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A045

PERSONNEL MONITORING AND RADIOLOGICAL EMERGENCY TEAMS

Revision Summary

1) Added Use Reference in Section 2.0.
2) Changed Nuclear Shift Supervisor to Shift Manager (SM) in step 3.1.
3) Reworded step 6.1.2 relating to personnel dose limits/margins.
4) Added several steps in Attachment 2 initiating the start of Chemistry Lab equipment, and clarified radio usage in step 9.
5) Removed step in Attachment 2 to enhance continuity of the activation process.
6) Changed Social Security Number to I.D. Number on Attachment 8.
7) Added steps in Attachment 9 to ensure the OSC dosimetry client station is energized, and to ensure OSC personnel check secondary dosimetry.
8) Clarified notes regarding abort dose rates in Attachments 13 and 14.
9) Added steps in Attachments 12, 13, and 14 to include the use of electronic dosimetry.
10) Eliminated the need for listing team member names in Attachment 16.
11) Added a step in Attachment 16 to review potential radiological/ALARA issues for the offsite RET.
12) Changed "should" to "shall" in Enclosure A, Tab 3.
13) Added note before step 3.1.5, added new step 3.1.5.1, and deleted notes before step 3.1.7 in Enclosure A, Tab 4.
14) Clarified shipping environmental samples and TLDs offsite in Enclosure A, Tabs 5 and 11.
15) Updated Evacuation/Assembly area maps in Enclosure C.
16) Made editorial changes throughout procedure. No revision bars used to mark these changes.
17) Attachments 1 through 16 and Enclosures B and C were recreated as the original electronic file was lost.

Implementation Plan

1) This revision goes into effect upon issuance and will be placed in Radiation Protection Required Reading.

Attachments - See page 2.

Enclosures - See page 2.

CONTROLLED

Information and Procedures				
DSN EP-220	**Revision** 12	**DCR #** 01-1374	**DTC** TPEPT	**File #** 1703.10
IP Code I	**Date Approved** 10-2-01	**Released By** D. Adams/s/	**Date Issued** 10-2-01	**Recipient** 935

Attachments

1	083101	Offsite RET Dispatch
2	083101	Offsite RET Activation Checklist
3	083101	Team Information
4	083101	RET Plume Tracking/Dose Rate Survey Data
5	083101	RET Air Sample Survey Data
6	083101	RET Environmental Sample/Survey Data
7	083101	RET Coordinator Radiological Survey Data Report
8	083101	Disposition of Contaminated Personnel or Vehicles
9	083101	Onsite Radiological Emergency Team Checklists - Emergency Response Facilities
10	083101	Onsite Radiological Emergency Team Checklists - In-Plant Surveys
11	083101	Onsite Radiological Emergency Team Checklists - Onsite (Owner Controlled) Area Surveys
12	083101	Onsite Radiological Emergency Team Checklists - Damage Control and Rescue Team Coverage
13	083101	RP PASS Checklist
14	083101	RP AXM Checklist
15	083101	Personnel Monitoring Teams Checklist
16	083101	Offsite RET Briefing/Debriefing Sheet

Enclosures

A Environmental Sampling and Survey Techniques

120496	TAB 1:	General Information
032800	TAB 2:	Plume Tracking
083101	TAB 3:	Dose Rate Measurements
083101	TAB 4:	Airborne Activity Samples
083101	TAB 5:	Vegetation Samples
120496	TAB 6:	Soil Samples
120496	TAB 7:	Surface Water Samples
120496	TAB 8:	Drinking Water Samples
120496	TAB 9:	Snow Samples
120496	TAB 10:	Contamination Surveys
083101	TAB 11:	Emergency TLD Collection

B	083101	Recommended Surface Contamination Screening Levels
C	083101	Evacuation/Assembly Maps

1.0 PURPOSE

To identify the duties and responsibilities of the Onsite Radiological Emergency Teams (RETs), Offsite RETs, and Personnel Monitoring Teams (PMTs) during a radiological emergency, including RET Leader, RET Coordinator, and Radiation Protection Coordinator (RPC).

2.0 USE REFERENCES

2.1 67.000.400, Personnel Decontamination and Assessment

2.2 67.000.405, Maintenance and Inventory of Radiation Protection Emergency Kits

2.3 76.000.05, Operation of Gamma Spectroscopy System

3.0 ENTRY CONDITIONS

3.1 The Emergency Director/Shift Manager (SM) orders the activation of any of the following teams:

3.1.1 Onsite RETs

3.1.2 Offsite RETs

3.1.3 PMT

4.0 GENERAL INFORMATION

4.1 RET Leader

4.1.1 Coordinates Radiation Protection (RP) activities from the Operational Support Center (OSC).

4.1.2 Assigns RP personnel to Onsite RETs as required to evaluate radiological conditions or to support other emergency activities as requested.

NOTE: Offsite RET members are contacted at the Alert declaration by the Emergency Call Out System (ECOS).

4.1.3 Designates personnel, as needed, to form the Offsite RET at the Alert emergency level. The number of required teams will be determined by communication with the Radiation Protection Advisor (RPA) in the Technical Support Center (TSC) and/or the RET Coordinator/RPC in the Emergency Operations Facility (EOF) when possible.

4.1.4 Dispatches designated personnel for Offsite RET assignments at the Site Area Emergency level. Teams will form at the EOF as coordinated with the RPA and/or RET Coordinator/RPC.

4.1.5 Dispatches RP personnel to form PMTs as requested.

4.1.6 Transfers responsibility for Offsite RET to RET Coordinator and for PMT to the RPC once the EOF becomes functional.

4.2 RET Coordinator

4.2.1 Determines and designates assembly location for Offsite RET as coordinated with the RET Leader and/or RPA.

4.2.2 Requests dispatch of Offsite RETs at the Site Area Emergency level.

4.2.3 Supervises formation of Offsite RETs assembling at the EOF.

4.2.4 Ensures teams assembling at the EOF are equipped with fully operational equipment.

4.2.5 Provides field assignments to Offsite RETs

4.2.6 Receives monitoring data from Offsite RETs via radio and provides results to the Radiation Protection Coordinator.

4.3 Onsite RET

4.3.1 Consists of RP technicians.

4.3.2 Is dispatched from the OSC by the RET Leader.

4.3.3 Performs radiological surveillance and contamination control in the following areas during an emergency:

1. Onsite, In-plant

2. Onsite, out-of-plant, within the Owner-controlled perimeter fence.

4.3.4 Takes work direction from and reports to the RET Leader

4.3.5 Provides emergency response personnel with necessary radiological protection equipment and direction.

4.3.6 Performs habitability monitoring of emergency response facilities when directed.

4.3.7 Assumes monitoring duties of Offsite RET if a particulate release requiring use of respiratory equipment prevents Offsite RET from completing necessary surveys.

4.4 Offsite RET

NOTE: RET Samplers may fulfill the role of the RP technician.

4.4.1 Normally consists of one RP technician and one RET driver.

4.4.2 Will generally be dispatched at the Site Area Emergency level.

4.4.3 Performs radiological surveillance duties outside the owner controlled area under the direction of the RET Coordinator.

4.4.4 Provides radiological data that is used to characterize a radioactive release and evaluate protective action recommendations.

4.4.5 Offsite RETs report to the designated assembly location and take direction from the RET Coordinator.

4.4.6 RET drivers assigned to Fermi 2:

1. Reports to EOF.
2. Obtains keys for Offsite RET vehicles.
3. Takes direction from RET Coordinator or RPC.
4. Contacts RET Leader in OSC for further instructions if RET Coordinator and RPC positions are not yet staffed.

4.5 Radiation Protection Coordinator (RPC)

NOTE: The RPC may delegate any of his/her responsibilities to an Assistant RPC as warranted by the emergency situation.

4.5.1 Determines areas for radiological surveys and/or environmental sampling for Offsite RETs.

4.5.2 Provides field assignment to PMT.

4.5.3 Receives status updates of contaminated personnel or vehicles from PMT.

4.6 PMTs

4.6.1 Consists of RP technicians who may be assisted by other available personnel acting under direct RP Technician supervision.

4.6.2 Is normally dispatched from the OSC.

4.6.3 Reports to the designated Offsite Assembly Area (Monroe Power Plant, Trenton Channel Power Plant, or Newport Service Center).

4.6.4 Takes work direction from and reports to the RPC.

4.6.5 Performs contamination surveys of evacuated personnel and vehicles.

4.6.6 Performs decontamination of contaminated personnel and vehicles (See Enclosure B).

5.0 IMMEDIATE ACTION

5.1 Radiation Protection Staffing Augmentation

Who	*Step*	*Action*
		NOTE: Emergency Call Out System (ECOS) will staff Offsite RET positions.
RET Leader	5.1.1	Call in off-shift personnel as necessary to meet emergency staffing requirements.

1. Within 30 minutes after declaration of an Alert, there should be a minimum of 7 RP personnel available to staff the following positions:
   a. Onsite in-plant RET (5)
   b. Onsite out-of-plant RET (1)
   c. Offsite RET (1) (Reports to designated assembly area)
2. Within 1 hour after declaration of a Site Area Emergency, there should be a minimum of 12 RP personnel available to staff the following positions:
   a. Onsite in-plant RET (8)
   b. Onsite out-of-plant RET (2)
   c. Offsite RET (2)

6.0 PROCEDURE

NOTE: The following actions are performed only as appropriate and in any order to support the emergency response.

Who	*Step*	*Action*

6.1 RET Leader Emergency Response Actions

RET Leader	6.1.1	Determine status of emergency event including:

1. Cause of the event
2. Plant operating status

3. Radiological conditions including:

   a. Actual or potential radioactive release known or suspected

   b. Abnormal radiation or contamination levels known or suspected

   c. Status of contaminated personnel

4. Status of corrective actions

5. Number of RP personnel available to respond and any team assignments already made

6. Status of missing or injured personnel

6.1.2 Review personnel annual dose margin before making team assignments.

6.1.3 Assign personnel to required teams.

6.1.4 Brief team members on emergency/plant status, team duties, known radiological conditions, radiological controls/equipment to be used, communication methods to be employed, and provide any special instructions.

6.1.5 Document assignments and briefings using OSC Team Brief/Debrief Sheets, EP-302-1, Attachment 1.

6.1.6 Coordinate activities with RPA and/or RET Coordinator.

6.2 Onsite RET Emergency Response Actions

Who	*Step*	*Action*
Onsite RET	6.2.1	Onsite in-plant:

1. Obtain necessary equipment.

2. Determine radiation, contamination, and airborne radioactivity levels of in-plant areas as assigned by the RET Leader.

