of 2)

- **Utility Actions (PARs, Mitigation)**

- **Current TAC Activities (Anticipated PARs, Parameters Tracked, Field Teams):**

- **Other Notes/Comments:**

- **Questions?**

SOP 302 - PLUME EXPOSURE PATHWAY PROTECTIVE ACTION RECOMMENDATIONS

1.0 OBJECTIVE

This procedure provides the TAC Chairperson with the guidance to determine what, if any Protective Action Recommendations (PARs) are required to protect the public. This procedure is applicable only to the Plume Pathway or Early Phase of a radiological emergency.

2.0 CONTENTS

SOP 302-A Development of Plume Pathway PARs.

3.0 PREREQUISITES

- 3.1 The TAC organization has been activated.
- 3.2 An emergency condition exists which may require plume pathway PARs.

4.0 REFERENCES

- 4.1 "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA 400-R-92-001, May 1992.
- 4.2 "Guidance on Offsite Emergency Radiation Measurement Systems, Phase 1 - Airborne Release", FEMA REP-2, Rev. 2, June 1990.
- 4.3 "Response Technical Manual - RTM-96", U.S. Nuclear Regulatory Commission, Vol. 1, Rev. 4, March 1996.
- 4.4 "Source Term Estimation During Incident Response to Severe Nuclear Power Plant Accidents", U.S. Nuclear Regulatory Commission, NUREG-1228, October 1988.
- 4.5 "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies", Food and Drug Administration (FDA), August 13, 1998.
- 4.6 State of Delaware, Radiological Emergency Plan.

5.0 ATTACHMENTS

- 302-A1 Protective Action Assessment Form (Plume Pathway)
- 302-A2 Protective Action Recommendation Flowchart
- 302-A3 Plant Assessment Flowchart
- 302-A4 Radiological Release Protective Action Flowchart
- 302-A5 Shielding Factors from Gamma Cloud Source
- 302-A6 Evacuation Time Estimate Data
- 302-A7 Protective Action Recommendations Form (Plume Pathway)

6.0 RECORDS

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by DEMA Technical/Administrative Support for historical files.

SOP 302 - A DEVELOPMENT OF PLUME PATHWAY PARs

- 1.0 The TAC Chairperson will direct the TAC and support personnel to obtain the necessary information and perform calculations for use in determining the need for, and the scope of, protective action recommendations to be provided to the DEMA Director.
- 2.0 The Data Analysis Coordinator (or as designated by the TAC Chairperson), in consultation with the TAC and support personnel, will obtain the information necessary to fill out the "Protective Action Assessment Form" [Attachment 302-A1].
- 3.0 Use the information on Attachment 302-A1 and the Protective Action Flowchart [Att. 302-A2] to determine what, if any, protective actions may be warranted.
 - 3.1 If it is determined that protective actions are warranted, continue with section 4.0 below. If no protective actions are to be recommended, continue assessment and fill out the Protective Action Recommendation Form [Attachment 302-A5]. Monitor the information on the Protective Action Assessment Form [Attachment 302-A1] for significant changes and reevaluate with the Protective Action Flowchart [Attachment 302-A2] as required.
 - 3.2 The TAC should also review any protective action recommendations or decisions issued by the utility and the State of New Jersey. If the TAC does not issue a PAR concurrently with one issued by either the utility or New Jersey, then a Protective Action Recommendations Form, Attachment 302-A5 should be filled out and issued to the DEMA Director outlining the basis for that decision. Not all situations will require protective actions. The TAC Chairperson may choose to deviate from this guidance when circumstances require.

Note: Do not wait for contiguous states or the utility to issue Protective Action Recommendations if one is warranted for the State of Delaware. Comparisons of Protective Action Recommendations are intended as a check only.

- 4.0 Preparation of Protective Action Recommendations:
 - 4.1 Review Protective Action Recommendations (PARs) submitted by the utility. Also review those of the State of New Jersey, if available. If significant differences exist, these should be discussed prior to submission of the TAC PAR to the DEMA Director to determine the source of the deviations [assessment errors, differing assumptions etc.]. **Delaware personnel at the Emergency Operating Facility [EOF] should be used to obtain information from the utility and the State of New Jersey regarding PARs and accident assessment.**

Note: Do not wait for contiguous states or the utility to issue Protective Action Recommendations if one is warranted for the State of Delaware. Comparisons of Protective Action Recommendations are intended as a check only.

SOP 302 - A DEVELOPMENT OF PLUME PATHWAY PARs
(continued)

- 4.2** Complete the Protective Action Recommendations Form, Attachment 302-A5.
- 4.3** Check the protective actions that apply and circle the affected Emergency Response Planning Areas (ERPA's).
- 4.4** Sign and annotate date and time on the Protective Action Recommendation Form.
- 5.0** Submit the completed Protective Action Recommendations Form to the DEMA Director.

**Attachment 302-A1
Protective Action Assessment Form**

Date: _____ Time: _____ Analyst: _____

PLANT CONDITIONS

FISSION PRODUCT BARRIER STATUS¹:

FUEL²

INTACT THREATENED FAILED UNKNOWN

Key parameters / Trigger points / Notes

REACTOR COOLANT SYSTEM³

INTACT THREATENED FAILED UNKNOWN

Key parameters / Trigger points / Notes

Attachment 302-A1
Protective Action Assessment Form
(page 2 of 2)

CONTAINMENT⁴

INTACT THREATENED FAILED UNKNOWN

Key parameters / Trigger points / Notes

OTHER SYSTEMS

OPEN QUESTIONS/ISSUES

**Attachment 302-A1
Protective Action Assessment Form Notes**

Plant Conditions

1) FISSION PRODUCT BARRIERS

For fission products generated within the core to reach the environment, they must pass through three fission product barriers. These are the fuel (and fuel cladding), the reactor coolant system (RCS) and the reactor containment. [See reference 4 (NUREG-1228, page 3-1)].

Prior to a radiological release, the status of the fission product barriers, and the systems designed to protect them, must be closely monitored. Significant offsite releases are not possible without substantial fuel damage and the loss (or bypass) of the two remaining barriers.

The purpose of monitoring these parameters is to anticipate an actual or potential significant radiological release and make protective action recommendations prior to a release. Accurate dose projections are usually not possible prior to a release, therefore potential offsite consequences must be determined based on plant conditions.

Trend parameters where possible. If a parameter is approaching the failure criteria, assume that the barrier has been lost.

See applicable Plant Event Classification Guide (ECG) for additional information.

2) FUEL

The fuel barrier consists of the fuel pellet encased in the fuel cladding.

Fuel cladding failure may be indicated by:

DAPA [Hope Creek] monitor or R44 Containment Monitor [Salem] reading greater than 200 R/hr.

Reactor coolant sample with DEI [Dose Equivalent Iodine] greater than 300 uCi/g.

Critical Safety Functions to monitor with respect to fuel cladding integrity.

Is the core covered and cooled?

Can reactor coolant level be maintained?

Is make up coolant available & sufficient to maintain level.

Is reactor shutdown?

Reactivity control - can reactor be shutdown?

See reference 4 (NUREG 1228, page 4-59)

**Attachment 302-A1
Protective Action Assessment Form Notes**

Plant Conditions

3) REACTOR COOLANT SYSTEM

The reactor coolant system (RCS) provides a barrier to the release of fission products already released from damaged fuel.

If significant fission products are present in the RCS it indicates that fuel has been damaged and fission products have been released into the RCS. A failure of the RCS (LOCA or loss of coolant accident) with damaged fuel would be a loss of 2 of the 3 fission product barriers.

RCS boundary failure is indicated by:

Reactor water level at the top of active fuel [TAF] at -161 inches [Hope Creek].

High drywell pressure with the reactor water level below -129 inches [Hope Creek].

4) CONTAINMENT

The containment structure is the final barrier to the release of fission products to the atmosphere. It is possible, under certain conditions, for fission products to move directly from the RCS to the atmosphere [containment bypass].

Containment failure is indicated by:

High and increasing containment pressure [>47 psig]

Radiological release offsite

High radiation in plant outside containment

Inability to isolate containment

Attachment 302-A1

Protective Action Assessment Form

RADIOLOGICAL DATA

DOSE PROJECTIONS:

	TEDE (millirem)	THYROID CDE (millirem)
MEA		
2		
5		
10		

SOURCE: MIDAS OTHER: _____

TIME OF PROJECTION: _____

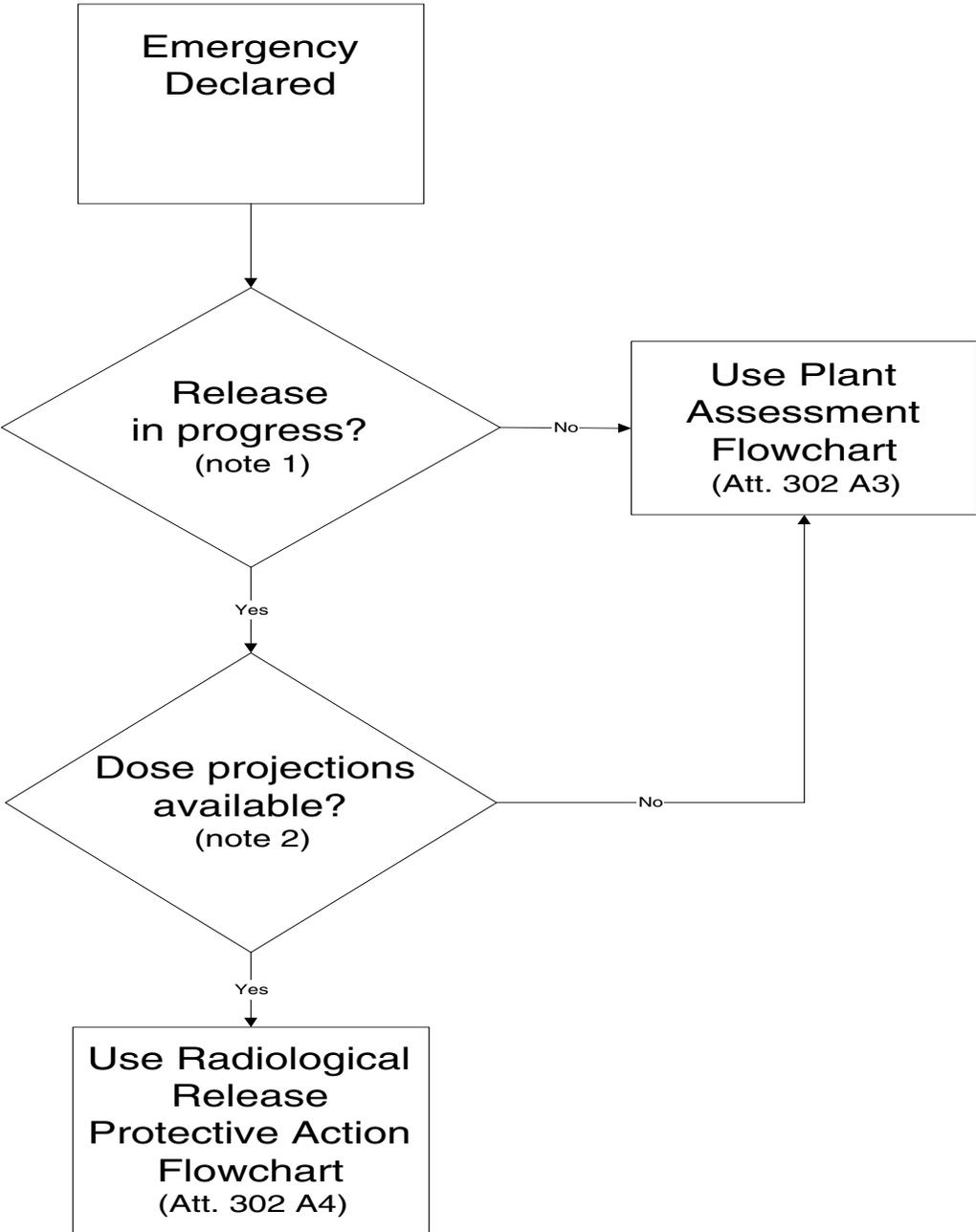
BASIS FOR PROJECTIONS: _____

Note: PAG for the general public: 1 to 5 rem (1,000 to 5,000 millirem) TEDE or 5 to 25 rem (5,000 to 25,000 millirem) Thyroid or 50 to 500 rem (50,000 to 500,000 millirem) skin. Normally, evacuation should be initiated at the lower level of the range.

PAG for Administration of Stable Iodine: Projected dose of 5 rem (5,000 millirem) to the child thyroid (committed dose equivalent, thyroid).

Attachment 302-A2

PROTECTIVE ACTION RECOMMENDATION FLOWCHART



PROTECTIVE ACTION RECOMMENDATION FLOWCHART NOTES

1) Radiological release in progress?

PSEG uses the Technical Specification (Tech Spec) limits to determine whether or not a "release" is occurring for the purposes of accident assessment. This is noted on the Station Status Checklist.

Releases occur during normal operations from the North Plant Vent at Hope Creek and through the Plant Vent at Salem.

It is expected that most releases will be through monitored pathways, thereby providing information on the magnitude of the release. Unmonitored releases can be assessed through plant conditions and field monitoring data.

2) Dose projections available?

The MIDAS program (and SOP 304) will be used as the primary tool to provide dose projections based on monitored release rates.

These projections should be compared to those of the utility, the Nuclear Regulatory Commission (NRC), and the State of New Jersey.

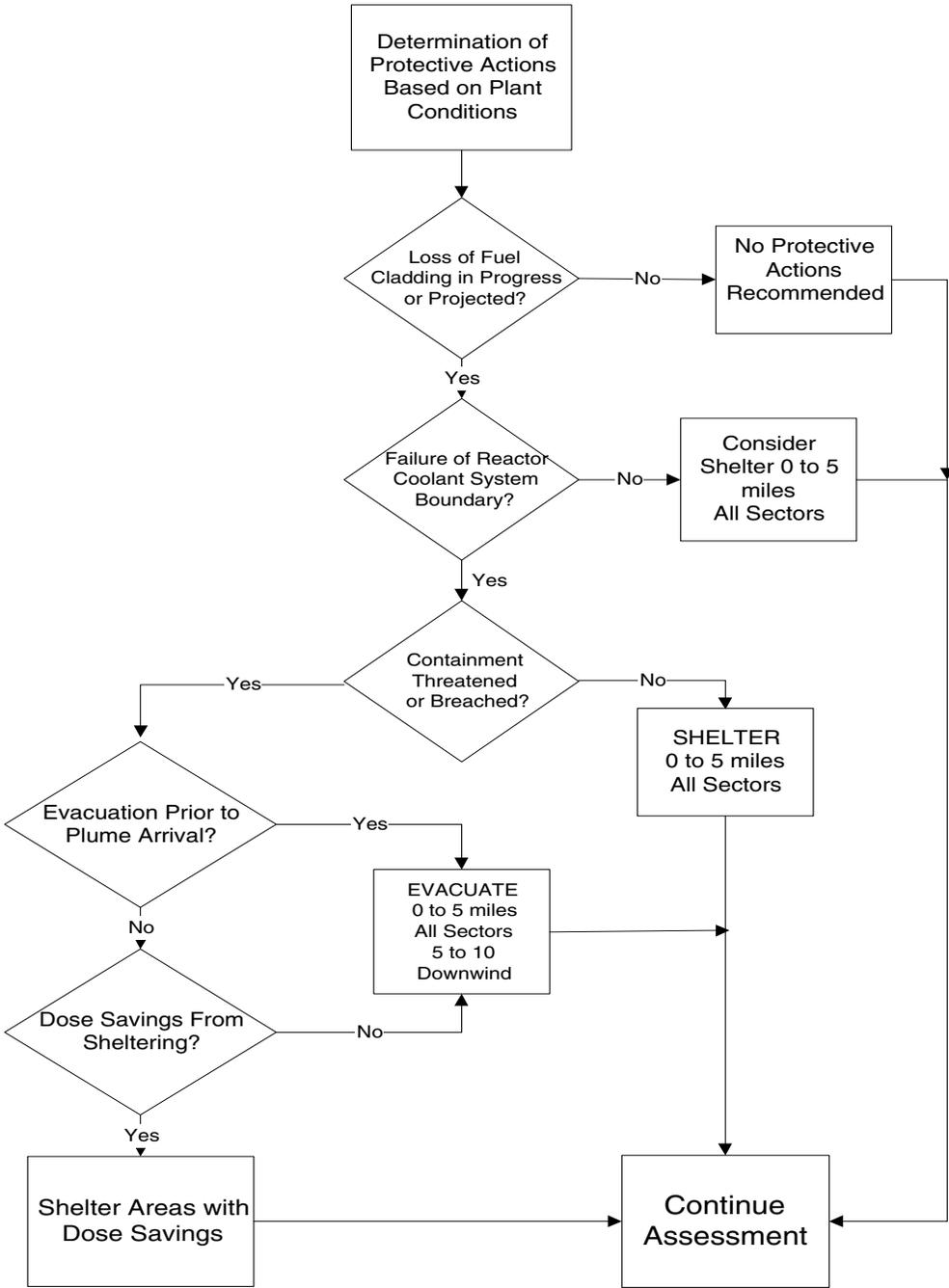
Since PSEG also utilizes MIDAS, projections should be in agreement. Differences between PSEG and TAC projections should be explored and explained prior to using the projection in question for protective action decisions. Substantial differences (factor of 10 or greater) between TAC projections and those of the NRC or New Jersey should also be explored and explained if possible.

Possible sources of divergence between projections are:

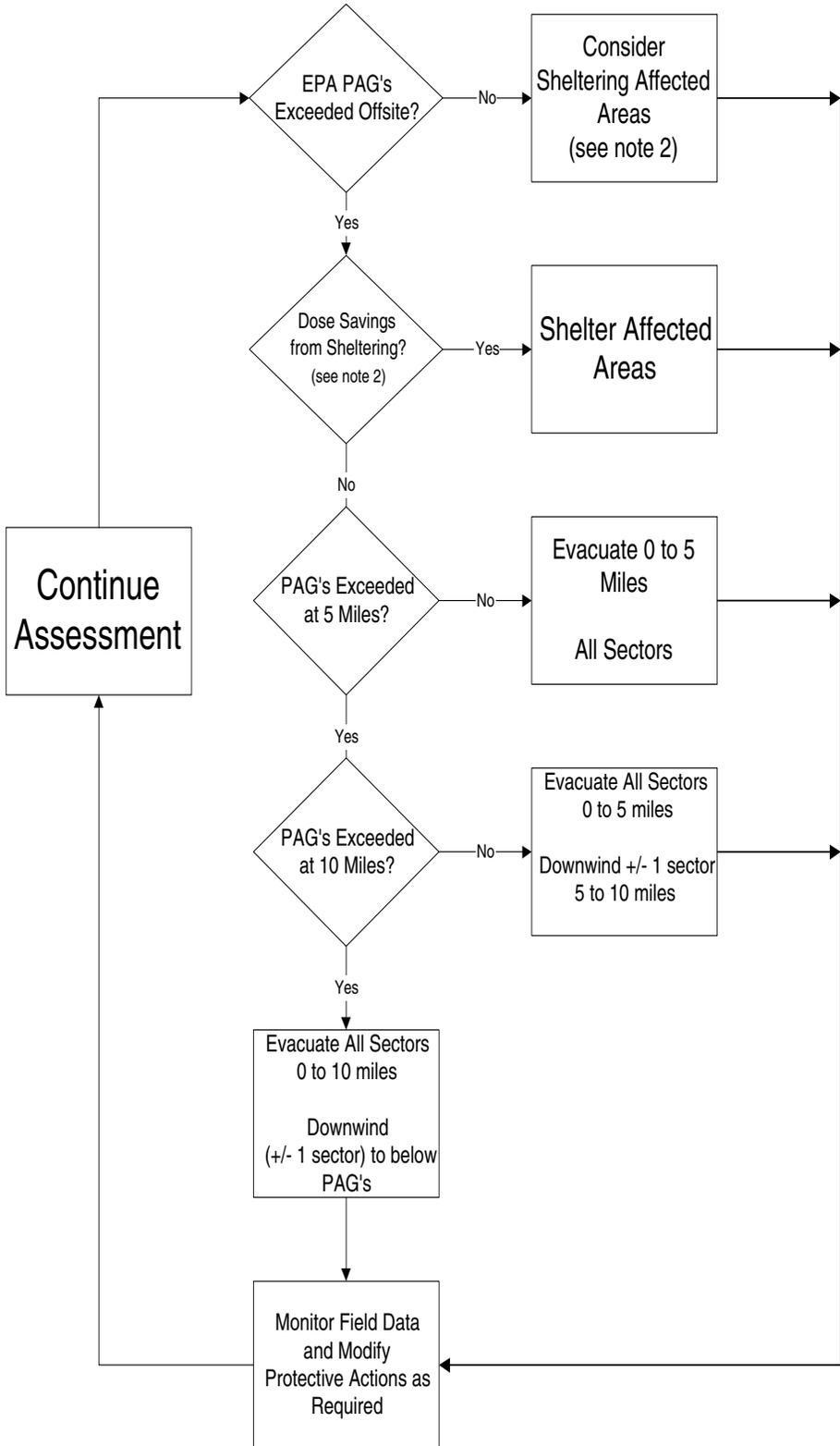
- 1) Source term used. Verify the accuracy of release information [magnitude, duration, and units].
- 2) Meteorology
- 3) Differences inherent in each models calculational methodology and basic assumptions.

SOP 302-A3

PLANT ASSESSMENT FLOWCHART



ATTACHMENT 302 - A4
RADIOLOGICAL RELEASE FLOWCHART



ATTACHMENT 302 - A4

RADIOLOGICAL RELEASE FLOWCHART NOTES

1) Protective Action Guides (PAGs)

Protective Actions should be initiated for projected doses in the following ranges:

1 to 5 rem (1,000 to 5,000 millirem) total effective dose equivalent (TEDE)

or

5 to 25 rem (5,000 to 25,000 millirem) (committed dose equivalent) thyroid

or

50 to 500 rem (50,000 to 500,000 millirem) skin

Normally evacuation should be initiated at the low end level of the range.

Administration of Stable Iodine (KI) : Projected dose (committed dose equivalent) of 5 rem (5,000 millirem) to the child thyroid.

2) Dose Savings from Sheltering-in-Place?

Shelter-in-place may be the preferred protective action when it will provide protection equal to or greater than evacuation or when circumstances (weather and other emergency) increase the risk from evacuation.

See table of shielding factors in Attachment 302-A5

ATTACHMENT 302 – A5

REPRESENTATIVE SHIELDING FACTORS FROM GAMMA CLOUD SOURCE¹

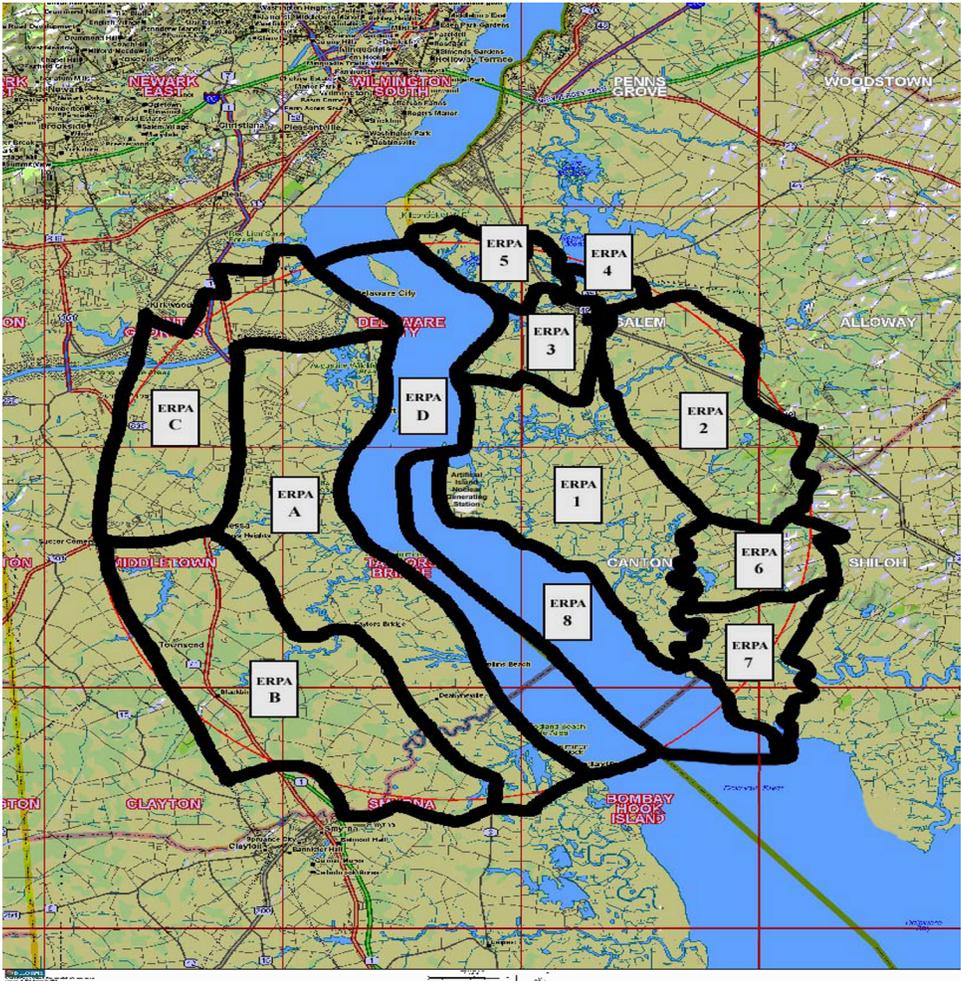
Structure or Location	Shielding Factor ^a	Representative Range
Outside	1.0	--
Vehicle	1.0	--
Wood-frame house ^b (no basement)	0.9	--
Basement of wood house	0.6	0.1 to 0.7 ^c
Masonry House (no basement)	0.6	0.4 to 0.7 ^c
Basement of masonry house	0.4	0.1 to 0.5 ^c
Large office or industrial building	0.2	0.1 to 0.3 ^{c, d}

-
- a** The ratio of the dose received inside the structure to the dose that would be received outside the structure.
 - b** A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.
 - c** This range is mainly due to different wall materials and different geometries.
 - d** The shielding factor depends on where the personnel are located within the building (e.g., the basement or an inside room).
-

¹ Ref.: Sandia Laboratory Report SAND 77-1725

ATTACHMENT 302 – A6

Emergency Response Planning Areas/Populations



10-Mile Emergency Planning Zone (EPZ)/Populations

State	ERPA	Residents	Resident Vehicles
<i>Delaware</i>	A	5142	2496
	B	8562	4156
	C	11272	5472
	D	0	0
	Total		24,976

ATTACHMENT 302 – A6

Evacuation Scenarios

Time of Year	Time of Week	Time of Day	Weather	Scenario
Summer	Weekday	Midday	Good Weather	1
			Rain	1R
		Evening	Good Weather	2
			Rain	2R
	Weekend	Midday	Good Weather	3
			Rain	3R
Winter	Weekday	Midday	Good Weather	4
			Rain	4R
			Snow	4S
		Evening	Good Weather	5
			Rain	5R
			Snow	5S
	Weekend	Midday	Good Weather	6
			Rain	6R
			Snow	6S

ATTACHMENT 600-A6

Summary of Evacuation Time Estimates

(See Table 5-2)				Evacuation Scenarios (See Table 5-1)									
Region	Circular Areas and Azimuths of Center Sector	ERPA		1	1R	2,5,6	2R,3R	3	4	4R	4S	5R,6R	5S,6S
		Delaware	New Jersey										
I	5-Mile Area	A,D	1,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:30
II	2-Mile Area	D	1,8	2:00	2:00	2:00	2:00	2:00	2:00	2:00	2:30	2:00	2:30
III	N	A,C,D	1,3,4,5,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:45
IV	NNE, NE	D	1,2,3,4,5,8	2:00	2:00	2:00	2:00	2:00	2:00	2:00	2:50	2:00	2:30
V	ENE	D	1,2,3,4,6,8	2:00	2:00	2:00	2:00	2:00	2:00	2:00	2:50	2:00	2:30
VI	E, ESE	D	1,2,6,7,8	2:00	2:00	2:00	2:00	2:00	2:00	2:00	2:30	2:00	2:30
VII	SE	D	1,6,7,8	2:00	2:00	2:00	2:00	2:00	2:00	2:00	2:30	2:00	2:30
VIII	SSE	A,B,D	1,7,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:50
IX	S, SSW, SW	A,B,D	1,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:50
X	WSW, W, WNW	A,B,C,D	1,8	2:50	2:50	2:00	2:30	2:30	2:50	2:50	4:00	2:35	3:40
XI	NW	A,C,D	1,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:05	2:45
XII	NNW	A,C,D	1,3,5,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:05	2:45
XIII	NNE, NE	A,D	1,2,3,4,5,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:30
XIV	ENE	A,D	1,2,3,4,6,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:30
XV	E, ESE	A,D	1,2,6,7,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:30
XVI	SE	A,D	1,6,7,8	2:30	2:30	2:00	2:00	2:00	2:30	2:30	3:00	2:00	2:30
XVII	10-Mile Area (Full EPZ Area)	A,B,C,D	1-8	2:50	2:50	2:00	2:30	2:30	2:50	2:50	4:00	2:35	3:40

Note: ETE Values are rounded to the nearest 5 minutes.

ATTACHMENT 302 – A6

Summary of Evacuation Time Estimates (Continued)
 Special Facilities/School and Day Care

	Facility Names	Students /Staff	Students Per Bus	Buses Needed Assuming No Students are Picked Up by Parents	Bus Re-sources Available
Appoquinimink School District (Elementary and Middle)	Appoquinimink Early Kinder Care	425 / 35	50	9	
	Brick Mill Elementary (2)	561 / 42	50	11	
	Cedar Lane Elementary	817 / 75	50	17	
	Everett Meredith Middle	969 / 72	50	20	
	Redding Middle	995 / 74	50	20	
	Silver Lake Elementary	735 / 60	50	15	
	Townsend Elementary	458 / 49	50	10	
	Totals:	4960 / 407		102	
Appoquinimink School District (High Schools)	James H. Groves Adult High (1)	300 / 40	40	8	
	Middletown High (1)	1422 / 113	40	36	
	Totals:	1722 / 153		44	
Colonial School District	Commodore MacDonough	110 / 34	50	3	
	Gunning Bedford Middle	1228 / 150	50	25	
	Southern Elementary	1060 / 60	50	18	
	Totals:	2398 / 244		46	
Private Schools	Bright Beginnings Pre School	36/ 6	50	1	
	Children's Castle Pre-School	50 / 9	50	1	
	Covenant Community	23/ 5	50	1	
	Green Acres Pre-School	200 / 7	50	4	
	M.O.T. Head Start	55 / 13	50	2	
	St. Andrews	260 / 140	50	6	
	St. Anne's Episcopal	198 / 35	50	4	
	Van Hook Walsh (1)	6 / 6		0	
	Totals:	828 / 221		19	
		Bethesda Child Development Cntr	85/ 25	50	2
Totals:	85/ 25		2		
Delaware Totals:		9993/1050		213	227

Note: The ETE for schools should be 2.00 hours.

ATTACHMENT 600-A6

Summary of Evacuation Time Estimates (Continued)

Medical Facilities

Connections - Cornerstone	Delaware City	New Castle	DE	15	15
Governor Bacon Health Center	Delaware City	New Castle	DE	94	78
Connections - Meadows Res. Prog.	Delaware City	New Castle	DE	40	40
Northeast Treatment Ctr.-Recov. Ctr.	Delaware City	New Castle	DE	60	50
Northeast Treatment Ctr.-Reflections	Delaware City	New Castle	DE	12	12
Northeast Treatment Ctr.-Alternatives	Delaware City	New Castle	DE	14	10
Connections - Cornerstone	Delaware City	New Castle	DE	15	15
Governor Bacon Health Center	Delaware City	New Castle	DE	94	78
Connections - Meadows Res. Prog.	Delaware City	New Castle	DE	40	40
Northeast Treatment Ctr.-Recov. Ctr.	Delaware City	New Castle	DE	60	50
Northeast Treatment Ctr.-Reflections	Delaware City	New Castle	DE	12	12
Northeast Treatment Ctr.-Alternatives	Delaware City	New Castle	DE	14	10
Connections - Cornerstone	Delaware City	New Castle	DE	15	15
Governor Bacon Health Center	Delaware City	New Castle	DE	94	78
Connections - Meadows Res. Prog.	Delaware City	New Castle	DE	40	40
Northeast Treatment Ctr.-Recov. Ctr.	Delaware City	New Castle	DE	60	50
Northeast Treatment Ctr.-Reflections	Delaware City	New Castle	DE	12	12
Northeast Treatment Ctr.-Alternatives	Delaware City	New Castle	DE	14	10

ATTACHMENT 302 -A7

PROTECTIVE ACTION RECOMMENDATIONS FORM
(PLUME PATHWAY)

PROTECTIVE ACTION RECOMMENDATIONS

- NO PROTECTIVE ACTIONS RECOMMENDED AT THIS TIME (skip to basis section)
- NO ADDITIONAL PROTECTIVE ACTIONS RECOMMENDED AT THIS TIME (skip to basis section)

- SHELTER-IN-PLACE (circle applicable ERPA(s) below)
ALL A B C D

- EVACUATE (circle applicable ERPA(s) below)
ALL A B C D

- EVACUATE SCHOOLS AND SPECIAL POPULATIONS (All ERPA(s))

- ISSUE POTASSIUM IODIDE (KI) TO EMERGENCY WORKERS
Note: PAG for Administration of Stable Iodine: Projected dose of 5 rem (5,000 millirem) to child thyroid (committed dose equivalent, thyroid).

- ISSUE POTASSIUM IODIDE (KI) TO THE GENERAL PUBLIC. (circle applicable ERPA(s) below)
ALL A B C D

Note: PAG for Administration of Stable Iodine: Projected dose of 5 rem (5,000 millirem) to child thyroid (committed dose equivalent, thyroid).

- PLACE ANIMALS ON STORED FEED AND WATER (All ERPA(s))

Basis for Protective Action Recommendations:

Completed by: _____ Date: _____ Time: _____

Approved by: _____ Date: _____ Time: _____

SOP 303 - PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS FOR THE POST - EMERGENCY PHASE [INGESTION AND RELOCATION]

1.0 OBJECTIVE

This procedure provides the TAC Chairperson with the guidance to develop Protective Action Recommendations (PARs) for the post - emergency phase of a nuclear incident.

2.0 CONTENTS

- SOP 303-A** Background Information
- SOP 303-B** Preparation of Protective Action Recommendations
- SOP 303-C** Development of Monitoring & Sampling Plans
- SOP 303-D** Operation of the INGEST Program
- SOP 303-E** Integration of Federal Assistance

3.0 PREREQUISITES

- 3.1** The Technical Assessment Center has been activated.
- 3.2** An emergency condition exists which requires Protective Action Recommendations for the Post Emergency Phase.

4.0 REFERENCES

- 4.1** EPA, "Manual of Protective Actions for Nuclear Incidents", EPA 400-R-92-001, May 1992.
- 4.2** U.S. Department of Health and Human Services, "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies", August 1998.
- 4.3** FEMA, "Guidance on Offsite Emergency Radiation Measurement Systems - Phase 2 - The Milk Pathway", FEMA REP-12, September 1987.
- 4.4** FEMA, "Guidance on Offsite Emergency Radiation Measurement Systems - Phase 3 - Water and Non-dairy Food Pathway", FEMA REP-13, May 1990.
- 4.5** State of Delaware, Radiological Emergency Plan.
- 4.6** INGEST Operator's Manual, Earth Tech.

**SOP 303 - PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS FOR THE POST -
EMERGENCY PHASE [INGESTION AND RELOCATION]**
(continued)

5.0 ATTACHMENTS

303-A1, Protective Action Guides for exposure to radiation from deposited radioactive materials

303-A2, Protective Action Guides for the Ingestion Pathway

303-A3, Glossary of Terms

303-B1, Protective Action Flow Diagram

303-B2, Protective Action Recommendation Form

6.0 RECORDS

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by DEMA Technical/Administrative Support for historical files.

SOP 303 - A BACKGROUND INFORMATION

- 1.0 Following the release of radioactivity resulting from an incident at a nuclear power plant, actions may be required to protect the public from long term exposure to deposited radioactive materials and from contaminated water, milk and food. These actions will usually occur after emergency actions have been taken to protect the public from direct exposure to a radioactive plume and after the radioactive release has been terminated. This period is denoted the Intermediate Phase and is the period beginning after the source and releases have been brought under control and environmental measurements are available for use as a basis for decisions on protective actions and extending until these protective actions have been terminated.
- 2.0 The primary sources of exposure to the public during the Intermediate Phase will be from deposited radionuclides. The primary exposure pathways are divided into two categories for the purposes of providing Protective Action Guides: 1) external radiation and inhalation of resuspended material, and 2) the ingestion of contaminated food and water. The Protective Action Guides (PAGs) for each pathway are in Attachments 303-A1 & 303-A2.
- 3.0 Since the routes of ingestion contamination are not as direct as those of the plume pathway, immediate protective actions are not normally required. Intermediate Phase protective actions generally do not need to be taken during the Emergency or Early Phase of an accident. The exception is for precautionary protective actions, such as sheltering milk-producing animals and placing them on stored feed and protected water.
- 4.0 The Food and Drug Administration (FDA) provides guidance (Reference 4.2) on emergency response planning and implementation of protective actions associated with the production, processing, and distribution of human foods and animal feeds accidentally contaminated with radionuclides. It presents Protective Action Guides (PAGs) for the ingestion pathway.

ATTACHMENT 303 - A1

**Protective Action Guides for Exposure to
 Radiation from Deposited Radioactive Materials**

Protective Action	PAG ⁽¹⁾ (Projected Dose)	Comments
Relocate the general population. ⁽²⁾	≥2 rem	Beta dose to skin may be up to 50 times higher. Doses in any single year after the first will not exceed 0.5 rem, and the cumulative dose over 50 years will not exceed 5 rem.
Apply simple dose reduction techniques. ⁽³⁾	<2 rem	These protective actions should be taken to reduce doses to as low as practicable levels.

