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CALLAWAY PLANT  
EMERGENCY PLAN IMPLEMENTING PROCEDURE  
EIP-ZZ-00211  
FIELD MONITORING

RESPONSIBLE DEPARTMENT Emergency Preparedness

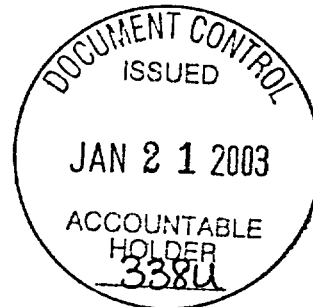
PROCEDURE OWNER T.W. Parker

WRITTEN BY T.W. Parker

PREPARED BY T.W. Parker

APPROVED BY Warren A. Witt

DATE ISSUED 1-21-03



This procedure contains the following:

Pages	<u>1</u>	through	<u>11</u>
Attachments	<u>1</u>	through	<u>3</u>
Tables	<u>          </u>	through	<u>          </u>
Figures	<u>          </u>	through	<u>          </u>
Appendices	<u>          </u>	through	<u>          </u>
Checkoff Lists	<u>          </u>	through	<u>          </u>

This procedure has 0 checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number

Non-T/S Commitments 017

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## FIELD MONITORING

### 1 PURPOSE AND SCOPE

#### 1.1 PURPOSE

Implement actions for the identification and quantification of Radioactive Releases from Callaway Plant to support dose projection calculations by:

- Identification of any detectable Radioactive Releases.
- Identification of Releases that are greater than Normal Operating Limits.

<p><u>NOTE:</u> Normal Operating Limit is &lt; 0.1 mr/hr measured, using a model 14c open window.</p>
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- Sampling a radioactive plume.
- Tracking the path of a radioactive plume.
- Assessing consequences to the surrounding areas resulting from a radioactive plume released from Callaway Plant.

#### 1.2 SCOPE

Establishes responsibilities of Field Monitoring Teams (FMT) members, communicators, and coordinators.

Quickly form, brief, and dispatch FMTs necessary to support dose projections while ensuring:

- Teams have the necessary sampling and safety equipment.
- Equipment is in good condition and operationally checked.

### 2 RESPONSIBILITIES

2.1 Health Physics Coordinator (HPC) forms FMTs.

2.2 Dose Assessment Coordinator (DAC) directs and assesses FMT activities.  
**COMN 3375**

2.3 Dose Assessment Staff (DAS) reports to the DAC. DAS maintains communications, records the FMT locations and sample data. DAS maintains the radiological status boards in the EOF. **COMN 3355**

- 2.4 FMTs track and quantify plume dose rates. In cooperation with the State Department of Health, FMTs also assist in the collection of environmental sample media. COMN 3396

### 3 PRECAUTIONS

#### 3.1 FIELD MONITORING TEAM

- 3.1.1 Primary method of communication between FMTs and the EOF is the radio on Repeater Plant 2.
- 3.1.1.1 If radio communications are lost or intermittent, the cellular phone should be used.
- 3.1.2 Primary method of communication between FMTs and the Backup EOF should be the cellular phone.
- 3.1.2.1 If phone communications are lost or intermittent, use the radio on Repeater Plant 2.
- 3.1.3 If communications cannot be established via alternate radio channels or cellular phone, return to the appropriate facility (EOF, Backup EOF, or Callaway Plant) and contact the DAC.
- 3.1.4 Minimize the time in the plume. Perform all sample counting and calculations outside the plume location.
- 3.1.5 In the event the Plume is passing overhead during the Operational Check of the GPS units, the units will be considered Operationally SAT, if the GPS MAP 162 indicates 2D or 3D navigation or the GPS 12/12XL automatically changes to the Position Page. Sufficient time must be allowed for the units to acquire the appropriate number of satellites needed for navigation.  
**CARS 200105973**
- 3.1.6 Ventilation from outside sources should be minimized upon entry into the plume. Place vehicle ventilation in recirculation (depress MAX button, REC will light on your display) or off (for vehicles without A/C). Ensure windows are closed.
- 3.1.7 Silver Zeolite cartridges used for Iodine sampling are a hazardous waste. Return all cartridges to Chemistry for processing in accordance with APA-ZZ-00832 .
- 3.1.8 Designation of radioactive materials is not necessary while the items are under the control of a Field Monitoring Team member.