3. Report all survey results and give status updates to the RET Leader.

6.2.2 Onsite out-of-plant:

1. Establish radiological controls in the Technical Support Center (TSC) when directed:

   a. If radiological conditions above normal background are found at any time, report status to RPA or RET Leader

   b. If not running, start portable iodine monitor.

   c. If not energized, energize portable radiation monitor.

   d. Perform radiation, contamination, and airborne activity surveys.

   e. Establish access control of TSC.

      1) Ensure an operational frisker is available at entrance.

      2) Set up step-off pad, if necessary.

      3) Issue emergency dosimetry.

   f. If radiological conditions prohibit personnel from remaining in TSC as evaluated by the RPA or RET Leader:

      1) Post area appropriately for radiological conditions.

      2) Post signs directing personnel to alternate location as directed.

2. Establish radiological controls in the Emergency Operating Facility (EOF) when directed:

   a. If radiological conditions above normal background are found at any time, report status to RPC and/or RET Leader.

   b. If not running, start portable iodine monitor.

   c. If not energized, energize portable radiation monitor.

   d. Perform radiation, contamination, and airborne activity surveys.

e. Establish access control of EOF.

1) Ensure frisker is available at entrance.

2) Set up step-off pad, if necessary.

3) Issue emergency dosimetry.

f. If radiological conditions prohibit personnel from remaining in EOF as evaluated by RPC or RET Leader:

1) Post area appropriately for radiological conditions.

2) Post signs directing personnel to alternate location as directed.

6.2.3 Perform radiological environmental monitoring as directed:

1. Obtain vehicle as necessary for access to survey areas.

2. Obtain radio as necessary for communication to RET Leader.

3. Obtain proper respiratory protection equipment if needed.

4. Obtain Radiological Emergency Kit if needed.

5. Perform environmental surveys and samples as directed by the RET Leader using the applicable portions of Enclosure A.

6.2.4 In the event of a release of particulate airborne activity requiring use of respiratory protection equipment, when directed by the RET Leader:

1. Obtain vehicle as necessary for access to off-site survey areas.

2. Obtain radio for communication to RET Coordinator.

3. Obtain necessary respiratory protection equipment.

4. Obtain Radiological Emergency Kit if needed.

5. Assume duties of Offsite RET.

6.2.5 Perform Emergency Response Checklists as directed by the RET Leader using the applicable attachments.

6.3 RET Coordinator Emergency Response Actions

Who	*Step*	*Action*
RET Coordinator	6.3.1	Determine emergency status.
	6.3.2	Direct assembly and brief Offsite RETs on field assignments using Attachment 16.
	6.3.3	Dispatch Offsite RETs.
	6.3.4	Document Offsite RET assignments on Attachment 1.
	6.3.5	Maintain radio communication with field teams.
	6.3.6	Document field survey results on Attachment 7.
	6.3.7	Inform Radiation Protection Coordinator of Offsite RET status: 1. Team locations 2. Survey results 3. Need for additional equipment, supplies or personnel
	6.3.8	Provide Offsite RET debrief at the conclusion of field assignment using Attachment 16.
	6.3.9	Order withdrawal of Offsite RET from plume pathway and replacement by properly equipped onsite RET if a release of particulate material requiring use of respiratory protection equipment is detected.
	6.3.10	Arrange for sample pickup or supply replenishment for Offsite RETs as necessary.

6.4 Offsite RET Emergency Response Actions

Who	*Step*	*Action*
Offsite RET	6.4.1	Complete Offsite RET Activation Checklist (Attachment 2).
		1. Initiate Team Information (Attachment 3).
		a. Issue dosimetry.
		b. Perform instrument operational checks.
		2. Obtain necessary replacements for missing or inoperable equipment or supplies.
	6.4.2	Continuously monitor radiation levels and immediately report readings above background to RET Coordinator.
	6.4.3	Periodically monitor DRD readings and report accumulated doses to RET Coordinator.
		1. If DRD reaches 3/4 of full scale, inform RET Coordinator immediately.
	6.4.4	Perform radiological environmental surveys and samples as directed by the RET Coordinator in accordance with the applicable portions of Enclosure A.

6.5 PMT Emergency Response Actions

Who	*Step*	*Action*
PMT	6.5.1	Report to designated Offsite Assembly Area when directed (Monroe Power Plant, Trenton Channel Power Plant or Newport Service Center). See maps in Enclosure C.
	6.5.2	Obtain PMT emergency kit and decon supplies at designated assembly area.
		1. At Monroe Power Plant, obtain PMT and decon kits from the old Security Building in the Security Complex.
		2. At Trenton Channel Power Plant:
		a. Obtain PMT kit from Security Building.

b. Obtain necessary supplies from large brown gang box which is the decon kit located in the train/crane shelter.

3. At Newport Service Center, obtain PMT and decon kits from the Warehouse.

6.5.3 Establish communications with RPC, or RET Leader until EOF is functional.

6.5.4 Establish areas for contamination control of personnel and vehicles including:

1. Staging Area

2. Monitoring Area

3. Decontamination Area

6.5.5 Survey personnel and vehicles for contamination.

6.5.6 Record all contamination of personnel or vehicles on Attachment 8.

6.5.7 Report all contamination of personnel or vehicles to RPC.

6.5.8 As directed by the RPC, decontaminate personnel using techniques described in 67.000.400, "Personnel Decontamination and Assessment."

6.5.9 Decontaminate vehicles to fullest extent possible.

6.5.10 Report status of decontamination of personnel and vehicles to RPC to determine final disposition.

6.5.11 Report final disposition of personnel and vehicles on Attachment 8.

7.0 FOLLOW-UP ACTIONS

7.1 Upon deactivation the RETs and PMTs shall:

7.1.1 Ensure all equipment is verified operable, all consumable supplies are replenished, and equipment is restored in the appropriate locations.

7.1.2 Perform an inventory of all emergency and decontamination kits used during the emergency.

7.1.3 Send all records, reports, surveys, and completed checklists to the RET Coordinator or RPC for review.

7.1.4 Collect all dosimetry used and forward TLDs to Dosimetry.

7.1.5 Transport all waste to Radwaste for disposal.

7.2 RET Coordinator and RET Leader shall collect all associated documentation and submit it to the Radiation Protection Coordinator for review prior to sending to RERP.

8.0 RECORDS

8.1 All documentation generated in support of RET and PMT activity is considered a required record and shall be sent to the Supervisor, RERP for retention.

8.2 All completed emergency kit inventory forms shall be forwarded to E-kit Coordinator for review and retention.

END OF TEXT

OFFSITE RET DISPATCH

❑ This **is** a drill. ❑ This **is not** a drill.

A) Time & Date: _____ **B) RET Team #**_____

C) Location: _____

D) Survey or Sample Required:

- ❑ Plume Tracking Survey
- ❑ Dose Rate Survey
- ❑ Contamination Survey
- ❑ Air Sample
- ❑ Soil or Water Sample
- ❑ Other _____

A) Time & Date: _____ **B) RET Team #**_____

C) Location: _____

D) Survey or Sample Required:

- ❑ Plume Tracking Survey
- ❑ Dose Rate Survey
- ❑ Contamination Survey
- ❑ Air Sample
- ❑ Soil or Water Sample
- ❑ Other _____

A) Time & Date: _____ **B) RET Team #**_____

C) Location: _____

D) Survey or Sample Required:

- ❑ Plume Tracking Survey
- ❑ Dose Rate Survey
- ❑ Contamination Survey
- ❑ Air Sample
- ❑ Soil or Water Sample
- ❑ Other _____

A) Time & Date: _____ **B) RET Team #**_____

C) Location: _____

D) Survey or Sample Required:

- ❑ Plume Tracking Survey
- ❑ Dose Rate Survey
- ❑ Contamination Survey
- ❑ Air Sample
- ❑ Soil or Water Sample
- ❑ Other _____

Completed By: _____ / _____ / _____

Print Sign Date

Forward completed form to Supervisor, RERP, 164 NOC

OFFSITE RET ACTIVATION CHECKLIST

☐ This **is** a drill. ☐ This **is not** a drill.

RET Team # _____ Time Activated: _____

Initial: _____ 1. Check out the key to the EOF Emergency Laboratory (from the EOF roll around cabinet) to access the Gamma Spectroscopy System.

Initial: _____ 2. Start the Chemistry Gamma Spectroscopy System in accordance with 76.000.05, "Operation of Chemistry Gamma Spectroscopy System" (if required).

Initial: _____ 3. Notify the Radiation Protection Coordinator (RPC)/Assistant RPC that the warm-up on the Gamma Spectroscopy System has been started and to log the start time (if required).

Initial: _____ 4. Check out assigned emergency kit.

Initial: _____ 5. Verify Radiological Emergency Team (RET) kit tamper seal is intact (check the following):

- ☐ Seal Intact
- ☐ Seal Broken (if seal is broken, perform RET Kit inventory checklist)

Initial: _____ 6. Initiate "Team Information" (Attachment 3).

Initial: _____ 7. Move emergency kit to vehicle to be used by Team in the field. Perform operational checks on all survey and air sampling equipment. **If directed to do so by RET Coordinator,** perform initial/baseline air sampling (see Enclosure A, TAB 4).

Initial: _____ 8. Inform RET Coordinator of any missing items or inoperable equipment.

Initial: _____ 9. Perform functional two-way radio check (using assigned channel and other communications equipment) with RET Coordinator at Emergency Operations Facility (EOF).

Initial: _____ 10. Report Team availability to RET Coordinator and stand by for initial assignment.

Completed By: _____ / _____ / _____

Print Sign Date

Forward completed form to RET Coordinator/Designee for review
After review, forward completed form to Supervisor, RERP, 164 NOC

TEAM INFORMATION
(To be initiated before being dispatched to survey locations)

☐ This **is** a drill. ☐ This **is not** a drill.