- (1) The projected sum of effective dose equivalent from external gamma radiation and committed effective dose equivalent from inhalation of resuspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAGs may not provide adequate protection from some long-lived radionuclides.
- (2) Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually.
- (3) Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials have concentrated, and spending more time than usual indoors or in other low exposure rate areas.

Reference:

Environmental Protection Agency, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA 400-R-92-001, Table 4-1.

ATTACHMENT 303 - A2

PROTECTIVE ACTION GUIDES FOR THE INGESTION PATHWAY

0.5 rem (5 mSv)*	Committed Effective Dose Equivalent ¹
5 rem (50 mSv)*	Committed Dose Equivalent ² to an individual tissue or organ

* The PAG for the most limiting condition should be utilized.

1. The Committed Effective Dose Equivalent (CEDE) is the sum of the committed dose equivalents to individual organs or tissues multiplied by their respective weighting factors. For purposes of this PAG the CEDE is computed to age 70.
2. Committed Dose Equivalent (CDE) is the dose equivalent accruing on an organ or tissue up to the specified number of years after the intake of the radionuclide in the body. For purposes of this PAG the CDE is computed to age 70.

Reference:

U.S. Department of Health and Human Services, "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies", August 1998.

ATTACHMENT 303 - A3

Glossary of Terms

AMS: Aerial Monitoring System - Department of Energy aerial radiation surveillance program which may be used for plume verification and ground deposition monitoring.

Derived Intervention Level (DIL): A level of radioactivity in an environmental medium that would be expected to produce a dose equal to its corresponding Protective Action Guide.

Evacuation: The urgent removal of people from an area to avoid or reduce high-level, short-term exposure, usually from the plume or deposited radioactivity.

Early Phase: The period at the beginning of a nuclear incident when immediate decisions for effective use of protective actions are required, and must be based primarily on predictions of radiological conditions in the environment. [Also Emergency phase or Plume phase].

Intermediate Phase: The period beginning after the incident source and releases have been brought under control and reliable environmental measurements are available for use as a basis for decisions on additional protective actions and extending until these protective actions are terminated.

Late Phase: The period beginning when the recovery actions designed to reduce radiation levels in the environment to permanently acceptable levels are commenced, and ending when all recovery actions have been completed.

Projected dose: Future dose calculated for a specified time period on the basis of estimated or measured initial concentrations of radionuclides or exposure rates and in the absence of protective actions.

Protective Action: An action taken to avoid or reduce the projected dose commitment.

Protective Action Guide (PAG): The projected dose to reference man, or other defined individual, from an accidental release of radioactive material at which a specific protective action to reduce or avoid that dose is warranted.

Relocation: The removal or continued exclusion of people from contaminated areas to avoid chronic radiation exposure.

SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS

- 1.0 The purpose of this procedure is to guide the TAC in making protective action recommendations for the Intermediate Phase [ingestion and relocation].
- 2.0 The TAC should utilize the Protective Action Flow Diagram [Attachment 303-B1] to guide assessment activities for the formulation of Protective Action Recommendations for transmission to the Director of the Delaware Emergency Management Agency [DEMA]. The following sections provide information for each decision or action area on the flow diagram. Additional information can be found in the references listed on page 1 of this procedure.

3.0 Has a General Emergency been declared and/or has a radioactive release occurred?

After the TAC has determined and verified that the protective actions for the plume EPZ [Early or Emergency Phase] are appropriate and adequate, they should address the need for Intermediate Phase protective actions. Information from the plant and initial field monitoring activities should provide indications of the magnitude and composition of the release as well as the area affected. This should be used to guide initial Intermediate Phase activities.

4.0 Are Precautionary Protective Actions Warranted?

Precautionary Protective Actions (PPA's) are actions taken, prior to confirmation of contamination, to avoid or reduce the potential for contamination of food and animal feed. PPA's may be based on indications from the plant that a radioactive release to the environment may occur or has already occurred and on projections of the magnitude and location of radioactive deposition. PPA's are usually lower impact actions taken until environmental measurements become available and the definite need for higher impact protective actions is determined.

- 4.1 Consider the following when determining the need for PPA's and the potentially impacted area(s):

Has a release occurred? What is the duration (or expected duration) of the release? If the duration was or is expected to be short (up to an hour) the affected area may be small. A long term release will have a greater probability of being dispersed by wind shifts, which will spread the contamination over a larger area.

Meteorological conditions: Wind direction and behavior can change significantly from that at the release point. Rainfall can act as a scavenger of airborne radionuclides, resulting in areas of greater deposition. This could deposit higher concentrations at more distant locations. These factors will introduce additional uncertainty.

Magnitude and composition of the release: This information can be used in MIDAS (see SOP 304) or other dose projection models to obtain projected deposition. As with Emergency Phase projections these projections are subject to significant errors. (See Reference 1, Chapter 3)

Use field monitoring data obtained during the Emergency Phase. This can include definition of the plume boundaries and centerline, air samples and isotopic analyses, and comparisons to computer projections.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

4.2 Determine what, if any, PPA's are appropriate. Examples* of PPA's are:

Sheltering milk producing animals

Placing milk and/or meat producing animals on stored feed and covered water

Advise public to thoroughly wash leafy vegetables, fruit or produce before consumption

Delay consumption of dairy products and vegetables until monitoring can be accomplished

*note: this list is not intended to be exhaustive

4.3 **If PPA's are recommended, transmit these to the DEMA Director on the Protective Action Recommendation Form (Attachment 303-B2). Other recommendations can be written in the extra space provided. Note the distance to which the PPA is recommended beneath the appropriate sector or specify the location(s) impacted by the PPA.**

5.0 Analysis of Field Sample and Monitoring Data

5.1 Obtain sample and field monitoring data as it becomes available. Analyze these for consideration in determining protective actions.

5.2 Use Section 6 of this procedure and page 2 of the Protective Action Flow Diagram (Attachment 303-B1) to assess relocation protective actions.

5.3 Use Section 7 of this procedure and page 3 of the Protective Action Flow Diagram (Attachment 303-B1) to assess ingestion pathway protective actions.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

6.0 Protective Action Recommendations - Relocation

The main protective actions for reducing exposure of the public to deposited radioactivity are relocation, decontamination, shielding, time limits on exposure, and control of the spread of surface contamination. Relocation is the most effective, and usually the most costly and disruptive. The other protective actions are generally applied to reduce the exposure to persons who have not been relocated, or are returned to areas with lower deposition.

The decision to relocate the public from high dose rate areas must be based on exposure rate measurements and dose analyses. Monitoring and dose assessment should be done on an ongoing basis.

6.1 Review the area of plume deposition (footprint). Utilize Department of Energy (DOE) flyover (if available) and field monitoring data.

6.2 Establish a **restricted zone** by identifying those areas where the PAGs for relocation are exceeded. This can be done in one of two ways.

6.3 **Method 1**

This method utilizes the gamma dose rate [.23 mrem/hr] which would give an exposed individual a dose of 2 REM [Relocation PAG] for the first year of exposure. By locating the areas where the gamma dose rate exceeds .23 mrem/hr, a restricted zone can be established and persons relocated from it. This assures that no individual will exceed the 2 REM 1st year PAG.

Due to the conservatism of this approach the restricted zone will likely be much larger than one determined using Method 2. This is due to the fact that Method 1 does not take into account the dose contributions of each individual isotope and the effect of decay and weathering which will normally reduce the dose significantly over time. [With Method 1, the .23 mrem/hr dose rate is assumed to remain constant for the entire year].

6.4 A **buffer zone** should also be established to account for the possible spread of airborne contamination from the restricted zone.

6.5 As environmental sample results become available, use the INGEST program (SOP 303-D) to calculate the projected doses and to adjust the boundaries of the restricted zone accordingly.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

6.6 Method 2

This method utilizes environmental measurements of the actual deposition to calculate the projected dose due to the individual nuclides and their respective activities. This will yield a more precise boundary for the **restricted zone** as it takes into account the change in exposure rate due to decay. It will also require more time to obtain sample results and calculate the projected dose in the sampled locations.

- 6.7** Utilizing aerial and ground survey data, obtain samples which will characterize the magnitude and isotopic composition of the contamination.
- 6.8** Using the INGEST program (SOP 303-D), calculate the projected dose from deposited material. Air sample data may also be used (if available) to obtain a dose from resuspended material. This should be added to the dose from deposited material, to obtain a total dose to compare to the PAG.
- 6.9** Determine a restricted zone and buffer zone based on these results.
- 6.10** Transmit the Protective Action Recommendation to the Director of the DEMA.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

7.0 Protective Action Recommendations - Ingestion Pathway

The objective of the following procedures is to describe the methods for formulating protective action recommendations for the control of milk, food and water following an accidental release from a nuclear power plant. It is assumed that the sampling and monitoring for the ingestion pathway has been initiated and that some samples have been analyzed.

In order to minimize the radiation dose to the public from the ingestion of contaminated food and water, Protective Action Guides (PAGs) have been defined by the Food and Drug Administration (FDA) [See reference 1]. These are presented in SOP 303-A2 and apply to all three pathways presented here [milk, food and water]. The following procedures will treat each pathway separately.

8.0 Protective actions for the milk pathway

The air-pasture-cow-milk pathway is the mechanism by which milk is contaminated. Due to the geographical nature of the milk shed, the potential to expose the public via contaminated milk may extend many miles from the power plant. Because of the large area encompassed in the milk shed, and the concentrating of certain nuclides in milk during the cow's metabolic processes, the total population dose via the milk pathway may be 400 - 700 times that of the inhalation dose.

Iodine-131 is identified as the nuclide of major concern relative to the milk pathway. Because radioiodine is deposited in the thyroid, the thyroid is the critical organ. Because of the relative size of the thyroid and thyroid uptake, the infant is the critical segment of the population. Therefore, unless the release is atypical, iodine will be the primary radionuclide present in milk.

- 8.1** Obtain samples to be analyzed for use in determining actual or potential milk contamination.
- 8.2** Input the isotopic concentrations into the INGEST program (SOP 303-D).
- 8.3** Evaluate the results with regard to the PAGs.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

8.4 Consider the following actions for samples exceeding the PAGs.

8.4.1 IF PAGs ARE EXCEEDED:

1) For Pasture:

Remove lactating dairy cows from contaminated pasture and substitute uncontaminated stored feed. Substitute source of uncontaminated water.

2) For Milk:

Consider whether condemnation or other disposition is appropriate.

Withhold contaminated milk from the market to allow radioactive decay of short-lived radionuclides. For example:

Storage of frozen fresh milk

Storage of frozen concentrated milk

Storage of frozen fresh concentrated milk products

Diversion of fluid milk for production of dry whole milk, nonfat dry milk, butter, cheese, or evaporated milk

8.5 Transmit Protective Action Recommendations to the DEMA Director on the Protective Action Recommendations Form (SOP 303 - B2).

9.0 Protective actions for non-dairy food

9.1 Obtain samples to be analyzed for use in determining contamination levels. Samples must be obtained for each type of food with potential for contamination and for which protective actions are possible.

9.2 Input the isotopic concentrations into the INGEST program (SOP 303-D).

9.3 Evaluate the results with regard to the PAGs.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

9.4 Consider the following actions for samples exceeding the PAGs.

9.4.1 IF PAGs ARE EXCEEDED:

Isolate food containing radioactivity to prevent introduction into commerce.

Consider whether condemnation or other disposition is appropriate.

For Fruits and Vegetables:

Washing, brushing, scrubbing, or peeling to remove surface contamination.

Preservation by canning, freezing, and dehydrating or storage to permit radioactive decay of short-live radionuclides.

For Grain:

Milling and polishing

Permit grains to grow to maturity and then harvest

For Other Food Products:

Processing to remove surface contamination.

Place meat animals on uncontaminated stored feed and covered water

9.5 Transmit Protective Action Recommendations to the DEMA Director on the Protective Action Recommendations Form (SOP 303 - B2).

10.0 Protective actions for water

10.1 Obtain samples to be analyzed for use in determining contamination levels.

10.2 Input the isotopic concentrations into the INGEST program (SOP 303-D).

10.3 Evaluate the results with regard to the PAGs.

10.4 Consider the following actions for samples exceeding the PAGs.

10.4.1 IF PAGs ARE EXCEEDED:

Substitution of bottled water and/or soft drinks.

Use of water in tanks filled prior to contamination.

Use of uncontaminated water brought in from outlying communities/areas not impacted by the radiological emergency.

Use of chemically treated water.

**SOP 303 - B PREPARATION OF PROTECTIVE ACTION RECOMMENDATIONS
(continued)**

10.4.1 IF PAGs ARE EXCEEDED: (continued)

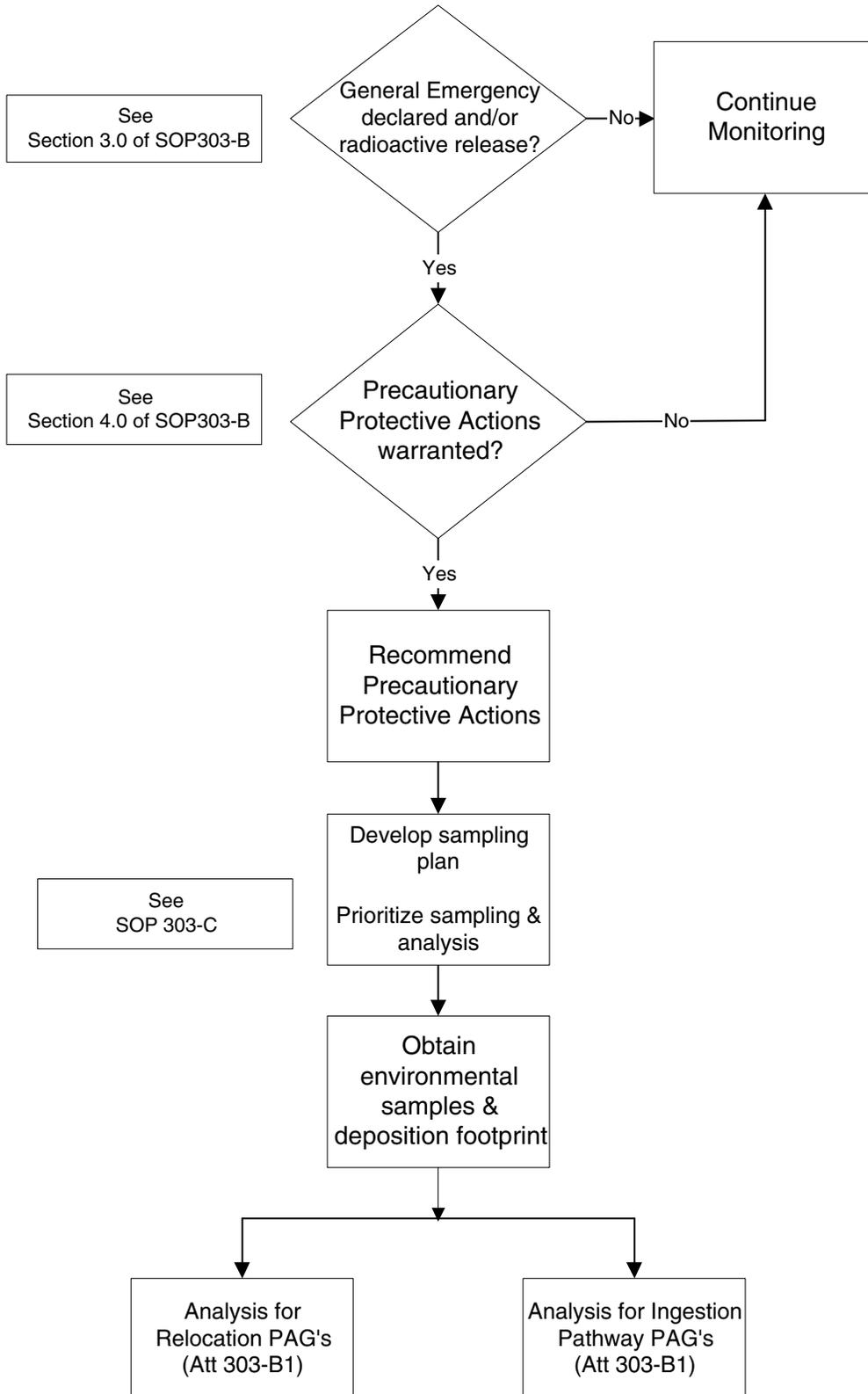
Close the intake from a contaminated river or lake water supply, to allow diversion and use of only uncontaminated water supplies in the system.

Draw water from least contaminated reservoir levels since radionuclides may not be homogeneously mixed in large reservoirs.

Chemically treat raw water at the treatment facility to reduce radionuclide concentrations to an acceptable level.

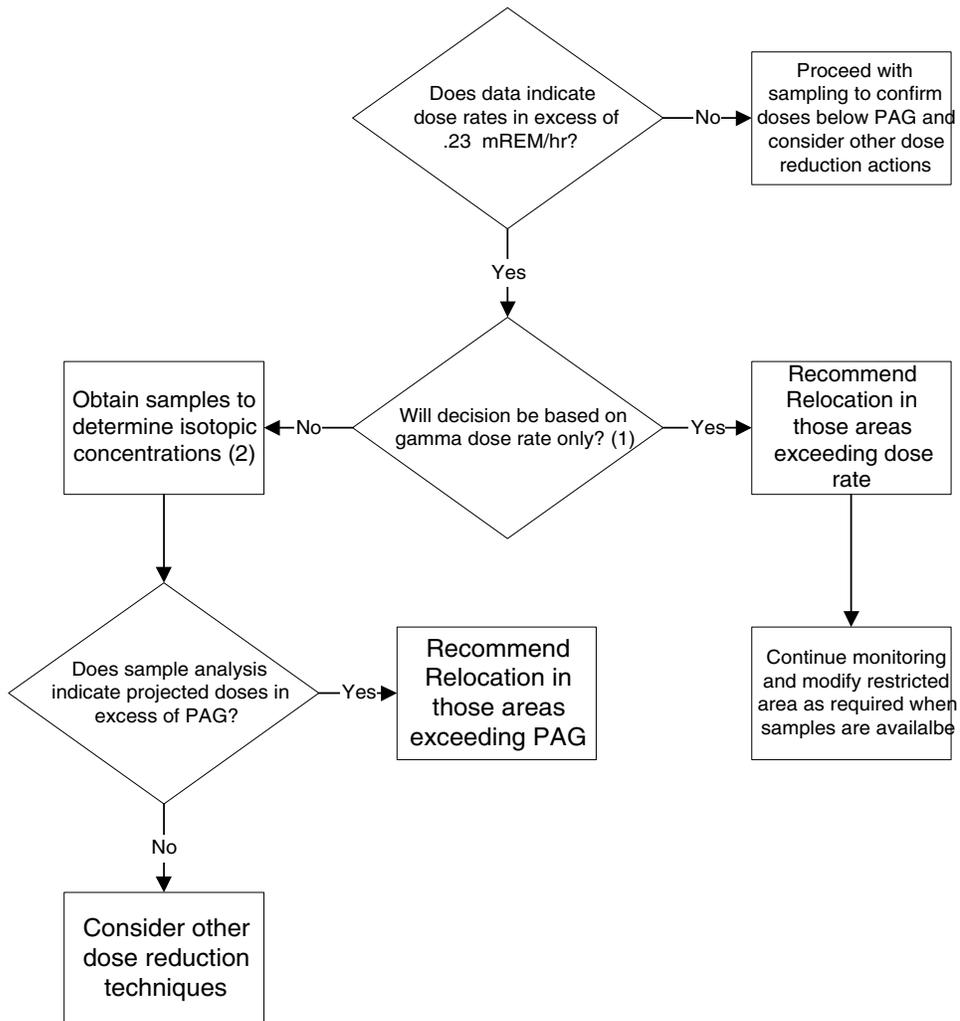
- 10.5** Transmit Protective Action Recommendations to the DEMA Director on the Protective Action Recommendations Form (SOP 303 - B2).

ATTACHMENT 303-B1
PROTECTIVE ACTION FLOW DIAGRAM
(page 1 of 3)



ATTACHMENT 303-B1
PROTECTIVE ACTION FLOW DIAGRAM
(page 2 of 3)

RELOCATION

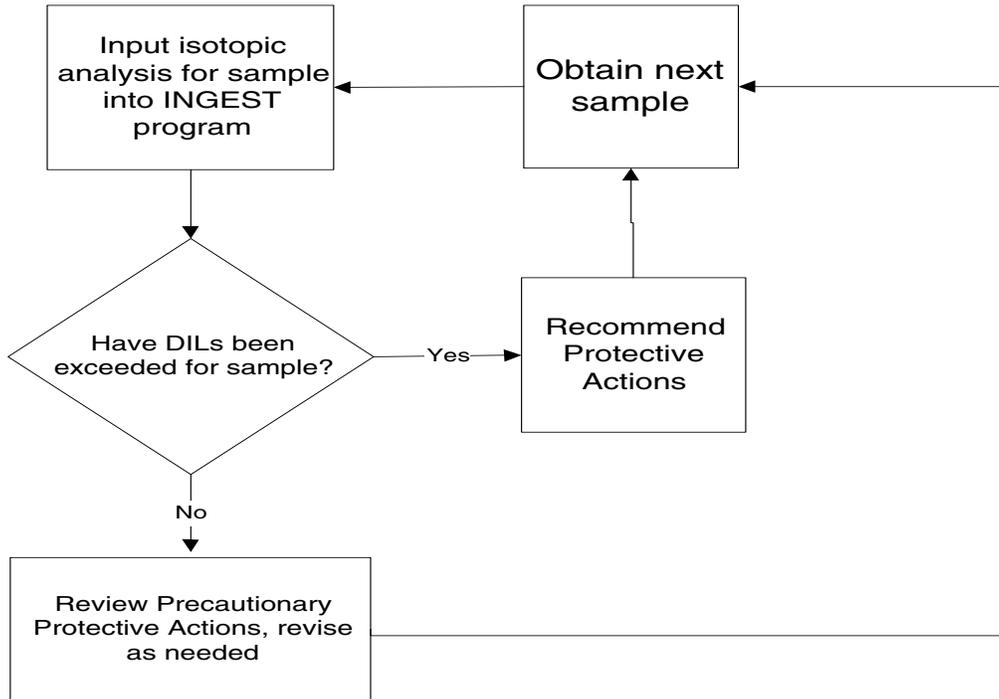


NOTES: **1) Method 1 - SOP 303-B, page 10**

2) Method 2 - SOP 303-B, page 11

ATTACHMENT 303 B1
PROTECTIVE ACTION FLOW DIAGRAM
(page 3 of 3)

INGESTION



SECTOR

<u>Protective Actions</u> <u>(continued)*</u>	N	NN E	NE	EN E	E	ESE	SE	SSE	S	SS W	S W	WS W	W	WN W	N W	NNW
Washing, brushing, scrubbing, or peeling vegetables to remove surface contamination																
Preservation of vegetables by canning, freezing, and dehydration or storage to permit radioactive decay																
Milling and polishing grains																
Close the intake from a contaminated river or lake water supply																
Draw water from least contaminated reservoir levels																
Chemically treat raw water at treatment facilities to reduce concentrations to an acceptable level																
Withholding of contaminated milk from the market to allow radioactive decay of short lived radionuclides																

***Enter the distance beside the Protective Action under the desired Sector**

**ATTACHMENT 303-B2
 PROTECTIVE ACTION RECOMMENDATIONS FORM
 (INGESTION PATHWAY)**

Sector

<u>Protective Action*</u>	N	NN E	NE	EN E	E	ESE	SE	SSE	S	SS W	S W	WS W	W	WN W	N W	NNW
Isolate food containing radioactivity to prevent introduction into commerce (specify below)																
1)																
2)																
3)																
4)																
5)																
Condemnation of food products. (specify below)																
1)																
2)																
3)																
4)																
5)																

***Enter the distance beside the Protective Action under the desired Sector**

SOP 303 - C DEVELOPMENT OF MONITORING & SAMPLING PLANS

- 1.0 This procedure provides guidance to the TAC for the development of monitoring and sampling plans to obtain information about the extent and magnitude of radiological contamination in the environment. This information is required to project the dose to the public from exposure to radionuclides and determine whether or not protective actions are required.
- 2.0 The monitoring and sampling plan should address the two pathways for which PAGs have been established, relocation and ingestion.
- 3.0 Emergency monitoring of deposited radioactivity should first be directed toward defining the boundaries of the contaminated areas. This is also called the plume "footprint". This can be defined by requesting and obtaining a flyover as part of Federal assistance. This can be used to define the area and magnitude of the contamination. This should be supplemented with ground based field measurements to refine the aerial information and to locate "hot spots" which may be missed by air based detection systems.
 - 3.1 Monitoring and sampling to define the plume footprint should include the measurement of dose rates (gamma) at 1 meter, soil sampling and the measurement of airborne contamination to determine resuspension.
 - 3.2 Monitoring and sampling should continue across the plume footprint and downwind until no contamination is found.
- 4.0 Once the affected area is defined, a detailed sampling plan should be developed to obtain samples that can be analyzed to determine doses for specific pathways and can therefore be compared to Protective Action Guides. This plan should take the following factors into consideration:

Time of year: The types and number of crops affected will vary widely with the time of year. The Department of Agriculture and other agencies involved in agriculture should be consulted during this process so that sampling can be prioritized based on harvesting schedule, type etc.

Type and duration of the release: Preliminary data should be available from samples gathered during or shortly after the release to determine the principal isotopes released. The longer the duration of the release, the greater area which is likely to be affected due to dispersion and variations in the wind direction.

Rainfall: Rainfall which occurs during a release can wash significant amounts of radioactive material to the ground. This may alter the relationship of contamination and distance.

Personnel available for sampling: The number of personnel available at a given time will affect the numbers of samples which can be obtained. If few personnel resources are available, sampling will have to be closely monitored and prioritized.

Number of farms: This will vary greatly with the time of year and the location of the contamination.

SOP 303 - C DEVELOPMENT OF MONITORING & SAMPLING PLANS

- 5.0 Determine contamination levels in food, milk and water.
 - 5.1 Sample in all areas affected by deposition. Some samples should be taken outside the contaminated areas. Do minimal sampling in the restricted zone.
 - 5.2 Take forage samples to determine possible milk contamination as radioisotopes in milk will take days to peak.
 - 5.3 Consider market level monitoring to confirm the effectiveness of protective actions.

6.0 Sampling Plan Outline

- 6.1 Use the following as general guidance for sampling plan content.

Data needs and rationale

What information/data is required

Establish priority of data needs

Available resources

State, Federal, utility

Outline resources available from each

Description & Assignments

Sampling assignments

What type of samples will be taken

Where will sampling be done

SOP 303 - D OPERATION OF THE INGEST PROGRAM

- 1.0 The INGEST computer program will be used to convert environmental field sample data into radiation doses. These doses will be compared to the Protective Action Guides to determine what, if any, protective actions for the ingestion pathway and relocation concerns are required.
- 1.1 Refer to the INGEST users manual [reference 5] for information on starting and operating the program.
- 1.2 The sample type should be chosen from the INGEST main menu. The four sample types on the left side will be used for initial evaluation of field samples.
- 1.3 After a sample type has been chosen the user must input specific sample information on the sample analysis screen.
- 1.4 The sample ID# will be used to identify the sample as well as name the file under which the data will be stored.
- 1.5 Use the following convention to determine the sample ID#. Use the 4 or 5 letter ID for the specific type of sample and sequentially number multiple samples of that type. For example, the first produce sample would be designated "Prod001".

SAMPLE TYPE	SAMPLE ID
Soil (relocation)	SRELO
Soil (skin)	SSKIN
Milk	MILK
Fresh produce	PROD
Fresh leafy vegetables	VEG
Water	WATER
Air (resuspension)	AIR

- 1.6 The sample locations field should be used to describe the location (i.e. Jones Farm) as well as note map grid coordinates or longitude and latitude.
- 1.7 When the data input is complete, calculate the results, and print the results screen(s) for analysis by the TAC.

SOP 303 E

**INTEGRATION OF FEDERAL ASSISTANCE DURING THE POST EMERGENCY PHASE
[INGESTION AND RELOCATION]**

- 1.0** The purpose of this procedure is to outline the integration of federal assistance with the assessment activities of the Technical Assessment Center (TAC) as it relates to the post emergency phase of a nuclear power plant incident.
- 2.0** The State of Delaware, through the Delaware Emergency Management Agency (DEMA), can request assistance from various federal agencies in the event of a radiological emergency. This federal assistance is available through the activation of the National Response Plan (NRP). The State of Delaware has the primary responsibility for the protection of the public during a radiological emergency. The NRP describes the assets available to support State response activities as well as the coordination between the federal agencies and the State.
- 3.0** A Federal Radiological Monitoring and Assessment Center [FRMAC] will be established following the State's request for assistance. A FRMAC Advance Party will be deployed to prepare for the arrival of the FRMAC Main Party and to ensure an effective and timely FRMAC operation in support of the State. [Details of the FRMAC are presented in the DOE document "Overview of FRMAC Operations"].
- 4.0** Following the request for federal assistance the DEMA Director, in consultation with the TAC Chairperson, should begin to outline the integration of the FRMAC with the State response. Identify the contact individual from the FRMAC to coordinate initial activities.
- 5.0** Use the FRMAC Advance Party Meeting Checklist [Attachment 303 E1] as a guide. An initial meeting with the FRMAC Advance Party should be coordinated as soon as practical after their arrival. The DEMA Director and/or the TAC Chairperson should use Attachment 303-E1 to direct this meeting.

Attachment 303 E1

DEMA/FRMAC Advance Party Meeting Checklist

	TOPIC	RESPONSIBLE ORGANIZATION(S)	COMMENTS	√
A	Introduction of participants	All	name & organization only	
B	Status of Emergency	LFA/Utility		
	Has release terminated?	LFA/Utility	make sure these questions are answered	
	Estimate of source term	LFA/Utility		
	Dominant isotopes	LFA/Utility		
	Onsite monitoring	LFA/Utility		
	Offsite monitoring	DEMA		
	Meteorology	DEMA		
C	State Response	DEMA		
	Who is state decisionmaker?	DEMA		
	Protective actions taken	DEMA		
	Protective actions pending	DEMA		
	Problem areas	DEMA		
D	FRMAC Director's Briefing	FRMAC Director		
E	Integration of Personnel	DEMA Director		
	Establish liaisons			
	Locations			
F	Other			

NOTES: _____

**SOP 303 E - INTEGRATION OF FEDERAL ASSISTANCE DURING THE POST
EMERGENCY PHASE [INGESTION AND RELOCATION]
(continued)**

- 6.0** The TAC Chairperson should identify individuals for the roles below. The TAC Chairperson may modify, add or subtract personnel as the response requires. Fill in names and add personnel as required on Attachment 303 E2.

- 7.0** Following the FRMAC Advance Meeting, the TAC Chairperson should utilize the TAC Chairperson Initial Meeting Checklist (Attachment 303 E3) to initiate assessment activities.

Attachment 303 E2 - Technical Assessment Center Personnel for the Post Plume Phase

Function	Individual
TAC Chairperson(s)	
Assessment Coordinator	
Field Monitoring Coordinator	
Laboratory Coordinator	
Computer Analysts	
Agricultural Representative(s)	
Data Recorder	
Administrative Support	
Utility Representative	
NRC Representative	
DOE Representative	
EPA Representative	

Attachment 303 E3

TAC Chairperson Initial Meeting Checklist

	ITEM	COMMENTS	√
1	Introductions		
2	Review events to date		
	Plant condition		
	Accident timeline		
	Release timeline		
	Magnitude		
	Affected area		
3	Outline goal(s) & product(s)		
	Evaluate current field data		
	Develop sampling plan (SOP 303 - C)		
	Evaluate sample data (SOP 303 - D)		
	Develop protective actions (SOP 303 - B)		
	Present recommendations		
4	Assign tasks to individuals		

NOTES: _____

SOP 304 – PLUME PATHWAY DOSE PROJECTIONS

1.0 OBJECTIVE

This procedure provides the methods and guidance to perform dose projection calculations in response to accidental airborne radiological releases from the Salem-Hope Creek Generating Stations. This procedure provides guidance for operation of the MIDAS program, which is the primary projection method. Backup dose projection capability is provided by the use of a second computer with the MIDAS program. Also included is a procedure for adjusting the default ratio of noble gas to iodine ration used by the MIDAS program and a procedure for calculating iodine concentration and dose from an air sample.

2.0 CONTENTS

SOP 304-A, Operation of the MIDAS Program

SOP 304-B, Noble Gas-Iodine Ration Correction Procedure for MIDAS Program

SOP 304-C, Analysis of Air Samples for the Early Phase

3.0 PREREQUISITES

3.1 The TAC organization has been activated

3.2 The TAC has requested dose projection calculations and/or data

4.0 REFERENCES

4.1 USNRC Reg. Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants", U.S. Nuclear Regulatory Commission, February 1983

4.2 "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA 400-R-92-001, May 1992

4.3 "Response Technical Manual – RTM-96", U.S. Nuclear Regulatory Commission, Vol. 1, Rev. 4, March 1996

5.0 ATTACHMENTS

304-A1, Plant Release Points and Monitors

304-C1, Iodine Sample Calculation Form

6.0 RECORDS

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by DEMA Technical/Administrative Support for historical files.

SOP 304-A: OPERATION OF THE MIDAS PROGRAM

- 1.0 TAC computer support personnel will utilize the MIDAS program to perform dose assessment for actual or projected radiological releases.

Refer to the Midas operation folder (located in the TAC near the Midas computer) for specific operating instructions.

The following information will assist the operator in using the MIDAS program and apply to most screens.

- 1.1 Holding the CTRL (control) key and the C key simultaneously will cause the MIDAS program to cease and will return the user to the Function Selection Screen. It will also result in the loss of all dose calculations done to that point.
 - 1.2 The mouse will be utilized to navigate through the program by moving the cursor and selecting the appropriate option. Placing the cursor (+) in the desired selection box and clicking the left side mouse button will select options.
 - 1.3 Positioning the cursor over the RESET box and clicking the mouse once will return the user to the previous screen.
 - 1.4 Positioning the cursor over the CONFIRM box and clicking the mouse once while one or more selection boxes are highlighted will cause the box(es) to return to their normal status (no longer highlighted) and cause the data displayed in the box(es) to be erased.
 - 1.5 Positioning the cursor over the CONFIRM box and clicking the mouse once with no selection boxes highlighted will move the user to the next screen (in most cases).
 - 1.6 Use the PRINT SCREEN key to print out a screen or map when desired.
 - 1.7 Press the Q key and then the ENTER key to exit the program.
- 2.0 The MIDAS program will be used in the **manual entry mode** by the TAC. PSEG will provide the input data necessary. Utilize the procedure below to perform dose assessment calculations.
- 2.1 Power up the computer per instructions in the Midas operations folder. Double click on the Midas icon. This will start the Midas program.
 - 2.2 MIDAS will prompt for the date. Press the ENTER key if the date is correct or type in the current date. A similar prompt for the time will appear. Enter the time in conventional format (not military format).
 - 2.3 The MIDAS Unit Selection screen will appear. Position the cursor (+) symbol over your selection and click the mouse button once. The selection will become highlighted.

SOP 304-A: OPERATION OF THE MIDAS PROGRAM (Continued)

- 2.4 Position the cursor over the **CONFIRM** box and click the mouse once. The Function Selection screen will appear.
- Note: Most selections will be made in this manner, by choosing the desired box and confirming the choice with the CONFIRM box. For purposes of this procedure, the term “choose” will be used to indicate that the desired box should be highlighted using the mouse and confirmed by clicking on the CONFIRM box.*
- 2.5 Choose the **ACCIDENT DOSE CALCULATIONS (AC)** box on the Function Selection screen.
- 2.6 Choose the **MANUAL ENTRY SPREADSHEET (MENU C)**. The Scenario Data Table Control screen will appear.
- 2.7 If this is the first input for a release, choose the **START NEW SCENARIO** box. If an ongoing release is being assessed, choose the **CURRENT SCENARIO EDIT** box.
- 2.8 The Meteorological Spreadsheet will now appear. Fifteen minute meteorological data will be input on this screen. Use Attachment A1 to record information as needed.
- 2.9 The current time will be highlighted on this screen. Use the arrow keys to navigate through this screen.
- 2.10 Move the blue rectangle down the column marked SPD33P (MPH) until it is next to the current time, which is highlighted. This is the entry point for the wind speed (in miles per hour) at the 33 foot level. Input the appropriate data and press the ENTER key.
- 2.11 Using the right arrow key, move the blue rectangle to the SPD300 (MPH) column and enter the appropriate data for the 300 foot wind speed (in miles per hour) and press the ENTER key.
- 2.12 Move the blue rectangle to the DIR33P (DEG) column and input the appropriate data for the 33 foot elevation wind direction and press the ENTER key. The wind direction should be input in degrees “from”.
- 2.13 Move the blue rectangle to the TEM33 (DEG C) column and input the appropriate data for the ambient temperature (in degrees C) and press the ENTER key. Note that this number must be input to complete the screen but is not used in the program.
- 2.14 Move the blue rectangle to the DT300 (DEG C) column and input either the stability class (A, B, C, D, E, F, G) **or** the delta temperature between the 33 foot and 300 foot levels. MIDAS will accept either form. Press the ENTER key when finished. Note: If entering stability class, MIDAS will immediately convert this to the equivalent numerical value.
- 2.15 Move the blue rectangle to the RAINFL (IN/15 MIN) column and input one of the following single letters/numbers to indicate rainfall at the site in the last 15 minute period. H - heavy, M - moderate, L - light, 0 - no rain. Press the ENTER key.