4 PROCEDURE

4.1 TEAM FORMATION

4.1.1 The HPC designates a FMT Leader from the available Support Area Personnel.

4.1.2 The HPC obtains FMT Drivers from the Ops Support Area, Engineering or Rad Chem Department.

4.1.2.1 The HPC provides vehicle keys (located in HPC Packet) to the FMTs.

4.1.3 The FMT Leader will determine current Meteorological conditions and record the information on Attachment 1, Section I, Team Formation.

4.2 EQUIPMENT CHECKOUT

4.2.1 The FMT Leader chooses an available RERP vehicle.

4.2.2 The FMT Leader circles the Team Designator (Blue, Green, Red, White) associated with that vehicle on FMT Checklist.

4.2.3 FMT Leader and Driver proceed to the Central Processing Facility (CPF) to checkout FMT equipment. Record equipment checks on Attachment 1, Section II, Equipment Checkout. FMT equipment lockers are located in the whole body count room #1102.

<p><u>NOTE:</u> The following steps of Equipment Checkout may be performed in any order.</p>
--

4.2.4 The FMT Driver should assist the Team Leader as directed.

<p><u>NOTE:</u> Instrument Check Sources assigned to the FMT Instrument Locker are Custodial Sources. Use of the Source Checkout/Movement Tracking Sheet (CA-#385) is not required during RERP field exercises or declared emergencies.</p>
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4.2.5 Response check all survey instruments, applicable operating procedures are located in a binder stored on the outside of the FMT equipment locker.

4.2.6 Load instruments, Immediate Field Monitoring Kit, check source, and any additional equipment into the RERP vehicle.

4.2.7 Check the Global Positioning System (GPS) for proper operation. The operator aid is in the FMT procedure binder.

- 4.2.8 Check the DC to AC inverter for proper operation. Operational check of the air sampler using the inverter as the power source satisfies this check.
- 4.2.9 Check the RERP vehicle fuel supply greater than ½ full. If necessary refuel vehicle from fuel tank located at Stores 1. Key to fuel pump is on the RERP vehicle key ring.
- 4.2.10 Electronic dosimetry devices (ED) are susceptible to interference from radios and cellular phones. To minimize the possibility of erroneous ED readings perform the following when operating phones or radios:

<p><u>NOTE:</u> These checks may be performed during communication check for the radio and the phone.</p>
---

- Maintain ED at least 4 inches from any antenna or co-axial cable used to connect to remote antenna.
  - Check ED readings for possible interference while performing radio and phone checks.
- 4.2.11 Check the operation of the 2-way radio in the RERP vehicle. Switch the radio to “Repeater Plant 2.” Contact FMT Communicator to perform a radio check.
- 4.2.12 Check the operation of the cellular phone by contacting Field Team Communicator (FTC) and having the FTC return the call. The phone numbers can be found on Attachment 1, FMT Briefing/Debriefing Checklist.
- 4.3 TEAM BRIEFING
- 4.3.1 Upon completion of section 4.1 Team Formation and section 4.2 Equipment Checkout, contact the FTC and report FMT status. FMT status should be as follows:
- FMT equipment checks completed and satisfactory.
  - All FMT equipment loaded in the RERP vehicle.
  - FMT ready to be dispatched.

- 4.3.2 The FMT requests a brief from the DAC. Record the information in Attachment 1, Section III Briefing and Dispatch. The brief should include but not be limited to the following items:

**NOTE:** The DAC may have the Field Team Communicator provide the brief.

- Team designator.
- Meteorological updates.
- Status of any release greater than normal operating limits that is in progress or likely to occur.
- Survey and sample locations.
- FMT review Attachment 1, Section IV Precautions.
- Potassium Iodide recommendations.