RET Team # _____

PART 1: TEAM INFORMATION	
A) RET Member	**B) RET Member**
Name (Print): _____	Name (Print): _____
Signature: _____	Signature: _____
TLD Serial Number: _____	TLD Serial Number: _____
DRD Serial Number: _____	DRD Serial Number: _____
Initial DRD Reading: _____	Initial DRD Reading: _____
Ending DRD Reading: _____	Ending DRD Reading: _____
Was DRD Rezeroed in field?	Was DRD Rezeroed in field?
☐ Yes ☐ No	☐ Yes ☐ No
If "Yes," then:	If "Yes," then:
Reading before rezeroed: _____	Reading before rezeroed: _____
Reading after rezeroed: _____	Reading after rezeroed: _____
Time DRD rezeroed: _____	Time DRD rezeroed: _____

PART 2: SURVEYS/SAMPLING EQUIPMENT OPERATIONAL CHECKS				
A) Equipment/Model #	**B) Op. Check Status**		**C) ID #**	**D) Cal Due Date**
Dose Rate Meter _____	☐ Sat	☐ Unsat*	ID # _____	Date _____
Frisker _____	☐ Sat	☐ Unsat*	ID # _____	Date _____
Air Sampler _____	☐ Sat	☐ Unsat*	ID # _____	Date _____
Other _____	☐ Sat	☐ Unsat*	ID # _____	Date _____
Other _____	☐ Sat	☐ Unsat*	ID # _____	Date _____

E) *Instrument Unsat Operational Check

If Unsat, correct deficiency or replace instrument. Record data below:

Instrument Type: _____ ID #_____
Operational Checks: ☐ Sat ☐ Unsat

Instrument Type: _____ ID #_____
Operational Checks: ☐ Sat ☐ Unsat

Completed By: _____ / _____ / _____
Print Sign Date

Forward completed form to RET Coordinator/Designee for review
After review, forward completed form to Supervisor, RERP, 164 NOC

RET PLUME TRACKING/DOSE RATE SURVEY DATA

☐ This **is** a drill. ☐ This **is not** a drill.

RET TEAM #: _____

PART 1: PLUME TRACKING DATA (Dose rates in mR/Hr unless otherwise noted)								
Leading Edge Location	**Time**	**Dose Rate CPM**	**Center Line Location**	**Time**	**Dose Rate CPM**	**Far Edge Location**	**Time**	**Dose Rate CPM**

PART 2: STATIONARY DOSE RATE DATA (in mR/Hr unless otherwise noted)					
Location	**Time**	**CW @ 1 Meter**	**CW @ 3 Inches**	**OW @ 1 Meter**	**OW @ 3 Inches**
Remarks:					

PART 3: INSTRUMENT/TECHNICIAN DATA				
Instrument Type/Model #	**I.D. #**	**Calibration Due Date**	**Beta Factor**	
Dose Rate Meter:				
Other:				

Team Member: _____ / _____ / _____

Print Sign Date

Forward completed form to RET Coordinator/Designee for review
After review, forward completed form to Supervisor, RERP, 164 NOC

RET AIR SAMPLE SURVEY DATA

☐ This is a drill. ☐ This **is not** a drill.

RET Team # _____

PART 1: AIR SAMPLE SURVEY DATA									
Location	**Time On**	**Initial Flow Rate (CFM)**	**Time Off**	**Final Flow Rate (CFM)**	**Back-ground CPM**	**Filter Paper CPM**	**Iodine Cart. CPM**	**Filter Paper Net CPM**	**Iodine Cart. Net CPM**

PART 2: SAMPLE VOLUME

A. AVE. FLOW RATE = $\frac{\text{INITIAL FLOW RATE + FINAL FLOW RATE}}{2}$ = $\frac{\quad + \quad}{2}$

AVERAGE FLOW RATE = _____

B. SAMPLE VOL. = SAMPLE RUN TIME (MIN) X AVE. FLOW RATE (CFM) = ____ x ____

SAMPLE VOLUME = _____

PART 3: INSTRUMENT DATA		
Instrument Type/Model #	**I.D. #**	**Cal. Due Date**
Air Sampler:		
Frisker:		
Other:		
Other:		

Team Member: _____ / _____ / _____

Print Sign Date

Forward completed form to RET Coordinator/Designee for review
After review, forward completed form to Supervisor, RERP, 164 NOC

RET ENVIRONMENTAL SAMPLE/SURVEY DATA

☐ This is a drill. ☐ This **is not** a drill.

RET Team # _____

PART 1: SAMPLE/SURVEY DATA (readings in CPM unless otherwise noted)					
Location (Include Approximate Sample Size, if Applicable)	**Sample/Survey Type (Continuation, Soil, etc.)**	**Time**	**Bkgd. CPM**	**Sample CPM**	**Net CPM**

PART 2: INSTRUMENT DATA		
Instrument Type/Model #	**I.D. #**	**Cal. Due Date**
Frisker:		
Other:		
Other:		

Completed By: _____ / _____ / _____
Print Sign Date

Forward completed form to RET Coordinator/Designee for review
After review, forward completed form to Supervisor, RERP, 164 NOC

RET COORDINATOR RADIOLOGICAL SURVEY DATA REPORT

☐ This **is** a drill. ☐ This **is not** a drill.

RET Team # _____

PART 1: DOSE RATE/CONTAMINATION SURVEY DATA (RET Leader/RET Coord.)					
Location (Include Approximate Sample Size, if Applicable)	**Sample/Survey Type (OW, CW, Smear, etc.)**	**Time**	**Dose Rate @ 1 Meter**	**Dose Rate @ 3 Inches**	**Net CPM**

Completed By: _____ / _____ / _____

Print Sign Date

Forward completed form to Supervisor, RERP, 164 NOC

RET COORDINATOR RADIOLOGICAL SURVEY DATA REPORT

RET Team # _____

PART 1: AIR SAMPLE SURVEY DATA (RET Coordinator)				
Location	**Sample Time**	**Sample Volume (ft^3)**	**Filter Paper Net CPM**	**Iodine Cart. Net CPM**

PART 2: AIR SAMPLE FILTER & IODINE CARTRIDGE ANALYSIS (RET Coordinator)

A) Particulate Filter Analysis:

Filter Paper

$$\frac{\text{Net CPM}}{(\text{Volume})\ (6.3 \times 10^9)} = \frac{_____}{(\ \ )\ (6.3 \times 10^9)} = _____ \text{ uCi/cc}$$

B) Iodine Cartridge Analysis:

Iodine Cartridge

$$\frac{\text{NET CPM}}{(\text{Volume})\ (1.6 \times 10^8)} = \frac{_____}{(\ \ )\ (1.6 \times 10^8)} = _____ \text{ uCi/cc}$$

Transfer above value for uCi/cc to Step C (below)

C) Adult Thyroid Dose Rate:

$$_____ \times (1.3 \times 10^9) = _____ \text{ mrem/hr}$$

Calculations Completed By:

_____ / _____ Date:_____ Time: _____

Print *Sign*

Reviewed by RPC:

_____ / _____ Date:_____ Time: _____

Print *Sign*

Forward completed form to Supervisor, RERP, 164 NOC

DISPOSITION OF CONTAMINATED PERSONNEL OR VEHICLES

☐ This is a drill. ☐ This **is not** a drill.

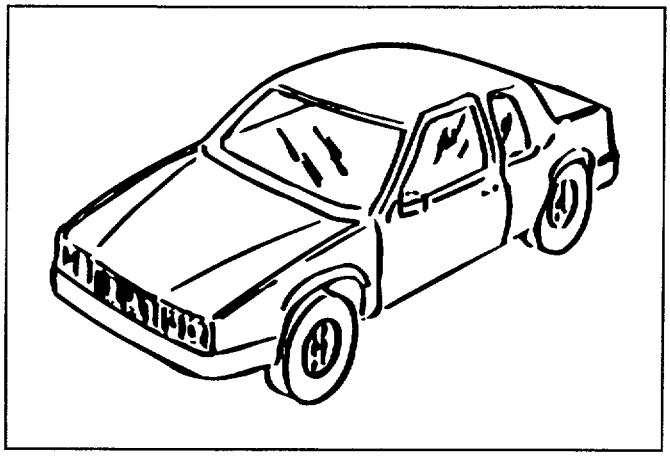
1. Date: _____ Time: _____
2. Name: _____ Company: _____
   Last First MI
3. Home Address (for non-Edison personnel only) _____
   _____
4. Check as applicable:
   ☐ Contaminated Person:
   Badge No.: _____
   I.D. Number: _____
   Date of Birth: _____
   ☐ Contaminated Vehicle:
   Make/Model: _____
   Vehicle Tag No. _____
   Name of Owner _____
5. Surface Contamination Level: _____
6. Location of Contamination (record on attached vehicle map as applicable): _____
   _____
7. Instrument Type/Serial No.: _____
8. Disposition:
   ☐ Detained Reason: _____
   ☐ Released Date: _____ Time: _____
9. Remarks:
   _____
   _____
   _____

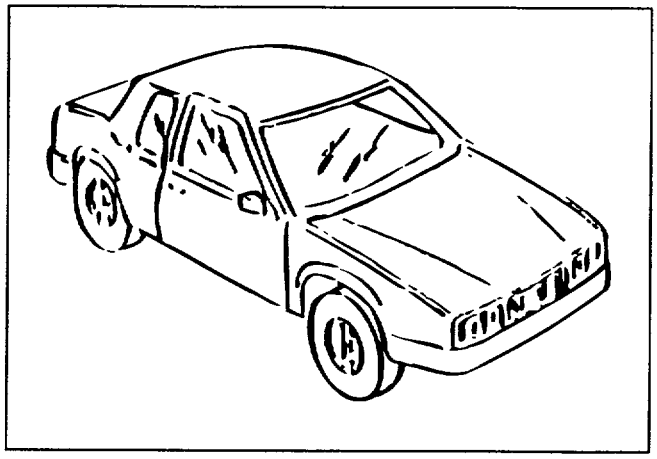
Completed By: _____ / _____ / _____
Print Sign Date

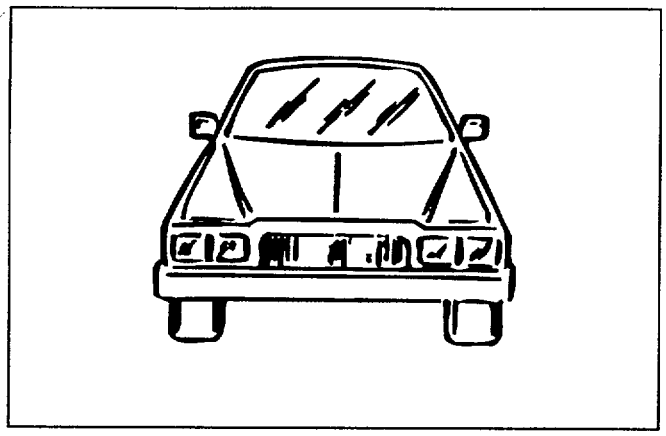
Reviewed by RPC/delegate: _____ / _____ / _____
Print Sign Date