SOP 304-A: OPERATION OF THE MIDAS PROGRAM (Continued)

- 2.16 This completes the necessary meteorological data input. If all inputs are correct press the X key to move to the next screen. If any of the data requires modification use the arrow keys to correct the data.
- 2.17 The Gaseous Vent and Flow screen will now appear. This screen will be used to input the release rates for the various release points. Note that this spreadsheet is larger than the screen and that some of the columns are not visible on the initial screen. Use the arrow keys to move through the complete spreadsheet.
- 2.18 Note that not all release points will have a release rate associated with them for a given accident scenario. Using the arrow keys, input data in the column for the desired release point. Use Attachment A2 as a guide. Numbers may be input in exponential notation, i.e. 1.0E5. If the number input is outside the range of the monitor or flow rate for that particular point MIDAS will indicate that an illegal value has been input and will request a correction.
- 2.19 When all of the inputs are satisfactory, press the X key to move to the next screen.
- 2.20 The DBA Accident Type Selection screen will now appear with the UNKNOWN MIX box highlighted. CONFIRM this selection. Screen will not change immediately. Note that a caution screen will appear with the following message: **Warning - source is zero for selected point(s) . . .** Click on the continue button.
- 2.21 The Release Timing Selection screen will appear. Select the **REMAINING DURATION (MIN)** box. A pop-up screen will appear in the upper right-hand corner of the screen. Use the mouse to select the desired number. Use 240 minutes for the default release duration of 4 hours or if the duration is unknown. This value will be used for each calculation. Select the **EN** box to enter the number. If a correction is required choose the **CL** box to clear the display and re-select as required. This value will appear in the **REMAINING DURATION** box. Confirm these choices.
- 2.22 MIDAS will begin to perform the dose assessment calculations. Rad Monitor Channel Data sheet will appear with the release information. Click on the continue button. The calculations may take several minutes
- 2.23 When the calculations are complete the 10 mile EPZ map will appear on the screen. The Station Status Checklist will print at this time. Other reports can be accessed at this time.
- 2.24 If desired, another dose projection calculation can be performed by choosing the EXIT box. This will return to the Function Selection screen. Proceed to 2.5 to continue. Click the mouse twice over the EXIT box to exit MIDAS completely.

ATTACHMENT 304-A1

PLANT RELEASE POINTS AND MONITORS

SALEM UNITS 1 & 2			
Monitor	Units	Range	Max Flow Rate (CFM)
R41C	CPM	10 to 1E6	125,000
R45B	uCi/cc	1.5E-2 to 1.5E2	125,000
R45C	uCi/cc	1.5E2 to 1E6	125,000
R44A & B	R/hr	1 to 1E7	-
R46A-D	mR/hr	1 to 1E4	-

R41C - Plant Vent Monitor
 R45B & C - Plant Vent Monitors (mid and high range)
 R44A & B - Containment Monitors
 R46 - Steam Line Monitors

HOPE CREEK			
Monitor	Units	Maximum Value	Max Flow Rate (CFM)
NPV-P	uCi/cc	1E-6	41,900
NPV-I	uCi/cc	1E-5	“
NPV-NG	uCi/cc	1.02E5	“
SPV-P	uCi/cc	1E-6	*
SPV-I	uCi/cc	1E-5	*
SPV-NG	uCi/cc	1.02E5	*
FRVS-NG	uCi/cc	1.02E5	9000
HTV-NG	uCi/sec	1E12	25000

*Flow rates for SPV are 300600 (winter) and 448100(summer)

NPV = NORTH PLANT VENT
 SPV = SOUTH PLANT VENT
 FRVS = FILTRATION, RECIRCULATION & VENTILATION SYSTEM
 HTV = HARDENED TORUS VENT

SOP 304-B: NOBLE GAS-IODINE RATIO CORRECTION PROCEDURE FOR MIDAS PROGRAM

The MIDAS dose projection program utilizes a default ratio of 1000:1 for the Noble Gas to Iodine ratio in its calculations. The following procedure permits the TAC dose assessment group to utilize actual ratio data (Plant Vent Isotopic Sample results) in the MIDAS program to provide more accurate dose projections.

- 1.0 Obtain the Plant Vent Isotopic Sample results from the Radiation Support Manager (RSM) through the EOF staff, after a radiological release has started.
Note: It will take approximately 30 minutes to one (1) hour after release has started for these results to be available.
- 2.0 Perform the following calculation to obtain the Iodine Correction Factor (ICF):

$$\frac{\text{Dose Equivalent Iodine (DEI) Value in uCi/cc}}{\text{Plant Vent R45 Value in uCi/cc}} = \text{ICF}$$

- Notes:*
1. Use the Dose Equivalent Iodine (DEI) value (or I131 value) from the Isotopic Mix Data Sheet obtained from the utility.
 2. Use the Plant Vent R45 value from the Dose Assessment Data Sheet or from the SPDS terminal, obtained from the utility. Initially use the R45B (Mid-Range Noble Gas Effluent Monitor) value or the R45C (High-Range Noble Gas Effluent Monitor) value as appropriate. Refer to Attachment 304-A1 for Release Point and Monitor Range and Maximum Flow Rate information.

- 3.0 Multiply the most current R45 Noble Gas value in uCi/cc by the ICF.

ICF x R45 Noble Gas value = Corrected Iodine Value (CIV).

- 4.0 Input appropriate data into MIDAS. Input the CIV value under R45 - DI header on the MIDAS Manual Spreadsheet (MENU C) and input the current Plant Vent flow rate under the R45 - DI cfm.
- 5.0 Continue to follow steps 2.0 and 3.0 to obtain the correct iodine value and input the value in accordance with step 4.0.

SOP 304-C: ANALYSIS OF AIR SAMPLES FOR THE EARLY PHASE

1.0 OBJECTIVE

This procedure describes the analysis of field monitoring data resulting from the counting in the field of iodine samples drawn within the plume. This procedure only provides a quick estimate of the plume composition and will be supplemented by detailed lab analysis of the sample media.

2.0 ANALYSIS OF IODINE SAMPLES

- 2.1 The Data Analysis Coordinator will direct the initial analysis of sample media from the Field Monitoring Teams.
- 2.2 The Data Analysis Coordinator should obtain a completed copy of Attachment 306-B1 (Radiological Sampling Form), pages 1 & 2, from the Field Monitoring Coordinator.
- 2.3 Fill in the appropriate areas of the Iodine Sample Calculation Form utilizing the information from Attachment 306-B1.
- 2.4 Calculate the iodine concentration using EQUATION 1. Place this number on line 6 of the Iodine Sample Calculation Form.
- 2.5 Determine the number of hours from reactor shutdown to sample collection. Round to the nearest hour.
- 2.6 Using the number of hours since shutdown, find the appropriate Dose Conversion Factor (DCF) in Table 1. Place this number on line 7 of the Calculation Form.
- 2.7 Calculate the Iodine dose rate using EQUATION 2. Place this number on line 8 of the Calculation Form.
- 2.8 Determine the anticipated or known release duration. Place this number on line 9 of the Calculation Form.
- 2.9 Multiply the Thyroid dose rate (8) with the release duration (9) to obtain the Thyroid dose in millirem.
- 2.10 The Thyroid dose can be used to make Protective Action Decisions as necessary.

ATTACHMENT 304-C1

IODINE SAMPLE CALCULATION FORM

Sample time (minutes)	(1)	SOP 306-B1, pg.1, C1	Field
Average flow rate (CFM)	(2)	SOP 306-B1, pg.1, C2	Field
Sample volume (cubic feet)	(3)	(#1) x (#2)	Calculate
Sample volume (cubic centimeters)	(4)	(#3) x (2.8E4)	Calculate
Net sample counts (CPM)	(5)	SOP 306-B1, pg.2, C1	Field
Iodine concentration	(6)	See equation 1	Calculate
Hours since reactor shutdown			Round to nearest hour
Dose Conversion Factor (DCF)	(7)	From Table 1	
Thyroid dose rate	(8)	See equation 2	Calculate
Release duration (hours)	(9)		
Thyroid dose (millirem)		(#8) x (#9)	Calculate

EQUATION 1

$$\text{Iodine Concentration (uCi/cc)} = \frac{\text{Net Sample Counts (\#5)} \times 4.5\text{E-7}}{.002 \times \text{Sample volume (\#4)}}$$

EQUATION 2

$$\text{Thyroid dose rate (mRem/inhalation hour)} = \text{Iodine Concentration (\#6)} \times \text{DCF (\#7)}$$

ATTACHMENT 304-C1
 (Continued)

TABLE 1

Dose Conversion Factors (DCF)

Hours	DCF		Hours	DCF
0	2.15E+08		25	7.16E+08
1	2.70E+08		26	7.28E+08
2	3.16E+08		27	7.39E+08
3	3.54E+08		28	7.50E+08
4	3.84E+08		29	7.61E+08
5	4.11E+08		30	7.71E+08
6	4.34E+08		31	7.82E+08
7	4.55E+08		32	7.92E+08
8	4.75E+08		33	8.02E+08
9	4.93E+08		34	8.12E+08
10	5.11E+08		35	8.22E+08
11	5.27E+08		36	8.31E+08
12	5.43E+08		37	8.41E+08
13	5.59E+08		38	8.50E+08
14	5.74E+08		39	8.59E+08
15	5.88E+08		40	8.68E+08
16	6.03E+08		41	8.77E+08
17	6.16E+08		42	8.86E+08
18	6.30E+08		43	8.94E+08
19	6.43E+08		44	9.03E+08
20	6.56E+08		45	9.11E+08
21	6.68E+08		46	9.19E+08
22	6.81E+08		47	9.27E+08
23	6.93E+08		48	9.35E+08
24	7.05E+08			

Dose Conversion Factor

$$\frac{\text{mRem}}{\text{(uCi) (cm}^{-3}\text{) (hr)}}$$

SOP 306: FIELD MONITORING AND SAMPLING FOR THE PLUME PHASE

1.0 OBJECTIVE

This procedure provides the methods used for radiological monitoring and air sampling within the 10-mile Emergency Planning Zone (EPZ) for the plume or early phase.

2.0 CONTENTS

SOP 306-A: Field Monitoring Team Deployment Procedures

SOP 306-B: Radiological Survey and Air Sampling Procedures

SOP 306-C: Environmental TLD Retrieval

3.0 PREREQUISITES

3.1 The TAC organization has determined the need for field monitoring.

3.2 The TAC has selected survey locations and/or routes based on initial dose assessment results, weather, road conditions, and population.

3.3 The TAC has requested the Delaware National Guard field monitoring teams to obtain radiological data and samples at identified locations and provide results to the TAC.

4.0 REFERENCES

4.1 FEMA REP-2, Guidance on Offsite Emergency Radiation Measurement System, Phase 1, Airborne Releases, Rev. 2, June 1990.

4.2 EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, May 1992.

4.3 NUREG/CR-5212, Emergency Environmental Sampling and Analysis for Radioactive Material Facilities, August 1988.

5.0 ATTACHMENTS

306-A1, Field Monitoring Team Briefing Form

306-A2, DNG Field Monitoring Team Pre-Deployment Briefing Comprehensive Checklist

306-A3, Pre-Deployment Checklists

306-A4, Field Monitoring Team Instruction/Message Form

306-A5, Field Team Dosimeter LOG

306-B1, Field Monitoring Team Sample Routes and Locations

306-B2, Plume Survey Form

306-B3, Radiological Air Sampling Form

5.0 ATTACHMENTS (Continued)

306-B4, Air Sample Analysis Form

306-B5, Ambient Radiation Reading Form

306-B6, Sample Custody Form

306-C1, TLD Data Tag

306-C2, Monitoring Locations

306-D, Exercise Controller-Air Monitoring and Sampling Teams

306-D1, DNG Air Monitoring and Sampling Communications and Demonstrations Drill Log.

6.0 RECORDS

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by DEMA Technical/Administrative Support for historical files.

SOP 306-A FIELD MONITORING TEAM DEPLOYMENT PROCEDURES

- 1.0** The State Field Monitoring Teams (FMT's) will be utilized by the TAC to collect radiological information in the plume exposure pathway. Teams will consist of three people (when possible). The following duties will be assigned to the FMT members.

Team Leader - Point of contact between the Emergency Operations Center (EOC) and the FMT, in overall control of the team and its activities. Continuously monitors the ambient radiation level and records as appropriate. The team leader will ensure compliance with the necessary procedures.

Sample Coordinator/Communicator - Responsible for obtaining and documenting air and other samples. Monitors and reports dosimetry readings for team members. Maintains radio contact with the EOC.

Driver – Drives vehicle and assist with air sample draw and sample counting procedures.

2.0 PRE-DEPLOYMENT

- 2.1** The team leader(s) will meet with the TAC Field Monitoring Coordinator (FMC) and the Delaware National Guard Liaison Officer (DNG LNO) upon arrival at the State EOC OR will communicate by telephone to obtain specific details of the response and requirements for team deployment.
- 2.2** A briefing (Attachment 306-A1) will be provided to the team members by the TAC FMC at the EOC or by telephone/fax.
- 2.3** Maps, route directions and sampling priorities will be provided for the pre-designated survey routes or sample locations (monitoring routes and locations are listed in Attachment 306-B1). When possible, entry and exit points and routes should be designated to reduce exposure to field team members.
- 2.4** The team members will check calibration dates and perform function checks on the radiological instruments, accessories, and other supportive equipment listed in Attachment 306-A3.

NOTE: The contents of the field monitoring kits are inventoried annually by the DEMA Equipment Technician and, if desired, by members of the Delaware National Guard. The kits shall also be inventoried at the conclusion of any drill, exercise, or emergency. After inventory, the kit containers are then secured with a seal and labeled with the date of the most recent inventory. In the event of a drill, exercise, or emergency an inventory is not required if the seal is intact.

3.0 RADIATION PROTECTION AND PERSONAL DOSIMETRY

- 3.1** If directed by the TAC, each member of the team will don protective gloves and boots or anti-contamination clothing before leaving.
- 3.2** The team members will not eat, drink, or smoke until after they have left the sampling area and have been monitored at a decontamination center.

SOP 306-A FIELD MONITORING TEAM DEPLOYMENT PROCEDURES (Continued)

3.0 RADIATION PROTECTION AND PERSONAL DOSIMETRY (Continued)

- 3.3** Each member of the team will have dosimetry: a dosimeter of legal record (DLR), and self-reading electronic dosimeter. The information for all dosimeters should be recorded on the members' Daily Dose Record Card (SOP 801-B2) and the Permanent Dose Record Card (SOP 801-B3. All items of dosimetry are worn above the waist.
- 3.4** Team members should check their dosimeter reading at 15-minute intervals once they are dispatched by the EOC. The highest reading of any individual on the team will be requested at 15-minute intervals and recorded at the EOC. The team should also record this highest reading of any individual on the team at 15-minute intervals on the Field Team Dosimeter Log (Att. 306-A5).
- 3.5** If the gamma dose rate [closed window] exceeds the turn-back value of 1.25 R/hr, exit the area and contact the EOC for instructions.
- 3.6** See SOP 801 for additional information on personnel protection.

4.0 COMMUNICATIONS

- 4.1** The Team Leader(s), the DNG Liaison and the TAC FMC should determine, prior to deployment, which communication method should be used as the primary method.
- 4.2** Communication between the EOC and the FMT's is outlined in figure 1 below. The DNG LNO will direct communication to and from the FMT's through separate communication channels.
- 4.3** Teams are to report when deploying for a mission, when arriving at the mission site, the result of the sampling/monitoring, progress along designated routes or at least hourly by contacting the EOC by radio or telephone.
- 4.4** In the event of failure of all mobile communications methods teams should use public telephones to contact the State EOC in Smyrna.
- 4.5** The teams will receive instructions from the TAC FMC and updates concerning plant status, meteorological data and protective actions. The teams should copy these instructions/updates on the Field Monitoring Team Instructions/Message Form, Att. 306-A4.

**SOP 306-A FIELD MONITORING TEAM DEPLOYMENT PROCEDURES
(Continued)**

Figure 1

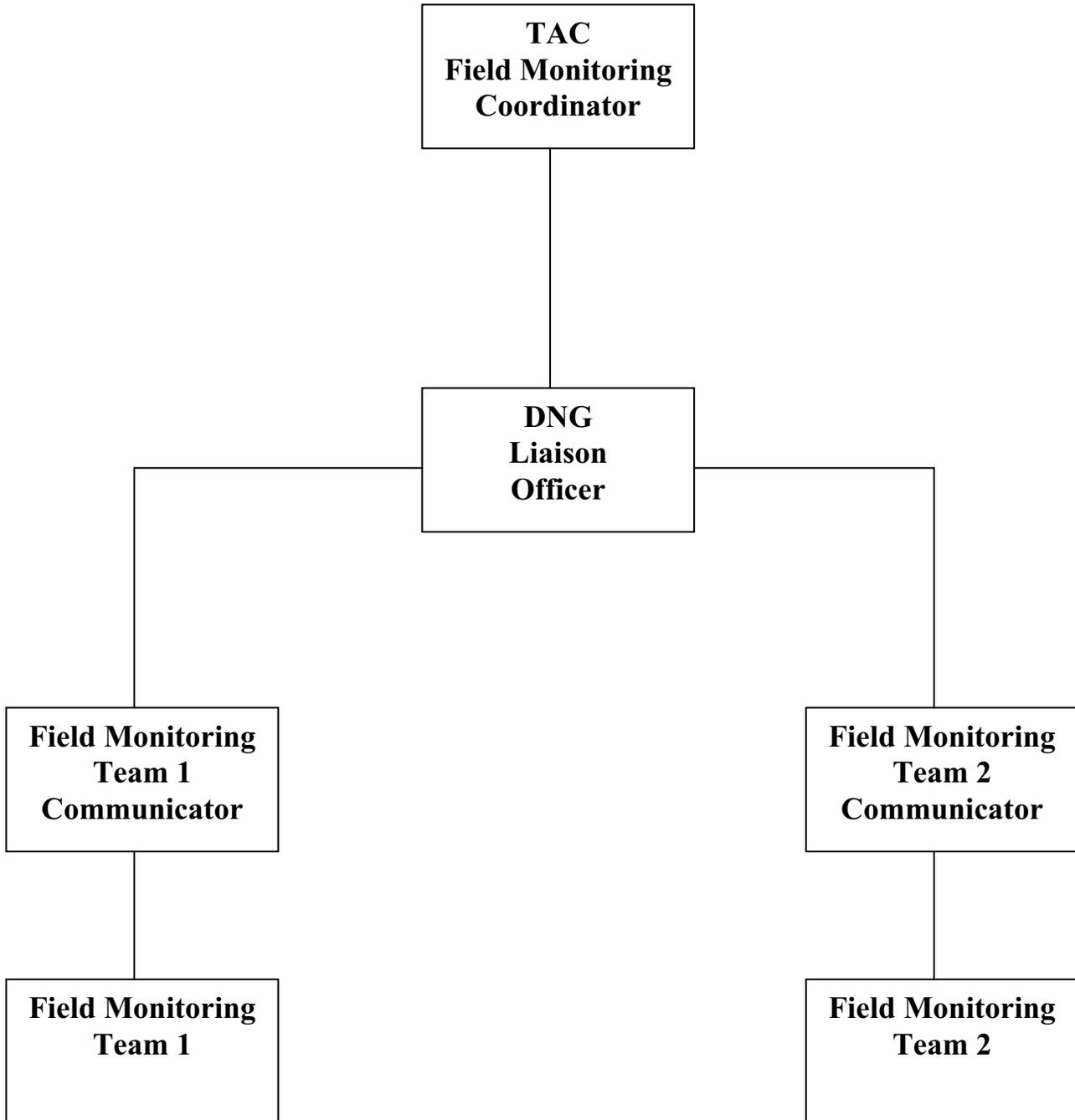


Figure 1

**ATTACHMENT 306-A2
DNG FIELD MONITORING TEAM PRE-DEPLOYMENT
BRIEFING COMPREHENSIVE CHECKLIST**

I. Mission:

- Remind teams of the importance of their mission. Confirm the presence and/or absence of radioactivity in Delaware for the protection of Delaware citizens, livestock and property.

II. Safety

- Stress Safety in the field, especially in adverse weather and road conditions, when maneuvering and performing monitoring and sampling operations by the side of the road.
- Minimize unnecessary alarming of the public.
- Should not disrupt the population in the area.

III. Radiation Safety & Personal Protection

- Know the important radiation threshold readings and what to do when values are reached – refer to Emergency Worker Card SOP 801-B1, SOPs.
 - Reading 1.25 R/hour or more (turn back value) – leave the area, notify EOC.
 - 1.25R – dose limit for the entire emergency, notify EOC.
- Keep radiation exposure to minimum while in the plume and handling samples.
- Avoid cross contamination. Change gloves before handling clean equipment. Do not contaminate clean areas in or on vehicle.
- Remember: Time, Distance, and Shielding in dealing with radiation.
- Do not put on Anti-Cs or take KI unless directed to do so by EOC.
- Do not eat, drink, smoke until monitored by decon at Middletown Readiness Center.
- Read personal dosimeters at 15-minute intervals and record the highest reading of any individual on the team, on Att. 306-A5.

IV. Communication

- Maintain communications log.
- During drills and exercises begin and end all communications with: “THIS IS A DRILL.”
- Use primary communication, as agreed with DNG Communicator.
- Normal “cut-off” of transmissions with the 800MHz radio when transmit key is depressed for long period.

**DNG FIELD MONITORING TEAM PRE-DEPLOYMENT
BRIEFING COMPREHENSIVE CHECKLIST
(Continued)**

V. Maneuvering within EPZ

- Report progress along designated routes.
- Know your location at all times and keep EOC advised of location.
Mark EPZ map when plume is encountered, or the anticipated plume path and wind direction.
- Consult this map when moving to avoid unnecessary plume contact and exposure.

VI. Operations

- Team Members – know your specific duties and responsibilities. You are a TEAM, so you need to help each other as needed.
- Critical to communicate and record accurate: Radiation readings, proper units (uR, mR, R/hr) and times.
- Continually monitor readings from probe outside vehicle.
- Refer to SOPs with questions, or contact EOC
- Refer to Emergency Worker Card SOP 801-B1.
- Ask EOC to clarify any instructions that are unclear.
- Reminder to take precautions against cross - contamination.

VII. Team Assignments

- Give teams their initial mission assignments.
- Any special assignments.
- Any special instructions.

Briefing Given/Transmitted by: _____ Date: _____ Time: _____

Transmitted via: Briefing Telephone FAX

ATTACHMENT 306-A3: PRE-DEPLOYMENT CHECKLISTS

1.0 The following equipment shall be contained within the kit, and operational checks performed prior to leaving the dispatch area.

1.1 AIR SAMPLING EQUIPMENT

ITEM	N	√
Procedures – SOP 306 & SOP 801	2	
Field Monitoring Team Instruction/Message Forms, - Att. 306-A4	30	
Sample Routes - Att. 306 B1	10	
Plume Survey Forms - Att. 306 B2	30	
Radiological Air Sampling Forms - Att. 306 B3	30	
Ambient Radiation Reading Forms – Att. 306-B5	30	
Air Sample Analysis Forms – Att. 306-B4	30	
Sample Custody Forms - Att. 306 B6	30	
County ADC Maps (New Castle and Kent)	2	
EPZ Map with Routes	1	
Clipboard	1	
Logbook	1	
Pens & Pencils	5	
Grease Pencils	2	
Tweezers	1	
Large Sample Bags	20	
Small Sample Bags [probe covers]	20	
Ten Gallon Plastic Bags	10	
Masking/Surgical Tape – roll	1	
Survey Instrument Covers	10	
Plastic Gloves – Box	1	
Chem Wipes/Decon Towelettes - Box	1	
Flashlight with extra Batteries	1	
Small Battery Tester	1	
Stopwatch	1	
Field Team Dosimeter Log – Att. 306-A5	3	

**ATTACHMENT 306-A3: PRE-DEPLOYMENT CHECKLISTS
 (Continued)**

1.2 RADIOLOGICAL SURVEY INSTRUMENTS

1.2.1 Obtain the equipment in the list below and record serial numbers and calibration dates, where applicable. If an instrument is out of calibration [not calibrated within the last year], obtain a replacement.

DO NOT PROCEED INTO THE FIELD WITH INOPERATIVE OR OUT-OF-CALIBRATION INSTRUMENTS

ITEM	SERIAL NO.	CAL. DATE	NOTES	√
ADM-300A (1)				
ADM-300A (2)bkup				
BP100 Probe				
BGP100 Probe				
BP100 Probe- bkup				
BGP100 Probe- bkup				
Operating Manual				
Headset(s)				
Extra batteries (9v)				
Source check set				

1.2.2 Turn on the ADM-300A (s). Insert the two (2) nine (9) volt batteries with both negative (-) terminals up. These instruments perform internal self-tests when power is turned on. Report any indications of improper operation to the team leader.

1.2.3 Source check the instruments with the test fixture and source, noting the readings (with appropriate units) on the instrument source check table below. Note that the ADM-300A is placed in the test fixture without the handle attached. Compare the readings obtained with the range marked on the test fixture. If the reading falls outside the range, notify the team leader.

1.2.4 Record a background reading for each meter and probe. Note: the ADM-300A must be turned off when changing probes. Record the background reading of the ADM-300A after mounting the BGP100 probe on the exterior of the vehicle (see below).

(Continued)

INSTRUMENT OPERATIONAL CHECKS

ITEM	SOURCE CHECK	BACKGROUND	√
ADM-300A (1)			
ADM-300A (2)			
Adm-300A(1) with BP100 Probe			
BGP100 Probe			
Adm-300A(2) with BP100 Probe			
BGP100 Probe			

1.2.5 Mount the BGP100 probe on the exterior of the vehicle with the window of the probe closed and covered with plastic. Connect to the ADM-300A in the vehicle.

1.2.6 Place ADM-300A hand held (for surveys) in a plastic bag and seal with tape. Make sure that the bag does not interfere with the operation of the beta window on the front of the unit.

1.3 AIR SAMPLING EQUIPMENT

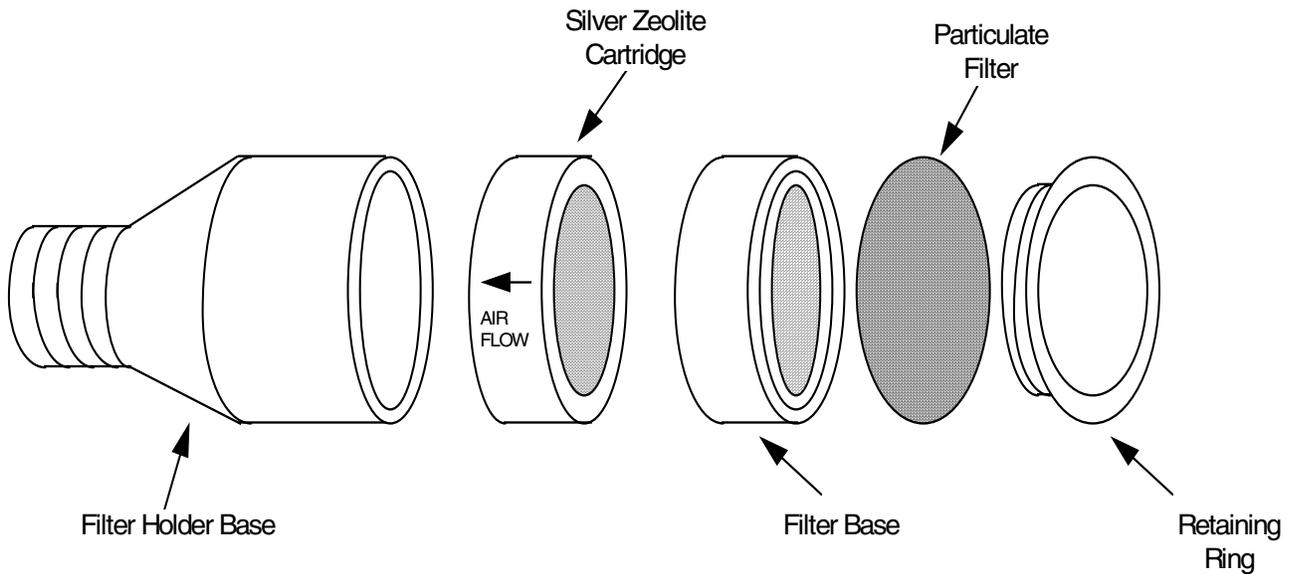
	SERIAL NUMBER	CALIBRATION DATE	√
Air Sampler			
Check operation of air sampler			
Sample holder/stand			
Air Sampler filter assembly			
Particulate filters			
Silver Zeolite Cartridges [sealed package for emergency use only, others marked "for drill use"]			
24 Volt Portable Battery Pack			

**ATTACHMENT 306-A3: PRE-DEPLOYMENT CHECKLISTS
(Continued)**

Assemble an air sample filter assembly as follows. See **Diagram 1** below.

- 1.3.1 Disassemble the air sample filter assembly.
- 1.3.2 Place the Silver Zeolite cartridge into the filter holder base with the arrow on the cartridge facing down [this is the direction of the airflow].
- 1.3.3 Screw the filter base onto the base and over the cartridge. Place a paper particulate filter on the filter base with the "fuzzy" or fibrous side up. Secure the filter paper with the retaining ring.
- 1.3.4 Screw the completed air filter assembly into the air sampler.

Diagram 1



**ATTACHMENT 306-A3: PRE-DEPLOYMENT CHECKLISTS
 (Continued)**

1.4 PROTECTIVE EQUIPMENT

Each member of the team should be issued the following equipment.

ITEM	√
Daily dose record card (SOP 801-B2)	
Self reading electronic dosimeter Calibration Date:	
Dosimeter of Legal Record (DLR)	
Potassium Iodide (KI) Expiration Date:	
Anti-Contamination Clothing	
Permanent Dose Record (SOP 801-B3)	
Extra (4) D-cell batteries	
Daily Personnel Exposure Record Form (SOP 801-B4)	
Self Protection Instruction Card (SOP 801-B1)	

1.5 COMMUNICATIONS EQUIPMENT

ITEM	√
Perform operational check on radios	
Perform operational check on cellular phone	
Spare charged battery for radio	

1.6 MISCELLANEOUS

ITEM	√
Check fuel in vehicle	
Vehicle ventilation system in recirculation mode	
Label large plastic bag "Radioactive Waste"	

Checkout complete: _____(Time/date)

Team Leader: _____

TO: ___ ALL TEAMS
___ Team 1
___ Team 2

FROM: TAC Field Monitoring Coordinator
Date: _____
Time: _____

INSTRUCTIONS (to be transmitted):

UPDATES: Salem 1 Salem 2 Hope Creek

PLANT STATUS: (release, change in emergency level etc.)

METEOROLOGICAL:

Wind Direction (from): _____ Wind Speed: _____ MPH

PROTECTIVE ACTIONS:

Protective clothing: _____

Consume KI? Yes _____ No _____

ACKNOWLEDGMENT OF MESSAGE: ___ Team 1
___ Team 2

SOP 306-B: RADIOLOGICAL SURVEY METHODS AND AIR SAMPLING PROCEDURES

This procedure provides guidance for obtaining radiological information and samples in the plume exposure pathway. The Field Monitoring Teams will be used to locate the plume, define its boundaries, quantify the strength of the radiation, and obtain air samples of the plume material. This will be accomplished by moving the teams in a systematic manner through the areas suspected to be affected by the radioactive plume. The PSEG Utility Teams will also characterize the plume using these techniques, and will identify the plume centerline.

1.0 Ambient Radiation Monitoring

- 1.1 Proceed to the assigned survey location or starting point, keeping vehicle windows closed and vehicle ventilation off or in recirculation mode. One of the team members should maintain an event log of radio transmissions, instructions and radiological information not already noted on other forms.
- 1.2 While in transit, continually observe the response of the survey meter with probe mounted to the vehicle [note: the probe window should be in the closed position]. The individual monitoring the survey meter should utilize the audio response and visual display to determine when a change in the ambient radiation level has occurred. The audio alarm for dose rate on the ADM-300A survey meter should be set to twice the background. The team should also monitor its location on a map with respect to the expected plume location to anticipate possible elevated readings. When a significant increase is noted in the survey meter reading (approximately twice the normal background), stop the vehicle, noting the location, and contact the EOC for further instructions. If the team has already been given instructions to proceed to a certain radiation level greater than twice the normal background, the team will not stop when the survey meter reading reaches twice the normal background; but will note the reading and proceed as instructed.

Note: normal background gamma radiation levels (closed window) are approximately 20 micro R/hr (uR/hr). The background reading taken prior to leaving the dispatch area can also be used.

- 1.3 If instructed by the EOC to monitor along one of the predetermined routes, use the forms in Att. 306-B1 to record ambient radiation information. Note the location, radiation reading and the applicable units. Since the ADM-300A will automatically adjust to a wide range of radiation levels, it is critical that the proper units are noted along with the numerical reading on all forms. If instructed to take an Ambient Radiation Reading at a particular location, one team member will exit the vehicle and take readings with the ADM-300A Survey Meter at approximately 3 inches and approximately 3 feet, open and closed window. The open window measurements should be taken with the window of the meter facing the ground for the 3-inch reading and facing the sky for the 3 foot reading. Record the readings on Att. 306-B5. Report these results to the EOC.
- 1.4 When the ambient radiation level increases above twice the background level, contact the EOC for instructions. The EOC will request that the team either traverse through the plume or define the boundaries of the plume by approaching the edges of the plume from different directions. If a plume traversal is requested proceed to 1.5 below. If not, proceed as instructed by the EOC.

SOP 306-B: RADIOLOGICAL SURVEY METHODS (Continued)

- 1.5 When instructed, proceed into the plume along the assigned route and take readings on the route as follows. Use the Plume Survey Form (Att. 306-B2). Note the reading on the meter mounted outside the vehicle at 1/10-mile intervals. Every 1/2 mile, one team member will exit the vehicle and take readings with the ADM-300A survey meter at approximately 3 inches and approximately 3 feet, open and closed window. The open window measurements should be taken with the window of the meter facing the ground for 3-inch reading and facing the sky for the 3-foot reading. These results should be noted on Att. 306-B2.
- 1.6 The traversal should continue until the radiation level is again less than twice background.
- 1.7 Communicate these results to the EOC when the traversal is complete. Mark on a map the boundaries of the plume and the time observed.
- 1.8 Change the plastic covers on the external vehicle probe and the handheld survey instrument. Place bags in the bag labeled "Radioactive Waste".

2.0 Air Sampling

- 2.1 If air samples are requested, proceed to the location with highest reading from Att. 306-B2 or as directed by the EOC.
- 2.2 Park at the sampling site with the engines running. Notify the EOC of arrival.
- 2.3 Perform open and closed window surveys at ground level and at 1 meter with the ADM-300A survey meter. The open window measurements should be taken with the window of the meter facing the ground for 3-inch reading and facing the sky for the 3-foot reading. Record the time, survey location and dose rates on the Radiological Air Sampling Form, Att. 306-B3. If this survey indicates that the plume is not presently at this location (open and closed window readings are the same) notify the EOC before sampling.
- 2.4 If directed by the EOC, draw an air sample as follows:
 - 2.4.1 Connect the air sampler to the power source leaving operating switch in the **off** position.
 - 2.4.2 Position sampler where it will not draw in airborne dust, vehicle exhaust gases, and other unnecessary contaminants.
 - 2.4.3 Turn air sampler on and draw a 10 cubic foot sample. Record relevant information on the Radiological Air Sampling Form, Att. 306-B3. Note the air sampler flow rate. Consult the air sampler flow rate tables attached to the air sampler or on Att. 306-B3 and run the air sampler the correct time necessary to draw a full 10 CF sample. Record total sampler run time in minutes and seconds.
 - 2.4.4 Ambient radiation readings (open/closed at approximately 3 inches and approximately 3 feet) should be taken at the beginning, middle and end of the sample period and recorded on the Air Sampling Form, Att. 306-B3.
 - 2.4.5 At the completion of drawing a 10 CF sample, note the flow and turn the air sample off. Load sampler and other equipment into vehicle.

SOP 306-B: RADIOLOGICAL SURVEY METHODS (Continued)

- 2.5 Move to an area outside the plume. Choose an area where the ambient radiation levels are less than twice background level. Change the plastic cover on the ADM-300A handheld and perform a survey to verify a low-level area. i.e. with the meter approximately three (3) inches and approximately three (3) feet, opened and closed window. Record on Att. 306-B4.
- 2.6 At the low background location, reconnect the air sampler to the power source and operate the air sampler for 10 to 15 seconds, with the air sample filter assemble still connected. This will remove any remaining noble gases, which might interfere with the sample count.
- 2.7 Affix pre-printed sample labels onto sample bags, one each for the Silver Zeolite cartridge and the particulate filter, and enter the sample number, sample location and sample time.
- 2.8 While wearing plastic gloves, remove the air sampler flange containing the Silver Zeolite cartridge and particulate filter from the air sampler. Using tweezers, remove the particulate filter and place it into one of the small-labeled sampling bags.
- 2.9 While holding the other small sampling bag for the Silver Zeolite cartridge under the air sampler flange, tap the Silver Zeolite cartridge out of the flange using tweezers so that it falls into the Silver Zeolite cartridge sampling bag. Proceed to step 3.0 to analyze the samples.

3.0 Sample Analysis

Place down a large plastic bag or sheet on which to perform the sample analysis. Obtain the sample holder, tweezers, chem wipes/decon towelettes, box of latex gloves, plastic probe covers and tape, BP-100 "pancake" probe, probe cable, Air Sample Analysis Form (Att. 306-B4), Sample Custody Form (Att. 306-B6). One team member should handle the sample bags and decon items (dirty guy). One team member should operate the meter and handle the probe (clean guy). The team leader records data.

- 3.1 Prepare the ADM-300A for counting the iodine and particulate samples as follows:
 - 3.1.1 Turn the meter **off** by pressing and holding the Power, on/off button. Connect the BP-100 "pancake" probe to the ADM-300A with the probe cable inserted into the 7-pin connector at the back of the unit.
 - 3.1.2 Turn the meter on by pressing and holding the Power, on/off button. The display will show "BETA PROBE".
 - 3.1.3 Deactivate the automatic gamma compensation by pressing the arrow (increment) button. The unit will display "B+G" indicating that both beta and gamma radiation are being counted.
 - 3.1.4 Cover the probe with a plastic bag and secure with tape.
- 3.2 Perform a survey on the Silver Zeolite cartridge and particulate filter as follows. Put three (3) or four (4) pairs of plastic gloves on hands. Outer gloves will be removed and placed in Radioactive Waste when contaminated.