4.4 PLUME PHASE DOSE ASSESSMENT SAMPLING

**CAUTION:** Any time the Model 14C reading exceeds 1 R/hr, leave the area and notify the DAC. CARS 199802502

- 4.4.1 Determine the leading edge and/or the perimeter sides of the plume by traversing the plume as near perpendicular to the wind direction/plume direction as possible.
- 4.4.1.1 Place probe of Model 14C on the seat, with the audible indicator on and probe window open facing up.
- 4.4.1.2 Immediately inform the DAC if open window Model 14C indicates 0.1 mrem/hr or greater.
- 4.4.1.3 Determine the GPS location when the Model 14C detects the presence of the plume; record the information on Attachment 2, FMT Radiation Survey Sheet.
- 4.4.1.4 Determine the GPS location the Model 14C detects the highest reading while traversing the plume, record information on Attachment 2, FMT Radiation Survey Sheet. Indicate this as a centerline (C) reading.

**NOTE:** It is permissible to obtain readings in step 4.4.2 during the initial pass through the plume if the plume centerline is easily identified. CARS 199901680



- 4.4.1.5 Determine the GPS location when the Model 14C detects the plumes other perimeter, record the information on Attachment 2, FMT Radiation Survey Sheet.
- 4.4.2 Return to the plume centerline location and perform the following samples:
- 4.4.2.1 Record dose rate using the Ion Chamber instrument on the FMT Radiation Survey Sheet.
- Hold meter waist level.
  - Instrument window closed.

**CAUTION:** Using the DC to AC inverter with vehicle engine off may cause excessive battery drain that could strand the vehicle in an undesirable location. **CARS 199803384**

- 4.4.2.2 Obtain a Particulate and Iodine air sample, and if requested by the DAC, include a sample for noble gas. Air sample volumes are typically 10 ft<sup>3</sup> for Particulate and Iodine and 2 minutes for Noble Gas. With DAC permission, sample volumes may be reduced to a minimum of 15 seconds to maintain FMT exposures ALARA. **CARS 199802505 COMN 43477**
- 4.4.3 Exit the plume and purge the Particulate and Iodine sample by running the sampler for approximately 1-min. to remove noble gas interference.
- 4.4.4 Using a G-M count rate meter, count the Particulate and Iodine samples. Record gross counts and background counts on the FMT Radiation Survey Sheet. **COMN 42903**
- 4.4.5 Report survey results and sample locations to the FMT Communicator.

4.5 INGESTION PATHWAY ENVIRONMENTAL SAMPLING

4.5.1 Obtain FMT Recovery Kit, located in the equipment room of the EOF.

4.5.2 Proceed to sample locations as directed by the DAC.

4.5.3 Obtain closed window ion chamber readings at waist level (window facing down) for the area to be sampled.

4.5.4 Record radiation readings on Attachment 3, FMT Environmental Collection Worksheet.

4.5.5 Vegetation samples are collected as follows:

**CAUTION:** Do not contaminate the sample with soil. Do not collect vegetation from areas that are sheltered from fallout.  
**CARS 199901680**

- Collect approximately one cubic foot of vegetation.
- Clip vegetation to approximately one inch above the surface of soil.
- Double bag sample and label appropriately.
- Record sample information on Attachment 3, FMT Environmental Collection Worksheet.

4.5.6 Collect soil sample as follows:

**CAUTION:** Do not collect soil from areas that are sheltered from fallout. The preferred soil sampling location is areas with minimal vegetation or bare soil locations.

- If excessive vegetation is present, this should be clipped off approximately 1 inch above the soil surface and discarded. The litter at the surface and the root mat are considered part of the sample.
- Using a shovel, remove two plugs, approximately six by six inches by two inches deep and approximately 1-2 feet apart. Minimize disturbance of the grass cover or surface soil.
- Double bag sample and label appropriately.
- Record sample information on Attachment 3, FMT Environmental Collection Worksheet.

4.5.7 Collect water samples as follows:

- Collect approximately two gallons.
- Double bag sample and label appropriately.
- Record sample information on Attachment 3, FMT Environmental Collection Worksheet.

4.5.8 Collect snow samples as follows.

**CAUTION:** Do not collect snow from areas that are sheltered from fallout. Collect approximately 12 liters.

- Collect snow to a depth that is representative at the time of release. Ensure sample area has been undisturbed since release.
- Double bag sample and label appropriately.
- Record sample information on Attachment 3, FMT Environmental Collection Worksheet.