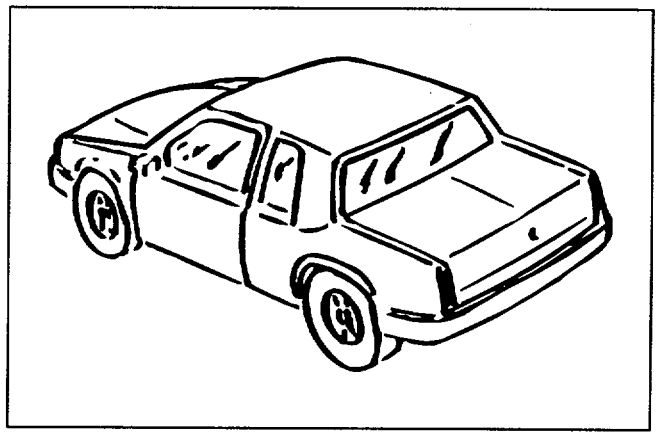
Forward completed form to Supervisor, RERP, 164 NOC

DISPOSITION OF CONTAMINATED PERSONNEL OR VEHICLES



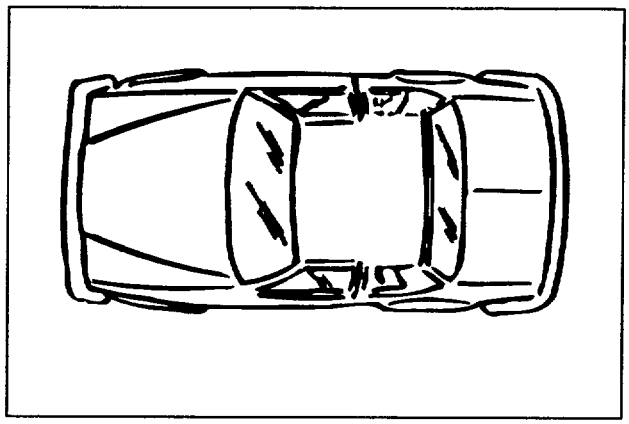


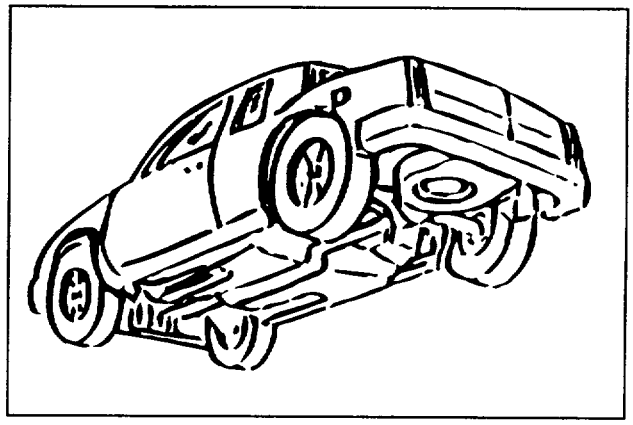


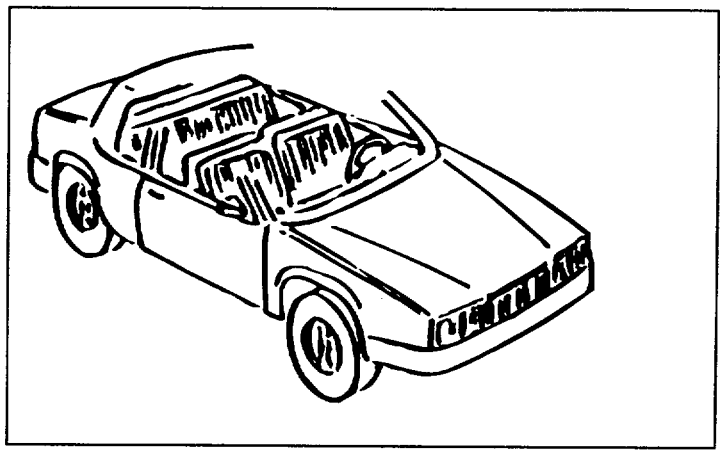


Forward completed form to Supervisor, RERP, 164 NOC

DISPOSITION OF CONTAMINATED PERSONNEL OR VEHICLES







Forward completed form to Supervisor, RERP, 164 NOC

ONSITE RADIOLOGICAL EMERGENCY TEAM CHECKLIST
Emergency Response Facilities – Operational Support Center

❑ This **is** a drill. ❑ This **is not** a drill.

Completed	N/A	
❑	❑	Obtain necessary equipment from OSC E-kit.
❑	❑	Print name (with a grease pencil) on magnetic nameplate on OSC Personnel Status Board.
❑	❑	Start habitability surveys.
❑	❑	Monitor radiation levels as necessary.
❑	❑	Perform contamination surveys as necessary.
❑	❑	Start/operate check Ludlum 377 as necessary.
❑	❑	Report results to RET Leader.
❑	❑	Establish RP Log (communicator with TSC).
❑	❑	Power up the OSC electronic dosimetry client station as necessary.
❑	❑	Assist RET Leader in radiological briefs and debriefs verifying completion of logs and OSC brief/debrief sheets.
❑	❑	Keep RET Leader informed of condition.
❑	❑	Periodically check personnel monitoring at OSC entrance.
❑	❑	Respond to PCM or frisker alarms.
❑	❑	Update habitability surveys as necessary.
❑	❑	Assist dosimetry issue to emergency teams.
❑	❑	Keep RET Leader informed of conditions.
❑	❑	Ensure OSC personnel frequently check their secondary dosimetry.

Performed By: _____ / _____ / _____
Print Sign Date

ONSITE RADIOLOGICAL EMERGENCY TEAM CHECKLIST
Emergency Response Facilities – Technical Support Center

❑ This **is** a drill. ❑ This **is not** a drill.

Completed	N/A	
❑	❑	Report to Radiation Protection Advisor (RPA) or Assistant RPA.
❑	❑	Obtain TSC E-kit.
❑	❑	Start habitability surveys.
❑	❑	Monitor radiation levels.
❑	❑	Perform contamination survey.
❑	❑	Start/operate check Ludlum 377 as necessary.
❑	❑	Report results to RPA.
❑	❑	Establish access controls.
❑	❑	Ensure frisker or PCM is operable.
❑	❑	Place SOP at entrance as necessary.
❑	❑	Issue DRDs.
❑	❑	Ensure all personnel have dosimetry.
❑	❑	Have personnel read DRDs frequently.
❑	❑	Periodically check personnel monitoring at the entrance.
❑	❑	Respond to PCM or frisker alarms.
❑	❑	Update habitability surveys as necessary.
❑	❑	Keep RPA informed of conditions.

Performed By: _____ / _____ / _____
Print Sign Date

ONSITE RADIOLOGICAL EMERGENCY TEAM CHECKLIST
Emergency Response Facilities – Emergency Operations Facility

☐ This **is** a drill. ☐ This **is not** a drill.

Completed	N/A	
☐	☐	Report to Radiation Protection Coordinator (RPC) or Assistant RPC.
☐	☐	Obtain EOF E-kit.
☐	☐	Start habitability surveys.
☐	☐	Perform contamination survey.
☐	☐	Start/operate check Ludlum 377.
☐	☐	Report results to RPC.
☐	☐	Establish access controls.
☐	☐	Ensure frisker is operable.
☐	☐	Place SOP at entrance as necessary.
☐	☐	Establish a dosimetry issue point.
☐	☐	Issue DRDs and TLDs.
☐	☐	Verify personnel fill out DRD Issue Log.
☐	☐	Ensure all personnel have dosimetry.
☐	☐	Have personnel read DRDs frequently.
☐	☐	Periodically check personnel monitoring at the entrance.
☐	☐	Respond to frisker alarms.
☐	☐	Update habitability surveys as necessary.
☐	☐	Monitor radiological conditions in EOF lab, if used.
☐	☐	Keep RPC informed of conditions.

Performed By: _____ / _____ / _____
Print Sign Date

ONSITE RADIOLOGICAL EMERGENCY TEAM CHECKLIST
In-Plant Surveys

☐ This **is** a drill. ☐ This **is not** a drill.

Completed	N/A	
☐	☐	Receive brief from RET Leader.
☐	☐	Areas to be surveyed.
☐	☐	Type of survey.
		Systems operating in the area:
		1. Review possible hazards in the area or on route:
☐	☐	Airborne – review CT-2B
☐	☐	Radiation levels – review ARM Panel
☐	☐	Safety hazards – oil, water, electrical, fire, steam, etc.
		2. Types of protective equipment:
☐	☐	PCs
☐	☐	Respirators
☐	☐	Dosimetry
☐	☐	Obtain 2-way radio as necessary.
☐	☐	Obtain necessary protective equipment as needed.
☐	☐	Obtain proper radiological monitoring equipment.
☐	☐	Check radiation levels on route to assigned area.
☐	☐	Establish communications with OSC before entering area.
☐	☐	Enter area with meter on highest scale.
☐	☐	Report survey results immediately to RET Leader.
☐	☐	Include any observed safety hazards.
☐	☐	Report back to OSC for debrief and further assignments.

Performed By: _____ / _____ / _____
Print Sign Date

ONSITE RADIOLOGICAL EMERGENCY TEAM CHECKLIST
Onsite (Owner Controlled) Area Surveys

☐ This **is** a drill. ☐ This **is not** a drill.

Completed	N/A	
☐	☐	Receive brief from RET Leader.
☐	☐	Determine type of release (liquid or gas).
		1. Hazards from release:
☐	☐	If gaseous – what do the Stationary Particulate Iodine and Noble Gases (SPINGs) read, if applicable
☐	☐	If liquid – how large, where did the liquid come from
☐	☐	Type of survey(s) – **may** include environmental samples
		2. Types of protective equipment:
☐	☐	PCs
☐	☐	Respirators
☐	☐	Dosimetry
☐	☐	Obtain protective equipment.
☐	☐	Obtain 2-way radio.
☐	☐	Obtain key to vehicle from RP Office.
☐	☐	Proceed to Alternate Fire Brigade Kelly Enclosure to obtain Onsite RET E-kit.
☐	☐	Ensure survey equipment is operable.
☐	☐	Issue high range DRD(s).
☐	☐	Load vehicle.
☐	☐	Monitor radiation levels on route to first monitoring area.
☐	☐	Record survey results.
☐	☐	Report results to RET Leader or RPA.
☐	☐	Continue frequent communications with RET Leader/OSC.

Performed By: _____ / _____ / _____
Print Sign Date

ONSITE RADIOLOGICAL EMERGENCY TEAM CHECKLIST
Damage Control and Rescue Team Coverage

☐ This **is** a drill. ☐ This **is not** a drill.