SOP 306-B: RADIOLOGICAL SURVEY METHODS (Continued)

- 3.2.1** The meter will be used in the scaler mode to count the samples for one minute each. Place the meter in scaler mode by pressing the MODE button. Place the pancake probe into the empty sample holder to obtain a background reading. Make sure the sample bags containing the particulate filter and Silver Zeolite cartridge are at least two (2) feet from the empty sample holder. Press the SET button twice. This will start a one-minute count. The meter will beep and indicate "SCALER DONE" at the end of one minute. Record the meter reading on the Air Sample Analysis Form, Att. 306-B4, under background counts for the Silver Zeolite cartridge [column 1, line B].
- 3.2.2** Count the Silver Zeolite cartridge as follows. Place the Silver Zeolite Cartridge, still in its bag, into the sample holder with the arrow facing down. Place the pancake probe above it in the holder. Start the one-minute count by pressing the SET button twice. The meter will beep and indicate "SCALER DONE" at the end of one minute. Record the meter reading on the Air Sample Analysis Form, Att. 306-B4, under Silver Zeolite Counts [column 1, line A]. Remove the Silver Zeolite cartridge.
- 3.2.3** Recheck the background counts on the empty sample holder by placing the probe in the holder and starting the one-minute count with the SET button (Press the SET button twice). Record the meter reading on the Air Sample Analysis Form, Att. 306-B4, under background counts for the particulate filter [column 2, line B]. If the background count is twice the previous background count for the Silver Zeolite cartridge, remove outer gloves, clean the sample holder with a decon towelette and change the plastic probe cover. Decon towelettes and probe cover to Radioactive Waste bag. Remove outer gloves and recheck background reading.
- 3.2.4** Place the particulate filter, still in bag, in the sample holder with the fuzzy side up [side which faced out]; repeat the counting procedure as in step 3.2.2. Record the meter reading on the Air Sample Analysis Form, Att. 306-B4, under particulate filter counts [column 2, line A]. Remove the particulate filter.
- 3.3** After counting the samples, place the bagged Silver Zeolite cartridge and particulate filter into a large sample bag labeled with the sample number, sample location and sample time. Place the ADM-300A handheld about ½ inch from the two (2) samples in the large sample bag (window closed) and obtain a Sample Dose Rate (in mR/hr). Annotate the Sample Custody Form, Att. 306-B6, in the space marked Sample Dose Rate.
- 3.4** Transmit all data on Att. 306-B4 to the EOC, including the results of the count rate survey of the Silver Zeolite cartridge and particulate filter. Subtract background counts from actual counts to obtain net sample counts (line C). For samples processing and disposition refer to SOP 900.
- 3.5** Place Att. 306-B3 and Att. 306-B4 back-to-back inside the large plastic sample bag, so that they can be read through the clear plastic. Attach completed Custody Form, Att. 306-B6 to bag.
- 3.6** Remove outer gloves. Decontaminate the tweezers, sample holder, and air sampler filter assembly pieces with decon towelettes. Place these items on a clean surface or clean plastic sheet. Place towelettes, outer gloves and old plastic sheet in Radioactive Waste bag.
- 3.7** Monitor the tweezers, sample holder, and air sample filter assembly pieces with the survey meter to make sure they are decontaminated. If they are not, repeat decontamination operation.
- 3.8** Reassemble the air sampler filter assembly with a new particulate filter and Silver Zeolite cartridge. Change the plastic cover on the pancake probe and the cover on the external vehicle probe. Place the used (old) plastic covers in the Radiological Waste container/bag.
- 3.9** Proceed as instructed by the EOC.

**ATTACHMENT 306-B1
 FIELD MONITORING TEAM SAMPLING ROUTES AND LOCATIONS
 YELLOW ROUTE (RT 9)**

TEAM: _____

DATE: _____

CP	ADC MAP	CHECKPOINT	EPZ (Miles From Plant) MF(Miles From CP#)	READING	CIRCLE UNITS/hour	TIME
1.	N8G11	Bridge – Christiana River; South Wilmington	2.0 MF 2. <i>N19</i>		UR mR R	
2.	N13F3	Jct Rd 370 – Holloway Terrace, Lambson Lane	2.0 MF 1.		UR mR R	
3.	N13D9	Jct Rd 374 (Moorse Lane)	2.2 MF 2. North side of New Castle		UR mR R	
4.	N12K13	Bridge – south side of New Castle, River Road	2.2 MF 3., 0.6 miles S. of Dobbinsville light		UR mR R	
5.	N16F5	Jct Rd 380 (Federal School Lane)	2.3 MF 4.		UR mR R	
6.	N16D9	Bridge – Red Lion Creek	1.75 MF 5.		UR mR R	
7.	N16D13	Jct Rt 72 – Clarks Corner	<i>NNW10b</i> 1.7 MF 6., Motiva Headqtrs. Bldg. EPZ 9.5		UR mR R	
8.	N19J1	Jct Rd 411 (Clinton Street), Delaware City	2.0 MF 7. EPZ 8.0		UR mR R	
9.	N20B7	Small Bridge – St. Georges Creek	<i>NNW7a</i> 2.5 MF 8., S. of Reedy Pt. Bridge, EPZ 5.7		UR mR R	
10.	N20B12	Port Penn – where Rt 9 turns south	1.75 MF 9. Market & Congress Sts. EPZ 4.0		UR mR R	
11.	N20B13	Jct Rd 422A (Farm Lane)	<i>NW4</i> 0.75 MF 10. Augustine Beach EPZ 3.7		UR mR R	
12.	N23H4	Jct Rd 423 – DNREC sign	<i>WNW5</i> 2.2 MF 11. Augustine Fish Wildlife EPZ 4.0		UR mR R	
13.	N23H6	Bridge – Silver Run	0.7 MF 12. EPZ 3.7		UR mR R	
14.	N23F8	Bridge – Drawers Creek/Appoquinimink River	1.0 MF 13. <i>W5</i> EPZ 4.2		UR mR R	
15.	N23D12	Jct Rd 440 (Thomas Landing Road)	1.7 MF 14. Thomas Corner EPZ 5.2		UR mR R	
16.	N26D2	Bridge – Hangmans Run	1.7 MF 15. EPZ 5.7		UR mR R	
17.	N26E6	Jct Rd 456 (Union Church Road)	1.3 MF 16., past dairy farm EPZ 6.2		UR mR R	
18.	N26K6	Jct Rd 453 (Cedar Swamp Road)	<i>SW5</i> 2.1 MF 17. Black Lighthouse EPZ 4.9		UR mR R	
19.	N27C10	Jct Rd 454 (Saw Mill Branch Road)	<i>SSW7</i> 1.9 MF 18. EPZ 5.6		UR mR R	
20.	N31F2	Bridge – Flemings Landing, Smyrna River	2.2 MF 19. County Line EPZ 7.7		UR mR R	
21.	N31K6 K1J13	Mallard Inn, just past Lighthouse Road	2.0 MF 20. EPZ 9.1		uR mR R	
22.	K6H3	Jct Rt 6 – road to Woodland Beach	1.9 MF 21.		uR mR R	

**ATTACHMENT 306-B1
 FIELD MONITORING TEAM SAMPLING ROUTES AND LOCATIONS
 ORANGE ROUTE (RTs 2, 7, 896, 71)**

TEAM: _____

DATE: _____

CP	ADC MAP	CHECKPOINT	EPZ (Miles From Plant) MF(Miles From CP#)	READING	CIRCLE UNITS/hour	TIME
1.	N8B9	Jct Rt 48 & Rt 2 – Lancaster Ave. & Union St. 2.8 MF 2.			uR mR R	
2.	N7E11	Jct Rt 2 & Rt 141 – Prices Corner Shopping 2.8 MF 1. Center			uR mR R	
3.	N6K13	Jct Rt 2 & Rt 7 – Midway Plaza 2.0 MF 2.			uR mR R	
4.	N11B5	Jct Rt 2 & Rd 328 (Polly Drummond Road) 3.3 MF 3. (Texaco)			uR mR R	
5.	N10F7	Newark – US Post Office, (Main Street) 2.5 MF 4. Rt 896 south			uR mR R	
6.	N10F10	Rt 896 & Amtrak overpass, south of Newark 1.0 MF 5.			uR mR R	
7.	N14G3	Jct Rt 896 & Rd 26 (Old Baltimore Pike) 2.3 MF 6.			uR mR R	
8.	N14G9	Jct Rt 896 & US 40 - Glasgow 2.0 MF 7.			uR mR R	
9.	N17H2	Jct Rt 896 & Rd 54 (Howell School Rd) 2.5 MF 8.			uR mR R	
10.	N17H8	Summit Bridge over C&D Canal, south side 2.1 MF 9.			uR mR R	
11.	N18B13	Jct Rt 896 & US 301/Rt 71 & Rd 432 2.7 MF 10. Mt. Pleasant (grain elevators)			uR mR R	
12.	N22A5	Jct Rt 71/US 301 & Rd 429 (Summit Bridge Rd) 2.1 MF 11. Armstrong Corner			uR mR R	
13.	N22A11	Jct Rt 71 & Rd 299 – Middletown 2.1 MF 12. Main and Broad Streets			uR mR R	
14.	N25C4	Jct Rt 71 & Rd 458 – Green Giant Rd to right 2.3 MF 13.			uR mR R	
15.	N25F7	Jct Rt 71 & Rd 25 (Pine Tree Road) 1.8 MF 14. Ginns Corner			uR mR R	
16.	N25J11	Jct Rt 71 & US 13 – H&H Corner 1.5 MF 15.			uR mR R	

**ATTACHMENT 306-B1
 FIELD MONITORING TEAM SAMPLING ROUTES AND LOCATIONS
 PINK ROUTE (I-95)**

TEAM: _____

DATE: _____

CP	ADC MAP	CHECKPOINT	EPZ (Miles From Plant) MF(Miles From CP#)	READING	CIRCLE UNITS/hour	TIME
1.	N4K10	Jct Rt 92 exit 11 (Naaman's Road) 1.7 MF 2. Tri-State Mall			uR mR R	
2.	N4F12	Jct Rd 209 exit 10 (Harvey Road) 1.7 MF 1.			uR mR R	
3.	N9B3	Jct Rt 3 & exit 9 (Marsh Road) 2.1 MF 2.			uR mR R	
4.	N8G5	Jct US 202 exit 8 (Concord Pike) 2.2 MF 3.			uR mR R	
5.	N8D12	Blue Rocks Stadium, South Wilmington 3.0 MF 4.			uR mR R	
6.	N12H4	Jct Rt 141 exit 5A,B – Newport/New Castle 3.0 MF 5.			uR mR R	
7.	N12B7	Jct Rt 58/Rd 339 (Churchmans Road) 2.4 MF 6. I-95 overpass			uR mR R	
8.	N11K7	Jct Rt 7 exit 4A – Christiana Mall/ Hospital 0.8 MF 7. (Chi-Chi's parking lot)			uR mR R	

**ATTACHMENT 306-B1
FIELD MONITORING TEAM SAMPLING ROUTES AND LOCATIONS
GREEN ROUTE (RT 1 & US 13)**

TEAM: _____

DATE: _____

CP	ADC MAP	CHECKPOINT	EPZ (Miles From Plant) MF (Miles From CP#)	READING	CIRCLE UNITS/hour	TIME
1.	N11K8	Jct Rt 7 – Christiana Mall 2.7 MF 2.			uR mR R	
2.	N16A3	Jct US 40 – Lowes Hardware 2.7 MF 1.			uR mR R	
3.	N16B6 N16B7	Jct US 13 & Rt 1 1.4 MF 2.			uR mR R	
4.	N19A4	Jct Rd 409 – north of old St. Georges Bridge 4.0 MF 3. (under bridge) EPZ 9.0			uR mR R	
5.	N19A10	Jct Rd 2 – Biddles Corner, ChesDel Restaurant 2.2 MF 4. EPZ 7.4			uR mR R	
6.	N23A2	Jct Rd 420/Rd 15 – Boyds Corner (Wawa) 1.7 MF 5. <i>WNW7</i> EPZ 6.7			uR mR R	
7.	N23A7	Bridge – Drawyers Creek, north of Odessa 1.8 MF 6. EPZ 6.3			uR mR R	
8.	N22J11	Odessa – south side turnaround, middle Rt 13 1.7 MF 7. S. of Diamond Group Bldg. EPZ 7.0			uR mR R	
9.	N25J6	Jct Rd 25 – Pine Tree Corner & Rd 455 3.0 MF 8. <i>WSW10a</i> EPZ 7.7			uR mR R	
10.	N25J12	Bridge – Blackbird Creek, just north of Rd 471 2.5 MF 9. EPZ 9.2			uR mR R	
11.	N30B3	Jct Rd 469 (Black Diamond Road) 1.8 MF 10. Helen’s Sausage House EPZ 9.7			uR mR R	
12.	N30F8	State Rest Stop – north of Smyrna 2.4 MF 11.			uR mR R	
13.	N30H13 K5F6	Lake Como – south of Smyrna 1.7 MF 12.			uR mR R	
14.	K5G11	Jct Rd 42/Rd 325 – Big Oak Corners 1.9 MF 13. Paradise Nursery			uR mR R	
15.	K10G3	Garrison’s Lake (bridge) 1.8 MF 14.			uR mR R	

Notes:

1. Numerical portion of reading from survey instrument.
2. Units corresponding to numerical value. These will be either: microR/hr (uR), milliR/hr (mR) or R/hr (R). Circle the appropriate unit and transmit with the number.

ATTACHMENT 306-B2: PLUME SURVEY FORM

Start Time: _____ Team: _____

Start Location: _____ Towards/Direction: _____

MILES	READING (vehicle)	OPEN/CLOSED WINDOW SURVEY INFORMATION			
		HEIGHT	CLOSED WINDOW	OPEN WINDOW	UNITS/ HOUR
1/10					uR mR R
2/10					uR mR R
3/10					uR mR R
4/10					uR mR R
5/10		3 FOOT			uR mR R
		3 INCH			uR mR R
6/10					uR mR R
7/10					uR mR R
8/10					uR mR R
9/10					uR mR R
1		3 FOOT			uR mR R
		3 INCH			uR mR R
1.1					uR mR R
1.2					uR mR R
1.3					uR mR R
1.4					uR mR R
1.5		3 FOOT			uR mR R
		3 INCH			uR mR R
1.6					uR mR R
1.7					uR mR R
1.8					uR mR R
1.9					uR mR R
2.0		3 FOOT			uR mR R
		3 INCH			uR mR R
2.1					uR mR R
2.2					uR mR R
2.3					uR mR R
2.4					uR mR R
2.5		3 FOOT			uR mR R
		3 INCH			uR mR R

ATTACHMENT 306-B3: RADIOLOGICAL AIR SAMPLING DATA AND CONCURRENT AMBIENT RADIATION READINGS

Sample Number _____

Team: _____ Date: _____ Arrival Time: _____

Sample Site Designation (if applicable): _____

Location and or Description of Site:

Time Sample Draw Completed: _____

AIR SAMPLE DATA									
LINE		(1) TIME		(2) CFM		(3) ARRIVAL	(4) BEGIN SAMPLE	(5) MID SAMPLE	(6) END SAMPLE
A	XXXX XXXX XX	XXXX XXXX	START FLOW RATE		OPEN WINDOW 3 INCH				
B	XXXX XXXX XX	XXXX XXXX	STOP FLOW RATE		OPEN WINDOW 3 FOOT				
C	TOTAL TIME		AVERAGE FLOW RATE		CLOSED WINDOW 3 INCH				
D	XXXX XXXX XX	XXXX XXXX	XXXXXXXXXX XXXXXXXXXX XX	XXXX XXXX	CLOSED WINDOW 3 FOOT				

Air Sample Rate (CFM)	Time for 10 CF	Mid-Draw Time	Air Sample Rate (CFM)	Time for 10 CF	Mid-Draw Time
3.0	3 min. 20 sec.	1 min. 40 sec.	2.0	5 min.	2 min. 30 sec.
2.9	3 min. 27 sec.	1 min. 43 sec.	1.9	5 min. 16 sec.	2 min. 38 sec.
2.8	3 min. 34 sec.	1 min. 47 sec.	1.8	5 min. 33 sec.	2 min. 46 sec.
2.7	3 min. 42 sec.	1 min. 51 sec.	1.7	5 min. 53 sec.	2 min. 56 sec.
2.6	3 min. 51 sec.	1 min. 55 sec.	1.6	6 min. 15 sec.	3 min. 7 sec.
2.5	4 min.	2 min.	1.5	6 min. 40 sec.	3 min. 20 sec.
2.4	4 min. 10 sec.	2 min. 5 sec.	1.4	7 min. 8 sec.	3 min. 34 sec.
2.3	4 min. 21 sec.	2 min. 10 sec.	1.3	7 min. 42 sec.	3 min. 51 sec.
2.2	4 min. 33 sec.	2 min. 16 sec.	1.2	8 min. 20 sec.	4 min. 10 sec.
2.1	4 min. 46 sec.	2 min. 22 sec.	1.1	9 min. 5 sec.	4 min. 32 sec.
2.0	5 min.	2 min. 30 sec.	1.0	10 min.	5 min.

Notes:

- Information should be transmitted to the EOC by column and line, i.e. Column (3), line (A), (B), (C), (D) etc.
- All times are to be noted in military format.
- Note the units (uR, mR, R) next to the reading for ambient radiation readings.
- All readings are rates (/hour).
- Place Att. 306-B3 and Att. 306-B4 back-to-back inside the large plastic sample bag, so that they can be read through the clear plastic.

**ATTACHMENT 306-B4: AIR SAMPLE ANALYSIS FORM DATA
 TAKEN AT COUNTING SITE**

Sample Number _____

COLLECTED

Date: _____ Arrival Time: _____ Collected by Team: _____

Location _____

SAMPLE COUNT

Location: _____

Time Sample Count Completed: _____ Time Data Transmitted to State EOC: _____

AMBIENT RADIATION READINGS

HEIGHT	CLOSED WINDOW	OPEN WINDOW	UNITS/Hour (circle units used)		
			uR	mR	R
3 FOOT					
3 INCH					

AIR SAMPLE COUNT DATA

A	SILVER ZEOLITE COUNTS (CPM)	(1)	PARTICULATE FILTER COUNTS (CPM)	(2)
B	BACKGROUND COUNTS (CPM)		BACKGROUND COUNTS (CPM)	
C	NET SAMPLE COUNTS [A1-B1]		NET SAMPLE COUNTS [A2-B2]	

COUNTING PROCEDURE:

- METER OFF – PRESS AND HOLD POWER BUTTON
- CONNECT BP100 PANCAKE PROBE (PLASTIC COVERED)
- METER ON – PRESS AND HOLD POWER BUTTON (METER READS “BETA PROBE”)
- ARROW BUTTON TILL READS “B + G”
- MODE BUTTON (READS “SCALER MODE”)
- SET BUTTON 2X – METER COUNTS ONE MINUTE – BEEPS (READS “SCALER DONE”)
- RECORD READING

Note: Place Att. 306-B3 and Att. 306-B4 back-to-back inside the large plastic sample bag, so that they can be read through the clear plastic.

**ATTACHMENT 306-B5
AMBIENT RADIATION READING FORM**

Team: _____

Location: _____

Date: _____

Time: _____

Instrument: _____

OPEN/CLOSED WINDOW SURVEY INFORMATION

HEIGHT	CLOSED WINDOW	OPEN WINDOW	UNITS/HOUR		
3 FOOT			uR	mR	R
3 INCH			uR	mR	R

ATTACHMENT 306-B6: SAMPLE CUSTODY FORM (page 1 of 2)

Sample Number _____

COLLECTED:

Date: _____ Time: _____ Collected by Team: _____

Location _____

Type of Sample _____

Special Instructions _____

Sample Dose Rate _____(mR/hr) Sample Count Rate _____(cpm)

Transferred to:

Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:

Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:

Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

ATTACHMENT 306-B6: SAMPLE CUSTODY FORM (page 2 of 2)

Sample Number _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

SOP 306-C: ENVIRONMENTAL TLD RETRIEVAL

- 1.0 Before departing to sampling location, check the provided Radiological Monitoring Survey Kit and replenish any item missing or short of quantity and then perform the following:
 - 1.1 Install and check batteries in the survey meters. Source check the survey instruments, as required for proper response.
 - 1.2 Place all equipment in the designated survey vehicle. Each vehicle shall have an operational survey meter (ADM-300A or equivalent).
 - 1.3 Using the survey instrument, note the background radiation dose rate and continue to monitor while in transit to the sampling location. Report readings, which are twice the normal background to the EOC.
 - 1.4 At each survey location do the following:
 - 1.4.1 Park at the sampling site, leaving the vehicle engine running.
 - 1.4.2 Team leader radio verification of arrival.
 - 1.4.3 Affix surgical tape to sampling bag/container and enter the sample number and location.
 - 1.4.4 Utilizing the survey instrument, survey the local area.
 - 1.4.5 At the highest dose rate location perform open and closed window gamma survey, recording the time and survey location, and gamma dose rates on Radiological Air Sampling Form (Att. 306-B3).
 - 1.4.5.1 While one team member obtains the sample, the other team member will take three gamma survey readings at approximately 3 feet and approximately 3 inches above ground at the sampling location.
 - 1.4.6 Complete the TLD Data Tag (Att. 306-C1).
 - 1.4.7 Remove existing TLD.
 - 1.4.8 Place removed TLD into sample bag and seal with tape.
 - 1.4.9 Note on the new TLD the date and time placed in service. Install new TLD.
 - 1.4.10 Complete TLD Data Tag (Att. 306-C1).
- NOTE: Team members should ensure that existing TLD's date and time of being in service is noted in the "Date On" slot.**
- 2.0 After completing the Environmental TLD retrieval, sampling team will do the following:
 - 2.1 Attach Sample Custody Form (Att. 306-B6) from sampling location to sample gathering bag.
 - 2.2 Proceed to the Middletown National Guard Readiness Center, or where directed, for monitoring.
 - 2.3 Follow the instructions of the National Guard decontamination personnel.
 - 2.4 Provide personnel at the Readiness Center with the samples and completed original copies of the sample form and custody form (Refer to SOP 900 for sample processing and disposition).

**ATTACHMENT 306-C1
TLD DATA TAG**

Location _____

Date on _____ Time _____

Date off _____ Time _____

TLD Ident. No. _____

Replacement TLD Ident. No. _____

In-transit Control TLD Ident. No. _____

Collector's Name _____

Lab Use Only _____

Anneal Date _____

Lab Number _____

**ATTACHMENT 306-C2
MONITORING LOCATIONS**

Sector – designated fixed monitoring locations by PSEG & DE
PSEG Station Code – sampling locations by PSEG Radiological Environmental Monitoring Program (REMP), Maplewood Testing Services

**Sector / PSEG
Station Code**

SAMPLE TYPE-

MILES

AGENCY

AZIMUTH

FROM

ADC Map GRID

(DEGREES)

PLANT

LOCATION – DIRECTIONS

N7 / 1F2 SWA-PSEG	355 °	7.1	<i>Midpoint of Delaware River</i> Off Reedy Point, mouth of C&D Canal
N19 / 1G3 FM-DE TLD-PSEG N8G11	358 °	19.0	<i>Church Street & 4th Street, Wilmington</i> Rt 9 N. (New Castle Ave.) to bridge over Christina River, South Wilmington, Fort Christina Park. TLD on pole closest to edge of park and river.
NNW5 / 16E1 FM-PSEG TLD-PSEG AIO-PSEG APT-PSEG N20B13	328 °	3.8	<i>Sewage Plant just S. of Port Penn, 0.1 miles E. of Rt 9.</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 (Pole Bridge Road) go 4.2 miles to Port Penn, S. on Rt 9 go 0.3 miles, turn E. on Fishers Wharf Road, just before small bridge, go 0.1 miles to road's end and sewage plant.
NNW7 FM-DE FM-PSEG N20B9	333 °	5.0	<i>Intersection Rt 9 & Thorntown Lane (Rd 418).</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 (Pole Bridge Road) go 4.1 miles to Rt 9, N. on Rt 9 go 1 mile to Rd 418, sign for entrance "Port Penn Trail"
NNW7a FM-DE N20B7	336 °	5.7	<i>Rt 9, bridge at St. Georges Creek, 1 mile S. Reedy Point Bridge</i> Rt 1 S. to Rt 72, E. on Rt 72 go 6 miles (Rt. 72 turns into Rt 9) to bridge over St. Georges Creek, S. of Reedy Pt. Bridge.
/ 16F1 ESS-PSEG SWA-PSEG N20B3	344 °	7.3	<i>Reedy Point, Canal National Wildlife Area, North side mouth of C&D Canal</i> Rt 1 S. to Rt 72, E. on Rt 72 go 4.5 miles (Rt. 72 turns into Rt 9) to North side of Reedy Pt. Bridge and Canal National Wildlife Area. Sampling location is close to Delaware River edge.
/ 16F2 TLD-PSEG N19K2	338 °	8.0	<i>Delaware City Public School, Rt 9 & Bayard Street</i> Rt 1 S. to Rt 72, E. on Rt 72 go 4 miles (Rt. 72 turns into Rt 9) to Bayard Street.
NNW10 FM-DE FM-PSEG N20A2	342 °	7.8	<i>DNREC Operations Center, Gov Bacon Health Center (Old State EOC)</i> Rt 1 S. to Rt 72, E. on Rt 72 (Rt 72 turns into Rt 9) go 4.2 miles through Delaware City & over small bridge just before Reedy Point Bridge. Take first road on right, follow signs to Delaware National Guard Readiness Center/Gov. Bacon Health Center, left at first road, go 0.4 miles (under Reedy Pt. Br. & through gate) to roads end in front of DNREC Operations Center, by large blue garage.

**ATTACHMENT 306-C2
 MONITORING LOCATIONS (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
NNW10b FM-DE N16D13	328°	9.5	<i>Intersection Rt 72 & Rt 9, Motiva Co. Headquarters, Delaware City</i> Rt 1 S. to Rt 72, E. on Rt 72 go 1.75 miles to Rt 9.
NNW15 / 6G1 FM-DE TLD-PSEG N12J9	348°	15.0	<i>New Castle County Airport, Rt 13</i> US 13 S., turn right just past airport hangers onto hanger access road, which is before terminal building. TLD on pole to left.
NNW20 FM-DE FM-PSEG N16B6	331°	12.3	<i>Intersection US 13 & Rd 381 (Hamburg Rd), Park & Ride, NE corner</i> US 13 S. or Rt 1 SE to Tybouts Corner (intersection of US 13 & Rd 381), monitoring point at NE corner of Park & Ride, behind Service Station.
NW4 / 15D1 FM-DE FM-PSEG TLD-PSEG N20B13	320°	3.8	<i>Augustine Beach, Rt 9, S. of Port Penn.</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 (Pole Bridge Road) go 4.2 miles to Port Penn, S. on Rt 9 go 0.8 miles to Augustine Beach. TLD on pole between last two houses on right.
NW7 / 15F3 FM-DE FM-PSEG TLD-PSEG N19G12	312°	5.2	<i>Intersection Rd 2 (Port Penn Road) & Rd 420 (Pole Bridge Road)</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 go 2.5 miles to intersection Rd 420 & Rd 2.
NW10 FM-DE FM-PSEG N19A6	312°	8.4	<i>Intersection, first road on right after crossing St. Georges Bridge, South.</i> Rt 13 S. over St. Georges Bridge, first road on right, south side of bridge, Rd 34C (Lane Road).
NW20 FM-DE FM-PSEG N18D2	310°	11.5	<i>Kirkwood, Intersection Rt 71 (Red Lion Road) & Rd 409 (Kirkwood St. Georges Road), where Rt 71 crosses Rail Road tracks.</i> US 13 S. to Rt 71 at Tybouts Corner (interchange with Rt 1, US 13), SW on Rt 71 go 4.2 miles to Kirkwood and RR tracks.
WNW4 / 14D1 FM-DE FM-PSEG TLD-PSEG N23K4	295°	3.4	<i>Bay View Beach, lighthouse gate, S. end of New Road S. pole J-72,7G</i> US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 3.2 miles to Bayview Beach (Rd 423 becomes Rt 9, then Belts Road continues last 0.2 miles to beach), right on New Road S. go 0.3 miles to pole at lighthouse gate.

**ATTACHMENT 306-C2
MONITORING LOCATIONS (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
WNW5 FM-DE FM-PSEG N23H4	295°	4.0	<i>Intersection Rt 9 & Rd 423 (Bayview Road)</i> US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 2.5 miles to Rt 9 (where Rt takes 90 degree turn S.), DNREC sign: “Augustine Fish & Wildlife Area”
/ 14F3 FPV-PSEG FPL-PSEG N23D3	291°	5.4	<i>Farm on Rd 423 (Bayview Road), 1.0 mile east of US 13</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), continue S. on US 13 go 0.5 miles to Rd 423, E. on Rd 423 go 1.0 mile to farm on right (gold colored ranch), Mr. Mabrey.
WNW7 / 14F2 FM-DE FM-PSEG TLD-PSEG N23A2	292°	6.7	<i>Intersection US 13 & Rt 896/Rd 420 (Pole Bridge Road), Boyds Corner</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge) in WAWA parking lot. TLD on pole at NW corner of intersection.
WNW10 FM-DE FM-PSEG N22F1	289°	8.5	<i>Intersection Rt 896 (Boyds Corner Road) & Rd 413 (Jamison Corner Road), at Jamisons Corner</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt 896 go 1.7 miles to Rd 413.
/ 14F4 MLK-PSEG VGT-PSEG SOL-PSEG N18F12	293°	8.4	<i>Farm off Rd 413 (Jamison Corner Road)</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt 896 go 1.7 miles to Rd 413, N. on Rd 413 go 0.5 miles to Emerson farm on left.
WNW20 FM-DE FM-PSEG N18A10	293°	10.4	<i>Summit Airpark, Rt 896, US 301, Rt 71, S. of Summit Br., C&D Canal</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt 896 (Boyds Corner Road) go 3.5 miles to Rt. 71/US 301, N. 1.0 mile to Summit Airpark, next to ditch with large rocks.
/ 14G1 TLD-PSEG AIO-PSEG APT-PSEG N17C11	285°	13.0	<i>Rt 286 (Bethel Church Road), 0.2 miles from Maryland State line</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt 896 (Boyds Corner Road) go 3.5 miles to Rt. 71/US 301, N. 2.1 miles to Rt 15, go SW 0.8 miles to Rt 286, go W. 1.5 miles.
W5 / 13E1 FM-DE FM-PSEG TLD-PSEG N23F8	272°	4.2	<i>Rt 9 Bridge over Appoquinimink River, North Side</i> US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 2.5 miles to Rt 9, where Rt takes 90 degree turn S., S. on Rt 9 go 1.5 miles to bridge.

**ATTACHMENT 306-C2
 MONITORING LOCATIONS (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
W7 / 13F2 FM-DE FM-PSEG TLD-PSEG N22K10	265°	6.6	<i>Delaware State Police Station, Odessa, US 13 & Rt 299</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge) to intersection US 13 and Rt 299 (Main Street). TLD at intersection of High Street and 3 rd Street.
W9 / 13F3 FM-DE TLD-PSEG N22B11	266°	9.3	<i>Redding Middle School, Middletown, Rt 299</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt 299 (Middletown Odessa Road) go 2.8 miles to Redding Middle School, between New and Catherine Streets. TLD on pole in front of school.
W10 / 13F4 FM-DE FM- PSEG TLD-PSEG N22A11	264°	9.9	<i>Middletown Fire Station, Intersection Rt 299 & Rt 71 (S. Broad Street)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt 299 (Middletown Odessa Road) go 3.0 miles to Rt 71 (S. Broad Street) turn left to Fire Station. TLD on W. Cochran Street, just W. of S. Broad Street
W10a FM-DE N22A10	266°	9.9	<i>Middletown National Guard Readiness Center, Rt 71 (Broad Street North)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt 299 (Middletown Odessa Road) go 3.0 miles to Rt 71 (N. Broad Street) turn right, go N. 0.5 miles, ReadinessCenter on left.
W20 FM-DE FM-PSEG N21G12	262°	11.2	<i>Intersection Rt 299/US 301 & Rd 15 (Levels Road)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt 299 (Middletown Odessa Road) go 4.5 miles through Middletown to Rt 15 (Levels Road) AKA Rd 10
/ 12C1 ECH-PSEG ESF-PSEG ESS-PSEG SWA-PSEG N27G2	248°	2.5	<i>West Bank of Delaware River, Appoquinimink Wildlife Area (Skunk Hill Ditch)</i>
WSW5 / 12E1 FM-DE FM-PSEG TLD-PSEG N23F11	255°	4.4	<i>Thomas Landing, End of Rd 440 (Thomas Landing Road, paved part)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), E. on Rt 299, go 1.7 miles and turn left (NE) on Rt 9 (Thomas Landing Road), go 0.75 miles to Rd 440 (Thomas Landing Road), turn right (E), go 0.8 miles to end of paved road. TLD by last house on right.
WSW5a FM-DE' FM-PSEG N23E9	266°	4.6	Rt. 9, 0.5 miles SW of W5, US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 2.5 miles to Rt 9, where Rt takes 90 degree turn S., S. on Rt 9 go 2.0 miles (0.5 miles past bridge over Appoquinimink River) .

**ATTACHMENT 306-C2
MONITORING LOCATIONS (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
WSW7 FM-DE N23B13	252°	6.0	<i>Intersection Rt 299 (Old State Road/Taylor's Bridge Road) & Rt 9 (Thomas Landing Road) SE of Odessa</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), E. on Rt 299, go 1.7 miles to intersection with Rt 9.
WSW10 / 12F1 FM-DE FM-PSEG TLD-PSEG N25E8	239°	9.4	<i>Townsend Elementary School, Townsend, Rd 25 (Pine Tree Corner Rd)</i> US 13 S. to Rd 25 (3.3 miles S. of Odessa or 8 miles N. of Smyrna), SW on Rd 25 go 1.6 miles to Townsend Elementary School on left. TLD on pole in front of school.
WSW10a FM-DE FM-PSEG N25J6	240°	7.7	<i>Intersection US 13 & Rd 25 (Pine Tree Corner Rd)</i> US 13 S. to Rd 25 (3.3 miles S. of Odessa or 8 miles N. of Smyrna), North end of parking lot.
WSW20 FM-DE FM-PSEG N25A9	242°	11.0	<i>Intersection Rd 25 (Caldwell Corner Road) & Rd 459 (Grears Corner Rd) SW of Townsend</i> US 13 S. to Rd 25 (3.3 miles S. of Odessa or 8 miles N. of Smyrna), SW on Rd 25 go 3.2 miles (through Townsend) to Rd 459.
/ 11D1 GAM-PSEG N27B4	215°	3.5	<i>Farm on Rd 453 (Cedar Swamp Road) 1.0 mile E. of Rt 9</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt 9, S. on Rt 9 go 2.9 miles, across Taylor's Bridge to intersection with Rd 453 (0.5 miles E. of Taylor's Bridge over Blackbird Creek) E. on Rd 453 go 1.0 mile to Duke Farm on left (Tan Cape Cod).
SW5 / 11E2 FM-DE FM-PSEG TLD-PSEG N26K6	216°	4.9	<i>Intersection Rt 9 (Taylor's Bridge Road) & Rd 453 (Cedar Swamp Road)</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt 9, S. on Rt 9 go 2.9 miles, across Taylor's Bridge to intersection with Rd 453 (0.5 miles E. of Taylor's Bridge over Blackbird Creek). Monitoring location in front of black steel lighthouse.
/ 11F3 MLK-PSEG VGT-PSEG SOL-PSEG N26G7	222°	5.8	<i>Farm by Taylor's Bridge, off Rt 9</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt 9, S. on Rt 9 go 1.9 miles, farm on left, Mr. Unruh.
SW7 / 11F1 FM-DE FM-PSEG TLD-PSEG N26D4	235°	6.0	<i>Intersection Rt 9 (Taylor's Bridge Road) & Rd 452 (Fieldsboro Road), Stumps Corner</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt 9. TLD on 3 rd pole S. of Stumps Corner.

**ATTACHMENT 306-C2
MONITORING LOCATIONS (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
SW10 FM-DE FM-PSEG N25J11	230°	9.0	<i>Intersection US 13 & Rt 71 (Summit Bridge Road)</i> US 13 S. to Rt 71 (5.5 miles S. of Odessa or 6.0 miles N. of Smyrna). Monitoring point is S. side of US 13, 2 nd right of triangle
SW20 FM-DE FM-PSEG N29D6	225°	12.3	<i>On Rt 15 at intersection with Rd 47 (Vandyke Greenspring Road/Dexter Corner Road) & Rd 7 (Harvey Sraughn Road), Dexter Corner</i> US 13 S. to Rd 471 (Blackbird Forest Road) just past Blackbird Creek (5.8 miles S. of Odessa or 5.5 miles N. of Smyrna), SW on Rd 471 go 3.0 miles (through Blackbird State Forest) to Rt 15/Rd47 (Vandyke Greenspring Road), right on Rt 15 go 0.8 miles to Rd 36 & Rd 7.
SSW4 / 10D1 FM-DE FM-PSEG TLD-PSEG SOL-PSEG N27D5	203°	3.9	<i>Rd 453 (Cedar Swamp Road) 1.6 miles E. of Rt 9</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa), E. on Rd 452 go 1.6 miles to Rt 9, S. on Rt 9 go 2.9 miles, across Taylors Bridge to intersection with Rd 453 (0.5 miles E. of Taylors Bridge over Blackbird Creek) E. on Rd 453 go 1.6 miles, utility pole #48154 left side.
SSW7 / 10F2 FM-DE FM-PSEG TLD-PSEG N27C10	199°	5.6	<i>Intersection Rt 9 (Flemings Landing Rd) & Rd 454 (Saw Mill Branch Rd)</i> US 13 S. to Rd 456 (Union Church Road, 4.6 miles S. of Odessa or 6.5 miles N. of Smyrna), E. on Rd 456 go 2.8 miles to Rt 9 (Taylors Bridge Road), right on Rt 9 (Rt 9 becomes Flemings Landing Road), go 4.0 miles to intersection with Rd 454.
SSW10 FM-DE FM-PSEG N30H4	203	9.1	<i>Intersection Rd 30 (Paddock Road), Rd 469 (Black Diamond Road) & Rd 45 (Walker School Road)</i> US 13 to Rd 30 (0.5 miles N. of Smyrna and County line (Duck Creek) and 0.5 miles S. of Smyrna Rest Area), NE on Rd 30 go 1.9 miles to intersection Rd 30, Rd 469, Rd 45.
SSW20 / 10G1 FM-DE FM-PSEG TLD-PSEG N30H12	199	11.6	<i>Smyrna, intersection US 13 & Rt 6 (Commerce Street)</i> US 13 to Smyrna and intersection with Commerce Street, back of Wendy's Restaurant parking lot. TLD on pole 1+ blocks W. of US 13 on Rt 6, by Correction Officer Training Facility.
S5 / 9E1 FM-DE FM-PSEG TLD-PSEG N27G7	188	4.2	<i>Cedar Swamp Wildlife Area, end of Rd 453 (Cedar Swamp Road)</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa), E. on Rd 452 go 1.6 miles to Rt 9, S. on Rt 9 go 2.9 miles, across Taylors Bridge to intersection with Rd 453 (0.5 miles E. of Taylors Bridge over Blackbird Creek) E. on Rd 453 for 2.9 miles to end of road, concrete barrier. TLD on pole 200 feet in field to the left.