4.5.9 Return all samples to the EOF for processing.

4.6 FIELD MONITORING TEAM DEBRIEF/RELIEF

4.6.1 Normally, relief and turnover should be performed in the field, if possible.

4.6.2 Upon direction from the DAC, FMTs should report to the EOF or alternative location for debriefing.

4.6.3 Upon return to the EOF and prior to entry to the EOF, FMT personnel should be monitored for contamination.

4.6.3.1 If the FMT personnel are returning for relief or debriefing, access to the EOF should be through the Decontamination Area.

4.6.4 The FMT Leader ensures the DAC has updated the dose records for FMT members and completes dose information in Attachment 1 Section I, Team Formation.

4.6.5 The FMT Leader should complete Attachment 1, Section V, Debriefing, and return to DAC. **CARS 199802498**

- 4.7 FIELD TEAM COMMUNICATOR (FMT TRACKING)
- 4.7.1 Using the wind direction, draw the plume centerline. The line should be drawn out to a distance based on wind speed and start time of the release.
- 4.7.2 If the plume centerline is within 3° (round to whole number) of a sector boundary, both sectors bordering that boundary are considered centerline sectors.
- 4.7.3 Using a different color than was used to draw the plume centerline, outline the outer boundaries of the affected sectors. The affected sectors include the centerline sector(s) and the adjacent sectors. Both sectors on either side of the centerline sector(s) are considered adjacent sectors.
- 4.7.4 If a wind shift occurs that changes the centerline and affected sectors, the old affected sectors should remain affected sectors, the old centerline sector(s) will become affected sectors and the new centerline sector(s) and affected sectors should be designated with the appropriate color.
- 4.7.5 When contacted by the FMT, the DAC may direct the FMT Communicator to brief the FMTs on the status of the emergency. Refer to section 4.3, Team Briefing.
- 4.7.6 Establish the position of the FMT with corresponding indicators (e.g., RED, BLUE, and GREEN).
- 4.7.7 FMT Communicator should use Attachment 2, FMT Radiation Survey Worksheet, to record survey results as they are reported by the FMTs.
- 4.7.8 Update the Field Monitoring Status Boards with current information from Attachment 2.
- 4.7.9 When sufficient data is available (a minimum of 1 point defining each side edge and a point defining the leading edge), determine and draw the plume perimeter on the map from the FMT information.
- 4.7.10 The Field Team Communicator should inform the DAC immediately of any significant changes to FMT radiological data.
- 4.7.11 The Field Team Communicator should periodically update FMTs on plant status and protective actions. **COMN 5405**

5 FINAL CONDITIONS

- 5.1 The Release has been terminated or is reduced to levels below the Emergency Action Levels (EAL) for the ALERT Emergency Classification.
- 5.2 All surveys and samples have been obtained as requested, properly identified, and returned to the designated location.
- 5.3 All the Field Monitoring Teams have returned for debriefing.
- 5.4 Emergency Kits have been inventoried, restocked, and sealed in accordance with HTP-ZZ-07003, Maintenance and Inventory of Health Physics Technical Support Emergency Equipment Kits.
- 5.5 All records have been collected and sent to the Emergency Preparedness Department.

6 REFERENCES

- 6.1 Callaway Plant Radiological Emergency Response Plan (RERP)
- 6.2 APA-ZZ-00832, Hazardous and Special Waste Management Program
- 6.3 HDP-ZZ-01300, Internal Dosimetry Program
- 6.4 HTP-ZZ-04102, Operation and Calibration of the Eberline RO-2(X) Series Ion Chamber
- 6.5 HTP-ZZ-04106, Operation of the Ludlum Model 14C
- 6.6 HTP-ZZ-04108, Operation of the Ludlum Model 3 Portable Count Rate Meter
- 6.7 HTP-ZZ-04121, Operation and Calibration of the Radeco Model AVS-28A Air Sampler
- 6.8 HTP-ZZ-07003, Maintenance and Inventory of Health Physics Technical Support Emergency Equipment Kits
- 6.9 FEMA REP-2, REV.2/June 1990, Guidance on Offsite Emergency Radiation Measurements Systems, Appendix D
- 6.10 HPCI No. 93-005, FMT Personnel Dose Evaluation
- 6.11 NRC Letter to Randolph dated 20010406

7      RECORDS

7.1      QA RECORDS

Attachment 1, FMT Briefing/Debriefing (File K171.0010)

Attachment 2, FMT Radiation Survey Worksheet (File K171.0010)