Completed	N/A	
		Task preparation and coverage
☐	☐	Attend briefing.
☐	☐	Assist in completing Part 3 of OSC Team Brief/Debrief Sheets.
☐	☐	Assign electronic dosimetry dose/dose rates to team members as required.
		or
☐	☐	Assign DRDs to team members (available from OSC E-kit).
☐	☐	Obtain and assign respirators, if necessary (check respirator qualifications).
☐	☐	Verify allowable dose for team members.
☐	☐	Note abort dose rates.
☐	☐	Check out necessary monitoring equipment.
☐	☐	Monitor radiation levels on route and at the job site.
☐	☐	Keep Damage Control and Rescue Team (DCRT) Leader/Members informed of radiological conditions.
☐	☐	Ensure briefing requirements are followed.
☐	☐	Monitor personnel exposure.
☐	☐	Maintain communications with RET Leader.
		Upon task completion
☐	☐	Assist team members to remove PCs, if used.
☐	☐	Ensure exit route and equipment removed pose no hazard.
☐	☐	Supervise personnel monitoring.
		Attend debrief; assist in completing Part 4 of OSC Brief/Debrief Sheet including:
☐	☐	1. Report/document all observed radiological conditions.
☐	☐	2. Report DCRTs total dose on briefing form and to RPA in TSC.
☐	☐	3. Discuss task performance and possible recommendations.
☐	☐	4. Report all observed safety hazards.

Performed By: _____ / _____ / _____
Print Sign Date

RP PASS CHECKLIST

❑ This **is** a drill. ❑ This **is not** a drill.

Check When Complete	Issue Dosimetry	Chest	L. Upper Arm	R. Upper Arm	L. Hand	R. Hand
	DRDs	0-5 R	0-100 R	0-100 R	0-100 R	0-100 R
	TLDs	W. Body	W. Body	W. Body	Finger Ring	Finger Ring

Completed	N/A	
❑	❑	Receive pre-job brief from RET Leader.
❑	❑	Ensure proper dose/dose rates have been assigned if electronic dosimetry is to be used.
❑	❑	Review most recent ARM reading (Ch 32) in PASS area.
❑	❑	Assign person to start PASS/CHEM Iodine Sampler.
❑	❑	Review available dose for sample team members.
❑	❑	Issue SCBA equipment for personnel entering PASS area (ensure respirator qualifications).
❑	❑	Obtain required instrumentation: ❑ RO2 ❑ 6112B ❑ H809V1 ❑ Other: _____
❑	❑	Assemble in Chemistry Lab for procedure review.
❑	❑	Don protective clothing (if required).
❑	❑	Keep DCRT Leader/Members informed of radiological conditions.
❑	❑	Ensure briefing requirements are followed.
❑	❑	Monitor personnel exposure.
❑	❑	Maintain communications with RET Leader.

Room Entry

❑	❑	Abort dose rate in PASS room is 5 R/hr general area.
❑	❑	Verify radiation level on PASS radiation monitors.

NOTE: SCBA equipment shall be donned at this time if ventilation is not operating. RET Leader in OSC must be notified of ventilation problems.

❑	❑	Verify ventilation is operating (magnehelic must be > .15).
❑	❑	Obtain baseline survey of conditions (RA/CA).
❑	❑	Ensure Iodine Sampler is in operation.
❑	❑	Start breathing zone air sample with charcoal cartridge.
❑	❑	Report to RET Leader that PASS sampling is starting.

RP PASS CHECKLIST

Completed	N/A	
		Taking Sample
❑	❑	Monitor all in-line radiation monitors.
❑	❑	Monitor Iodine Sampler for abnormal readings.
❑	❑	Keep in communications with Chemistry Technician so you know which samples are being pulled and what the flow paths are.

NOTE: Abort dose rate of 5 R/hr general area may be achieved while drawing the PASS sample.

❑	❑	Dose rate all samples.
❑	❑	Report contact dose rate to RET Leader in OSC.
❑	❑	Ensure sample is placed into appropriate shielded cask for transport.
		Transfer of Sample
❑	❑	If radiation levels are significant, remove sample from PASS room to minimize dose to affected personnel while securing PASS equipment.
❑	❑	RP to escort PASS sample to Chemistry Lab.
		Chemical Lab Analysis
❑	❑	In Chemistry Lab: Full PCs, extremity dosimetry – finger rings, and 100 R DRDs, upper arm dosimetry – TLDs and 100 R DRDs, Whole Body (chest) – TLD and 5 R DRD, SCBA is staged in the Lab.

NOTE: Chemistry Lab ventilation automatically secures during an accident. Prior to analyzing samples, ventilation operation must be verified. If ventilation is not operating, the RET Leader in the OSC must be contacted for further directions (no sample analysis will be performed with ventilation system inoperable).

❑	❑	Ensure sample hood ventilation is in operation.
❑	❑	Ensure Iodine Sampler is operating near the hood.
❑	❑	Re-verify dose rates on sample(s).
❑	❑	Monitor dose rates and DRD readings while handling samples.
❑	❑	Notify the RET Leader in the OSC that the sample is being analyzed wait further direction.
❑	❑	Complete all documentation
❑	❑	Restock all depleted materials from E-kits.
❑	❑	Report team members' exposure to RET Leader.

Performed By: _____ / _____ / _____

Print Sign Date

RP AXM CHECKLIST

❑ This **is** a drill. ❑ This **is not** a drill.

Check When Complete	Issue Dosimetry	Chest	L. Upper Arm	R. Upper Arm	L. Hand	R. Hand
	DRDs	0-5 R	0-100 R	0-100 R	0-100 R	0-100 R
	TLDs	W. Body	W. Body	W. Body	Finger Ring	Finger Ring

Completed	N/A	
❑	❑	Receive pre-job brief from RET Leader.
❑	❑	Ensure proper dose/dose rates have been assigned if electronic dosimetry is to be used.
❑	❑	Verify which division of standby gas treatment system is operating.
❑	❑	Review most recent ARM readings (Ch 15, 17, 18) on Reactor Bldg, 5th fl.
❑	❑	Review available dose for sample team members.
❑	❑	Issue SCBA equipment for personnel entering AXM skid (ensure respirator qualifications).
❑	❑	Obtain required instrumentation: ❑ RO2 ❑ 6112B ❑ H809V1 ❑ Other: _____
❑	❑	Assemble in Chemistry Lab for procedure review.
❑	❑	Don protective clothing (if required).

Room Entry

❑	❑	Abort dose rate on AXM skid is 5 R/hr general area.
❑	❑	Verify radiation level on AXM skid.

NOTE: SCBA equipment shall be donned at this time if plant conditions indicate high airborne Activity. RET Leader in OSC must be notified of conditions.

❑	❑	Verify standby gas treatment system is operating.
❑	❑	Obtain baseline survey of conditions (RA/CA).
❑	❑	Ensure Iodine Sampler is in operation.
❑	❑	Start breathing zone air sample with charcoal cartridge.
❑	❑	Report to RET Leader that AXM sampling is starting.

RP AXM CHECKLIST

Completed	N/A	
		Taking Sample
❑	❑	Monitor all in-line radiation monitors.
❑	❑	Keep in communications with Chemistry Technician so you know which samples are being pulled and what the flow paths are.

NOTE: Abort dose rate of 5 R/hr general area may be achieved while drawing the AXM sample.

❑	❑	Dose rate all samples.
❑	❑	Report contact dose rate to RET Leader in OSC.
❑	❑	Ensure sample is placed into appropriate container for transport.
		Transfer of Sample
❑	❑	If radiation levels are significant, remove sample from AXM skid area to minimize dose to affected personnel while securing AXM equipment.
❑	❑	RP to escort AXM sample to Chemistry Lab.
		Chemical Lab Analysis
❑	❑	In Chemistry Lab: Full PCs, extremity dosimetry – finger rings, and 100 R DRDs, upper arm dosimetry – TLDs and 100 R DRDs, Whole Body (chest) – TLD and 5 R DRD, SCBA is staged in the Lab.

NOTE: Chemistry Lab ventilation automatically secures during an accident. Prior to analyzing samples, ventilation operation must be verified. If ventilation is not operating, the RET Leader in the OSC must be contacted for further directions (no sample analysis will be performed with ventilation system inoperable).

❑	❑	Ensure sample hood ventilation is in operation.
❑	❑	Ensure Iodine Sampler is operating near the hood.
❑	❑	Re-verify dose rates on sample(s).
❑	❑	Monitor dose rates and DRD/ED readings while handling samples.
❑	❑	Notify the RET Leader in the OSC that the sample is being analyzed wait further direction.
❑	❑	Complete all documentation
❑	❑	Restock all depleted materials from E-kits.
❑	❑	Report team members' exposure to RET Leader.

Performed By: _____ / _____ / _____

Print Sign Date

PERSONNEL MONITORING TEAMS CHECKLIST

❑ This **is** a drill. ❑ This **is not** a drill.

Completed	N/A	
❑	❑	Proceed to designated assembly area.
❑	❑	Obtain PMT kit and Decon kit.
❑	❑	Obtain PMT checklist and corresponding evacuation/assembly maps.
❑	❑	**Establish communications with RPC (in EOF).**
❑	❑	Perform operational check of survey equipment.
		Establish the following areas using boundary and posting materials (use maps in Enclosure C for guidance):
❑	❑	Vehicle survey area
❑	❑	Vehicle staging or waiting area
❑	❑	Vehicle decon area
❑	❑	Personnel stating area
❑	❑	Personnel decon area
❑	❑	Establish entrance and exit routes for non-contaminated vehicles and personnel.
❑	❑	Stage decon supplies (i.e., soap, shampoo, paper suits, etc.).
❑	❑	Set up waste receptacles.
❑	❑	Report status of PMT to RPC.
❑	❑	Solicit assistance from self monitors or experienced Radworkers who arrive at area.
Vehicle Decon		
❑	❑	Obtain decon supplies.
❑	❑	Obtain survey equipment.
❑	❑	Check with RPC/delegate to determine contamination limit for release.

PERSONNEL MONITORING TEAMS CHECKLIST

Completed	N/A	
		Vehicle Decon (continued)
❑	❑	Don PCs as necessary (type dependent on extent of decon method).
❑	❑	Perform loose and fixed contamination survey of inside and outside of vehicle.
		Likely contaminated areas are:
		Air filter
		Radiator grill
		Under carriage and wheel wells
		Gas, brake, and clutch pedals
		Document results on survey map:
❑	❑	If non-contaminated, then release vehicle.
❑	❑	If contaminated, note the owner's name and move to decon area.
❑	❑	Decon areas as documented on survey map; use proper contamination controls.
❑	❑	Survey the vehicle after each decon attempt.
❑	❑	When contamination levels reach established criterion, release vehicle and inform owner.
❑	❑	Document all results.
❑	❑	Bag all contaminated items.
		Personnel Decon
❑	❑	Obtain decon supplies.
❑	❑	Obtain survey equipment.
❑	❑	Check with RPC/delegate to determine contamination limit for release.
❑	❑	Don PCs as necessary.
❑	❑	Frisk individual's hands and feet prior to them exiting their vehicle. (If contaminated, mark vehicle as potentially contaminated).