**ATTACHMENT 306-C2
 MONITORING LOCATIONS (Continued)**

Sector / PSEG Station Code	SAMPLE TYPE- AGENCY	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
S7 FM-DE FM-PSEG N27H11		180	6.3	<i>Intersection Rd 491 (Thoroughfare Neck Road) & Rd 493 (Collins Beach Road)</i> US 13 S. to Rd 456 (Union Church Road, 4.6 miles S. of Odessa or 6.5 miles N. of Smyrna), E. on Rd 456 go 2.8 miles to Rt 9 (Taylors Bridge Road) right on Rt 9 (Rt 9 becomes Flemings Landing Road), go 5.0 miles to intersection with Rd 491, E. on Rd 491 go 1.6 miles to Rd 493.
S10 FM-DE FM-PSEG N31J6, K1J12		177	9.1	<i>Intersection Rt 9 (Hay Point Landing Road) & Rd 321/Rd 82 (Lighthouse Road)</i> US 13 S. to Smyrna, E. on Rt 6 (Woodland Beach Road) go 5.0 miles to Rt 9, N. on Rt 9 go 1.8 miles to Rd 321/82, by Mallard Inn.
S10a FM-DE K6H3		174	10.5	<i>Intersection Rt 9 (Hay Point Landing Road) & Rt 6 (Woodland Beach Road)</i> US 13 S. to Smyrna, E. on Rt 6 go 5.0 miles to Rt 9
SSE10 FM-DE FM-PSEG K2G13		160	9.8	<i>Woodland Beach, East end of Rt 6 (Woodland Beach Road)</i> US 13 S. to Smyrna, E. on Rt 6 go 8.0 miles to Woodland Beach, telephone pole on the beach.

Key

- ADC Map** – N (New Castle County Map) K (Kent County Map)
DE Delaware National Guard or Delaware Emergency Management Agency
PSEG PSEG Nuclear, LLC
FM Radiation Field Monitoring Location, using portable monitoring equipment

Media Sampled at Specific Locations (Station Codes) by
 PSEG Radiological Environmental Monitoring Program (REMP)
 Maplewood Testing Service

- AIO** Air Iodine
APT Air Particulate
ECH Hard Shell Blue Crab
ESF Edible Fish
ESS Sediment
FPL Green Leafy Vegetables
FPV Vegetables (Various)
GAM Game (Muskrat)
MLK Milk
SOL Soil
SWA Surface Water
TLD Thermoluminescent Dosimeter for Immersion Dose
 (TLDs remain on site, generally on utility poles by roadside)
VGT Fodder Crops (Various)

**ATTACHMENT 306-C2
 MONITORING LOCATIONS (Continued)**

PSEG Station Code locations are identified using a portable Global Positioning System (GPS) to provide the coordinates. The Datum used was WGS 84, the default coordinate system setting for the units. Sample designations and Station locations are identified in REMP, Table B-1. All locations referenced to the midpoint of the two Salem Units' vents. (coordinates: Latitude N 39° 27' 45.3", Longitude W 75° 32' 09.7")

Station Code	Station Location	Latitudinal			Longitudinal		
		Deg	Min	Sec	Deg	Min	Sec
1F2	N Midpoint Delaware River	39	33	08	75	32	54
1G3	N N. Church Street, Wilmington	39	44	16	75	32	31
16E1	NNW Port Penn, Sewage Plant	39	30	47	75	34	34
16F1	NNW C&D Canal, Reedy Point	39	33	55	75	34	25
16F2	NNW Delaware City Public School	39	34	18	75	35	25
16G1	NNW New Castle Co. Airport, US 13	39	40	13.2	75	35	45
15D1	NW Augustine Beach, Rt 9	39	30	08	75	35	02
15F3	NW Port Penn Road	39	30	58	75	36	36
14D1	WNW Bay View Beach	39	29	02	75	35	31
14F3	WNW Farm	39	29	33	75	37	55
14F2	WNW Boyds Corner, US 13	39	30	00	75	38	59
14F4	WNW Farm, Jamison Corner Rd	39	30	44	75	40	52
14G1	WNW Bethel Church Rd	39	31	18	75	46	30
13E1	W Diehl House Lab, Rt 9	39	27	59	75	36	44
13F2	W Odessa	39	27	18	75	39	21
13F3	W Redding Middle School	39	27	14	75	42	32
13F4	W Middletown	39	26	51	75	43	07
12C1	WSW west bank Delaware River	39	27	22	75	34	08
12E1	WSW Thomas Landing	39	26	52	75	36	59
12F1	WSW Townsend Elementary School	39	23	47	75	41	18
11D1	SW	39	24	49	75	34	26
11E2	SWRt 9 & Cedar Swamp Rd	39	24	20	75	35	33
11F3	SWFarm Rt 9 by Taylors Bridge	39	24	06	75	36	20
11F1	SWRt 9, Stumps Corner	39	24	44	75	37	37
10D1	SSW Cedar Swamp Rd	39	24	37	75	33	44
10F2	SSW Rt 9 near Saw Mill Branch Rd	39	23	01	75	34	09
10G1	SSW Smyrna	39	18	13	75	36	05
9E1	S Cedar Swamp Wildlife Area	39	24	10	75	32	42

Many of the Station Code locations associated with Sector locations in Attachment 306-C2 are at the same exact location. However, several Station Code locations may be as much as 1000 feet from its associated Sector location. On file with DEMA at the State Emergency Operations Center are PSEG Maplewood Testing Services AI-REMP FIELD LOCATION LISTINGS containing detailed procedures, including Station Code location descriptions with maps and directions to each location.

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS

CONTENTS

- 1.0 Rehearsal vs. Graded Exercise**
 - 1.1 Rehearsal
 - 1.2 Graded

- 2.0 Controller Preparation**
 - 2.1 Familiarity with SOPs, equipment
 - 2.2 Familiarity with EPZ
 - 2.3 Radiological Data
 - 2.3.1 Plume Data Tables (PDT)
 - 2.3.2 Plume Maps
 - 2.4 Evaluation Areas, Sub-elements and Criterion
 - 2.5 Extent of Play Agreement
 - 2.6 Previous Exercise Deficiencies, ARCAs, Planning Issues

- 3.0 Controller Documentation**
 - 3.1 Communications, Demonstrations, Performance Logs
 - 3.2 Evaluation Areas, Sub-elements and Criterion

- 4.0 Pre-Deployment Checklists**

- 5.0 Field Operations**
 - 5.1 Radiation Monitoring
 - 5.1.1 Outside Mounted BGP100 Probe
 - 5.1.2 Ambient Radiation Measurements (ARM), non-radiation area
 - 5.1.3 Encountering the Plume
 - 5.1.4 ARM, inside the Plume
 - 5.1.5 Field Team Exposure Rate, Direct Reading Dosimeter (DRD)
 - 5.1.6 Traversing the Plume
 - 5.2 Taking The Air Sample
 - 5.2.1 ARM at Sample Location
 - 5.2.2 Air Sampler Data, while drawing sample
 - 5.2.3 Exiting Plume
 - 5.3 Counting The Air Sample
 - 5.3.1 ARM at Counting Location and Counting Preparation
 - 5.3.2 Counting Silver Zeolite Cartridge
 - 5.3.3 Counting Particulate Filter

- 6.0 Critique**

- 7.0 Exercise Report**
 - 7.1 Communication Log
 - 7.2 Team Event/Demonstration Log
 - 7.3 Previous Exercise Deficiencies, ARCAs, Planning Issues
 - 7.4 EEM
 - 7.5 SOP Recommendations

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

These procedures are intended to promote uniformity and consistency by exercise controllers in the handling and distribution of scenario data and the evaluation of performance and demonstrations by the exercise participants. Any exercise, whether it is a drill graded by objective observers, a rehearsal for a graded drill or simply an informal practice session, is an artificial emergency situation. However, it is important to allow the exercise participants as much freedom as possible to function and act as they would during an actual emergency situation. The real purpose for any exercise is to practice and fine tune the skills of the emergency workers so they will be prepared for an emergency.

The primary responsibilities of the exercise controller are:

1. To control the exercise events and demonstrations, without interfering with the freedom of play, to ensure the exercise participants perform the appropriate responses/demonstrations and the objectives in the extent of play are met.
2. Inject the correct radiological scenario data to the air team at the appropriate times.
3. Keep detailed notes of all activities and demonstrations.
4. Critique and evaluate all activities and demonstrations.

1.0 Rehearsal vs. Graded Exercise

The controller should operate in exactly the same way, during a rehearsal and graded exercise, with respect to the way radiological data is injected to the air team.

- 1.1** During a Rehearsal or Practice Exercise, since the team is not being formally evaluated by a federal agency, the controller is free to "coach" and instruct the team, from time-to-time. When some part of the SOP is not followed, the controller notices when the team needs prompting, or the team simply asks for help, this presents an opportunity to clarify and explain procedures to the team.
- 1.2** During a Graded Exercise, there should be no coaching of any kind by the controller. At times, a Federal grader may unintentionally miss noting a particular demonstration or some specific procedure that was properly performed by the air team. The controller should be cognizant of this possibility and recognize these instances when they occur. To make sure proper credit is given, the controller should call to the grader's attention, that a particular procedure is being (or has been) performed by the team. This could even necessitate that the controller narrate for the grader, during a team's demonstration (explaining what the team is doing and why). When the team simulates a procedure, the controller should explain this to the grader. If the team should justifiably deviate (because of the scenario or real field conditions) from what the grader might expect to see, this reasoning should be explained to the grader.

REMEMBER: THE TEAMS ARE BEING GRADED ON THE PLAN SOPs, THEY SHOULD BE FOLLOWED. If the team is having difficulty or is confused concerning some specific procedure, it is perfectly acceptable to refer to the SOP, read it, and follow the steps.

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

2.0 Controller Preparation

2.1 The controller should be thoroughly familiar with:

SOP 306 (Field Monitoring and Sampling for the Plume Phase)
SOP 801, especially
801-A (Emergency Worker Exposure Dose Limits)
801-B (Emergency Worker Response Kits)
801-C (Use of Emergency Worker Response Kits)

This familiarity should include all forms in the SOPs, and when and how to use these forms.

The responsibilities of the TAC Field Monitoring Coordinator, FMC (SOP 301-B) and the TAC Field Monitoring Program Guidance, including the EOC DNG Communicator duties (Att. 301-B5).

How communications should flow between the TAC FMC, the EOC DNG Communicator and the air team.

The controller needs to be familiar with each piece of equipment used by the air team; including the item's purpose, its capabilities/limitations, and when and how to use the equipment.

2.2 The 10-mile EPZ is where the air team will monitor and sample the air to enable an accurate assessment of any radioactivity. It is necessary for the controller to be completely familiar with the roads, rivers/creeks, pre-established air sample routes and check points, fixed monitoring locations, and general terrain within the EPZ. The controller needs to know exactly where the team is located at all times. ADC maps should be used in conjunction with the plume maps to accurately determine location.

2.3 Radiological Data

2.3.1 Exercise radiological data is given in the scenario Plume Data Tables (PDT). PDTs give plume Centerline data for each whole mile distance from the nuclear plant. There are also PDTs for specific fixed monitoring locations impacted by the plume. The real clock time is noted in the far-left column. Drill time and meteorological data are also given.

Survey Instrument Readings are the open and closed window readings, in mR/hr, that will be given for the Ambient Radiation Measurements (ARMs) (3 foot and 3 inch levels) using the ADM-300A hand held, and when monitoring with the BGP100 probe mounted outside the vehicle.

Field Exposure Rate, in mR/min, will be the dose accumulated on the team's Direct Reading Dosimeters (DRD), multiplied by the number of minutes the team is in that particular location, for that particular real clock time.

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

Gross Particulate and **Iodine-131** are the readings for the particulate filter and Silver Zeolite cartridge, respectively (in C.P.M., assuming a 10 cubic foot air sample). These readings will be given when the team counts the air sample.

2.3.2 As an exercise progresses and the team begins to encounter the plume and radiological readings, it can become cumbersome and hectic for the controller to be flipping scenario pages, calculating and interpolating data to give to the team as they are traveling. In order to simplify the process of injecting meaningful data at the right times, as the team encounters and travels into or through the plume; it is very helpful to indicate radiological data directly on the plume maps, prior to the exercise. On each plume map (an indication of plume location at 15 minute intervals), indicate the ADM-300A **Survey Instrument Readings, Closed Window**, for each plume concentration line (0.1%, 1%, 10%, 50%, Centerline, 50%, 10%, 1%, 0.1%) where these concentration lines intersect with the sample routes (Route 9, Route 13 etc.) The closed window readings on the PDTs will need to be interpolated between whole mile readings.

2.4 The Evaluation Areas, Sub-elements and Criterion are the tools used by The Federal Emergency Management Agency (FEMA) to evaluate exercise performance. The controller may be expected to be thoroughly familiar with the Evaluation Areas, Sub-elements and Criterion associated with the air teams. Generally these objectives will include:

Communications

Emergency Worker Exposure Control

Field Radiological Monitoring - Ambient Radiation Monitoring

Field Radiological Monitoring - Airborne Radioiodine and Particulate Activity Monitoring

Others as directed by DEMA may include:

Emergency Workers, Equipment, and Vehicle - Monitoring and Decontamination

Implementation of Protective Actions - Use of KI

Continuous, 24 Hour Staffing

2.5 The controller should be familiar with the extent of play agreement that DEMA has with FEMA, including the expected demonstrations associated with each Evaluation Area.

2.6 By being aware of any noted previous exercise Deficiencies, ARCAs, and Planning Issues, the controller can make special note when these areas are properly demonstrated, thereby correcting previously noted problems.

3.0 Controller Documentation During Exercise

3.1 Communications, Demonstrations, Performance Logs

The controller should keep a detailed and time indicated log of all communications to and from the EOC. A detailed and timed performance log should also be kept of everything the team does and does not do. (While in the field, the performance log will generally coincide with the communications log.) These logs will be vital in the reconstruction of events when critiquing and evaluating the team's exercise performance. See Attachment 306-D1. The controller should also obtain copies of all paperwork given to and generated by the field team. This includes REP SOP Attachments and forms, organizational and communications charts, and logs.

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

- 3.2 By being thoroughly familiar with the Evaluation Areas, Sub-elements and Criterion associated with the air teams, the controller will be able to recognize demonstration by the team, and note this directly on the Evaluation Areas.

4.0 Pre-deployment

Go through the pre-deployment Checklists, Attachment 306-A3, together with the air team. Check off each item as the team identifies them and completes the required equipment checks.

- 4.1 General Equipment 1.1, make sure all items are present, in the designated quantities. Note: If the kit has been inventoried and sealed with a dated seal, in accordance with SOP 306-A, 2.4, the General Equipment checklist 1.1 need not be completed.
- 4.2 Radiological Survey Instruments and related equipment 1.2, make sure all designated equipment is present. Record equipment serial numbers and calibration/due dates. Record source check and background readings for all equipment.
- 4.3 Air Sampling Equipment 1.3, make sure all designated equipment is present. Record equipment serial numbers and calibration/due dates. Check operation of the air sampler.
- 4.4 Protective Equipment 1.4, make sure all designated equipment is present. Record equipment calibration/due/expiration dates.
- 4.5 Communication Equipment 1.5 and Miscellaneous 1.6, record that these checks are performed.

5.0 Field Operations

5.1 Radiation Monitoring

- 5.1.1 After deployment to the field, the team should be continually monitoring the air with the covered BGP100 probe mounted outside the vehicle (both audio and visual). As pre-designated sample route check points (CPs) are encountered, the team should be noting the probe readings (record on Att. 306-B1) and reporting these readings to the EOC. The controller should tell the team that all radiation readings are what they actually see on the meter (background (BG) readings) unless the controller injects scenario readings. This is why it is imperative for the controller to know exactly where they are located at all times and the real clock time. IT IS THE CONTROLLER'S RESPONSIBILITY TO PROVIDE THE CORRECT SCENARIO RADIOLOGICAL DATA TO THE AIR TEAM AS THE TEAM ENCOUNTERS ANY AREAS OF SIMULATED RADIATION.
- 5.1.2 When ARMs (3' and 3" open/closed window readings with ADM-300A hand held meter) are taken in a BG area, tell the team that readings will be what they are actually reading on the ADM-300A (normally about 10 to 15uR/hr). Record on ARM form (Att. 306-B5).

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

- 5.1.3** When the plume is encountered, the controller will tell the team "The BGP100 is now reading XmR/hr." When first encountering the plume, this reading will be 0.1% of the Centerline data, for the current location and time (see appropriate plume map and PDT). The PDT for the closest whole mile to the team's location on the map should be selected and noting the current real time (left of table), give the **Survey Instrument Reading, Closed Window Gamma, in mR/hr.** If the plume maps have already been prepared, by indicating readings for the plume concentrations lines where they cross the sample routes, this will simplify the injection of data.
- 5.1.4** When ARMs are taken at a location inside the plume, using the appropriate PDT (closest whole mile table to the team's actual distance from nuclear plant) and real clock time, give the **Survey Instrument Reading, Closed Window Gamma, in mR/hr;** and **Open Window Beta/Gamma, in mR/hr.** Readings will be same for 3' (waist) and 3" (ground) levels.
- 5.1.5** Self-Reading Electronic Dosimeters (SRED) should be read every 15 minutes. The DNG Communicator at the EOC is suppose to call for SRED readings every 15 minutes. However, the team should be told prior to field deployment, to let the controller know when the SREDs are being read. The controller will then give the team the total accumulated dose the team has picked up to that point, or tell the team that the exposure dose is what they actually read on the SREDs, if the team has not yet encountered the plume. The total accumulated dose (SRED reading) is the total mR the team as picked up at various locations. The **Field Team Exposure Rate** at a specific location and time, on the PDTs, must be multiplied by the number of minutes spent at that location. Remember to adjust this rate to the appropriate plume concentration lines (the rate on the table is for plume Centerline).
- 5.1.6** If instructed to traverse the plume, the team should use the Plume Survey Form (306-B2), which requires radiation readings to be taken from the outside mounted BGP100 probe every 1/10 mile, with an ARM taken every 1/2 mile. The team driver should be instructed to call off each 1/10-mile distance traveled. The controller will then give readings from the PDT, **Survey Instrument Reading, Closed Window Gamma, in mR/hr,** adjusted for appropriate plume concentrations lines.

NOTE: The plume map concentration lines are not generally in increments of 1/10 mile. In the west to northwest sectors, where Route 9 (yellow route) is between 4 and 5 miles, the plume concentration lines cross Route 9 about 1/10 mile apart. However, elsewhere on Route 9 the plume concentration lines can be up to 2/10 miles apart. On Route 13 (green route) the concentration lines are generally 2/10 to 4/10 miles apart.

To be completely accurate, the controller will need to interpolate (keeping in mind that the radiation concentrations accelerate as the Centerline is approached and decelerate as you move away from Centerline) to give readings for every 1/10 mile, as the team traverses the plume.

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

5.2 Taking The Air Sample

- 5.2.1** At an air sampling location, the team will be taking 4 separate ARMs (upon arrival, at beginning of drawing the sample, near middle, and at end of drawing sample).

NOTE: The team can only be given credit for demonstration of one ARM at the air sampling location.

Using the appropriate PDT (closest mile table to actual distance from plant, or the PDT for a fixed monitoring location) and real clock time, give the Survey Instrument Reading, Closed Window Gamma, in mR/hr; and Open Window Beta/Gamma, in mR/hr (3' and 3" readings will be the same).

NOTE: The team should only spend about 7 to 8 minutes totally at the sampling location. Since PDTs specify data for 15 minute time intervals, data for only one time period should be given for all four sets of ARM readings.

- 5.2.2** On Form 306-B3:
Note the total air sampler running time (total minutes and seconds). Note flow rate Cubic Feet per Minute, CFM (beginning, ending, average rate).
- 5.2.3** While exiting the plume (heading for BG area to count the air sample), controller should give readings for BGP100 mounted outside; use appropriate PDT or plume maps (with readings indicated).

5.3 Counting The Air Sample

- 5.3.1** At the sample counting location, the team will survey the area and take an ARM to verify a BG area. If in a BG area, the controller should tell the team that the readings are what they actually see on the ADM-300A. When the BP100 (pancake) probe is used to survey the empty sample holder for a BG, tell the team that the reading is the actual BG count on the meter.

NOTE: The controller should record this actual BG on Form 306-B4, line B(1).

- 5.3.2** When the Silver Zeolite cartridge is placed in the sample holder and counted for 1 minute, the controller should give CPM data from the same PDT and real time that was used at the sampling location to give ARM readings. Use the column marked Iodine-131 Total C.P.M.

ATTACHMENT 306-D
EXERCISE CONTROLLERS - AIR MONITORING AND SAMPLING TEAMS
(Continued)

NOTE: The controller may need to make two adjustments to this CPM figure on the PDT. (1) CPM may need to be adjusted according to the total cubic feet actually drawn by the air sampler. The PDT assumes a 10 cubic foot sample. SOP 306, 2.4.5 instructs the team to draw 10 CF. If for some reason, more or less than 10 CF is drawn, the CPM figure on the PDT will need to be adjusted. (2) The controller then needs to inflate this adjusted CPM by adding the actual BG count determined when the team counted the empty sample holder. Therefore, when Form 306-B4, line B(1) is subtracted from line A(1), the net sample count line C, will be the CPM on the PDT (adjusted for actual cubic feet drawn).

- 5.3.3** The counting of the particulate filter should be handled in the same manner. The team should re-survey the empty sample holder to determine a new BG for 306-B4, line B(2). Again, tell the team this is the actual BG count on the meter. On the PDT, the column marked **Gross Particulate Total C.P.M.** again may need to be adjusted for **(1)** the actual cubic feet drawn and **(2)** should be inflated by the actual BG count of the empty sample holder. This adjusted CPM should be given to the team when the particulate filter is counted.

6.0 Critique

If there is a critique held after the exercise, the controller is expected to summarize the performance of the air team. A general summary should be given, noting the demonstrations and areas where the team performed well. The controller should also note those areas where the team could use further practice, or where some clarification of procedures might be needed to improve the team's performance.

7.0 Exercise Report

The controller's exercise report could include some or all of the following, as specified by DEMA.

- 7.1** Communications Log
- 7.2** Team Event/Demonstration Log
- 7.3** Copies of all paperwork given to and generated by the field team. This includes REP SOP Attachments and forms, organizational and communications charts, and logs.
- 7.4** Description and documentation of demonstrations that addressed and corrected any previous exercise Deficiencies, ARCAs, and Planning Issues indicated by FEMA.
- 7.5.** Completed Evaluation Areas, Sub-elements and Criterion associated with the air teams including narrative summaries for applicable Criterion, any issues for specific Criterion, and recommendations.
- 7.6** Any recommended changes to the SOPs that would clarify the procedures improve performance and enhance the efficient and accurate completion of essential emergency responsibilities.

**ATTACHMENT 306-D1
DNG AIR MONITORING AND SAMPLING TEAM #1
DRILL LOG OF COMMUNICATIONS, DEMONSTRATIONS
GRADED EXERCISE - DATE**

- 09:35** DNG HQ at Regiment Road received notification (phone and Fax) from State EOC of Alert (declared 09:12), no release, don't take KI, no anti-Cs, MET data: wind 7 mph from 1 degree, light rain
- 09:37** Air Team briefing by DNG Col. Smith, proceed with equipment and operations checklists
- 09:39** Team Leader briefs team, began checklists 306-A3
- 10:14** Completed checklists
- 11:15** Notification from State EOC (phone and Fax) Site Area Emergency declared 11:07, no release, don't take KI, no anti-Cs, Bridge out on Route 9 over Hangman's run (air sample route, Check Point) CP Y16, MET data: wind 7 mph from 1 degree, roads wet and slippery. Team #1 to proceed to CP G11 and take ARM, then to CP G12 and take ARM, then to CP Y22 take ARM (NOTE: All ARMs were taken with ADM-300A hand held encased in plastic bag.)
- 11:25** Depart DNG HQ, commo check with State EOC, MET data: no change, no KI
- 11:33** EOC calls for (Direct Reading Dosimeter) DRD reading, 0mR; EOC requests that team relay readings from outside mounted BGP100 probe as CPs are passed.
- 11:35** CP O3, 22uR/hr, relayed to EOC
- 11:40** EOC calls to verify phone # and extension for cell phone use when calling EOC
- 11:42** CP G1, 19uR/hr, relayed to EOC
- 11:45** CP G2, 17uR/hr, relayed to EOC
- 11:48** CP G3, 15uR/hr, relayed to EOC, EOC asks for DRD, 0mR
- 11:51** CP G4, 17uR/hr, relayed to EOC
- 11:54** CP G5, 17uR/hr, relayed to EOC
- 11:55** CP G6, 15uR/hr, relayed to EOC
- 11:57** CP G7, 13uR/hr, relayed to EOC
- 12:00** CP G8, 14uR/hr, relayed to EOC
- 12:02** CP G9, 19uR/hr, relayed to EOC
- 12:03** EOC gives MET data: no change, no KI, asks for DRD, 0mR
- 12:04** CP G10, 19uR/hr, relayed to EOC

**ATTACHMENT 306-D1
DNG AIR MONITORING AND SAMPLING TEAM #1
DRILL LOG OF COMMUNICATIONS, DEMONSTRATIONS
GRADED EXERCISE - DATE
(Continued)**

- 12:06** Arrive CP G11, BGP100 19uR/hr
ARM: 3' closed 20uR/hr, 3' open 17uR/hr
3" closed 19uR/hr, 3" open 17uR/hr
- 12:08** ARM relayed to EOC, EOC verifies, says go to G12 take ARM
- 12:13** Arrive CP G12, BGP100 19uR/hr
ARM: 3' closed 15uR/hr, 3' open 20uR/hr
3" closed 16uR/hr, 3" open 19uR/hr
- 12:15** Radio not working, team feels it is their location and possible temporary interference with transmission, switched to cell phone. ARM taken at CP G12 relayed to EOC, EOC gives MET data: no change, no KI, go to CP Y22 take ARM
- 12:18** EOC calls for DRD, 0mR, Radio working again
- 12:25** EOC advises of road conditions
- 12:28** CP Y20, 20uR/hr, relayed to EOC
- 12:32** CP Y21, 23uR/hr, relayed to EOC, EOC asks for DRD, 0mR
Team stopped at sign reading "Woodland Beach" thinking they were at CP Y22, then realized they needed to go to junction with Route 6
- 12:36** Arrive CP Y22, BGP100 18uR/hr
ARM: 3' closed 13uR/hr, 3' open 15uR/hr
3" closed 13uR/hr, 3" open 14uR/hr
relayed to EOC, EOC gives MET data: no change, no KI
- 12:48** EOC calls for DRD, 0mR; MET data: no change, no KI
- 12:56** EOC notifies of General Emergency, declared 12:45, RELEASE IN PROGRESS, Simulate anti-Cs, no KI, MET Data: wind 7.6 mph from 30 degrees
- 13:03** EOC calls for DRD, 0mR
- 13:07** EOC calls: to CP Y21 take ARM, plume at DE coast, MET data: no change
- 13:12** Arrive CP Y21, BGP100 15uR/hr
ARM: 3' closed 16uR/hr, 3' open 19uR/hr
3" closed 17uR/hr, 3" open 19uR/hr
- 13:14** ARM relayed to EOC, EOC verifies, MET data: no change, no KI

**ATTACHMENT 306-D1
DNG AIR MONITORING AND SAMPLING TEAM #1
DRILL LOG OF COMMUNICATIONS, DEMONSTRATIONS
GRADED EXERCISE - DATE
(Continued)**

- 13:19** EOC calls: plume into DE, asks for DRD, 0mR, MET data: wind 7.66 mph from 33.2 degrees, go to CP Y20 take ARM
- 13:27** Arrive CP Y20, BGP100 21uR/hr
ARM: 3' closed 16uR/hr, 3' open 14uR/hr
3" closed 17uR/hr, 3" open 13uR/hr
- 13:32** ARM relayed to EOC, EOC verifies
- 13:35** EOC calls: plume expected to pass over CP Y18 at this time, ask for DRD, 0mR, MET data: wind 7.7 mph from 35 degrees, weather improving
- 13:39** EOC says no KI at this time
- 13:43** EOC calls: to CP Y19 take ARM
- 13:47** Arrive CP Y19, BGP100 17uR/hr
ARM: 3' closed 12uR/hr, 3' open 13uR/hr
3" closed 11uR/hr, 3" open 12uR/hr
relayed to EOC, EOC verifies, asks for DRD, 0mR
- 13:51** MET data: wind 7.72 mph from 36.2 degrees, plume projected over CP Y18
- 13:55** EOC calls: proceed toward CP Y18 SLOWLY, stop when reading 2XBG, use plume survey form 306-B2 to record outside mounted BGP100 readings every 1/10 mile, call out readings to EOC as travel.
- 0.1 mile 26uR/hr
0.2 mile 24uR/hr
0.3 mile 23uR/hr
0.4 mile 23uR/hr
0.5 mile 20uR/hr, ARM simulated
0.6 mile 22uR/hr
0.7 mile 18uR/hr
0.8 mile 18uR/hr
0.9 mile 14uR/hr
1.0 mile 14uR/hr, ARM simulated
1.1 mile 22uR/hr
1.2 mile 21uR/hr
1.3 mile 18uR/hr
1.4 mile 0.5mR/hr
1.5 mile 5.5mR/hr
- 14:09** 1.5 miles north of CP Y19, ARM simulated
ARM: 3' closed 5.6mR/hr, 3' open 7.27mR/hr
3" closed 5.6mR/hr, 3" open 7.27mR/hr

**ATTACHMENT 306-D1
DNG AIR MONITORING AND SAMPLING TEAM #1
DRILL LOG OF COMMUNICATIONS, DEMONSTRATIONS
GRADED EXERCISE - DATE
(Continued)**

- 14:10** ARM relayed to EOC, EOC asks for DRD, 0.1mR
- 14:15** 1.6 mile 20mR/hr
EOC says stop and take air sample, go to CP Y20 to count sample
- 14:17** Start drawing air sample
- 14:23** Sample draw completed, EOC notified, DRD readings now 1.5mR, MET data: wind 7.8 mph from 39.3 degrees, no KI, DEPART heading for CP Y20
- 14:27** CP Y19, no readings relayed to EOC
- 14:30** Relay 306-B3 part 1 data to EOC
- 14:34** EOC asks for DRD, 2.5mR
- 14:35** CP Y20
ARM: 3' closed 13uR/hr, 3' open 11uR/hr
3" closed 11uR/hr, 3" open 11uR/hr
Begin sample counting operations
- 14:44** MET data: wind 7.6 mph from 39.0 degrees
- 14:55** Sample count data relayed to EOC, 306-B3 part 2
- 14:58** MET data: wind 7.8 mph from 39.2 degrees
- 15:00** Sample counting operations completed, probe covers changed, custody forms (306-B6) completed and attached to sample bag, 306-B3 and B4 forms attached to sample bag, decon of equipment completed, Radioactive Waste secured, sampler assembly flange reassembled with new cartridge and filter
- 15:01** EOC calls for DRD, 2.5mR, no KI, MET data: wind 7.8 mph from 39 degrees
- 15:05** EOC requests confirmation of exercise objectives
- 15:09** Exercise terminated at 15:10, return to EOC

SOP 307 - INGESTION TEAM MONITORING AND SAMPLING METHODS

1.0 OBJECTIVE

This procedure describes the methods used to monitor for deposited radionuclides by obtaining samples of soil, water, food, milk, and vegetation within the 50 mile Ingestion Pathway Zone (IPZ).

2.0 CONTENTS

SOP 307-A Sampling Team Briefing Procedures

SOP 307-B Sampling Kit Checklist (Ingestion Teams)

SOP 307-C Sample Recording Procedures

SOP 307-D Water Sampling Methods

SOP 307-E Milk Sampling Methods

SOP 307-F Surface Area Sampling Methods (Grass, Vegetation, Soil and Snow)

SOP 307-G Food and Milk Product Sampling

SOP 307-H Finfish and Shellfish Sampling

3.0 PREREQUISITES

3.1 The Technical Assessment Center (TAC) organization has identified sampling locations.

3.2 The TAC has selected sample types and locations based on projections, field readings, weather, road conditions and population distribution.

3.3 The TAC has directed the Ingestion Sampling Teams (IST) to obtain samples at the identified locations.

4.0 REFERENCES

4.1 FEMA REP-12, Guidance on Offsite Emergency Radiation Measurement Systems, Phase 2, The Milk Pathway, September 1987.

4.2 FEMA REP-13, Guidance on Offsite Emergency Radiation Measurement Systems, Phase 3, Water and Non-Dairy Food Pathway, May 1990.

4.3 EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, May 1992.

4.4 NUREG/CR-5212, Emergency Environmental Sampling and Analysis for Radioactive Material Facilities, August 1988.

**SOP 307 - INGEST TEAM MONITORING AND SAMPLE METHODS
(Continued)**

- 4.5** "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies", U.S. Food and Drug Administration (FDA), August 13, 1998.
- 4.6** DOE/NV11718-181-VOL 1, FRMAC Monitoring and Analysis Manual, Radiation Monitoring and Sampling, August 1998.

5.0 **ATTACHMENTS**

307-A1, Ingestion Sampling Team Briefing Form

307-A2, Monitoring Stations

307-A3, Field Team Dosimetry Log

307-C1, Sampling Form

307-C2, Custody Form

6.0 **RECORDS**

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by DEMA Technical/Administrative Support for historical files.

SOP 307-A: SAMPLING TEAM BRIEFING PROCEDURES

1.0 Ingestion sampling field operations will be conducted by the Delaware National Guard (DNG). The Ingestion Sampling Teams will be utilized by the TAC to collect various environmental and food samples, for analysis, following a radiological release. The ISTs will consist of two people and a designated team leader. Team leader will ensure compliance in the following areas before the team leaves the dispatching area:

1.1 FIELD CONDITIONS AWARENESS

- 1.1.1** A briefing will be provided on the dose rates and meteorological conditions in the affected area and contamination control procedures to be followed while in the affected area (Attachment 307-A1).
- 1.1.2** Maps, route directions and sampling priorities will be provided for the pre-designated sample locations with entry and exit points to reduce exposure in the affected area.
- 1.1.3** Fixed Monitoring Locations and Directions are listed in Attachment 307-A2.
- 1.1.4** Complete the General Data Requirements for Sampling Form and Custody Form (SOP-307C).

1.2 RADIATION PROTECTION AND PERSONAL DOSIMETRY

- 1.2.1** As directed by the TAC, each member of the team will don anti-contamination clothing and/or protective gloves and boots. See SOP 801 for anti-contamination suit-up and removal procedures.
- 1.2.2** The team members should not eat, drink, or smoke until after they have left the sampling area and have been monitored at a decontamination center.
- 1.2.3** Each team member will have dosimetry: a Dosimeter of Legal Record (DLR) and a Self-Reading Electronic Dosimeter. Information for all dosimeters will be recorded on the members' Daily Dose Record Card (Att. 801-B2) and Permanent Dose Record Card (Att. 801-B3). All items of dosimetry are worn above the waist.
- 1.2.4** The team members are instructed to check their self-reading dosimeters at 15-minute intervals once they are dispatched by the EOC and to follow guidelines established for emergency worker exposure limits. The highest reading of any individual on the team will be reported to the EOC at 15-minute intervals and recorded by the team on Field Team Dosimetry Log (Att. 307-A3).
- 1.2.5** If the gamma dose rate (closed window) exceeds the turn-back value of 1.25R/hr, exit the area and contact the EOC.
- 1.2.6** See SOP 801 for additional information on personnel protection.

1.3 EQUIPMENT CHECKS

- 1.3.1** Set aside one 30 gallon bag labeled "Tools" for sampling tool storage after sample is drawn.

**SOP 307-A: SAMPLING TEAM BRIEFING PROCEDURES
(Continued)**

- 1.3.2 Set aside one 30 gallon bag labeled "Radioactive Waste" for contaminated material generated during sampling and as a result of equipment decontamination.
- 1.3.3 Set aside one 8 gallon bag or one 30 gallon bag (as appropriate) for each sampling location, labeled with the location designator for use as the outer sample containment bag. Each sample will be placed in a separate sample container and in a second outer bag.
- 1.3.4 The team members will perform a source and battery check of survey instruments (see SOP 307-B, 1.2).
- 1.3.5 The team members will perform a function check on GPS equipment. (see SOP 307-B, 1.2).
- 1.3.6 The team members will ensure the vehicle fuel tank is full prior to departure. Vehicle ventilation system should be turned off, or in recirculation mode, and windows kept closed.
- 1.3.7 The team members will perform an operational check on all two-way communication radios and cell phones.

1.4 COMMUNICATIONS

- 1.4.1 Teams are to report when deploying for a mission, when arriving at sampling sites, when completing sampling procedures and progress at least hourly by contacting the EOC via radio or cell phone.
- 1.4.2 In the event of failure of all mobile communications methods, teams will use pay phones to contact the State EOC.