Attachment 3, Environmental Collection Worksheet (File K171.0010)

7.2      COMMERCIAL RECORDS

None

**FMT CHECKLIST**

TEAM DESIGNATOR (circle one): **BLUE** - Chemistry Vehicle (#102206)  
**GREEN** - HPTS Vehicle (#102207)  
**RED** - I&C Vehicle (#102004)  
**WHITE** - Ops Suburban (#103379)

**I. TEAM FORMATION**

	Name	Badge #	TLD	Exposure	Debriefed Yes/No	Final Exposure	Dose Records Updated by DAC
			ED Y/N	Margin (mRem)			
Leader							<input type="checkbox"/>
Driver							<input type="checkbox"/>
							<input type="checkbox"/>

KEYS Obtained from HPC Packet

**Meteorological Data (To be obtained by FMT Leader)**  
 Wind Direction (degrees) From: \_\_\_\_\_ To: \_\_\_\_\_  
 Wind Speed (mph) \_\_\_\_\_

**Dosimetry:**  
 Retain dosimetry (ED, if issued, and TLD) when exiting MAF

**Remarks:**

## II. EQUIPMENT CHECKOUT COMN 42536

<p><b>Field Monitoring Kits:</b> Kits located in CPF, whole body count room #1102 <i>Inventory Kit (not necessary if seal is intact)</i></p> <p><input type="checkbox"/> Kit Inventory (<i>Sat</i>)</p>	<p><b>Remarks:</b></p>	
<p><b>Pre-operational Check Survey Instruments:</b> (Procedure binder in rack mounted on outside of FMT locker)</p> <p><input type="checkbox"/> <i>Air sampler (Sat) HTP-ZZ-04121</i></p> <p><input type="checkbox"/> <i>Count rate meter (Sat) HTP-ZZ-04108</i></p> <p><input type="checkbox"/> <i>Ion chamber survey meter (Sat) HTP-ZZ-04102</i></p> <p><input type="checkbox"/> <i>GM survey meter (Sat) HTP-ZZ-04106</i></p>		
<p><b>Load equipment in vehicle:</b></p> <p><input type="checkbox"/> <i>Immediate FMT Kit</i></p> <p><input type="checkbox"/> <i>Recovery FMT Kit (located at EOF equip room if needed)</i></p> <p><input type="checkbox"/> <i>Air sampler</i></p> <p><input type="checkbox"/> <i>GM survey meter (14c in front seat of vehicle, with the audible indicator on and probe window open, facing up.)</i></p> <p><input type="checkbox"/> <i>Ion chamber survey meter</i></p> <p><input type="checkbox"/> <i>Procedures (located on side of locker)</i></p> <p><input type="checkbox"/> <i>Maps</i></p> <p><input type="checkbox"/> <i>Emergency light</i></p> <p><input type="checkbox"/> <i>Check source</i></p>		
<p><b>Other Equipment:</b> <i>GPS System (Operator aid in FMT Kit).</i></p> <p><input type="checkbox"/> Check GPS operational with vehicle parked at the CPF. (GPS is SAT if it reads N38°45.6' to 45.8' W91°47.0' to 47.2' or See precaution concerning Plume Direction.)</p> <p><i>Air sampler</i></p> <p><input type="checkbox"/> Prepare sample head. (Install filter and cartridge.)</p> <p><input type="checkbox"/> Check samplers air flow within calibrated range.</p> <p><i>RERP Vehicle</i></p>		
<div data-bbox="483 1409 1044 1541" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>NOTE:</b> The inverter switch location is identified by a label stating "Power Inverter Switch".</p> </div> <p><input type="checkbox"/> DC to AC inverter operational (air sampler checked <i>Sat</i>)</p> <p><input type="checkbox"/> Fuel greater than ½ full CARS 199802506 (refuel at tank located at Stores 1, Pump key on vehicle key-ring)</p> <div data-bbox="483 1692 1044 1850" style="border: 1px solid black; padding: 5px;"> <p><b>NOTE:</b> If fuel is needed in the field, contact the DAC to obtain the Logistics Support Coord credit card number.</p> </div>		