PERSONNEL MONITORING TEAMS CHECKLIST

Completed	N/A	
Personnel Decon (continued)		
❑	❑	Cover with booties or gloves as needed.
❑	❑	Escort individual to frisking area.
❑	❑	Enter individual's name into the log.
❑	❑	Frisk the individual and document results on body map.
❑	❑	If not contaminated, release the individual.
❑	❑	If contaminated, take the individual to the decon area.
❑	❑	Perform normal decon (lukewarm soap and water).
❑	❑	If a body opening or would is contaminated, notify the RPC immediately.
❑	❑	Decon areas as documented on survey map. Use proper contamination controls.
❑	❑	Survey the individual after each decon attempt.
❑	❑	When "clean" release the individual.
❑	❑	Document all results.
❑	❑	Bag all contaminated items.
Follow-up Actions		
❑	❑	Notify RPC of final disposition of all evacuees and vehicles.
❑	❑	Collect and bag all contaminated items.
❑	❑	Perform contamination survey of assembly area.
❑	❑	Decon as necessary
❑	❑	Inventory E-kits.
❑	❑	Deliver all paperwork to the RPC.

Performed By: _____ / _____ / _____

Print Sign Date

OFFSITE RET BRIEFING/DEBRIEFING SHEET

☐ This **is** a drill. ☐ This **is not** a drill.

RET Team # _____ Date: _____

Team Assignment (Describe task to be performed and location)

_____

_____

_____

Briefing Items (Check as appropriate)

Current Emergency Classification ☐ Alert ☐ SAE ☐ GE

If in a GE, what is latest Protective Action Recommendations?

_____

_____

Completed

Met Data

☐ • Current

☐ • Forecast

☐ • Plume Plot

Current Plant Conditions

☐ • Reactor Status

Is Reactor shutdown? ☐ Yes ☐ No

If No, what is the current power level? _____

☐ • Containment Status

Release Status

☐ • In progress/magnitude/start time

☐ • Potential of release

☐ **Discuss ALARA considerations (e.g., dose extensions stay times, DRD correction factor)**

☐ **Initial Team Assignment**

☐ **Other (i.e., communications, RET equipment availability)**

_____

_____

_____

Briefing Completed By: _____ Time: _____
(RET Coordinator/Qualified Designee)

Team Dispatch Time: _____

Forward completed form to Supervisor, RERP, 164 NOC

OFFSITE RET BRIEFING/DEBRIEFING SHEET

Task Debrief
Team Return Time:
Description of Work Completed:
Additional Remarks, Results, Findings:

Debrief Completed By: _____ Time: _____
(RET Coordinator/Qualified Designee)

Forward completed form to Supervisor, RERP, 164 NOC

ENVIRONMENTAL SAMPLING/SURVEY TECHNIQUES

TAB 1: GENERAL INFORMATION

1.0 TABLE OF TABS

Tab 1	General Information
Tab 2	Plume Tracking
Tab 3	Dose Rate Measurements
Tab 4	Airborne Activity Samples
Tab 5	Vegetation Samples
Tab 6	Soil Samples
Tab 7	Surface Water Samples
Tab 8	Drinking Water Samples
Tab 9	Snow Samples
Tab 10	Contamination Surveys
Tab 11	Emergency TLD Collection

2.0 GENERAL INFORMATION

2.1 Tabs 2 through 11 provide procedures to accomplish required samples and surveys. They also list required equipment and additional information that may be helpful.

2.2 Specific sample/survey locations will be specified by the RPA or RPC.

2.3 Proper radiological protection precautions must be observed to prevent cross contamination of samples or spread of contamination.

2.4 All contaminated waste should be properly disposed of.

2.5 Variances from procedural steps in Tabs 2 through 11 may be authorized by the technician if unusual field conditions warrant, but all such variance must be documented on the appropriate attachment and reported to the RET Coordinator when practical. Order of logging or reporting survey data is at the discretion of the technician.

2.6 When reporting or recording sample locations be as specific as possible. Include street names or landmarks if applicable, as well as Emergency Planning Zone Map coordinates.

2.7 Report all results promptly to the RET Coordinator.

2.8 All completed forms are returned to the RET Coordinator or RET Leader when the team is deactivated.

End of TAB 1

TAB 2: PLUME TRACKING

1.0 GENERAL INFORMATION

1.1 Plume tracking is the method employed to locate and evaluate the radioactive cloud from an airborne release.

1.2 Plume tracking is accomplished by measuring radiation level changes in the suspected location of the plume using a portable "frisker" and dose rate meter while crossing through the area in a vehicle.

1.3 The primary goals of plume tracking are:

1.3.1 To locate the edges and centerline of the plume.

1.3.2 To measure field dose rate intensity at the centerline of the plume.

1.3.3 To identify locations for further surveillance as directed.

1.4 Information reported from plume tracking may be used to:

1.4.1 Verify that appropriate protective action recommendations have been made.

1.4.2 Verify that plume is following the predicted path.

1.5 Stationary dose rate measurements, airborne activity samples or other environmental monitoring techniques may be necessary to locate or adequately evaluate the plume.

1.6 If detector contamination is expected, the instrument may be sealed in a thin, clear plastic bag prior to use. Note that this may reduce sensitivity of open window dose rate measurements.

1.7 All data shall be logged on Attachment 4.

1.8 All readings should be promptly reported.

1.9 Frisker may be used to locate plume edges or centerline if dose rates are below measurable limits of dose rate meter. Routine **reports** should be in standard **dose rate** units. If dose rates are below measurable levels, count rates should be **logged**, noting proper units.

TAB 2: PLUME TRACKING

2.0 REQUIRED EQUIPMENT

2.1 Dose rate meter (Eberline RO-2 or equivalent)

2.2 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.3 Suitable vehicle equipped with two-way radio

2.4 10-Mile Emergency Planning Zone Maps

2.5 Wayne/Monroe County Maps

3.0 PLUME TRACKING

3.1 When directed to locate the plume, proceed to the area to be surveyed as follows:

3.1.1 Maintain a steady vehicle speed of approximately 20 MPH (if practicable) while approaching the projected location of the plume.

NOTE (1): The leading edge of the plume is identified by a marked increase in count rate above background levels.

NOTE (2): When edge of plume is located, dose rates are measured using dose rate meter. If dose rates are below measurable levels with RO-2 or equivalent, open vehicle window and use a frisker until readable dose rates are observed.

3.1.2 Continuously monitor by placing survey meter on dashboard facing outward from the windshield.

3.1.3 When the edge of the plume is located, measure and record dose rate, time, and location. If dose rate is below minimum measurable, also log frisker count rate.

NOTE: The plume centerline is identified by the highest dose rate (or frisker count rate) measured while crossing the plume.

3.1.4 When the plume centerline is located, measure and record dose rate, time, and location. If dose rate is below minimum measurable, also log frisker count rate.

NOTE: The far edge of the plume is identified by radiation levels returning to background readings.

3.1.5 When the far edge of the plume is located, measure and record dose rate, time, and location. If dose rate is below minimum measurable also log frisker count rate.

3.1.6 Report dose rate, time, and location of plume edges and centerline.

3.1.7 Standby in an area of background radiation levels while awaiting next monitoring assignment.

End of TAB 2

TAB 3: DOSE RATE MEASUREMENTS

1.0 GENERAL INFORMATION

1.1 Stationary open window (OW) and closed window (CW) dose rate readings taken at approximately one meter above the ground and at ground level are used to:

1.1.1 Identify hazards due to direct radiation exposure.

1.1.2 Identify potential hazards due to deposited radioactivity.

1.1.3 Determine current location of plume in relation to survey point.

1.2 Deposited radioactivity may be distinguished by:

1.2.1 Significantly higher OW readings than CW readings.

and

1.2.2 Both OW and CW readings **increase** as detector height is varied from one meter to ground level.

1.3 Proximity to the plume may be determined by the following relationships:

1.3.1 Measurements made **inside** the plume (plume is at ground level) should indicate:

1. Significantly higher OW readings than CW readings

and

2. Little change in readings as detector height is varied.

1.3.2 Measurements made **near** the plume (plume is above or to one side) should indicate:

1. OW and CW readings which are approximately equal

and

2. Little change in readings as detector height is varied.

1.4 If detector contamination is expected, the instrument may be sealed in a thin, clear plastic bag prior to use. Note that this may reduce sensitivity of OW dose rate measurements.

1.5 All survey data shall be logged on Attachment 4.

1.6 All readings shall be promptly reported.

TAB 3: DOSE RATE MEASUREMENTS

2.0 REQUIRED EQUIPMENT

2.1 Dose rate meter (Eberline RO-2 or equivalent)

2.2 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.3 10-Mile Emergency Planning Zone Maps

2.4 Wayne/Monroe County Maps

3.0 DOSE RATE MEASUREMENTS

3.1 When directed, measure dose rates as follows:

3.1.1 Measure and record CW dose rate at approximately one meter above ground.

3.1.2 Measure and record OW dose rate at approximately one meter above ground.

3.1.3 Measure and record CW dose rate at approximately three inches above ground.

3.1.4 Measure and record OW dose rate at approximately three inches above ground.

3.1.5 Promptly report results.

End of TAB 3

TAB 4: AIRBORNE ACTIVITY SAMPLES

1.0 GENERAL INFORMATION

1.1 Airborne activity samples are collected on a particulate filter and silver zeolite cartridge using RADECO H809 or equivalent battery powered air samplers.

1.2 Samples are analyzed by counting in the field with portable "frisker" and by counting in the laboratory using a multi-channel analyzer.

1.3 The primary goals of air sampling are:

1.3.1 To identify the presence (or absence) of airborne iodine or particulates in the plume.

1.3.2 To verify that appropriate protective action recommendations have been made.

1.3.3 Provide nuclide identification and quantification to be used in accident assessment.

1.4 At least one air sample will normally be requested at or near the plume centerline.

1.5 Radiation levels should be continuously monitored during sampling. If dose rates are below the minimum measurable level then frisker count rate should be monitored.

1.6 If practicable, obtain other required samples or wait in the vehicle during the collection of the air sample.

1.7 Air sample flow rate should be approximately 2 CFM.

1.8 Air sample run time is (usually) 13 minutes for a volume of 26 CF. Smaller sample volumes may be directed by the RET Coordinator but a minimum volume of 5 CF must be observed.