ATTACHMENT 307-A1
INGESTION SAMPLING TEAM BRIEFING FORM

I. Meteorological Conditions:

Current

Forecast

II. Plant Status: _____

Release in Progress (Yes or No) _____.

III. Projected Affected Area(s): _____

Projected Affected Area Dose Rate(s): _____

Additional Information (i.e. Dose Flyover): _____

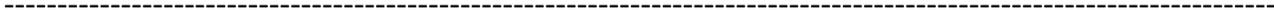
IV. Attach Sample Plan and Team Assignments.

V. Team transit routes for exposure control to assigned sample locations: _____

VI. Personnel Protection Requirements: _____

a. Protective Clothing: Anti-C Suits (including boots & gloves) ___ Yes ___ No
Boots and Gloves ___ Yes ___ No

b. Take Potassium Iodide (KI): ___ Yes ___ No



Completed by: _____ Date: _____ Time: _____
TAC Field Monitoring
Coordinator

Transmitted by: _____ Date: _____ Time: _____

ATTACHMENT 307-A2: MONITORING LOCATIONS

Sector – designated fixed monitoring locations by PSEG Nuclear & DE for SHCGS.
 PSEG Station Code – sampling locations by PSEG Radiological Environmental Monitoring Program (REMP), Maplewood Testing Services

Sector / PSEG

Station Code

SAMPLE TYPE-

MILES

AGENCY

AZIMUTH

FROM

ADC Map GRID

(DEGREES)

PLANT

LOCATION – DIRECTIONS

N7 / 1F2 SWA-PSEG	355°	7.1	Midpoint of Delaware River Off Reedy Point, mouth of C&D Canal
N19 / 1G3 FM-DE TLD-PSEG N8G11	358°	19.0	Church Street & 4 th Street, Wilmington Rt. 9 N. (New Castle Ave.) to bridge over Christina River, South Wilmington, Fort Christina Park. TLD on pole closest to edge of park and river.
NNW5 / 16E1 FM-PSEG TLD-PSEG AIO-PSEG APT-PSEG N20B13	328°	3.8	Sewage Plant just S. of Port Penn, 0.1 miles E. of Rt. 9. US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 (Pole Bridge Road) go 4.2 miles to Port Penn, S. on Rt. 9 go 0.3 miles, turn E. on Fishers Wharf Road, just before small bridge, go 0.1 miles to road's end and sewage plant.
NNW7 FM-DE FM-PSEG N20B9	333°	5.0	Intersection Rt. 9 & Thorntown Lane (Rd 418). US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 (Pole Bridge Road) go 4.1 miles to Rt. 9, N. on Rt. 9 go 1 mile to Rd 418, sign for entrance "Port Penn Trail"
NNW7a FM-DE N20B7	336°	5.7	Rt. 9, bridge at St. Georges Creek, 1 mile S. Reedy Point Bridge Rt. 1 S. to Rt. 72, E. on Rt. 72 go 6 miles (Rt. 72 turns into Rt. 9) to bridge over St. Georges Creek, S. of Reedy Pt. Bridge.
/ 16F1 ESS-PSEG SWA-PSEG N20B3	344°	7.3	Reedy Point, Canal National Wildlife Area, North side mouth of C&D Canal Rt. 1 S. to Rt. 72, E. on Rt. 72 go 4.5 miles (Rt. 72 turns into Rt. 9) to North side of Reedy Pt. Bridge and Canal National Wildlife Area. Sampling location is close to Delaware River edge.
/ 16F2 TLD-PSEG N19K2	338°	8.0	Delaware City Public School, Rt. 9 & Bayard Street Rt. 1 S. to Rt. 72, E. on Rt. 72 go 4 miles (Rt. 72 turns into Rt. 9) to Bayard Street.
NNW10 FM-DE FM-PSEG N20A2	342°	7.8	DNREC Operations Center, Gov Bacon Health Center (Old State EOC) Rt. 1 S. to Rt. 72, E. on Rt. 72 (Rt. 72 turns into Rt. 9) go 4.2 miles through Delaware City & over small bridge just before Reedy Point Bridge. Take first road on right, follow signs to Delaware National Guard Armory/Gov. Bacon Health Center, left at first road, go 0.4 miles (under Reedy Pt. Br. & through gate) to roads end in front of DNREC Operations Center, by large blue garage.

**ATTACHMENT 307-A2: MONITORING LOCATIONS
 (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
NNW10b FM-DE N16D13	328°	9.5	<i>Intersection Rt. 72 & Rt. 9, Motiva Co. Headquarters, Delaware City</i> Rt. 1 S. to Rt. 72, E. on Rt. 72 go 1.75 miles to Rt. 9.
NNW15 / 6G1 FM-DE TLD-PSEG N12J9	348°	15.0	<i>New Castle County Airport, Rt. 13</i> US 13 S., turn right just past airport hangers onto hanger access road, which is before terminal building. TLD on pole to left.
NNW20 FM-DE FM-PSEG N16B6	331°	12.3	<i>Intersection US 13 & Rd 381 (Hamburg Rd), Park & Ride, NE corner</i> US 13 S. or Rt. 1 SE to Tybouts Corner (intersection of US 13 & Rd 381), monitoring point at NE corner of Park & Ride, behind Service Station.
NW4 / 15D1 FM-DE FM-PSEG TLD-PSEG N20B13	320°	3.8	<i>Augustine Beach, Rt. 9, S. of Port Penn.</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 (Pole Bridge Road) go 4.2 miles to Port Penn, S. on Rt. 9 go 0.8 miles to Augustine Beach. TLD on pole between last two houses on right.
NW7 / 15F3 FM-DE FM-PSEG TLD-PSEG N19G12	312°	5.2	<i>Intersection Rd 2 (Port Penn Road) & Rd 420 (Pole Bridge Road)</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), E. on Rd 420 go 2.5 miles to intersection Rd 420 & Rd 2.
NW10 FM-DE FM-PSEG N19A6	312°	8.4	<i>Intersection, first road on right after crossing St. Georges Bridge, South.</i> Rt. 13 S. over St. Georges Bridge, first road on right, south side of bridge, Rd 34C (Lane Road).
NW20 FM-DE FM-PSEG N18D2	310°	11.5	<i>Kirkwood, Intersection Rt. 71 (Red Lion Road) & Rd 409 (Kirkwood St. Georges Road), where Rt. 71 crosses Rail Road tracks.</i> US 13 S. to Rt. 71 at Tybouts Corner (interchange with Rt. 1, US 13), SW on Rt. 71 go 4.2 miles to Kirkwood and RR tracks.
WNW4 / 14D1 FM-DE FM-PSEG TLD-PSEG N23K4	295°	3.4	<i>Bay View Beach, lighthouse gate, S. end of New Road S. pole J-72,7G</i> US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 3.2 miles to Bayview Beach (Rd 423 becomes Rt. 9, then Belts Road continues last 0.2 miles to beach), right on New Road S. go 0.3 miles to pole at lighthouse gate.

**ATTACHMENT 307-A2: MONITORING LOCATIONS
 (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
WNW5 FM-DE FM-PSEG N23H4	295°	4.0	<i>Intersection Rt. 9 & Rd 423 (Bayview Road)</i> US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 2.5 miles to Rt. 9 (where Rt. takes 90 degree turn S.), DNREC sign: “Augustine Fish & Wildlife Area”
/ 14F3 FPV-PSEG FPL-PSEG N23D3	291°	5.4	<i>Farm on Rd 423 (Bayview Road), 1.0 mile east of US 13</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), continue S. on US 13 go 0.5 miles to Rd 423, E. on Rd 423 go 1.0 mile to farm on right (gold colored ranch), Mr. Mabrey.
WNW7 / 14F2 FM-DE FM-PSEG TLD-PSEG N23A2	292°	6.7	<i>Intersection US 13 & Rt. 896/Rd 420 (Pole Bridge Road), Boyds Corner</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge) in WAWA parking lot. TLD on pole at NW corner of intersection.
WNW10 FM-DE FM-PSEG N22F1	289°	8.5	<i>Intersection Rt. 896 (Boyds Corner Road) & Rd 413 (Jamison Corner Road), at Jamisons Corner</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt. 896 go 1.7 miles to Rd 413.
/ 14F4 MLK-PSEG VGT-PSEG SOL-PSEG N18F12	293°	8.4	<i>Farm off Rd 413 (Jamison Corner Road)</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt. 896 go 1.7 miles to Rd 413, N. on Rd 413 go 0.5 miles to Emerson farm on left.
WNW20 FM-DE FM-PSEG N18A10	293°	10.4	<i>Summit Airpark, Rt. 896, US 301, Rt. 71, S. of Summit Br., C&D Canal</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt. 896 (Boyds Corner Road) go 3.5 miles to Rt. 71/US 301, N. 1.0 mile to Summit Airpark, next to ditch with large rocks.
/ 14G1 TLD-PSEG AIO-PSEG APT-PSEG N17C11	285°	13.0	<i>Rt. 286 (Bethel Church Road), 0.2 miles from Maryland State line</i> US 13 S. to Boyds Corner (3.5 miles S. of St. Georges Bridge), W. on Rt. 896 (Boyds Corner Road) go 3.5 miles to Rt. 71/US 301, N. 2.1 miles to Rt. 15, go SW 0.8 miles to Rt. 286, go W. 1.5 miles.
W5 / 13E1 FM-DE FM-PSEG TLD-PSEG N23F8	272°	4.2	<i>Rt. 9 Bridge over Appoquinimink River, North Side</i> US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 2.5 miles to Rt. 9, where Rt. takes 90 degree turn S., S. on Rt. 9 go 1.5 miles to bridge.

ATTACHMENT 307-A2: MONITORING LOCATIONS (Continued)

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	MILES FROM AZIMUTH (DEGREES)	PLANT	LOCATION – DIRECTIONS
W7 / 13F2 FM-DE FM-PSEG TLD-PSEG N22K10	265°	6.6	<i>Delaware State Police Station, Odessa, US 13 & Rt. 299</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge) to intersection US 13 and Rt. 299 (Main Street). TLD at intersection of High Street and 3 rd Street.
W9 / 13F3 FM-DE TLD-PSEG N22B11	266°	9.3	<i>Redding Middle School, Middletown, Rt. 299</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt. 299 (Middletown Odessa Road) go 2.8 miles to Redding Middle School, between New and Catherine Streets. TLD on pole in front of school.
W10 / 13F4 FM-DE FM- PSEG TLD-PSEG N22A11	264°	9.9	<i>Middletown Fire Station, Intersection Rt. 299 & Rt. 71 (S. Broad Street)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt. 299 (Middletown Odessa Road) go 3.0 miles to Rt. 71 (S. Broad Street) turn left to Fire Station. TLD on W. Cochran Street, just W. of S. Broad Street
W10a FM-DE N22A10	266°	9.9	<i>Middletown National Guard Armory, Rt. 71 (Broad Street North)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt. 299 (Middletown Odessa Road) go 3.0 miles to Rt. 71 (N. Broad Street) turn right, go N. 0.5 miles, Armory on left.
W20 FM-DE FM-PSEG N21G12	262°	11.2	<i>Intersection Rt. 299/US 301 & Rd 15 (Levels Road)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), W. on Rt. 299 (Middletown Odessa Road) go 4.5 miles through Middletown to Rt. 15 (Levels Road) AKA Rd 10
/ 12C1 ECH-PSEG ESF-PSEG ESS-PSEG SWA-PSEG N27G2	248°	2.5	<i>West Bank of Delaware River, Appoquinimink Wildlife Area (Skunk Hill Ditch)</i>
WSW5 / 12E1 FM-DE FM-PSEG TLD-PSEG N23F11	255°	4.4	<i>Thomas Landing, End of Rd 440 (Thomas Landing Road, paved part)</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), E. on Rt. 299, go 1.7 miles and turn left (NE) on Rt. 9 (Thomas Landing Road), go 0.75 miles to Rd 440 (Thomas Landing Road), turn right (E), go 0.8 miles to end of paved road. TLD by last house on right.
WSW5a FM-DE' FM-PSEG N23E9	266°	4.6	Rt. 9, 0.5 miles SW of W5, US 13 S. to Rd 423 (Bayview Road, 4 miles S. of St. Georges Bridge), E. on Rd 423 go 2.5 miles to Rt 9, where Rt takes 90 degree turn S., S. on Rt 9 go 2.0 miles (0.5 miles past bridge over Appoquinimink River) .

**ATTACHMENT 307-A2: MONITORING LOCATIONS
 (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
WSW7 FM-DE N23B13	252°	6.0	<i>Intersection Rt. 299 (Old State Road/Taylors Bridge Road) & Rt. 9 (Thomas Landing Road) SE of Odessa</i> US 13 S. to Odessa (6.5 miles S. of St. Georges Bridge), E. on Rt. 299, go 1.7 miles to intersection with Rt. 9.
WSW10 / 12F1 FM-DE FM-PSEG TLD-PSEG N25E8	239°	9.4	<i>Townsend Elementary School, Townsend, Rd 25 (Pine Tree Corner Rd)</i> US 13 S. to Rd 25 (3.3 miles S. of Odessa or 8 miles N. of Smyrna), SW on Rd 25 go 1.6 miles to Townsend Elementary School on left. TLD on pole in front of school.
WSW10a FM-DE FM-PSEG N25J6	240°	7.7	<i>Intersection US 13 & Rd 25 (Pine Tree Corner Rd)</i> US 13 S. to Rd 25 (3.3 miles S. of Odessa or 8 miles N. of Smyrna), North end of parking lot.
WSW20 FM-DE FM-PSEG N25A9	242°	11.0	<i>Intersection Rd 25 (Caldwell Corner Road) & Rd 459 (Grears Corner Rd) SW of Townsend</i> US 13 S. to Rd 25 (3.3 miles S. of Odessa or 8 miles N. of Smyrna), SW on Rd 25 go 3.2 miles (through Townsend) to Rd 459.
/ 11D1 GAM-PSEG N27B4	215°	3.5	<i>Farm on Rd 453 (Cedar Swamp Road) 1.0 mile E. of Rt. 9</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt. 9, S. on Rt. 9 go 2.9 miles, across Taylors Bridge to intersection with Rd 453 (0.5 miles E. of Taylors Bridge over Blackbird Creek) E. on Rd 453 go 1.0 mile to Duke Farm on left (Tan Cape Cod).
SW5 / 11E2 FM-DE FM-PSEG TLD-PSEG N26K6	216°	4.9	<i>Intersection Rt. 9 (Taylors Bridge Road) & Rd 453 (Cedar Swamp Road)</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt. 9, S. on Rt. 9 go 2.9 miles, across Taylors Bridge to intersection with Rd 453 (0.5 miles E. of Taylors Bridge over Blackbird Creek). Monitoring location in front of black steel lighthouse.
/ 11F3 MLK-PSEG VGT-PSEG SOL-PSEG N26G7	222°	5.8	<i>Farm by Taylors Bridge, off Rt. 9</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt. 9, S. on Rt. 9 go 1.9 miles, farm on left, Mr. Unruh.
SW7 / 11F1 FM-DE FM-PSEG TLD-PSEG N26D4	235°	6.0	<i>Intersection Rt. 9 (Taylors Bridge Road) & Rd 452 (Fieldsboro Road), Stumps Corner</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa) E. on Rd 452 go 1.6 miles to Rt. 9. TLD on 3 rd pole S. of Stumps Corner.

**ATTACHMENT 307-A2: MONITORING LOCATIONS
 (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY ADC Map GRID	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
SW10 FM-DE FM-PSEG N25J11	230°	9.0	<i>Intersection US 13 & Rt. 71 (Summit Bridge Road)</i> US 13 S. to Rt. 71 (5.5 miles S. of Odessa or 6.0 miles N. of Smyrna). Monitoring point is S. side of US 13, 2 nd right of triangle
SW20 FM-DE FM-PSEG N29D6	225°	12.3	<i>On Rt. 15 at intersection with Rd 47 (Vandyke Greenspring Road/Dexter Corner Road) & Rd 7 (Harvey Sraughn Road), Dexter Corner</i> US 13 S. to Rd 471 (Blackbird Forest Road) just past Blackbird Creek (5.8 miles S. of Odessa or 5.5 miles N. of Smyrna), SW on Rd 471 go 3.0 miles (through Blackbird State Forest) to Rt. 15/Rd47 (Vandyke Greenspring Road), right on Rt. 15 go 0.8 miles to Rd 36 & Rd 7.
SSW4 / 10D1 FM-DE FM-PSEG TLD-PSEG SOL-PSEG N27D5	203°	3.9	<i>Rd 453 (Cedar Swamp Road) 1.6 miles E. of Rt. 9</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa), E. on Rd 452 go 1.6 miles to Rt. 9, S. on Rt. 9 go 2.9 miles, across Taylors Bridge to intersection with Rd 453 (0.5 miles E. of Taylors Bridge over Blackbird Creek) E. on Rd 453 go 1.6 miles, utility pole #48154 left side.
SSW7 / 10F2 FM-DE FM-PSEG TLD-PSEG N27C10	199°	5.6	<i>Intersection Rt. 9 (Flemings Landing Rd) & Rd 454 (Saw Mill Branch Rd)</i> US 13 S. to Rd 456 (Union Church Road, 4.6 miles S. of Odessa or 6.5 miles N. of Smyrna), E. on Rd 456 go 2.8 miles to Rt. 9 (Taylors Bridge Road), right on Rt. 9 (Rt. 9 becomes Flemings Landing Road), go 4.0 miles to intersection with Rd 454.
SSW10 FM-DE FM-PSEG N30H4	203	9.1	<i>Intersection Rd 30 (Paddock Road), Rd 469 (Black Diamond Road) & Rd 45 (Walker School Road)</i> US 13 to Rd 30 (0.5 miles N. of Smyrna and County line (Duck Creek) and 0.5 miles S. of Smyrna Rest Area), NE on Rd 30 go 1.9 miles to intersection Rd 30, Rd 469, Rd 45.
SSW20 / 10G1 FM-DE FM-PSEG TLD-PSEG N30H12	199	11.6	<i>Smyrna, intersection US 13 & Rt. 6 (Commerce Street)</i> US 13 to Smyrna and intersection with Commerce Street, back of Wendy's Restaurant parking lot. TLD on pole 1+ blocks W. of US 13 on Rt. 6, by Correction Officer Training Facility.
S5 / 9E1 FM-DE FM-PSEG TLD-PSEG N27G7	188	4.2	<i>Cedar Swamp Wildlife Area, end of Rd 453 (Cedar Swamp Road)</i> US 13 S. to Rd 452 (Fieldsboro Road, 2.5 miles S. of Odessa), E. on Rd 452 go 1.6 miles to Rt. 9, S. on Rt. 9 go 2.9 miles, across Taylors Bridge to intersection with Rd 453 (0.5 miles E. of Taylors Bridge over Blackbird Creek) E. on Rd 453 for 2.9 miles to end of road, concrete barrier. TLD on pole 200 feet in field to the left.

**ATTACHMENT 307-A2: MONITORING LOCATIONS
 (Continued)**

Sector / PSEG Station Code SAMPLE TYPE- AGENCY	AZIMUTH (DEGREES)	MILES FROM PLANT	LOCATION – DIRECTIONS
S7 FM-DE FM-PSEG N27H11	180	6.3	<i>Intersection Rd 491 (Thoroughfare Neck Road) & Rd 493 (Collins Beach Road)</i> US 13 S. to Rd 456 (Union Church Road, 4.6 miles S. of Odessa or 6.5 miles N. of Smyrna), E. on Rd 456 go 2.8 miles to Rt. 9 (Taylors Bridge Road) right on Rt. 9 (Rt. 9 becomes Flemings Landing Road), go 5.0 miles to intersection with Rd 491, E. on Rd 491 go 1.6 miles to Rd 493.
S10 FM-DE FM-PSEG N31J6, K1J12	177	9.1	<i>Intersection Rt. 9 (Hay Point Landing Road) & Rd 321/Rd 82 (Lighthouse Road)</i> US 13 S. to Smyrna, E. on Rt. 6 (Woodland Beach Road) go 5.0 miles to Rt. 9, N. on Rt. 9 go 1.8 miles to Rd 321/82, by Mallard Inn.
S10a FM-DE K6H3	174	10.5	<i>Intersection Rt. 9 (Hay Point Landing Road) & Rt. 6 (Woodland Beach Road)</i> US 13 S. to Smyrna, E. on Rt. 6 go 5.0 miles to Rt. 9
SSE10 FM-DE FM-PSEG K2G13	160	9.8	<i>Woodland Beach, East end of Rt. 6 (Woodland Beach Road)</i> US 13 S. to Smyrna, E. on Rt. 6 go 8.0 miles to Woodland Beach, telephone pole on the beach.

Key

ADC Map N (New Castle County Map) K (Kent County Map)
DE Delaware National Guard or Delaware Emergency Management Agency
PSEG Public Nuclear LLC
FM Radiation Field Monitoring Location, using portable monitoring equipment

Media Sampled at Specific Locations (Station Codes) by PSEG Nuclear LLC Radiological Environmental Monitoring Program (REMP), Maplewood Testing Service

AIO Air Iodine
APT Air Particulate
ECH Hard Shell Blue Crab
ESF Edible Fish
ESS Sediment
FPL Green Leafy Vegetables
FPV Vegetables (Various)
GAM Game (Muskrat)
MLK Milk
SOL Soil
SWA Surface Water
TLD Thermoluminescent Dosimeter for Immersion Dose
 (TLDs remain on site, generally on utility poles by roadside)
VGT Fodder Crops (Various)

**ATTACHMENT 307-A2: MONITORING LOCATIONS
 (Continued)**

PSEG Station Code locations are identified using a portable Global Positioning System (GPS) to provide the coordinates. The Datum used was WGS 84, the default coordinate system setting for the units. Sample designations and Station locations are identified in REMP, Table B-1. All locations referenced to the midpoint of the two Salem Units' vents. (coordinates: Latitude N 39° 27' 45.3", Longitude W 75° 32' 09.7")

Station Code	Station Location	Latitudinal			Longitudinal		
		Deg	Min	Sec	Deg	Min	Sec
1F2	N Midpoint Delaware River	39	33	08	75	32	54
1G3	N N. Church Street, Wilmington	39	44	16	75	32	31
16E1	NNW Port Penn, Sewage Plant	39	30	47	75	34	34
16F1	NNW C&D Canal, Reedy Point	39	33	55	75	34	25
16F2	NNW Delaware City Public School	39	34	18	75	35	25
16G1	NNW New Castle Co. Airport, US 13	39	40	13.2	75	35	45
15D1	NW Augustine Beach, Rt 9	39	30	08	75	35	02
15F3	NW Port Penn Road	39	30	58	75	36	36
14D1	WNW Bay View Beach	39	29	02	75	35	31
14F3	WNW Farm	39	29	33	75	37	55
14F2	WNW Boyds Corner, US 13	39	30	00	75	38	59
14F4	WNW Farm, Jamison Corner R	39	30	44	75	40	52
14G1	WNW Bethel Church Rd	39	31	18	75	46	30
13E1	W Diehl House Lab, Rt 9	39	27	59	75	39	21
13F3	W Redding Middle School	39	27	14	75	42	32
13F4	W Middletown	39	26	51	75	43	07
12C1	WSW west bank Delaware River	39	27	22	75	34	08
12E1	WSW Thomas Landing	39	26	52	75	36	59
12F1	WSW Townsend Elementary School	39	23	47	75	41	18
11D1	SW	39	24	49	75	34	26
11E2	SW Rt 9 & Cedar Swamp Rd	39	24	20	75	35	33
11F3	SW Farm Rt 9 by Taylors Bridge	39	24	06	75	36	20
11F1	SW Rt 9, Stumps Corner	39	24	44	75	37	37
10D1	SSW Cedar Swamp Rd	39	24	37	75	33	44
10F2	SSW Rt 9 near Saw Mill Branch Rd	39	23	01	75	34	09
10G1	SSW Smyrna	39	18	13	75	36	05
9E1	S Cedar Swamp Wildlife Area	39	24	10	75	32	42

Many of the Station Code locations associated with Sector locations in Attachment 306-C2 are at the same exact location. However, several Station Code locations may be as much as 1000 feet from its associated Sector location.

SOP 307-B: INGESTION SAMPLING TEAM KIT CHECKLIST

1.0 The following equipment is contained in the sampling team kits. The kits are normally inventoried annually by DEMA and kept sealed when not in use. Inventories are also completed after any exercise or emergency. An inventory prior to departure is not necessary if the seal has not been broken. However, before departing to the sampling location, all radiological survey equipment will need to be checked for calibration dates and proper response to a known check source. GPS equipment will also need to be checked for proper operation. Place a check mark by each item if present in the kit. Place serial numbers, calibration dates or meter readings in spaces provided.

1.1 DATA REFERENCE AND RECORDING SUPPLIES

- _____ SOP 307 Procedures (2)
- _____ SOP 801 Procedures (1)
- _____ Sampling Forms, Attachment 307-C1 (30 minimum).
- _____ Custody forms, Attachment 307-C2 (30 minimum)
- _____ ADC maps for New Castle and Kent Counties, highway map for Sussex.
- _____ Clipboard
- _____ Logbook
- _____ Pens and Pencils
- _____ Grease Pencils

1.2 RADIOLOGICAL SURVEYING EQUIPMENT

1.2.1 Obtain the equipment listed and record serial numbers and calibration dates. If an instrument is out of calibration (not calibrated with the last year), obtain a replacement. Each sampling team should have two survey meters.

- _____ ADM-300A Survey Instrument (or equivalent) primary
 - _____ Serial Number
 - _____ Calibration Date
- _____ BGP100 Probe, primary
 - _____ Serial Number
 - _____ Calibration Date
- _____ BP100 Probe, primary
 - _____ Serial Number (calibration not necessary)
- _____ ADM-300A Survey Instrument (or equivalent) back-up
 - _____ Serial Number
 - _____ Calibration Date
- _____ BGP100 Probe, back-up
 - _____ Serial Number
 - _____ Calibration Date
- _____ BP100 Probe, back-up
 - _____ Serial Number (calibration not necessary)
- _____ Source Check Set

1.2.2 Turn on the ADM-300A(s). These instruments perform internal self-tests when power is turned on. Report any indications of improper operation to the team leader.

SOP 307-B: INGESTION SAMPLING TEAM KIT CHECKLIST (Continued)

- 1.2.3 Source check the instruments with the test fixture and source, noting the readings (with appropriate units) next to the instruments and probes. Note that the ADM-300A is placed in the test fixture without the handle attached. Compare the readings obtained with the range marked on the test fixture. If the reading falls outside the range, notify the team leader.
- 1.2.4 Record a background (BG) reading for each meter and probe. Note: The ADM-300A **must** be turned off when changing probes. Record the background reading of the ADM-300A after mounting the BGP100 probe on the exterior of the vehicle with the window of the probe closed and covered with plastic. Connect the probe to the ADM-300A in the vehicle.

	Readings	
	Source Check	Background
ADM-300A, primary	_____	_____
ADM-300A, back-up	_____	_____
BGP Probe, primary	_____	_____
BGP Probe, back-up	_____	_____
BP Probe, primary	_____	_____
BP Probe, back-up	_____	_____

- 1.2.5 Place an ADM-300A hand held (for surveys) in a clear plastic bag and seal. Make sure that the bag does not interfere with the operation of the beta window on the front of the meter.

- _____ GPS equipment
- _____ GPS operational check, per manufacturer directions
- _____ Zip lock bags for meter covers, clear large, 1 box
- _____ Spare batteries, 9 volt, (4)

1.3 FIELD SAMPLING TOOLS

- _____ Bag, for sample tools, 30 gallon
- _____ Bucket, 1 gallon (1)
- _____ Flags, small, for sample location designation (minimum 30)
- _____ Flashlight, w/extra D cells
- _____ Funnel, plastic (minimum 6" wide mouth)
- _____ Hammer/mallet (1)
- _____ Insect repellent (2)
- _____ Rope (100 feet)
- _____ Scale, portable, 0-5 lbs, for weighing samples
- _____ Shears, hand, for grass
- _____ Shears, hedge
- _____ Soil sampler, square metal form (4 inch x 4 inch)
- _____ Spackle/putty blade, 4 inch, heavy (1)
- _____ Spray paint, bright color (1 can)
- _____ Squeeze bottles, large, plastic (3)
- _____ Stopwatch
- _____ String (50 feet)
- _____ Tape measure (12 feet)
- _____ Traffic cones, orange (3)

**SOP 307-B: INGESTION SAMPLING TEAM KIT CHECKLIST
(Continued)**

1.3 FIELD SAMPLING TOOLS (Continued)

- _____ Trowel or shovel
- _____ Tongs

1.4 SAMPLING MEDIA AND PRESERVATIVES

- _____ Smear Discs (box of 100)
- _____ Sodium Bi-Sulfite (for milk preservation), enough for 6 gallons
(about 240 grams)

1.5 SAMPLE STORAGE, SEALING AND LABELING SUPPLIES

- _____ Cooler chest, 10 gallon
- _____ Cubitainers, one gallon size, 15
- _____ Envelopes for smear discs (100)
- _____ Labels, for milk cubitainers, NOT FOR HUMAN CONSUMPTION (6)
- _____ Labels, sample identification (50)
- _____ Plastic bags, one gallon size, heavy weight (box of 30)
- _____ Plastic bags, eight gallon size, heavy weight (box of 30)
- _____ Plastic bags, thirty gallon size, heavy weight (box of 50)
- _____ Tape, 2" wide masking/surgical

1.6 ANTI-CONTAMINATION AND DECONTAMINATION GEAR

- _____ Anti-contamination clothing (6 sets)
- _____ Booties, rubber, disposable (30 pairs)
- _____ Cleaner, spray foaming tube & tile
- _____ Emergency Worker Kits (3)
- _____ Dosimeter of Legal Record (DLR), (3)
- _____ Gloves, latex, disposable (100 pairs)
- _____ MASSLIN cloths, chem wipes
- _____ Potassium Iodide (KI)
- _____ "Radioactive Materials" caution labels
- _____ Self-Reading Electronic Dosimeters (3)
- _____ Shielding material, for samples
- _____ Talcum powder (1)
- _____ Towels, paper (3 rolls)
- _____ Water, clean (2, 2.5 gallon containers)

SOP 307-C: SAMPLE RECORDING PROCEDURES

- 1.0** On the Sampling Form (Attachment 307-C1), fill in as follows:
 - 1.1** Sample location designator and number (TAC assigned)
 - 1.2** Location (ADC map number & grid), TAC assigned or used by team members to clarify their position
 - 1.2.1** Latitude and Longitude coordinates (from GPS receiver)
 - 1.3** Sample Team Name or Designation
 - 1.4** Sample Collector, name of person collecting sample
 - 1.5** Type of sample (check appropriate sample type)
 - 1.6** Date of sample (and date of milking, if milk sample)
 - 1.7** Time of sample (and time of milking, if milk sample)
 - 1.8** Highest of three gamma (closed-window) readings at approximately 3 feet above surface
 - 1.9** Volume or Weight of sample collected
 - 1.10** Surface area of sample collected
 - 1.11** Sample dose rate (from ADM-300A or equivalent). This is a “contact” dose rate reading with the meter held about 1/2 inch from (do not touch) sample in bag or cubitainer, probe closed window.
 - 1.12** Sample count rate (from ADM-300A or equivalent) This is a “contact” count rate reading with the meter held about 1/2 inch from (do not touch) sample in bag or cubitainer, probe closed window.
 - 1.13** Name and address of facility/supplier/farmer (if applicable)
 - 1.14** Remarks/special instructions
 - 1.14.1** Description of the sample location at the sample site
 - 1.14.2** Date and time dairy cattle placed on stored feed or they are in open pasture
 - 1.14.3** Volume of milk in the holding tank prior to the incident.
 - 1.14.4** Number of milkings after the incident and the volume difference in the holding tank.
 - 1.14.5** Any milk shipments since the incident started. Destination of milk shipped.
 - 1.15** Team member who completed the form
 - 1.16** Initials of person who attached custody form

**SOP 307-C: SAMPLE RECORDING PROCEDURES
(Continued)**

- 2.0** On the Custody Form (Attachment 307-C2), fill in as follows:
 - 2.1** Sample number (Sample location designator)
 - 2.2** Date collected
 - 2.3** Time collected
 - 2.4** Collected by
 - 2.5** Sample location
 - 2.5.1** Latitude and Longitude coordinates (from GPS receiver)
 - 2.6** Type of sample
 - 2.7** Special instructions
 - 2.8** Sample dose rate “contact” (from ADM-300A or equivalent)
 - 2.9** Sample count rate “contact” (from ADM-300A or equivalent)
 - 2.10** Upon each sample transfer record the following information:
 - 2.10.1** Signature of transfer recipient.
 - 2.10.2** Date of sample transfer.
 - 2.10.3** Time of sample transfer.
 - 2.10.4** Purpose of sample transfer.
 - 2.10.5** New location of sample.

**ATTACHMENT 307-C1
SAMPLING FORM**

1. Sample Location Designator/Number _____
2. Location (ADC Map #, grid) _____
 - 2.1 (From GPS): Latitude N: _____ Longitude W: _____
3. Sample Team _____
4. Sample Collected By _____
5. Type of Sample (Check)
 - _____ Fodder
 - _____ Swipe/Smear
 - _____ Vegetation
 - _____ Soil
 - _____ Milk (_____ Raw _____ Pasteurized)
 - _____ Water (_____ Surface _____ Well _____ Treatment Facility)
 - _____ Food (_____)
 - _____ Other (_____)
6. Date of Sample _____ Date of Milking, if milk _____
7. Time of Sample _____ Time of Milking, if milk _____
8. Highest Ambient Gamma Radiation Reading (3 foot, closed window) _____
9. Sample Volume (gallons, cubic feet) _____ or weight (lbs.) _____
10. Sample Surface Area: square yards _____ (yd²), square feet _____ (ft²), square inches _____ (in²)
11. Sample Dose Rate "contact" _____ (mR/hr)
12. Sample Count Rate "contact" _____ (CPM)
13. Name and Address of Facility/Supplier/Farmer (If applicable)

14. Remarks/Special Instructions _____

15. Completed By _____
16. Custody Form Attached _____ (Initials)

Sample Number _____

Collected
Date: _____ Time: _____ Collected by: _____

Location _____
(From GPS): Latitude N: _____ Longitude W: _____

Type of Sample _____

Special Instructions _____

Sample Dose Rate "contact" _____ (mR/hr) Sample Count Rate "contact" _____ (cpm)

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

Transferred to:
Signature _____ Date: _____ Time _____

Reason/Location of Sample _____

SOP 307-D: WATER SAMPLING METHODS

- 1.0 The IST will proceed to the assigned sampling location, keeping vehicle windows closed and vehicle ventilation off or in recirculation mode. While in transit, observe the background radiation dose rates using the ADM-300A survey meter with the probe mounted outside the vehicle. Report readings twice the normal background or higher to the EOC.
- 2.0 At each sampling location do the following:
 - 2.1 Park at the sampling site, leaving the vehicle engine running.
 - 2.2 Radio the EOC of arrival at sampling site.
 - 2.3 Affix a sample label or surgical tape to an appropriate sampling bag/container, for the sample to be collected, and enter the sample number and location.
 - 2.4 Depart vehicle wearing appropriate personnel protection equipment.
 - 2.5 Place traffic cones around vehicle, as necessary, for safety.
 - 2.6 Using the ADM-300A hand held survey meter covered with clear plastic, survey the local area. Take three ambient gamma (closed window) radiation readings at a level 3 feet above the surface. Take one reading at the sampling site, and the other two at locations about 6 feet from the site, in opposite directions. Record the highest of these three readings on the Sampling Form (Att. 307-C1), line 8.

3.0 WATER SAMPLING (WATER TREATMENT FACILITY)

Obtain treated surface water samples from the treatment facility and place in labeled (sample number and location) one gallon sampling containers. Sample both incoming raw water and outgoing finished water. Each sample must total at least 1 gallon. Place the sample containers in plastic bags and seal using tape.

- 3.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, one gallon cubitainers (2), 8 gallon bags (2), tape, stopwatch, sample flags, funnel, tools bag, forms, paper towels, rad. waste bag.
- 3.2 Team members will change protective gloves as often as necessary to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 3.3 Take ambient gamma radiation readings on the surface of purification, de-ionization, and filtration systems in the water treatment facility. Record in remarks section of Att. 307-C1, line 14.
- 3.4 Collect one gallon each from incoming raw water (untreated) and outgoing finished water (treated) spigots. Record "holdup" time from in to out in remarks section of Att. 307-C1, line 14.
- 3.5 Run spigots for 4 to 5 minutes before filling cubitainers. Rinse cubitainers with sample water before filling. Hold cubitainers under spigots, using funnel if necessary. Cap cubitainers when filled. Wipe off lip and outside of cubitainers. Wipes to rad. waste.

SOP 307-D: WATER SAMPLING METHODS (Continued)

- 3.6 Take “contact” sample dose rates, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 3.7 Place cubitainers and associated Att. 307-C1 in plastic bags and seal. Label bags with sample number and location. Attach 307-C2s to associated sample bags.
- 3.8 Place sample location designation flags, with the sample numbers, at the collection sites.
- 3.9 Decontamination of Sampling Tools.
 - 3.9.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 3.9.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 3.10 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 3.11 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

4.0 WATER SAMPLING (WELL WATER)

Obtain water sample from well supply and place in labeled (sample number and location) one gallon sampling container. Place the sample container in plastic bag and seal using tape.

- 4.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, one gallon cubitainer, 8 gallon bag, tape, stopwatch, sample flag, funnel, tools bag, forms, paper towels, rad. waste bag, bucket & rope (if open well).
- 4.2 Team members will change protective gloves as often as necessary to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 4.3 Collect water from the tap nearest the pump. For public drinking, avoid taps with filters or softeners.
- 4.4 Run water 5 minutes for all wells, before filling cubitainer. Rinse cubitainer with sample water before filling. Hold cubitainer under tap, using funnel if necessary. Cap cubitainer when filled. Wipe off lip and outside of cubitainer. Wipes to rad. waste.
- 4.5 Take a “contact” sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.