**II. EQUIPMENT CHECKOUT COMN 42536 (continued)**

<p><b>Communication Equipment:</b></p> <p><i>Radio</i></p> <p><input type="checkbox"/> Switch radio to Repeater Plant 2.</p> <p><input type="checkbox"/> Contact FMT communicator for operational check of the radio. (Maintain ED away from antenna or coaxial cable. Notify DAC if ED interference is observed during Radio Test ) (Sat)</p> <p><i>Cellular Phone</i></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">LOCATION</th> <th style="text-align: left;">TELEPHONE NUMBER</th> </tr> </thead> <tbody> <tr> <td>FMT Communicator EOF</td> <td>(573) 676-4924</td> </tr> <tr> <td>Backup EOF</td> <td>(573) 526-9165</td> </tr> <tr> <td>HP Coordinator TSC</td> <td>(573) 676-8711</td> </tr> <tr> <td>DAC EOF</td> <td>(573) 676-4999 / 4907</td> </tr> <tr> <td>BLUE FMT (Chem. Veh #102206)</td> <td>(573) 220-0173</td> </tr> <tr> <td>GREEN FMT (HPTS Veh #102207)</td> <td>(573) 220-0628</td> </tr> <tr> <td>RED FMT (I&amp;C Veh #102004)</td> <td>(573) 220-2507</td> </tr> <tr> <td>WHITE FMT (OPS Veh #103379)</td> <td>(573) 220-1096</td> </tr> </tbody> </table> <p><input type="checkbox"/> Contact FMT communicator for operational check of the phone. FMT communicator should also contact FMT to verify phone is operational and phone number is correct (Sat)</p>	LOCATION	TELEPHONE NUMBER	FMT Communicator EOF	(573) 676-4924	Backup EOF	(573) 526-9165	HP Coordinator TSC	(573) 676-8711	DAC EOF	(573) 676-4999 / 4907	BLUE FMT (Chem. Veh #102206)	(573) 220-0173	GREEN FMT (HPTS Veh #102207)	(573) 220-0628	RED FMT (I&C Veh #102004)	(573) 220-2507	WHITE FMT (OPS Veh #103379)	(573) 220-1096	
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**III. BRIEFING AND DISPATCH**

<p><b>Contact FMT Communicator:</b></p> <p><input type="checkbox"/> Inform FMT communicator, FMT equipment loaded and the team is ready to be briefed and dispatched.</p> <p>Brief (minimum requirements):</p> <p><input type="checkbox"/> Team designator (Identified at top of page 1)</p> <p><input type="checkbox"/> Meteorological updates</p> <p>Wind Direction (degrees) From: _____ To: _____</p> <p>Wind Speed (mph) _____</p> <p><input type="checkbox"/> Status of any releases &gt; than normal operating limits in progress or likely to occur.</p> <p>START TIME ____:____</p> <p>Release location (circle one) UNIT VENT / PORV / TDAFP / OTHER _____</p> <p><input type="checkbox"/> Survey and sample locations</p> <p><input type="checkbox"/> Review of Section IV Precautions by the FMT</p> <p><input type="checkbox"/> Potassium Iodide recommendations (HDP-ZZ-01300 , Attachment 1)</p> <p>Recommended (circle one) YES / NO</p> <p><input type="checkbox"/> You should <u>not</u> take KI if you are allergic to iodine.</p>	<p style="text-align: center;"><b>Remarks</b></p>
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**IV. PRECAUTIONS**