1.9 Samples should be counted in an area of minimum background but must be counted with a background count rate less than 300 CPM.

1.10 Protective gloves should be worn when handling radioactive samples or contaminated equipment.

1.11 Care should be taken to prevent cross contamination of samples. For instance tweezers should be used to transfer filter paper from filter holder to envelope for transport.

1.12 Vehicle engine should be left running while powering the air sampler.

1.13 Iodine cartridge and particulate filter should be installed in sample head with particulate filter collection side (rough surface) facing out and iodine cartridge oriented with respect to air flow in an area of low background radiation levels.

1.14 Record all results on Attachment 5.

1.15 Promptly report all sample results.

TAB 4: AIRBORNE ACTIVITY SAMPLES

2.0 REQUIRED EQUIPMENT

2.1 Air Sampler (RADECO H809 series or equivalent)

2.2 Suitable 12 V DC power supply (automotive battery)

2.3 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.4 Dose Rate Meter (Eberline RO-2 or equivalent)

2.5 Iodine cartridge (silver zeolite or equivalent)

2.6 Particulate filter (2 inch diameter)

2.7 Sample envelope or bag and labels

2.8 Time piece

2.9 Disposable gloves

2.10 Tweezers

3.0 AIRBORNE ACTIVITY SAMPLING

3.1 Obtain Air Sample as follows:

3.1.1 Install iodine cartridge and particulate filter into sample head.

NOTE: Continuously monitor radiation levels while sampling.

3.1.2 Install prepared sample head on air sampler.

3.1.3 Check power switch in **OFF** position.

3.1.4 Connect air sampler to vehicle battery.

NOTE: Air sample run time should be 13 minutes unless otherwise directed by RET Coordinator.

3.1.5 Place air sampler in position at least 2 feet above ground (on vehicle fender or bumper, for example).

1. If practicable, wait in vehicle or collect other required air samples while air sampler is running.

3.1.6 Turn power switch to **ON**.

1. Record time on, initial sample flow rate, and sample location.

TAB 4: AIRBORNE ACTIVITY SAMPLES

3.1.7 When sampler run time is complete:

1. Note final sample flow rate.
2. Turn air sampler power switch OFF.
3. Record final sample flow rate and time off.

3.1.8 Disconnect air sampler from battery.

NOTE: Observe proper radiological precautions when handling contaminated equipment or samples

3.1.9 Load equipment into vehicle. Transport to an area of low background radiation levels to count sample if necessary.

3.2 Count Air Sample as follows:

NOTE: Background count rate should be minimized but must be less than 300 cpm to count air sample.

3.2.1 Measure and record background count rate.

NOTE: Protective gloves should be worn when handling radioactive samples on contaminated equipment.

3.2.2 Remove sample head from air sampler.

NOTE: Tweezers are provided for handling particulate filter.

3.2.3 Measure and record particulate filter count rate.

3.2.4 Determine particulate filter net count rate by subtracting background count rate from filter count rate.

3.2.5 Record particulate filter net cpm.

3.2.6 Place filter in bag or envelope and properly label.

3.2.7 Measure and record iodine cartridge count rate.

3.2.8 Determine iodine cartridge net count rate by subtracting background count rate from cartridge count rate.

3.2.9 Record iodine cartridge net cpm.

3.2.10 Place cartridge in bag or envelope and properly label.

TAB 4: AIRBORNE ACTIVITY SAMPLES

3.3 Determine sample volume and report results as follows:

3.3.1 Determine average sample flow rate using Attachment 5.

3.3.2 Determine sample volume using Attachment 5.

3.3.3 Report sample location, sample stop time, filter net cpm, cartridge net cpm, and sample volume promptly.

3.3.4 Determine if samples are to be picked up by courier.

3.3.5 Proceed to next sample location or pick-up point as directed.

End of TAB 4

TAB 5: VEGETATION SAMPLES

1.0 GENERAL INFORMATION

1.1 Early phase vegetation samples are obtained primarily to provide nuclide identification data and qualitative assessment of the environmental deposition of radioactive particulates.

1.2 Samples are shipped offsite in accordance with Radiation Protection Program procedures.

1.3 Isotopic analysis results may be used in accident assessment or to help classify the nature of the release.

1.4 Samples are obtained by clipping exposed leafy vegetation and collecting the clippings in a plastic bag.

1.5 Shears are provided in emergency kits for vegetation sampling.

1.6 Samples for ingestion pathway assessment (not normally associated with early phase sampling) should be preferentially of broadleaf vegetation (such as spinach, lettuce, or cabbage) or of grass where cattle graze, and should be collected from exposed surfaces of edible portions of the plant.

1.7 Samples for nuclide identification of deposited activity may be of any leafy vegetation (from exposed surfaces of trees, bushes, or grass etc.).

1.8 Samples of pasture grass for milk cow grazing may also be requested (not normally early phase samples).

1.9 RET Coordinator will specify sample type and location.

1.10 Samples should be tightly sealed to prevent moisture loss.

1.11 A minimum of 2 pounds of vegetation is required for analysis by vendor laboratory. This quantity may be estimated by filling a 16 X 23 inch bag, leaving only room to seal with tape.

1.12 Protective gloves should be worn when sampling and when handling radioactive samples or equipment.

1.13 Care should be taken to prevent wiping contamination from sample during collection.

1.14 Locations for vegetation samples may be identified through radiation surveys.

1.15 Care should be taken to prevent including sticks, soil, rocks on other such material in vegetation samples.

1.16 Record all sample data on Attachment 6.

1.17 Promptly report all sample results.

TAB 5: VEGETATION SAMPLES

2.0 REQUIRED EQUIPMENT

2.1 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.2 Shears

2.3 Plastic bag (16 X 23 inch or sufficient volume to contain at least 2 pounds of vegetation)

2.4 Tape

2.5 Disposable gloves

2.6 Labels

2.7 Survey Smears

3.0 VEGETATION SAMPLE

NOTE: Protective gloves should be worn while sampling and when handling radioactive samples or equipment.

3.1 Clip at least 2 pounds of exposed leafy vegetation from selected sample source using shears provided.

NOTE (1): Care should be taken to prevent contamination of outside surfaces of bag when collecting sample.

NOTE (2): Sample bag should be as full as possible leaving sufficient room to seal the bag with tape.

3.2 Carefully collect sample clippings in plastic bag. If necessary, repeat step 3.1 to obtain desired sample quantity.

3.3 Seal the bag with tape when the sample has been collected.

3.4 Perform smear survey of outside of bag and double bag sample if contamination is found.

3.5 Record sample time, location and type.

3.6 Measure and record background count rate.

3.7 Measure and record count rate on contact with the mid section of the sample bag.

3.8 Determine sample net count rate by subtracting background count rate from count rate on contact with sample bag.

3.9 Record sample net cpm.

TAB 5: VEGETATION SAMPLES

3.10 Label the sample with the following information:

3.10.1 Sample type

3.10.2 Sample location

3.10.3 Sample date and time

3.10.4 Sample net cpm

3.10.5 Sampler's initials

3.11 Report completion of sample and determine if sample is to be picked up by courier.

3.12 Proceed to next sample location or pick up point as directed.

End of TAB 5

TAB 6: SOIL SAMPLES

1.0 GENERAL INFORMATION

1.1 Soil sampling is performed primarily to obtain nuclide identification data from deposited radioactive particulates.

1.2 Isotopic analysis results may be used in accident assessment or to help classify the nature of the release.

1.3 Soil samples are obtained by skimming the surface layer of soil from an area of approximately 3 X 3 feet and collecting the removed soil in a plastic bag.

1.4 The surface layer removed should go no more than approximately one half inch deep.

1.5 Large rocks, sticks, vegetation or similar material should be excluded from the sample.

1.6 A gardening spade is provided for sampling.

1.7 Protective gloves should be worn when sampling and when handling radioactive samples or equipment.

1.8 Sample bags should be tightly sealed to prevent spread of contamination.

1.9 Record all sample data on Attachment 6.

1.10 Promptly report all sample results.

2.0 REQUIRED EQUIPMENT

2.1 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.2 Gardening spade

2.3 Plastic bag

2.4 Tape

2.5 Disposable gloves

2.6 Labels

2.7 Survey Smears

TAB 6: SOIL SAMPLES

3.0 SOIL SAMPLING

NOTE: Protective gloves should be worn while sampling and when handling radioactive samples or equipment.

3.1 Select suitable location and mark-off an area approximately 3 X 3 feet to be sampled.

NOTE: Care should be taken to exclude large rocks, sticks or vegetation from the sample.

3.2 Using gardening spade, carefully loosen and remove the surface soil to a depth of no more than approximately one half inch.

3.3 Transfer soil sample to bag taking care to prevent contamination of the external surfaces of the bag.

3.4 Seal the bag with tape when the sample has been collected.

3.5 Perform smear survey of outside of bag and double-bag sample if contamination is found.

3.6 Record sample time, location and type.

3.7 Measure and record background count rate.

3.8 Measure and record count rate on contact with the mid section of the sample bag.

3.9 Determine sample net count rate by subtracting background count rate from count rate on contact with sample bag.

3.10 Record sample net cpm.

3.11 Label the sample with the following information;

3.11.1 Sample type

3.11.2 Sample location

3.11.3 Sample date and time

3.11.4 Sample net cpm

3.11.5 Sampler's initials

3.12 Report completion of sample and determine if sample is to be picked up by courier.

3.13 Proceed to next sample location or pick up point as directed.

End of TAB 6

TAB 7: SURFACE WATER SAMPLES

1.0 GENERAL INFORMATION

1.1 Surface water sampling is the process of obtaining liquid samples from bodies of water that have potential of contaminating water supplies.

1.2 Samples are generally obtained following a liquid radioactive release but may also be obtained following an airborne release if high levels of particulate radioactivity are suspected to have been deposited.

1.3 Samples are obtained by dipping a 1-liter sample bottle just below the surface of the water source to be sampled.

1.4 Care should be taken to prevent agitating the water excessively or stirring up sediment.

1.5 Samples are counted with a frisker in the field for indication of gross radioactive contamination.

1.6 Samples are counted in the laboratory with a multi-channel analyzer for quantitative results and nuclide identification.