SOP 307-D: WATER SAMPLING METHODS (Continued)

- 4.6 Place cubitainer and Att. 307-C1 in a plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag.
 - 4.7 Place sample location designation flag, with the sample number, at the collection site.
 - 4.8 Decontamination of Sampling Tools.
 - 4.8.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 4.8.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
 - 4.9 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
 - 4.10 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.
- 5.0 WATER SAMPLING (SURFACE WATER - lakes, ponds, reservoirs, and streams):**
- Obtain water sample from surface water areas and place in labeled (sample number and location) one gallon sampling container. Place the sample container in plastic bag and seal using tape.
- 5.1 Site selection considerations:
 - 5.1.1 Select a place where the water is deep enough to completely submerge the cubitainer (without touching bottom). If too shallow, may use plastic squeeze bottle.
 - 5.1.2 Select an open area, not sheltered by overhanging trees or bushes.
 - 5.1.3 Avoid areas where surface debris could inhibit sampling, i.e. oil slicks, floating or underwater vegetation.
 - 5.1.4 Avoid high turbidity or high sediment areas, if possible.
 - 5.1.5 For lakes or reservoirs, the sample should represent water that makes up largest portion of the reservoir. Sampling from bridges or docks may facilitate open-water collections.
 - 5.1.6 Sample from midstream, if possible. If wading into water, sample upstream to avoid stirred up sediment.

SOP 307-D: WATER SAMPLING METHODS (Continued)

- 5.2 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, one gallon cubitainer, plastic squeeze bottle, 8 gallon bag, tape, sample flag, funnel, tools bag, forms, paper towels, rad. waste bag, bucket & rope (if needed to sample from bridge/dock).
 - 5.3 Team members will change protective gloves as often as necessary to avoid cross contamination. Used gloves go into rad. waste bag. Use a large plastic bag as a ground protector before placing anything on the ground.
 - 5.4 Collect surface water by submerging the cubitainer (without touching bottom). If too shallow, use plastic squeeze bottle to suck up water and transfer to cubitainer. Use bucket and rope if sampling from bridge/dock, and transfer to cubitainer. Use funnel if necessary. Rinse cubitainers with sample water before filling. Cap cubitainer when filled. Wipe off lip and outside of cubitainer. **Used** wipes go into rad. waste.
 - 5.5 Take a “contact” sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
 - 5.6 Place cubitainer and Att. 307-C1 in a plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag.
 - 5.7 Place sample location designation flag, with the sample number, at the collection site.
 - 5.8 Decontamination of Sampling Tools.
 - 5.8.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 5.8.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
 - 5.9 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
 - 5.10 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.
- 6.0 WATER SAMPLING (RAIN WATER)**

If rainwater is to be collected, refer to DOE/NV11718-181-VOL 1, FRMAC Monitoring and Analysis Manual, Radiation Monitoring and Sampling, August 1998.

SOP 307-E: MILK SAMPLING METHODS

- 1.0 The IST will proceed to the assigned sampling location, keeping vehicle windows closed and vehicle ventilation off or in recirculation mode. While in transit, observe the background radiation dose rates using the ADM-300A survey meter with the probe mounted outside the vehicle. Report readings twice the normal background or higher to the EOC.
- 2.0 At each sampling location do the following:
 - 2.1 Park at the sampling site, leaving the vehicle engine running.
 - 2.2 Radio the EOC of arrival at sampling site.
 - 2.3 Affix a sample label or surgical tape to an appropriate sampling bag/container, for the sample to be collected, and enter the sample number and location.
 - 2.4 Depart vehicle wearing appropriate personnel protection equipment.
 - 2.5 Place traffic cones around vehicle, as necessary, for safety.
 - 2.6 Using the ADM-300A hand held survey meter covered with clear plastic, survey the local area. Take three ambient gamma (closed window) radiation readings at a level 3 feet above the surface. Take one reading at the sampling site, and the other two at locations about 6 feet from the site, in opposite directions. Record the highest of these three readings on the Sampling Form (Att. 307-C1), line 8.

3.0 MILK SAMPLING (RAW MILK)

Obtain raw milk sample from farm and place in labeled (sample number and location) one gallon sampling container. Farmer should be notified via telephone that a sample will be taken. Normally, the farmer will draw the raw milk sample. Sample must total at least one 1 gallon. Place the sample container in a plastic bag and seal using tape.

- 3.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, one gallon cubitainer, 8 gallon bag, sodium bi-sulfite preservative, tape, sample flags, funnel, tools bag, forms, paper towels, rad. waste bag. The cubitainer must be labeled with the following: "MILK SAMPLE PRESERVED WITH CHEMICAL ADDITIVE - NOT FOR HUMAN CONSUMPTION".
- 3.2 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 3.3 Have the farmer agitate the milk in the tank to ensure homogeneity.
- 3.4 Team will observe the farmer collect or the team will collect in a new cubitainer, one gallon of raw milk from the bottom spigot/valve of the collecting tank or milk truck, using the funnel if necessary.
- 3.5 Add sodium bi-sulfite preservative, 39 grams per gallon, to the raw milk.
- 3.6 Take a "contact" sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.

SOP 307-E: MILK SAMPLING METHODS (Continued)

- 3.7 Obtain the following information to complete Att. 307-C1
 - 3.7.1 Date and time dairy cattle placed on stored feed or they are in open pasture
 - 3.7.2 Holding tank capacity and volume of milk in the tank prior to the incident.
 - 3.7.3 Number of milkings after the incident and the volume difference in the holding tank.
 - 3.7.4 Any milk shipments since the incident started. Destination of milk shipped.
 - 3.8 Place cubitainer and Att. 307-C1 in a plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag. Place in cooler chest.
 - 3.9 Place sample location designation flag, with the sample number, at the collection site.
 - 3.10 Decontamination of Sampling Tools.
 - 3.10.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 3.10.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
 - 3.11 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
 - 3.12 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.
- 4.0 MILK SAMPLING (PASTEURIZED MILK)**
- Obtain pasteurized milk sample from either a commercial dairy or by purchasing from stores that are supplied by local dairies. Place a label (sample number and location) on the one gallon container. Place the sample container in a plastic bag and seal using tape.
- 4.1 Pasteurized milk is generally a blend of milk collected from many locations. Samples selected should have a known percentage of milk from the area of interest. If possible, ask from which location(s) the milk was obtained (store manager/processing manager).
 - 4.2 Take a “contact” sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
 - 4.3 Place sample and Att. 307-C1 in a plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag. Place in cooler chest.
 - 4.4 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

SOP 307- F: SURFACE AREA SAMPLING METHODS

- 1.0 The IST will proceed to the assigned sampling location, keeping vehicle windows closed and vehicle ventilation off or in recirculation mode. While in transit, observe the background radiation dose rates using the ADM-300A survey meter with the probe mounted outside the vehicle. Report readings twice the normal background or higher to the EOC.
- 2.0 At each sampling location do the following:
 - 2.1 Park at the sampling site, leaving the vehicle engine running.
 - 2.2 Radio the EOC of arrival at sampling site.
 - 2.3 Affix a sample label or surgical tape to an appropriate sampling bag/container, for the sample to be collected, and enter the sample number and location.
 - 2.4 Depart vehicle wearing appropriate personnel protection equipment.
 - 2.5 Place traffic cones around vehicle, as necessary, for safety.
 - 2.6 Using the ADM-300A hand held survey meter covered with clear plastic, survey the local area. Take three ambient gamma (closed window) radiation readings at a level 3 feet above the surface. Take one reading at the sampling site, and the other two at locations about 6 feet from the site, in opposite directions. Record the highest of these three readings on the Sampling Form (Att. 307-C1), line 8.

3.0 PASTURE GRASS

In addition to collecting milk samples, it is also important to collect samples of the hay, grasses and feeds being consumed by the cows. Obtain samples of leafy animal feeds and hay bales and place in labeled (sample number and location) plastic sampling bags. Each sample must total at least 2.5 pounds. Granular feed or silage grain may also be collected. Place the sample bags in a second plastic bag and seal using tape.

- 3.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, 8 gallon bags, 30 gallon bags, scale, shears, spray paint, string, tape measure, tape, tools bag, sample flags, forms, rad. waste bag.
- 3.2 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 3.3 **Leafy Animal Feed** - Collect at least 2.5 pounds.
 - 3.3.1 If leafy greens are mixed, they must be from same sample site. Standing Grains include: wheat, rye, barley, buckwheat, oats, soy beans. Standing Hay includes: alfalfa, sweet clover, timothy, vetch etc. Collect samples of each type of feed where animals may be feeding. Avoid weeds.
 - 3.3.2 Select a sampling site openly exposed to deposition; i.e. away from trees and structures. Site should have relatively uniform distribution of vegetation.

SOP 307- F: SURFACE AREA SAMPLING METHODS (Continued)

- 3.3.3 Measure and mark off an area using spray paint or string that is about 3 feet by 3 feet (9 square feet). Using grass or hedge shears, clip the upper portion of vegetation, not stems and roots. The upper portion is where fallout would be expected to settle on the plants.
- 3.3.4 Collect more than one sample, if necessary, to obtain a representative sample of the area.
- 3.3.5 Collect at least 2.5 pounds in an 8 gallon plastic bag. Weigh on scale.
- 3.4 **Hay from Bales** - Collect at least 2.5 pounds.
 - 3.4.1 Collect samples from hay bales unprotected from the wind; i.e. away from trees and structures.
 - 3.4.2 Sample from outer portion of hay bale, taking samples of equal amounts from top and sides of bales.
 - 3.4.3 Collect at least 2.5 pounds in an 8 gallon plastic bag. Weigh on scale.
- 3.5 **Granular Feed or Silage Grain** - Collect equivalent of one 16 inch x 24 inch plastic bag full.
- 3.6 Take “contact” sample dose rates, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 3.7 Place sample bags and associated Att. 307-C1 in larger plastic bags and seal. Label bags with sample numbers and locations. Attach 307-C2s to associated sample bags.
- 3.8 Place sample location designation flags, with the sample numbers, at the collection sites.
- 3.9 Decontamination of Sampling Tools.
 - 3.9.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 3.9.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 3.10 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 3.11 Contact EOC. Give sample “contact” dose rates. Proceed as instructed.

SOP 307- F: SURFACE AREA SAMPLING METHODS (Continued)

4.0 SOIL

In sampling soil, the most important variable is the surface area of the sample. The depth of the sample is not that important, as all activity is deposited on the surface of the soil. Obtain samples of soil by removing soil to a depth of approximately 1/2 inch. If snow has fallen since the suspected time of deposition, gently remove as much snow as possible from the collection area and take the soil sample. Place samples in labeled (sample number and location) plastic sampling bags. Place the sample bags in second plastic bags and seal using tape.

- 4.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, 8 gallon bags, 30 gallon bags, scale, tape, shovel, soil sampler, hammer/mallet, spoon, tools bag, sample flags, forms, rad. waste bag.
- 4.2 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 4.3 Select an area with the following characteristics:
 - 4.3.1 Level ground
 - 4.3.2 No or very low vegetation
 - 4.3.3 Good soil permeability (soil is not hard packed and no evidence of runoff)
 - 4.3.4 Open and not sheltered by trees, structures or overhanging objects
 - 4.3.5 Minimum animal activity that could cause soil mixing
 - 4.3.6 Avoid areas right next to roads
- 4.4 Using the trowel or shovel, dig a small trench approximately 6 inches x 6 inches and about 3 inches deep. Make sure one vertical side of the trench is flat and straight up and down.
- 4.5 Place the metal soil sampler horizontal on top of the ground, with the open side of the sampler just above and aligned with the straight side of the trench.
- 4.6 Push or tap (using hammer) the soil sampler into the ground to a depth of 1/2 inch. Avoid stones, any vegetation or debris.
- 4.7 Place the 4 inch spackle blade perpendicular to the vertical straight side of soil and level with the horizontal bottom of the soil sampler, which is now 1/2 inch into the soil.
- 4.8 Slide the spackle blade horizontally along the bottom edge of the sampler and in 4 inches, effectively forming a bottom to the sampler. This should remove a plug of soil that is 4 inches x 4 inches x 1/2 inch.
- 4.9 Place soil in a labeled sample bag and seal. Weigh on scale.
- 4.10 Take a "contact" sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 4.11 Place sample bag and Att. 307-C1 in a larger plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag.

SOP 307-F: SURFACE AREA SAMPLING METHODS (Continued)

- 4.12 Place sample location designation flag, with the sample number, at the collection site.
- 4.13 Decontamination of Sampling Tools.
- 4.13.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
- 4.13.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 4.14 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 4.15 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

5.0 SNOW

If snow fell before deposition occurred, sample the snow then also take a soil sample. Obtain samples of snow and soil and place in labeled (sample number and location) plastic sampling bags. Place the sample bags in second plastic bags and seal using tape.

- 5.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, 8 gallon bags, 30 gallon bags, scale, string, tape measure, tape, shovel or trowel, tools bag, sample flag, forms, rad. waste bag.
- 5.2 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 5.3 Select an area with the following characteristics:
- 5.3.1 Level ground
- 5.3.2 No or very low vegetation
- 5.3.3 No evidence snow drifting, with a minimum of compaction
- 5.3.4 Open and not sheltered by trees, structures or overhanging objects
- 5.3.5 Minimum human/animal activity
- 5.3.6 Avoid areas right next to roads
- 5.4 **For wet or heavy snow:**
Measure and mark off an area using string that is about 3 feet by 3 feet (9 square feet).
- 5.5 **For powdery or newly fallen snow:**
Measure and mark off an area using string that is about 6 feet by 6 feet (36 square feet).

SOP 307-F: SURFACE AREA SAMPLING METHODS (Continued)

- 5.6 Use a trowel or shovel to scrape the top approximately 1 inch of snow into a labeled plastic bag.
- 5.7 Collect about 2 pounds. Weigh on scale.
- 5.8 Take “contact” sample dose rates, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 5.9 Place sample bags and Att. 307-C1 in larger plastic bags and seal. Label bags with sample number and location. Attach 307-C2s to sample bags.
- 5.10 Place sample location designation flag, with the sample number, at the collection site.
- 5.11 Decontamination of Sampling Tools.
 - 5.11.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 5.11.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 5.12 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 5.13 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

6.0 SWIPE/SMEAR

Obtain swipe/smear samples and place in labeled (sample number and location) plastic sampling bag. Place the sample bag in second plastic bag and seal using tape.

- 6.1 Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, 8 gallon bag, 30 gallon bag, smear discs (5), smear disc envelopes (5), spray paint, tape measure, tape, tools bag, sample flags, forms, rad. waste bag.
- 6.2 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 6.3 Select a flat and smooth surface, having the highest survey surface reading of the three ambient gamma (closed window) radiation readings at a level 3 feet above the surface.

**SOP 307-F: SURFACE AREA SAMPLING METHODS
(Continued)**

- 6.4** Measure and mark off an area using spray paint that is about 3 feet by 3 feet (9 square feet). At each corner of the square yard, and at the center, smear an area about 4 inches by 4 inches (5 separate swipings). Place each smear disc in a separate sample envelope. Place all 5 envelopes in a sample bag and seal.
- 6.5** Take a “contact” sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 6.6** Place sample bag and Att. 307-C1 in a second plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag.
- 6.7** Place sample location designation flag, with the sample number, at the collection site.
- 6.8** Decontamination of Sampling Tools.
 - 6.8.1** Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 6.8.2** In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 6.9** Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 6.10** Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

SOP 307-G: FOOD AND MILK PRODUCT SAMPLING METHODS

- 1.0** The IST will proceed to the assigned sampling location, keeping vehicle windows closed and vehicle ventilation off or in recirculation mode. While in transit, observe the background radiation dose rates using the ADM-300A survey meter with the probe mounted outside the vehicle. Report readings twice the normal background or higher to the EOC.
- 2.0** At each sampling location do the following:
 - 2.1** Park at the sampling site, leaving the vehicle engine running.
 - 2.2** Radio the EOC of arrival at sampling site.
 - 2.3** Affix a sample label or surgical tape to an appropriate sampling bag/container, for the sample to be collected, and enter the sample number and location.
 - 2.4** Depart vehicle wearing appropriate personnel protection equipment.
 - 2.5** Place traffic cones around vehicle, as necessary, for safety.
 - 2.6** Using the ADM-300A hand held survey meter covered with clear plastic, survey the local area. Take three ambient gamma (closed window) radiation readings at a level 3 feet above the surface. Take one reading at the sampling site, and the other two at locations about 6 feet from the site, in opposite directions. Record the highest of these three readings on the Sampling Form (Att. 307-C1), line 8.

3.0 AGRICULTURAL PRODUCTS

Obtain samples of leafy vegetation, fruit and vegetables as directed and place in labeled (sample number and location) plastic sampling bags. Each sample must total about 3 pounds. Place the sample bags in second plastic bags and seal using tape.

- 3.1** Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, 8 gallon bags, 30 gallon bags, scale, shears, tongs, spray paint, string, tape measure, tape, tools bag, sample flags, forms, rad. waste bag.
- 3.2** Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste. Use a large plastic bag as a ground protector before placing anything on the ground.
- 3.3** In a field or garden, select a sampling site openly exposed to deposition, unprotected by wind and away from trees and structures. Site should have relatively uniform distribution of vegetation.
- 3.4** When sampling leafy vegetation, measure and mark off an area using spray paint or string that is about 3 feet by 3 feet (9 square feet). Using grass or hedge shears, clip the upper leafy green portion of vegetation only, not stems and roots. The upper portion is where fallout would be expected to settle on the plants. It is important to also collect any moisture which may be on the vegetation, frozen or not.
- 3.5** Collect about 3 pounds in an appropriate size plastic bag. Weigh on scale. Expand the 3 foot by 3 foot area to get the desired 3 pounds, if necessary.
- 3.6** Collect fruits and vegetables by picking or using tongs.

SOP 307-G: FOOD AND MILK PRODUCT SAMPLING METHODS (Continued)

- 3.7 When collecting after a snow storm, collect the samples with snow on them.
- 3.8 Take a “contact” sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 3.9 Place sample bag and associated Att. 307-C1 in a second plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag.
- 3.10 Place sample location designation flag, with the sample number, at the collection site.
- 3.11 Decontamination of Sampling Tools.
 - 3.11.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 3.11.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 3.12 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 3.13 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

4.0 EGGS

Obtain sample of one dozen eggs in a carton. Place in labeled (sample number and location) plastic sampling bag. Place the sample bag in second plastic bag and seal using tape.

- 4.1 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste.
- 4.2 Collect one dozen eggs from a local farm or at a store which sells local eggs. Ask at the store if eggs are from local farms.
- 4.3 Take a “contact” sample dose rate, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 4.4 Place egg carton and Att. 307-C1 in a plastic bag and seal. Label bag with sample number and location. Attach 307-C2 to sample bag.
- 4.5 Place sample location designation flag, if appropriate to do so, with the sample number, at the collection site.

SOP 307-G: FOOD AND MILK PRODUCT SAMPLING METHODS (Continued)

- 4.6** Decontamination of Sampling Tools, if necessary.
- 4.6.1** Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
- 4.6.2** In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 4.7** If collected from a local farm, sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 4.8** Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

5.0 MEAT

Under direction of the TAC, obtain samples of meat. Place in labeled (sample number and location) plastic sampling bags. Place the sample bags in second plastic bags and seal using tape.

- 5.1** Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste.
- 5.2** Collect samples of meat and/or meat products from slaughterhouses or meat processors. Types of meat should be sampled separately (muscle, liver, kidney).
- 5.3** Collect at least a 2 pound sample and place in plastic bag. Weigh on scale.
- 5.4** Take “contact” sample dose rates, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 5.5** Place sample bags and associated Att. 307-C1 in larger plastic bags and seal. Label bags with sample numbers and location. Attach 307-C2s to sample bags.
- 5.6** Place sample location designation flags, if appropriate to do so, with the sample numbers, at the collection sites.
- 5.7** Decontamination of Sampling Tools, if necessary.
- 5.7.1** Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
- 5.7.2** In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.

SOP 307-G: FOOD AND MILK PRODUCT SAMPLING METHODS (Continued)

- 5.8 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 5.9 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

6.0 MILK PRODUCTS

Under direction of the TAC, obtain samples of milk products. Place in labeled (sample number and location) plastic sampling bags. Place the sample bags in second plastic bags and seal using tape.

- 6.1 Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste.
- 6.2 Collect samples of milk products through purchases of milk products (cheese, butter, frozen desserts) as offered for sale to consumers. Collect a representative sampling of milk product processors who purchase milk from the ingestion pathway area.
- 6.3 Collect at least 2 pound quantities of the samples and place in plastic bags. Weigh on scale.
- 6.4 Take “contact” sample dose rates, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 6.5 Place sample bags and associated Att. 307-C1 in larger plastic bags and seal. Label bags with sample numbers and locations. Attach 307-C2s to sample bags.
- 6.6 Place sample location designation flags, if appropriate to do so, with the sample numbers, at the collection sites.
- 6.7 Decontamination of Sampling Tools, if necessary.
 - 6.7.1 Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 6.7.2 In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 6.8 Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 6.9 Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

SOP 307-H: FINFISH AND SHELLFISH SAMPLING METHODS

- 1.0** The IST will proceed to the assigned sampling location, keeping vehicle windows closed and vehicle ventilation off or in recirculation mode. While in transit, observe the background radiation dose rates using the ADM-300A survey meter with the probe mounted outside the vehicle. Report readings twice the normal background or higher to the EOC.
- 2.0** At each sampling location do the following:
 - 2.1** Radio the EOC of arrival at sampling site.
 - 2.2** Affix a sample label or surgical tape to an appropriate sampling bag/container, for the sample to be collected, and enter the sample number and location.
 - 2.3** Depart vehicle wearing appropriate personnel protection equipment.
 - 2.4** Place traffic cones around vehicle, as necessary, for safety.
 - 2.5** Using the ADM-300A hand held survey meter covered with clear plastic, take ambient gamma (closed window) radiation readings at sample collection sites and record the readings on the Sampling Form (Att. 307-C1), line 8.

3.0 FINFISH AND SHELLFISH

Obtain samples of finfish and shellfish as directed and place in labeled (sample number and location) plastic sampling bags. Each sample must total about 8 pounds. Place the sample bags in second plastic bags and seal using tape.

- 3.1** The Department of Natural Resources and Environmental Control (DNREC), Division of Fish and Wildlife (DFW) is the primary agency for collection of finfish and shellfish samples and will provide boat(s) for collection of the samples. The DNG will assist with collection of the samples.
- 3.2** Perform operation checks of all equipment on the sampling boat(s), including communication, safety and navigational.
- 3.3** Load all necessary sampling equipment onto boat(s), nets, traps, lines, bait, etc.
- 3.4** Take only the necessary tools from kit to collection site: ADM-300A, GPS, gloves, 8 gallon bags, 30 gallon bags, scale, tape, tools bag, forms, rad. waste bag.
- 3.5** Team members will change protective gloves as often as necessary, to avoid cross contamination. Gloves to rad. waste.
- 3.6** At each sampling site, collect about 8 pounds of finfish and/or shellfish and place in n appropriate size plastic bags. Weigh on scale.
- 3.7** Take “contact” sample dose rates, record on Att. 307-C1, line 11 and Att. 307-C2. Complete the remainder of Att. 307-C1 and C2.
- 3.8** Place sample bags Att. 307-C1 in second plastic bags and seal. Label bags with sample numbers and locations. Attach 307-C2 to sample bags.

**SOP 307-H: FINFISH AND SHELLFISH SAMPLING METHODS
(Continued)**

- 3.9** Place bagged samples in an ice chest.
- 3.10** Decontamination of Sampling Tools, if necessary.
 - 3.10.1** Decontamination of sampling tools should be completed in an area less than twice normal background, to avoid extraneous readings from ground dose rates in a contaminated area. Place all sampling tools in a large plastic “tools” bag and tie closed.
 - 3.10.2** In an area less than twice normal background, survey all sample tools with meter to determine if contaminated. Decontaminate sample collection tools, as necessary (Rinse with clean water or use foaming cleanser). Dry with wipes, place wipes in rad. waste. Survey tools with meter to verify decontamination. Place decontaminated tools in kit.
- 3.11** Sit in vehicle, feet outside. Remove boots then gloves. Dispose of boots, gloves and any bags used as ground protectors to rad. waste.
- 3.12** Contact EOC. Give sample “contact” dose rate. Proceed as instructed.

SOP 311 - DEMA / EMERGENCY OPERATIONS FACILITY (EOF) LIAISON

1.0 OBJECTIVE

This procedure describes the responsibilities and tasks of the Delaware Representatives at the PSEG Emergency Operations Facility (EOF) in Salem, NJ. The EOF Representatives serve as the liaison between Delaware's Technical Assessment Center (TAC) and PSEG Nuclear LLC.

2.0 CONTENTS

SOP 311-A Duties and Responsibilities

3.0 PREREQUISITE

- 3.1 An emergency condition exists which requires a Delaware Representative(s) at the EOF.
- 3.2 SOP 100 Series notification procedures have been implemented.

4.0 REFERENCES

- 4.1 State of Delaware, Radiological Emergency Plan
- 4.2 State of Delaware, SOP 300 Series Procedures

5.0 ATTACHMENTS

- 5.1 Field Monitoring Data Form
- 5.2 Protective Actions Information Form
- 5.3 EOF/EOC Briefing Information Form
- 5.4 EOF Leads Directory
- 5.5 EOF Briefing Form
- 5.6 Log in Procedure for DEMA Network
- 5.7 EOF Representative(s) – Checklist
- 5.8 Predeployment Briefing Form

6.0 RECORDS

All data, records, forms and logs are to be transmitted to and maintained by DEMA at the State EOC for historical files.

SOP 311-A DUTIES AND RESPONSIBILITIES

1.0 EOF Representative(s)

- 1.1 Report to the State Emergency Operations Center (EOC) in Smyrna or as directed by the EOC.
- 1.2 Notify DEMA REP Section Supervisor upon arrival.
- 1.3 Obtain copies of Initial Contact Message Forms (ICMF's), Station Status Checklists (SSCL's) and other documents from DEMA Operations relevant to the emergency.
- 1.4 Initiate and maintain a chronological log of all activities including telephone calls (outgoing and incoming), telecopied information (outgoing and incoming), press releases, fact sheet summaries, EAS messages and news briefings.
- 1.5 Get a briefing from DEMA Operations, using Attachment 5.8, to include:
 - Affected Station (Salem I, Salem II, Hope Creek)
 - Event Classification and description of event
 - Meteorological Conditions (Current and next 24 hours)
 - Affected geographic areas
 - Protective action decisions
 - Emergency Worker protective measures
 - Federal, State, Local and Private Response
 - Radio and TV stations broadcasting emergency information
- 1.6 Review Event Classification Guide (ECG) parameters. Guides are located in the TAC Room.
- 1.7 Verify telephone and telecopier numbers before dispatch to the EOF.
- 1.8 Bring the following if not already stored in Delaware's area/desk at the EOF:
 - 1.8.1 Copy of Delaware REP Plan
 - 1.8.2 Map of EPZ
 - 1.8.3 Map and description of fixed monitoring points
 - 1.8.4 Up-to-date telephone and fax list
 - 1.8.5 Portable radio
 - 1.8.6 Self-protection kit(s)
 - 1.8.7 Emergency Worker Identification Card
 - 1.8.8 Directions to EOF from State EOC

1.0 EOF Representative(s) (Continued)

- 1.9 Obtain dosimeters and fill out dose record in accordance with SOP 801.
- 2.0 Proceed to the Emergency Operations Facility (EOF) in Salem, New Jersey. If possible, at least two persons should be dispatched to the EOF from Delaware (Lead and communications support).
- 2.1 Perform radio/communications checks enroute. Communicate via car radio/phone as needed. Notify DEMA Operations upon arrival at the EOF.
- 2.2 Enter EOF through second entrance (student entrance) and show Delaware Identification Card.
- 2.3 Upon arrival at the EOF:
 - 2.3.1 Sign in at security desk.
 - 2.3.2 Inform the PSEG Emergency Response Manager (ERM) of your arrival.
 - 2.3.3 Meet with the PSEG Emergency Preparedness Coordinator (EPC). EPC will introduce PSEG Leads in other functional areas (Radiation Support, Site Support, Engineering Staff, etc.). Use Attachment 5.4 to record information.
 - 2.3.4 Test Communication equipment (NETS telephone, commercial telephone, telecopier, etc.) by contacting the Technical Assessment Center (TAC) at the State EOC, the Delaware Representative at the Emergency News Center and Joint Information Center, the DEMA Director at the State EOC, and DEMA Operations at the State EOC. Inform the PSEG Emergency Preparedness Coordinator (EPC) if equipment is inoperable.
 - 2.3.5 Establish and maintain communication link with TAC at the State EOC. One person should be available at all times to handle communications as required.
 - 2.3.6 Review documents in DEMA "in-basket" at EOF. Verify current information with TAC.

Note: Both the EOF Representative(s) and the TAC receive Station Status Checklists every 1/2 hour and Initial Contact Message Forms as necessary (each change in event classification, termination, protective action upgrade, etc.). Inform the EPC if the TAC and/or the EOF Representative do not receive timely, legible or complete information. EOF Representative also receives other documents which may be of use.
 - 2.3.7 Meet with the New Jersey Bureau of Nuclear Engineering (BNE) Lead Representative.
 - 2.3.8 Receive the initial briefing from the PSEG ERM and New Jersey BNE Lead Representative.

2.0 EOF Representative(s) (Continued)

- 2.3.9 Provide ERM and NJ BNE Lead Representative with Delaware Protective Action Decisions, siren sounding times and messages, etc., using the EOF Briefing Form, Attachment 5.5.
- 2.3.10 Coordinate with the State of New Jersey BNE Lead Representative and PSEG Radiation Support Lead to exchange field data as it becomes available using the Field Monitoring Data Form (Attachment 5.1).
- 2.3.11 Participate in all briefings. Ask questions for clarification as necessary.
- 2.3.12 Call TAC representative before and after each briefing to exchange and update information.
- 2.3.13 Call TAC representative when the situation changes i.e., a change in event classification, etc.
- 2.3.14 Coordinate with DEMA Operations to establish personnel shifts for 24- hour operations or if more help is needed.
- 2.3.15 Utilize the EOF/EOC Information Form (Attachment 5.3) to request information from the EOC and transmit information to the EOC. Requests for information from the EOC may be faxed using this form.
- 2.3.16 The following Technical Data is to be forwarded to Delaware's TAC. This information is **high priority**.

Salem Technical Data

Dose Assessment Data Sheet
Major Equipment and Electrical Status
Unit Radiation Monitor Location Diagrams
Unit Operations Status Board Parameters
EOF Technical Support Tracking Form
Meteorological Monitoring Data
Chemistry Initial Conditions Information Sheet

Hope Creek Technical Data

RMS Status Board
Safety Parameter Display System Screen Prints
Major Equipment and Electrical Status
Operational Status Board
Meteorological Monitoring Data

Note: Do not fax Initial Contact Message Forms or Station Status Checklist to the TAC, unless requested.

- 2.4 When a Termination Message is received:
 - 2.4.1 Collect all logs, press releases, fact sheet summary and EAS messages to be provided to DEMA Operations for permanent record.
 - 2.4.2 Return work area to original condition.

EOF LEADS DIRECTORY

Attachment 5.4

Emergency Preparedness Coordinator (EPC): _____

Emergency Response Manager (ERM): _____
(Overall Situation Status)

Site Support Manager (SSM): _____
(Operational Conditions)

Radiation Support Manager (RSM): _____
*(Dose Assessment & Radiation Conditions)

Technical Support Manager (TSM): _____
*(Plant Engineering Changes)

New Jersey Bureau Of Nuclear Engineering Lead: _____
(NJ Assessment & PARs)

EOF BRIEFING FORM
(Used for information from DE EOC to Salem EOF)

Attachment 5.5

BRIEFING INFORMATION AS OF (DATE/TIME) _____

DE EOC Activated (initial briefing only) Yes _____ No _____ As of _____

PROTECTIVE ACTIONS

EAS Sirens @ _____ Message @ _____

RIVER ALERTING Start @ _____ Completed @ _____

**SCHOOLS/
SPECIAL POP EVAC** ERPA's _____ PAD Time _____

SHELTERING ERPA's _____ PAD Time _____

EVACUATION ERPA's _____ PAD Time _____

KI - General Public ERPA's _____ PAD Time _____

KI – Emerg. Workers ERPA's _____ PAD Time _____

FARM ANIMALS ERPA's _____ PAD Time _____
(Stored feed/water)

RECEPTION CENTERS

Stern (Marshallton) Readiness Center Open _____ Closed _____ As of _____

Smyrna Readiness Center Open _____ Closed _____ As of _____

DNG FIELD MONITORING TEAMS

Alerted Yes _____ No _____ As of _____

Standby Yes _____ No _____ As of _____

Deployed Yes _____ No _____ As of _____

Team 1 Location _____ Readings _____

Team 2 Location _____ Readings _____

EOC BRIEFING FORM (Continued)

Attachment 5.5 (Continued)

EMERGENCY WORKER DECONTAMINATION CENTER

Open _____ Closed _____ As of _____

PRESS RELEASES: Number _____ As of _____

REMARKS (DOE Support, Access Control, etc)

INSTRUCTIONS

DE EOF Team Leader:	Fax this form to DEMA EOC
DEMA EOC Operations:	Fill out pertinent information and fax back to EOF
DE EOF Team Leader:	Brief EOF staff at update meetings

**LOG IN PROCEDURE FOR DEMA NETWORK ACCESS
AT THE PSEG EOF AND ENC/JIC**

Attachment 5.6

1. Power on the PC

2. Log into the PC as follows:

 User name: administrator
 Password: Brick165

3. Click on the **VPN Dialer** icon

4. Press the Connect button. A password box will appear. Use the following to log in; logins are **case sensitive**:

 EOF Site

 User ID: pdeofso-vpn
 Password: S322Fss3

5. Once you are logged in to the VPN Dialer, you can either click on the Delaware Email Icon, or connect to the Incident Master Icon.

Delaware Email Login:

Enter Email Address: Enter your email address
Password: Enter your password

Incident Master Login:

User Name: Z + Last Name + First Name for example: ZOConnorScott
Password: there is no password

EOF REPRESENTATIVES - CHECKLISTS

Attachment 5.7

Initial Checklist:

- _____ 1.1 Notify DEMA REP Section Supervisor upon arrival at the EOC.
- _____ 1.2 Obtain copies of Initial Contact Message Forms (ICMF's), Station Status Checklists (SSCL's) and other documents from DEMA Operations relevant to the emergency.
- _____ 1.3 Initiate and maintain a chronological log of all activities including telephone calls (outgoing and incoming), telecopied information (outgoing and incoming), press releases, fact sheet summaries, EAS messages and news briefings.
- _____ 1.4 Get a briefing from DEMA Operations, using Attachment 5.8, to include:
 - Affected Station (Salem I, Salem II, Hope Creek)
 - Event Classification and description of event
 - Meteorological Conditions (Current and next 24 hours)
 - Affected geographic areas
 - Protective action decisions
 - Emergency Worker protective measures
 - Federal, State, Local and Private Response
 - Radio and TV stations broadcasting emergency information
- _____ 1.5 Review Event Classification Guide (ECG) parameters. Guides are located in the TAC Room.
- _____ 1.6 Verify telephone and telecopier numbers before dispatch to the EOF.
- _____ 1.7 Bring the following if not already stored in Delaware's area/desk at the EOF:
 - 1.7.1 Copy of Delaware REP Plan
 - 1.7.2 Map of EPZ
 - 1.7.3 Map and description of fixed monitoring points
 - 1.7.4 Up-to-date telephone and fax list
 - 1.7.5 Portable radio
 - 1.7.6 Self-protection kit(s)
 - 1.7.7 Emergency Worker Identification Card
 - 1.7.8 Directions to EOF from State EOC

EOF REPRESENTATIVES CHECKLISTS

Attachment 5.7

Initial Checklist (continued):

- ___ 1.8 Obtain dosimeters and fill out dose record in accordance with SOP 801.
 - ___ 1.9 Proceed to the Emergency Operations Facility (EOF) in Salem, New Jersey.
 - ___ 1.10 Perform radio/communications checks enroute. Communicate via car radio/phone as needed. Notify DEMA Operations upon arrival at the EOF.
 - ___ 1.11 Enter EOF through second entrance (student entrance) and show Delaware Identification Card.
- 2.0 Upon arrival at the EOF:
- ___ 2.1 Sign in at security desk.
 - ___ 2.2 Inform the PSEG Emergency Response Manager (ERM) of your arrival.
 - ___ 2.3 Meet with the PSEG Emergency Preparedness Coordinator (EPC). EPC will introduce PSEG Leads in other functional areas (Radiation Support, Site Support, Engineering Staff, etc.). Use Attachment 5.4 to record information.
 - ___ 2.4 Test Communication equipment (NETS telephone, commercial telephone, telecopier, etc.) by contacting the Technical Assessment Center (TAC) at the State EOC, the Delaware Representative at the Emergency News Center and Joint Information Center, the DEMA Director at the State EOC, and DEMA Operations at the State EOC. Inform the PSEG Emergency Preparedness Advisor (EPC) if equipment is inoperable.
 - ___ 2.5 Establish and maintain communication link with TAC at the State EOC. One person should be available at all times to handle communications as required.
 - ___ 2.6 Review documents in DEMA “in-basket” at EOF. Verify current information with TAC.
 - ___ 2.7 Meet with the New Jersey Bureau of Nuclear Engineering (BNE) Lead Representative.
 - ___ 2.8 Receive the initial briefing from the PSEG ERM

EOF REPRESENTATIVES CHECKLISTS

Attachment 5.7

Ongoing Activities Checklist:

- ___ 3.1 Provide ERM and NJ BNE Lead Representative with Delaware Protective Action Decisions, siren sounding times and messages, etc., using the EOF Briefing Form, Attachment 5.5.
- ___ 3.2 Coordinate with the State of New Jersey BNE Lead Representative and PSEG Radiation Support Lead to exchange field data as it becomes available using the Field Monitoring Data Form (Attachment 5.1).
- ___ 3.3 Participate in all briefings. Ask questions for clarification as necessary.
- ___ 3.4 Call TAC representative before and after each briefing to exchange and update information.
- ___ 3.5 Call TAC representative when the situation changes i.e., a change in event classification, etc.
- ___ 3.6 Coordinate with DEMA Operations to establish personnel shifts for 24- hour operations or if more help is needed.
- ___ 3.7 The following Technical Data is to be forwarded to Delaware's TAC. This information is **high priority**.