	Remarks
<p><input type="checkbox"/> <b>Complete Human Performance 5-step Questioning Process:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Review Task:</b> Have I done this job before?</li> <li><input type="checkbox"/> <b>Summarize Critical Steps:</b> What are the critical Steps?</li> <li><input type="checkbox"/> <b>Anticipate Error Likely Situations:</b> What mistakes might be made?</li> <li><input type="checkbox"/> <b>Foresee Consequences:</b> What is the worst that can happen to me, the plant, or the equipment?</li> <li><input type="checkbox"/> <b>Evaluate Defenses:</b> What kind of defenses should I consider and review?</li> </ul>	
<p><input type="checkbox"/> Maintain communications with the EOF using Repeater Plant 2. If radio communications are lost or intermittent, use the cellular phone. If communications cannot be established through alternate radio channels or cellular phone, return to the appropriate facility (EOF, BEOF, or Callaway Plant) and contact the DAC.</p>	
<p><input type="checkbox"/> If the Backup EOF is being used for Field Monitoring Team direction, the cellular phones should be used for primary communications. Backup communications should be performed using Repeater Plant 2.</p>	
<p><input type="checkbox"/> In the event the Plume is passing overhead during the Operational Check of the GPS units, the units will be considered Operationally SAT, if the GPS MAP 162 indicates 2D or 3D navigation or the GPS 12/12XL automatically changes to the Position Page. Sufficient time must be allowed for the units to acquire the appropriate number of satellites needed for navigation.</p>	
<p>Minimize the time in the plume. Perform all sample analysis, calculations, etc., outside the plume location.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p><b>CAUTION:</b> If Model 14C Reading exceeds 1 R/hr, Leave the area and contact the DAC for further instructions.</p> </div>	
<p><input type="checkbox"/> Ventilation from outside sources should be minimized upon entry in the plume. Place vehicle ventilation in recirculation (depress MAX button, REC will light on your display) or off (for vehicles without A/C). Ensure windows are closed.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p><b>CAUTION:</b> Vehicle air filters may become highly contaminated and a source of radiation exposure after traversing the plume.</p> </div>	
<p><input type="checkbox"/> No eating, drinking, or smoking is allowed.</p>	

**V. DEBRIEFING**

FMT Status:	Remarks
<p><input type="checkbox"/> Team(circle one) Secured / relieved</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"><p><b>NOTE:</b> Access to the EOF should be through the Decontamination Area.</p></div> <p><input type="checkbox"/> Date and Time _____ : _____ Problems or Hazards encountered</p> <p>_____</p> <p>_____</p>	
<p><b>Surveys:</b></p> <p><input type="checkbox"/> Survey Worksheet complete and submitted to DAC</p>	
<p><b>Dosimetry:</b></p> <p><input type="checkbox"/> Exposure records updated by DAC (complete section I) CARS 199802498</p>	
<p><b>Internal Exposure:</b></p> <p><input type="checkbox"/> Probable internal exposure YES / NO</p> <p><input type="checkbox"/> Plume Immersion YES / NO</p> <p>If yes, schedule whole body count location: _____ time: _____ : _____</p>	

Debriefing by \_\_\_\_\_  
(DAC or designee)

**FMT Radiation Survey Worksheet**

<u>Team Designator:</u> Blue Green Red			<u>Weather Conditions:</u> Clear Rain Snow Sleet Mist			Date:
<u>Dose Data</u>			<u>Instrument ID's</u>		<u>Notes:</u>	
Member EID	ED Dose (mrem)	Time	CRM-	-HP	<ul style="list-style-type: none"> <li>Immediately inform the DAC if open window Model 14C indicates 0.1 mR/hr or greater</li> <li>MAGNEM Automatically multiplies Iodine Gross CPM &gt;100,000 by 1.3</li> <li>RO-XX values are &lt; 0.5 mR/hr, report as &lt; 0.5 mR/hr.</li> <li>If a Noble Gas sample is requested, connect marinelli at the sampler exhaust</li> <li>Ion Chamber instrument readings are closed window, waist level, unless otherwise noted</li> <li>Air samples are approximately 10 ft<sup>3</sup> unless directed by DAC based on keeping exposures ALARA (15 seconds min.) CARS 199802505</li> <li>Prior to counting, purge the Particulate and Iodine sample by running the sampler for approximately 1-min. to remove noble gas interference.</li> </ul>	
			GMI-	-HP		
			ION-	-HP		
			LAS-	-HP		

Time	Plume Location			*	Plume Centerline Survey Information					
	Latitude (N) 38° xx . xxx	Longitude (W) 91° xx . xxx	14 C mrem/hr open window		RO-xx Gamma mrem/hr closed window	Bkgd (cpm)	Iodine Gross (cpm)	Particulate Gross (cpm)	Sample duration (min)	Flowrate (cfm)

\* P=Perimeter, C=Centerline, L=Leading Edge. Otherwise, leave blank

Environmental Collection Worksheet						
Sample Date	Sample Time	Sample Size	Sample Type	Sample Location		Radiation (mR/hr)
				Latitude (N) 38° xx . xxx	Longitude (W) 91° xx . xxx	

Collected by: \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
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