Salem Technical Data

Dose Assessment Data Sheet
Major Equipment and Electrical Status
Unit Radiation Monitor Location Diagrams
Unit Operations Status Board Parameters
EOF Technical Support Tracking Form
Meteorological Monitoring Data
Chemistry Initial Conditions Information Sheet

Hope Creek Technical Data

RMS Status Board
Safety Parameter Display System Screen Prints
Major Equipment and Electrical Status
Operational Status Board
Meteorological Monitoring Data

Note: Do not fax Initial Contact Message Forms or Station Status Checklist to the TAC, unless requested.

PREDEPLOYMENT BRIEFING FORM
Attachment 5.8
(page 1 of 2)

- Unit, Emergency Classification Level (ECL) & Time of Declaration

- ECG Section & Description of Event

- Current Status of Affected Unit

at power: ____ % shutting down: _____ (rate) shutdown

- Status of Other Units:

- Escalation Potential/Pathway:

PREDEPLOYMENT BRIEFING FORM
Attachment 5.8
(page 2 of 2)

- Meteorological Conditions and Affected Areas:

- Protective Action Decisions:

- Protective Measures for Emergency Workers (applicable to travel to EOF):

- Other Notes/Comments:

SOP 403 CALIBRATION OF THE CANBERRA GAMMA SPECTROSCOPY SYSTEM

1.0 OBJECTIVE

- 1.1 This procedure provides the guidance and methodology on performing energy, shape and efficiency calibrations of the Canberra Gamma Spectroscopy System using the Genie 2000 & PROcount software.

2.0 CONTENTS

- 2.1 SOP 403-A Energy/Efficiency Calibrations
- 2.2 SOP 403-B Routine Calibration Verification and Quality Control Requirements

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Due to the short half-life of Hg-203, this peak should not be used as an energy/efficiency pair unless otherwise specified by the Laboratory Manager.
- 3.2 The single escape peak of Y-88 1836 keV peak could interfere with Co-60 1332 keV peak if the peak search routine is not accurate. Care must be taken when reviewing the spectrum in this area to ensure no interference is indicated.
- 3.3 The single escape peak of Co-60 1173 keV peak might interfere with Cs-137 662 keV peak. Consideration must be given to potential interference at this point.
- 3.4 It is imperative that reproducible configurations are used when performing efficiency calibrations. If the geometry and configuration between the calibration source and samples are not reproduced, the sample results may not be accurate.
- 3.5 Care must be exercised when placing sources on detectors to ensure they are centered and lie flat on surface of the holders.
- 3.6 All radionuclides to be quantified in samples must have their energies bracketed by calibration source energies. For instance, if La-140 is to be quantified in a sample, the calibration source for that geometry must have an energy/efficiency pair below 1596 as well as one above that energy.
- 3.7 To ensure low sample uncertainties, it is preferred that a minimum of 20,000 counts should be collected at each peak channel used for an energy/efficiency pair in an efficiency calibration, however a minimum of 10,000 counts per peak Channel is acceptable.

4.0 PREREQUISITES

- 4.1 None

**SOP 403 CALIBRATION OF THE CANBERRA GAMMA SPECTROSCOPY SYSTEM
(Continued)**

5.0 REFERENCES

- 5.1 Canberra Genie-2000 Operations Manuel
- 5.2 Canberra Model 1270 DeskTop InSpector User's Manuel
- 5.3 Canberra Model GC1222 Coaxial Germanium Detector Specifications and Performance Data
- 5.4 SU-470-5 Genie-2000 Basic Operations Course
- 5.5 Model S503 PROcount-2000 User's Manuel
- 5.6 SOP 405 – "Preparation and Control of Radioactive Reference Standards"

6.0 ATTACHMENTS

- 6.1 Attachment 403-A1, Calibration Nuclides
- 6.2 Attachment 403-A2, System Configuration
- 6.3 Attachment 403-A3, Geometry – Energy/Efficiency Calibration Log
- 6.4 Attachment 403-A4, Energy/Efficiency Quality Assurance Record
- 6.5 Attachment 403-A5, Geometry – Energy/Efficiency Calibration Curve
- 6.6 Attachment 403-B1, Genie-2000 Energy QA
- 6.7 Attachment 403-B2, Canberra Nuclide Identification Section of Quantitative Analysis
- 6.8 Attachment 403-B3, Background Determination and Control Chart Set up

7.0 RECORDS

- 7.1 All calibration records, data and attachments are to be maintained in the Radiochemistry Lab files.

SOP 403-A ENERGY/EFFICIENCY CALIBRATION

1.0 CALIBRATION STANDARD

- 1.1 In order to calibrate the system, a NIST Certified multi-gamma ray standard of known energies and activities is required. These standard sources come with a Certificate of Calibration describing the nuclides, energy lines and activities within the source. Genie-2000 & PROcount can calibrate directly to these source data sheets if you transfer the source information to a file called the Source Certificate File. A complete description of the procedures and dialogs used for creating and editing Certificate Files can be found in the "Using the Certificate Editor" chapter on the *Genie-2000 Basic Operation* course manual.
- 1.2 The calibration nuclides for this SOP are listed in Attachment 403-A1 "Calibration Nuclides".
- 1.3 A NIST reference standard must be purchased in each sample geometry of interest. The most common geometry for the DWR Environmental Laboratory (ELS) is the 1 liter Marinelli. This geometry is used to analyze water, soil and vegetation.
- 1.4 To properly energy calibrate an ADC (Analog-to-Digital-Converter), the source used should have the following properties:
 - 1.4.1 Energies which span the full range of interest. Due to the slight non-linearity of detector systems, the curve should not be extrapolated past the end-points. The energy span for this SOP is 88 keV to 1836 keV.
 - 1.4.2 The source strength should be sufficient to produce statistically significant peaks in a reasonable count time.
 - 1.4.3 Peaks selected for the calibration should be well defined singlet peaks.
 - 1.4.4 The source should not be placed directly against the face of the detector. At least a few millimeters should be allowed to prevent complication of the spectra.
- 1.5 In addition to the characteristics of an energy calibration source, the efficiency calibration source should:
 - 1.5.1 Be configured as closely to the expected unknowns as possible. The calibration standard should be as close as practical to the geometry, physical form, types of activity and activity levels of the samples to be counted.
 - 1.5.2 Have certified activities.
 - 1.5.3 Be collected long enough to have at least 20,000 counts in the net peak area.
 - 1.5.4 Contain a peak energy at the designated crossover point.
 - 1.5.5 Be prepared so as to prevent leakage or plate-out of the contents.
 - 1.5.6 Not create a dead time for the system significantly above that which is found with unknowns or above the limits of reliable counting. Dead time is defined as the time that the processing circuits are busy processing a signal and are not able to accept another pulse. It is expressed as a percentage and is a useful indicator of detector overload.

SOP 403-A ENERGY/EFFICIENT CALIBRATION (Continued)

- 1.6 Reference standards must be maintained in accordance with SOP 405 “Preparation and Control of Radioactive Standards”.
- 1.7 The description of the geometry, its standard and stand configuration must be recorded in the geometry logbook for reference.

2.0 SYSTEM CONFIGURATION

- 2.1 This SOP uses the term Detector to refer to the combination of detector, linear electronics (ADC), and Multi-Channel Analyzer (MCA) hardware used to acquire data.
- 2.2 The configuration of the hardware that is used in this SOP is listed in Attachment SOP 403-A1 “System Configuration”. HPGe-01 is the name given to this Detector configuration.

3.0 SYSTEM STARTUP

- 3.1 Obtain the NIST reference multi-gamma ray standard. A lead vest shall be worn while handling the multi-gamma ray standards.
- 3.2 Open the detector by pulling the lever located on the right side of the detector forward. Rotate the lid to the right to open.
- 3.3 Place the reference standard on the detector in the geometry to be calibrated. Log the calibration standard in the Attachment 403-A2 “Geometry – Energy/Efficiency Calibration Log”.
- 3.4 Turn on the power buttons to the computer, the DeskTop InSpector MCA and the printer.
- 3.5 Press **ENTER** when the password prompt appears.
- 3.6 Double click on the **Shortcut to PROcount-2000** icon.
- 3.7 To start PROcount, log on to the system by entering your User Name and Password when the dialog box appears. Click OK to enter. PROcount will verify the User Name and Password that you entered. If they are valid, a “Successful Logon” message will be displayed and the main program started. If not please report to the Laboratory Manager.
- 3.8 Once you’ve successfully logged on to PROcount, a screen will appear. The top half of the screen contains the PROcount window, which is used for all PROcount dialog, messages and reports. All of your interactions will be through this window.
- 3.9 In the lower half of the display is a version of Genie-2000’s Acquisition and Analysis window. Whenever PROcount is operating on a spectrum, the spectrum being used is displayed in this window so you can verify and visually analyze it. Since the detector inputs are opened in “read-only” mode, the controls for operations which can change data, such as clearing data or starting/stopping data acquisition are disabled; however you can view and expand the data, move the Cursor, enter and clear ROIs (regions of interest), change the Vertical Full Scale, etc.

SOP 403-A ENERGY/EFFICIENCY CALIBRATION (Continued)

4.0 SPECTRAL ACQUISITION FOR CALIBRATION

- 4.1 To calibrate the detector, you must first collect a calibration spectrum using the following procedure:
- 4.1.1 Select Calibration from the Main Menu. The calibration dialog box with the Calibration Menu appears.
 - 4.1.2 Place the Calibration Source in its proper position on the Detector that is to be calibration.
 - 4.1.3 Select Count Calibration Spectrum from the Calibration Menu.
 - 4.1.4 A dialog box appears which prompts you to place the source being counted on the Detector. In addition, it gives you a chance to change the default Preset Counting Time.
 - 4.1.5 Set the Time Preset to Live Time seconds. You should set the preset a sufficient amount of time to accumulate 20,000 counts in each photopeak area to be used for calibration. For older standards (greater than a year), overnight counts are recommended to obtain a good energy profile. Click OK to enter.
 - 4.1.6 When the count starts, a dialog box will ask you to select the Calibration Certificate File to be used with you calibration source. Select the certificate file from the drop down list. If for some reason the appropriate file is not listed, abort the acquisition then tell the Laboratory Manager about the problem. The certificate file for the source MGS-5 with serial number 1040 is msgf.ctf.
 - 4.1.7 Enter a Sample ID and Description.
 - 4.1.8 **NOTE:** Check to make sure the HV LED turns on (becomes green) at the beginning and stays on for the duration of the count. The LED is located second from the right on the DeskTop InSpector front panel. If LED is not lit, abort the run. Navigate to the Detector Management menu. Select the HPGe-01 detector. Press Hardware Control. Highlight **High Voltage – On/Off/Reset**. Press OK. Select Reset from the drop down menu. Select Armed. Exit back the main menu.
 - 4.1.9 Repeat steps starting with Section 4.1.3.
 - 4.1.10 When the Calibration Count is finished, save the file. Move the mouse to focus to the spectrum window. From the File Menu, select Save. Enter the file name, using the format C:\Prct\Calfiles\CMMDDYY. The stored spectrum is then used as the data source for the other calibration operations.

SOP 403-A ENERGY/EFFICIENCY CALIBRATION (Continued)

5.0 ENERGY CALIBRATION

- 5.1 Energy calibration sets the relationship between the Multi-Channel Analyzer (MCA) channels and the energies of the radiation spectrum being analyzed. It is fundamental to all spectrum analysis. For the purposes of finding peaks and determining their areas, Genie-2000 must be “taught” what the peaks look like, and also the relationship between gamma ray energy and the MCA memory channels. Remember:
 - 5.1.1 Each detector will have 1 energy and shape calibration.
 - 5.1.2 The amplifier gain and ADC zero adjustments are used to modify the amplitude of the pulses so that peaks fall into appropriate channels. Any change to the gain of the detector system mandates a new energy calibration.
 - 5.1.3 Each detector may have multiple efficiency calibrations reflecting each counting geometry. It would be common to have multiple calibration files for 1 detector. Each file would have the same energy/shape calibration but a different efficiency calibration.
 - 5.1.4 When the detector is being calibrated for the first time a Full Energy Calibration must be preformed. This is done to calibrate the energy to channel relationship but also to define the peak shape model calibration for the detector.
 - 5.1.5 When you run your system for the first time, and any time after that when you make major changes such as replacing or servicing a detector, you will need to perform a Full Energy and Shape Calibration.
- 5.2 Full Energy and Shape Calibration
 - 5.2.1 To start the calibration, select Full Energy & Shape Calibration from the Calibration Menu. The dialog box will show the details of the most recently collect calibration spectrum for the HPGe-01 detector and the name of the Certificate File that was assigned to it. When you OK the data shown, a “Please Wait” message will be displayed while PROcount goes through some initialization steps. After a few seconds the screen will display The Initial Energy Calibration display. The Acquisition and Analysis window at the bottom of the screen contains the calibration spectrum. The dialog box at the top is used for manually setting the initial energy calibration. This is done using the cursor method,
 - 5.2.2 Click on the Acquisition and Analysis window to move the focus (the screen control) to it.
 - 5.2.3 Select the MCA cursor with the mouse (the mouse pointer will change from an arrow to a data cursor, a short vertical bar) and drag it to the top of the peak which corresponds to the first energy listed in the dialog box at the top of the screen i.e. 88ke V Cd-109.
 - 5.2.4 Click on the top window to move the focus back to it, then press the **Cursor** button. This will copy the cursor channel number from the Acquisition and Analysis window into the Channel text edit box. The channel number should be 176. If the channel number is correct, press the **Update** button to update the calibration list. This sets a .5keV/channel relationship for the energy peaks.
 - 5.2.5 Move the selection highlight in the list box to the mid energy peak, 661.6 keV for Cs-137, then repeat steps 5.2.2. to 5.24. The channel for the 661.6 keV should be 1323.

SOP 403-A ENERGY/EFFICIENCY CALIBRATION (Continued)

- 5.2.6 Move the selection highlight in the list box to the high energy peak, 1836 keV then repeat steps 5.2.2 to 5.2.4.
- 5.2.7 Press the **OK** button to go on. A “Please Wait” message will be displayed while PROcount performs the initial calibration. When the calibration is finished, the results are displayed graphically.
- 5.2.8 If you agree with the results, press the OK button to go on; if not press Cancel to return to the previous display so that you can repeat the steps above with the proper values.
- 5.2.9 When the OK button is selected, the system will display another “Please Wait” message while it does a full Energy and Peak Shape Calibration. When the calculations are complete, the results are displayed graphically. With the controls on this screen you can:
 - 5.2.9.1 Use the **Energy** and **Shape** buttons to switch between the Energy and Peak Shape Calibration Curves.
 - 5.2.9.2 Use the + (Plus) and – (Minus) buttons to change the order of the polynomial equation. A 2nd order curve should be sufficient.
 - 5.2.9.3 Print a copy of the curves by pressing the **Print** button.
- 5.2.10 Once you’ve examined the Calibration Curves, you have two choices:
 - 5.2.10.1 Accept the curves, which will store the results and print a report, then return you to the Main Menu, indicating that the Energy and Peak Shape Calibration is complete.
 - 5.2.10.2 Reject the curves, which will discard the results and return you to the Calibration Menu.
- 5.2.11 File the Energy Calibration Report (results and graphs) chronologically in the Calibration Check Records binder.

6.0 EFFICIENCY CALIBRATION

- 6.1 Before meaningful quantitative measurements can be made, the efficiency of the detector (thus the counting system) at the energies of interest must be determined. Once you’ve satisfied the requirement of energy calibrating the Detector/Input, the detector must be efficiency calibrated for each sample geometry used.
- 6.2 Efficiency is a function of gamma-ray energy, not the nuclide. The number of gamma that can interact varies as the distance from the detector and the configuration of the source change. To establish a specific geometry, a source of unknown activity is collected. The efficiency is measured for a particular energy, not a particular nuclide. During the efficiency calibration, the software makes use of the identity of the calibration nuclide solely to decay correct the source activities with the appropriate half-lives. The areas under the peaks are calculated. Then the efficiency in counts/gamma is plotted against energy on a log-log plot. Attachment 403-A4 “Efficiency Curve” illustrates the general shape of the efficiency curve.
- 6.3 You can use the same Calibration spectrum that you just used for the Energy Calibration if that spectrum meets both of these criteria:

SOP 403-A ENERGY/EFFICIENCY CALIBRATION (Continued)

- 6.3.1 It was collected from a source that can also be used for Efficiency calibration.
- 6.3.2 It was collected with a source in the same physical geometry that is to be Efficiency Calibrated.
- 6.3.3 If the spectrum doesn't meet both these criteria, a new spectrum must be acquired as described in Section 4.0.
- 6.4 Once you have a suitable spectrum, select Efficiency Calibrate from the Calibration menu. After a few seconds, the Select a geometry dialog box appears. Select the Geometry, making sure it agrees with the physical geometry that was used for acquiring the spectrum.
- 6.5 Verify the Certificate File – the default is the one selected at the time of acquisition. Click OK to accept.
- 6.6 After a few minutes, the Efficiency Calibration Curve, similar to the one in Attachment 403-A5, appears.
- 6.7 With the controls on this screen, select:
 - 6.7.1 Dual in the Curve box – Mathematically, the germanium detector efficiency curve may be represented by 2 parabolas. This is known as the Dual curve model. The point at which the parabolas intersect is called the crossover point.
 - 6.7.2 Linear in the Scale Box.
 - 6.7.3 Use the + (Plus) and – (Minus) buttons to change the “Order of the Polynomial”. Note that the order is limited by the number of data points present.
 - 6.7.4 Select the List Pks button to display a list of the peaks used in the calibration and their calculated vs. measured efficiencies.
- 6.8 File the Efficiency Calibration Report (results and graphs) chronologically in the Calibration Records binder. Click **OK** to save and exit.

7.0 RECORDS

- 7.1 All calibration records, data and attachments are to be maintained in the Radiochemistry Lab Files.
- 7.2 Transfer calibration results to the QA database.

ATTACHMENT 403-A1
CALIBRATION NUCLIDES

NUCLIDE	ENERGY KeV	YIELD	HALF LIFE (MIN.)	HALF LIFE (DAYS)
Cd-109	88.032	0.0372	668160	464
Co-57	122.063	0.8551	390096	270.9
Ce-139	165.853	0.8035	198230	137.66
Hg-203	279.189	0.773	67104	46.6
Sn-113	391.688	0.649	165744	115.1
Cs-137	661.649	0.8512	15868213	11019.59
Y-88	898.021	0.934	153504	106.6
Co-60	1173.216	1	2772331	1925.229
Co-60	1332.486	1	2772331	1925.229
Y-88	1836.01	0.9938	153504	106.6

ATTACHMENT 403-A2

SYSTEM CONFIGURATION

HPGe-01 DETECTOR CONFIGURATION

ADC

4k gain
4k range
PHA
Auto
Offset – all down (off)
LLD - .1
ULD – fully clockwise

Amplifier

4 usec shaping
Fine Gain – minimum
Coarse Gain – minimum
PUR – Off
Restorer – Auto, Auto, Asym
Input Polarity – according to detector

HVPS (High Voltage Power Supply) 1000

CALIBRATION SETTINGS

Tolerance/Units:

Set Energy	
Energy	1.5 keV
Eff_Match	1.0 keV
Set to FWHM	
Energy	0.75 keV
Eff_Match	0.5 keV
Final Units	Energy
Tail Curves	Low
Continuum	Step
Channels	4k (4096)

GEOMETRY – ENERGY/EFFICIENCY CALIBRATION LOG

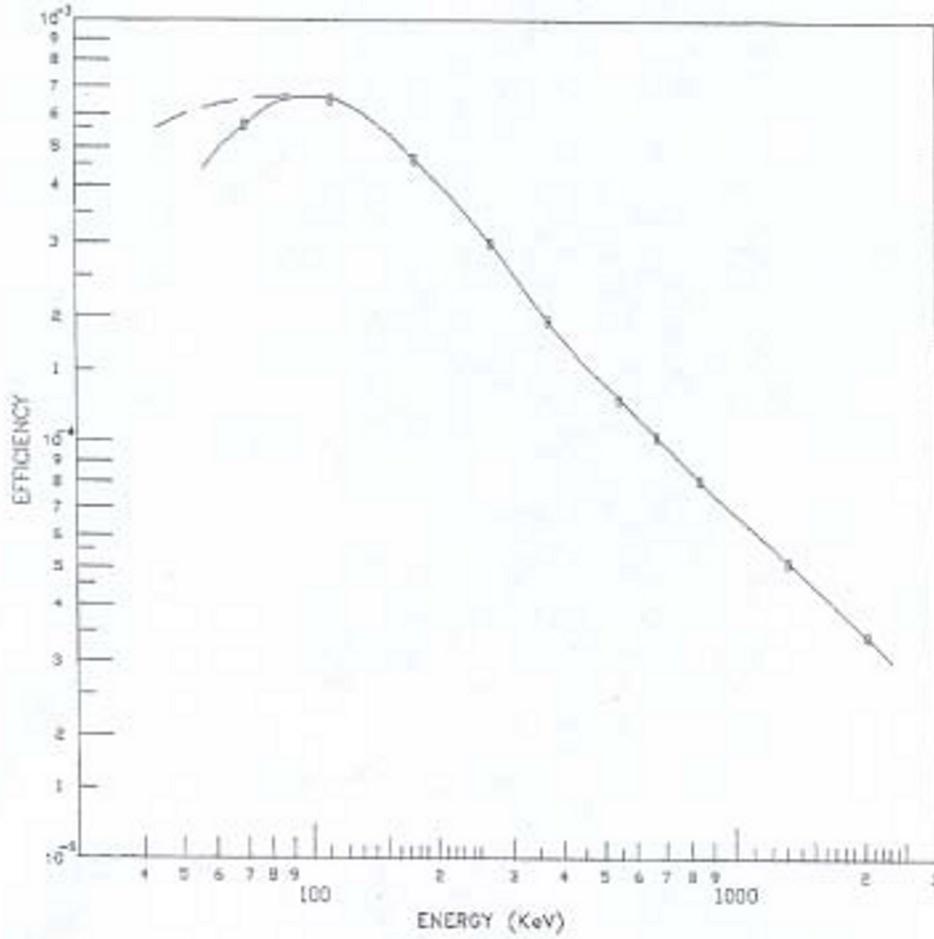
GEOMETRY NO.	DESCRIPTION	ANALYSIS NO,	DATE EFFICIENCY CALIBRATION	DATE EFFICIENCY CALIBRATION	WORKER INT.	DISK NO.	COMMENTS
1	3 Liter Martinelli (3LMXSTD)						
2	1 Liter Martinelli						
3	Charcoal Canister Soil						
4	Charcoal Canister Veg.						

GEOMETRY – ENERGY/EFFICIENCY CALIBRATION LOG

ATTACHMENT 403-A3

ATTACHMENT 403-A5

GEOMETRY – ENERGY/EFFICIENCY CALIBRATION CURVE



Typical Closed-End Coaxial Ge(Li) Detector Efficiency Calibration Curve. The dashed curve indicates the increased low-energy efficiency of HPGE detectors.

SOP 403-B ROUTINE CALIBRATION VERIFICATION AND QUALITY CONTROL REQUIREMENTS

1.0 QUALITY ASSURANCE REQUIREMENTS AND ACTIONS

- 1.1 The following quality assurance (QA) checks should be performed on a daily basis when the system in service (i.e. samples are being analyzed) and must be performed within 24 hours on the same day prior to use.
 - 1.1.1 A 600 second background check in accordance with section 6.0 “Daily Background”.
 - 1.1.2 A 300 second energy/efficiency check (CCV) in accordance with section 2.0 “Daily Energy QA Check”.
- 1.2 If any check falls outside the 2 sigma limit, take the following action. Recount QA check 3 times.
 - 1.2.1 If all three fall within the 2 sigma limit, take the average, record/plot this value and disregard the initial reading as false indication.
 - 1.2.2 If any of the 3 fail the 2 sigma control limit, re-calibrate the instrument in accordance with SOP 403-A “Energy/Efficiency Calibration”.
- 1.3 Record CCV analysis in the Analysis Run Log. Plot and note failures on the control chart.
- 1.4 Prepare a monthly background determination and control chart setup in accordance with section 3.0, “Background Determination and Control Chart Setup”.
- 1.5 Quarterly count the NIST traceable mixed gamma standard for the 1L Marinelli liquid geometry for 600 seconds in accordance with section 2.0 “Quarterly Energy/Efficiency QA Testing”.
- 1.6 Annual Quality Assurance Testing
 - 1.6.1 An Energy Calibration for each geometry in accordance with SOP 403-A5 “Energy/Efficiency Calibration”.
 - 1.6.2 An Efficiency Calibration for each geometry in accordance with SOP 403-A5 “Energy/Efficiency Calibration”.

2.0 DAILY ENERGY QUALITY ASSURANCE CHECK

- 2.1 At least once per day when a gamma spectroscopy detector is in service (i.e. analyzing samples), **Count** a mixed radionuclide source for 5 minutes (300 Live Time Seconds). Note: Calibration sources should be counted to obtain greater than or equal to 10,000 counts for all photopeaks used in the calibration.
- 2.2 Place the reference standard selected for counting on the detector in accordance with its geometry description.
- 2.3 Log the daily energy QA check in the Attachment 403-B1 “Analysis Run Log”.
- 2.4 Turn on the power buttons to the computer, DeskTop InSpector MCA and the printer.
- 2.5 Press **ENTER** when the password prompt appears.

**SOP 403-B ROUTINE CALIBRATION VERIFICATION AND
QUALITY CONTROL REQUIREMENTS (Continued)**

- 2.6 Double click on the **Shortcut to PROcount-2000** icon.
- 2.7 To start PROcount, log on to the system by entering your User Name and Password when the dialog box appears. Click **OK** to enter. PROcount will verify the User Name and Password that you entered. If they are valid, a “Successful Logon” message will be displayed and the main program started. If not please report to the Laboratory Manager.
- 2.8 From the Main Menu, select **Quality Control**. The Quality Control dialog box appears. Select **Calibration Q.C. Count**. This function is used to collect a spectrum with a calibrated source, then test the data for drift in the system’s Energy and Efficiency Calibration. The tests performed are listed in Section 2.11.
- 2.9 The Select a Geometry dialog box appears. Select the desired geometry in this case **Liquid**. The list box shows all of the geometries for the current detector for which valid and approved Energy and Efficiency Calibrations exist.
- 2.10 Next a dialog box appears which prompts you to place the calibrated source on the detector and gives you the opportunity to change the **Preset Time**. Set the time.
- 2.11 Press OK to start the count. You will be presented with a screen which asks you for the Description of the sample.
 - 2.11.1 Enter a Sample ID and Description
 - 2.11.2 Press OK. The count will start and the system returns to the main menu.
 - 2.11.3 **NOTE:** Check to make sure the HV LED turns on (becomes green) at the beginning of and stays on for the duration of the count. The LED is located second from the right on the DeskTop Inspector front panel. If LED is not lit, abort the run. Navigate to the Detector Management menu. Select the HPGe-01 detector. Press Hardware Control. Highlight **High Voltage – On/Off/Reset**. Press OK. Select Reset from the drop down menu. Select Armed. Exit back to the main menu.
 - 2.11.4 Repeat steps starting with Section 2.7.
- 2.12 When acquisition is complete, the system will analyze the spectrum, print the results, then transfer the QC results to the QA database.
- 2.13 Save the file. Move the mouse focus to the spectrum window. From the File Menu, select Save. Enter the file name, using the format C:\Prent\Calfiles\CCVMMDDYY. The stored spectrum is then used as the data source for the other calibration operations.
- 2.14 Review the spectrum analysis report for the following data points:
 - 2.14.1 Key Parameters
 - 2.14.1.1 Cd-109 decay corrected activity
 - 2.14.1.2 Cs-137 decay corrected activity
 - 2.14.1.3 Co-60 decay corrected activity

**SOP 403-B ROUTINE CALIBRATION VERIFICATION AND
QUALITY CONTROL REQUIREMENTS (Continued)**

2.14.2 Diagnostic Parameters

2.14.2.1 Cd-109 88 keV FWHM

2.14.2.2 Cs-137 662 keV FWHM

2.14.2.3 Co-60 1332 keV FWHM

2.14.2.4 Cs-137 peak centroid channel

- 2.15 If a flag indicates that a control limit for a Key parameter has been exceeded, then reanalyze the daily check source in accordance with step 2.1 & 2.2.
- 2.16 If the second analysis is within control limits, then perform a follow-up measurement in accordance with step 2.1 & 2.2.
- 2.17 If the follow-up measurement is within the control limits, then use of the detector may continue.
- 2.18 If the results of the second analysis are outside the control limits, then use of the detector should stop. Corrective action should be determined. Contact the Laboratory Manager.
- 2.19 Note: while no action is required for diagnostic parameters, the Radiochemist should routinely review this data to monitor component performance.

3.0 QUARTERLY ENERGY/EFFICIENCY QUALITY ASSURANCE TESTING

- 3.1 Count the NIST traceable mixed gamma standards for each established geometry once each quarter, for 10 minutes.
- 3.2 Analyze the sample following procedures for performing a quantitative analysis.
- 3.3 Referring to the Nuclide Identified section of the printout obtained from the analysis (see Attachment 403-B2 for example), complete an Attachment 403-A2, "Energy/Efficiency Quality Assurance Record".
- 3.4 If the analysis shows more than 10% deviation from that listed on the Energy/Efficiency Q.A. Record, perform the following steps:
- 3.4.1 Perform a daily energy calibration test using the standard.
- 3.4.2 If the daily energy calibration test fails, adjust the energies and perform the quarterly test again.
- 3.4.3 If the daily energy calibration test passes, examine the geometry configuration to ensure it is as specified in the geometry logbook.
- 3.4.4 If the geometry is not as specified, correct the configuration and perform the quarterly calibration test again.
- 3.4.5 If the geometry configuration agrees with the description of the sample placement, perform the daily test again, using a greater count time.

**SOP 403-B QUALITY CALIBRATION VERIFICATION AND
QUALITY CONTROL REQUIREMENTS (Continued)**

3.4.6 If after analysis of the longer count the activity still has a 10% or greater deviation from the known, an annual Full Energy/Efficiency Calibration must be performed.

4.0 BACKGROUND DETERMINATION AND CONTROL CHART SETUP

- 4.1 Count a minimum of 20 backgrounds for the expected counting time, normally 600 seconds.
- 4.2 Record each observation as total counts (ICPS) on Attachment 403-B3.
- 4.3 Determine the sum of total counts and record value in the space provided on Attachment 403-B3.
- 4.4 Record the number of observations performed (i.e., background counts) in the space provided on Attachment 403-B3.
- 4.5 Determine the mean by dividing the sum of total counts by the number of observations and record value in the space provided on Attachment 403-B3.
- 4.6 Subtract the mean value from the total counts for each observation and record this value under counts-mean on Attachment 403-B3.
- 4.7 Calculate the square for each observations counts-mean value and record under (count-mean) 2 on Attachment 403-B3.
- 4.8 Calculate the sum of squares and record value in the space provided on Attachment 403-B3.
- 4.9 Determine the standard deviation by taking the square root of the sum of the squares divided by the number of observation minus 1.

Sum of the squares / N-1 = Standard Deviation

Record this value in the space provided on Attachment 403-B3.
- 4.10 Calculate the 2 sigma standard deviation limits by multiplying the 1 sigma value by plus and minus two. Record these values, plus and minus the mean, in the space provided on Attachment 403-B3.
- 4.11 Calculate the 3 sigma control limits by multiplying the 1 sigma value by plus and minus three. Record these values, plus and minus the mean, in the space provided on Attachment 403-B3.
- 4.12 Calculate the 5 sigma data range collection points by multiplying the 1 sigma value by plus and minus five. Record these values, plus and minus the mean, in the space provided on Attachment 403-B3.
- 4.13 Record instrument ID number and data period in the space provided on Attachment 403-B3. The data period will normally run one year from the date performed.
- 4.14 Sign/date the completed forms.
 - 4.14.1 Submit to supervision for review.
 - 4.14.2 File reviewed form in the Calibration Records Binder.

**SOP 403-B ROUTINE CALIBRATION VERIFICATION AND
QUALITY CONTROL REQUIREMENTS (Continued)**

- 4.15 Place the original control chart in the Canberra File. Maintain copies in the instrument QC logbook.

5.0 DAILY BACKGROUND

- 5.1 From the Main Menu, select **Quality Control**. The Quality Control dialog box appears. Select **Background Q.C. Count**. This function is used to test the Detector's background radiation level.
- 5.2 The Select a Geometry dialog box appears. Select the desired geometry in this case **Empty Shield**.
- 5.3 Next a dialog box appears which gives you the opportunity to change the **Preset Time**. Set the time to 600 secs.
- 5.4 Press OK to start the count. You will be presented with a screen which asks you for the Description of the sample, then returns you to the Main Menu to go on to something else while the spectrum is being acquired. When acquisition is complete, the system will analyze the spectrum, print the results, then transfer the QC results to the QA database.
- 5.5 When the background count is complete, review the report for total counts in the spectrum.
- 5.6 Verify that the total counts in the spectrum is within the upper and lower boundaries. If the total counts do not fall within the boundaries, determine corrective action. Contact the Laboratory Manager for approval and direction.
- 5.7 Review the peak search printout to determine the presence of small peaks. If peaks due to radioactive contamination are present, decontaminate the detector and reanalyze the background until peaks are not present. Contact the Laboratory Manager for approval and direction.
- 5.8 Save the file. Move the mouse focus to the spectrum window. From the File Menu, select Save. Enter the file name, using the format C:\Prcnt\Calfiles\BKMMDDYY.

6.0 LONG TERM TRENDING OF QC DATA

- 6.1 All QC data points for the gamma spectroscopy system are to be plotted on a quarterly basis showing the previous six months data. The Radiochemist is responsible for reviewing these plots to monitor system stability.

**SOP 403-B ROUTINE CALIBRATION VERIFICATION AND
QUALITY CONTROL REQUIREMENTS (Continued)**

7.0 LOWER LIMIT OF DETECTION

- 7.1 The lower limit of detection (LLD) is a measure of the lowest level at which a detector can distinguish sample activity from background with no sample request.
- 7.2 NRC Regulatory Guide 4.16 defined LLD as the smallest activity that has a 95% probability of being detected on "A Priori" count data. "A Priori" count data are counts obtained from a detector containing no sample. Calculate the lower limit of detection (LLD).

$$\text{LLD (microcuries per unit)} = \frac{2.71 + 4.66\sigma_b}{T \times E \times V \times T \times 2.22E+6}$$

Where:

- T = Count time in minutes for the background
E = Counting efficiency for the energy channel of interest
V = Volume of sample (if applicable)
Y = Chemical efficiency (Yield)
 σ_b = Standard deviation of the background counts (cpm) in the energy channel of interest
2.22E+6 = The conversion factor to convert from disintegrations per minute to microcurie.

NOTE:

Counting time for background and sample must be the same to use this equation.

ATTACHMENT 403-B2

CANBERRA NUCLIDE IDENTIFICATION SECTION OF QUANTITATIVE ANALYSIS

 ***** INTERFERENCE CORRECTED REPORT *****

	Nuclide Nuclid Name	Confidence	Wt mean Activity (uCi/Unit)	Wt mean Activity Uncertainty
	NA-22	0.983	5.242603E-004	1.039762E-004
	MN-54	0.974	2.357997E-001	9.013503E-003
	CO-57	0.980	1.370166E-001	2.009255E-003
	CO-60	0.981	1.873481E-003	1.477155E-004
	ZN-65	0.960	2.960510E-001	1.254893E-002
	SN-113	0.895	2.513720E-001	1.189817E-002
	CS-137	0.994	5.229867E-002	1.499159E-003
	EU-155	0.999	5.808914E-002	9.283581E-004
X	TH-232	0.972		
X	AM-241	0.996		

? = nuclide is part of an undetermined solution
 X = nuclide rejected by the interference analysis
 @ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.000 sigma

***** UNIDENTIFIED PEAKS *****

Peak Locate Performed on: 10/19/2001 9:57:30 AM
 Peak Locate From Channel: 100
 Peak Locate To Channel: 4096

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
8	511.23	3.3961E-001	7.64

M = First peak in a multiplet region
 m = Other peak in a multiplet region
 F = Fitted singlet

Errors quoted at 1.000 sigma

ATTACHMENT 403-B3

Interim Control Chart _____
 Long Term Control Chart _____
 Chart End Date _____

BACKGROUND DETERMINATION AND CONTROL CHART SETUP

Instrument I.D. _____
 Data Period _____

Count Trail	Total Counts	Counts-Mean	(Counts-Mean) ²
1	_____	_____*	_____*
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
9	_____	_____	_____
10	_____	_____	_____
11	_____	_____	_____
12	_____	_____	_____
13	_____	_____	_____
14	_____	_____	_____
15	_____	_____	_____
16	_____	_____	_____
17	_____	_____	_____
18	_____	_____	_____
19	_____	_____	_____
20	_____	_____	_____

Upper Date Range:
 Mean + 5(S) = _____

Upper Control Limit
 Mean + 3(S) = _____

Upper Investigation Limit
 Mean + 2(S) = _____

Lower Investigation Limit
 Mean - 2(S) = _____

Lower Control Limit
 Mean - 3(S) = _____

Lower Data Range
 Mean - 5(S) = _____

Standard Deviations (S)
 $\sqrt{\text{Sum of the squares}/N-1} = \underline{\hspace{2cm}}$

Sum of the squares (counts - mean) _____*

N = Number of observations = _____

Sum of Total Counts _____*

Mean = Sum of Total counts/N = _____

NOTES: Use additional sheet(s) for more than 20 observations
 • No entry required if computer printout attached.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

Reviewed By: _____ Date: _____