1.7 Protective gloves should be worn when sampling and when handling radioactive samples and equipment.

1.8 Record all sample data on Attachment 6.

1.9 Promptly report all results.

2.0 REQUIRED EQUIPMENT

2.1 Frisker (Ludlum 177/Eberline RM-14 or Equivalent)

2.2 1-liter sample bottle

2.3 Plastic bag

2.4 Label

2.5 Disposable gloves

2.6 Absorbant material

TAB 7: SURFACE WATER SAMPLES

3.0 SURFACE WATER SAMPLING

NOTE: Protective gloves should be worn while sampling and when handling radioactive samples or equipment.

3.1 Obtain sample by dipping the sample bottle just below the surface of the water until full.

3.2 Tightly cap the sample and wipe bottle dry with absorbants.

3.3 Place sample in plastic bag and seal with tape.

3.4 Record sample time, location and type.

3.5 Measure and record background count rate.

3.6 Measure and record count rate on contact with sample bottle.

3.7 Determine sample net count rate by subtracting background count rate from count rate on contact with sample bottle.

3.8 Record sample net cpm.

3.9 Label the sample with the following information:

3.9.1 Sample type

3.9.2 Sample location

3.9.3 Sample date and time

3.9.4 Sample net cpm

3.9.5 Sampler's initials

3.10 Report completion of sample and determine if sample is to be picked up by courier.

3.11 Proceed to next sample location or pick up point as directed.

End of TAB 7

TAB 8: DRINKING WATER SAMPLES

1.0 GENERAL INFORMATION

1.1 Drinking water samples are obtained to determine if radioactive contamination of potable water supplies has occurred.

1.2 Sampling is accomplished by filling a 1-liter sample bottle from a well outlet or faucet/tap.

1.3 Samples are counted with a frisker in the field for indication of gross radioactive contamination.

1.4 Samples are counted in the laboratory with a multi-channel analyzer for quantitative results and nuclide identification.

1.5 Protective gloves should be worn when sampling and when handling radioactive samples and equipment.

1.6 Record all sample data on Attachment 6.

1.7 Promptly report all results.

2.0 REQUIRED EQUIPMENT

2.1 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.2 1-liter sample bottle

2.3 Plastic bag

2.4 Label

2.5 Disposable gloves

2.6 Absorbant material

TAB 8: DRINKING WATER SAMPLES

3.0 DRINKING WATER SAMPLING

NOTE: Protective gloves should be worn while sampling and when handling radioactive samples or equipment.

3.1 Flush sample lines by allowing water to run for 4 to 5 minutes prior to collecting sample.

3.2 Collect sample by filling bottle from flowing sample stream.

3.3 Tightly cap full sample bottle and wipe dry with absorbants.

3.4 Place sample in plastic bag and seal with tape.

3.5 Measure and record background count rate.

3.6 Measure and record count rate on contact with sample bottle.

3.7 Determine sample net count rate by subtracting background count rate from count rate on contact with sample bottle.

3.8 Record sample net cpm.

3.9 Label the sample with the following information:

3.9.1 Sample type

3.9.2. Sample location

3.9.3 Sample date and time

3.9.4 Sample net cpm

3.9.5 Sampler's initials

3.10 Report completion of sample and determine if sample is to be picked up by courier.

3.11 Proceed to next sample location or pick-up point as directed.

End of TAB 8

TAB 9: SNOW SAMPLES

1.0 GENERAL INFORMATION

1.1 Snow sampling is the collection of the surface layer of undisturbed snow for radiological analysis.

1.2 Snow sampling is performed during winter months when other methods may not be available to evaluate deposited radioactive particulates from an airborne release.

1.3 Samples are obtained by collecting only the surface layer of snow from an undisturbed area in a large plastic bag.

1.4 Attempts should be made to minimize the depth of the snow collected to approximately one inch or less.

1.5 Gardening spade may be useful in collecting sample.

1.6 Sufficient sample should be obtained to nearly fill a 16 X 23 inch bag allowing room to seal with tape.

1.7 Samples are counted with a frisker in the field for indication of gross radioactive contamination.

1.8 Samples are counted in the laboratory with a multi-channel analyzer for quantitative results and nuclide identification.

1.9 The approximate size of the area sampled should by noted with the sample location.

1.10 Protective gloves should be worn while sampling and when handling radioactive samples and equipment.

1.11 After collection, sample is sealed in a second bag containing absorbant material to prevent spread of contamination.

1.12 Record all sample data on Attachment 6.

1.13 Promptly report all results.

2.0 REQUIRED EQUIPMENT

2.1 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.2 Gardening spade

2.3 Plastic bags (16 X 23 inch or sufficient size to contain similar volume)

2.4 Tape

2.5 Disposable gloves

2.6 Labels

2.7 Absorbants

TAB 9: SNOW SAMPLES

3.0 SNOW SAMPLING

NOTE: Protective gloves should be worn while sampling and when handling radioactive samples or equipment.

3.1 Select a sample area of undisturbed snow if possible.

NOTE: Sample bag should be as full as possible leaving sufficient room to seal the bag with tape.

3.2 Collect snow sample from surface snow, to a depth of no more than approximately one inch, in a plastic bag.

3.3 Wipe the exterior of the bag dry with absorbants and tightly seal with tape.

3.4 Place sample in a second bag containing absorbant material and seal with tape.

3.5 Record sample time, location, approximate sample area and type.

3.6 Measure and record background count rate.

3.7 Measure and record count rate on contact with the mid section of the sample bag.

3.8 Determine sample net count rate by subtracting background count rate from count rate on contact with sample bag.

3.9 Record sample net cpm.

3.10 Label the sample with the following information:

3.10.1 Sample type

3.10.2 Sample location

3.10.3 Approximate area sampled

3.10.4 Sample net cpm

3.10.5 Sampler's initials

3.11 Report completion of sample and determine if sample is to be picked up by courier.

3.12 Proceed to next sample location on pick up point as directed.

End of TAB 9

TAB 10: CONTAMINATION SURVEYS

1.0 GENERAL INFORMATION

1.1 Contamination surveys measure deposited radioactivity either by direct frisk or by smear.

1.2 Direct frisking is the preferred method for detection of deposited radioactive contamination if levels are undetectable by dose rate measurement.

1.3 Smear surveys should be performed whenever direct frisking indicates deposited radioactivity in the survey area.

1.4 Smears are used to distinguish loose surface contamination from fixed radioactivity and provide a sample for laboratory analysis.

1.5 Smears may be counted in the field for a gross assessment of deposited activity.

1.6 Smears are counted in the laboratory using a multi-channel analyzer to provide nuclide identification.

1.7 When smear samples are requested the sample location should be a smooth, horizontal surface, if practicable.

1.8 Record all results on Attachment 6.

1.9 Promptly report all results.

2.0 REQUIRED EQUIPMENT

2.1 Frisker (Ludlum 177/Eberline RM-14 or equivalent)

2.2 Smears

2.3 Smear envelopes or plastic bags

2.4 Labels

2.5 Disposable gloves

TAB 10: CONTAMINATION SURVEYS

3.0 CONTAMINATION SURVEYS

3.1 Direct frisk

3.1.1 Record survey time and location.

3.1.2 Measure and record background count rate.

3.1.3 Measure and record count rate of frisk location.

3.1.4 Determine net count rate by subtracting background count rate from count rate of area being surveyed.

3.1.5 Record survey area net cpm on Attachment 6.

3.1.6 Promptly report all results.

3.2 Smear survey

NOTE: Protective gloves should be worn while performing survey and when handling radioactive samples or equipment.

3.2.1 Smear area noting size of survey area.

3.2.2 Record survey time, location and approximate size of area smeared on Attachment 6.

3.2.3 Measure and record background count rate.

3.2.4 Measure and record smear count rate.

3.2.5 Determine smear net count rate by subtracting background count rate from smear count rate.

3.2.6 Record smear net cpm on Attachment 6.

3.2.7 Place smear in envelope or bag and label with survey time, location, size of area, and smear net cpm.

3.2.8 Report results and determine if sample is to be picked up by courier.

3.2.9 Proceed to next sample location or pick up point as directed.

End of TAB 10

TAB 11: EMERGENCY TLD COLLECTION

1.0 GENERAL INFORMATION

1.1 Emergency TLDs are posted at several locations within the Fermi 2 10-Mile Emergency Planning Zone (EPZ).

1.2 Each TLD location has two TLDs posted. Emergency TLDs are marked with the letter "E," the other TLD is for environmental monitoring.

1.3 Emergency TLDs may be collected to provide indication of actual dose or dose rate information at specific locations following a radioactive release.

1.4 Emergency TLDs are processed by vendor, so there will be a time delay in obtaining data after collection.

1.5 A ladder for collecting Emergency TLDs is located at the assembly location.

1.6 Emergency TLDs will be shipped in accordance with Radiation Protection Program procedures.

1.7 Exact TLD locations may be obtained from EPZ maps.

2.0 REQUIRED EQUIPMENT

2.1 Ladder

2.2 10-Mile EPZ maps

2.3 Labels

3.0 COLLECTING EMERGENCY TLD

3.1 Determine which TLDs (which locations) are to be collected.

3.2 Obtain ladder from assembly area if necessary.

3.3 Proceed to exact TLD location indicated in 10-Mile EPZ map.

3.4 Remove only the emergency TLD as indicated by the large block letter "E" on the TLD, and place it in a suitable bag or envelope.

3.5 Label each removed TLD with the following information:

- Date and time
- TLD location

3.6 Survey TLDs for contamination and decon if necessary.

3.7 Upon completion of TLD collection, inform the RET Coordinator and determine if TLDs are to be picked-up by courier.

3.8 Proceed as directed by RET Coordinator.

TAB 11: EMERGENCY TLD COLLECTION

TLD STATIONS

Direction/Sector/Station No.			Location (approximate miles)
NE/38°	C	T1	Estral Beach pole on Lakeshore, 23 poles south of Lakeview (1.3 miles)
NNE/22°	B	T2	East of termination of Brandon Street, on post (1.2 miles)
N/9°	A	T3	Pole, northwest corner of Swan Creek Boat Club fence (1.1 miles)
NNW/337°	R	T4	Inside fence Doxy Dr. (past gun range) to site fence turn right on (N) Bullit ~ .1 mile on left by API #2
NW/313°	Q	T5	Inside fence Doxy Dr. (past gun range) to site fence turn left on (N) Bullit ~ .1 mile on right by API #3
WNW/293°	P	T6	Pole northeast corner of bridge over Toll Road (0.6 miles)
W/270°	N	T7	Pole, at Michigan Gas substation on N. Custer Road (0.66 miles), west of Doty Road (14.0 miles)
NW/305°	Q	T8	Pole on Post Road near northeast corner of Dixie Highway and Post Road (1.9 miles)
NNW/334°	R	T9	Pole northwest corner of Trombley and Swanview Road (1.5 miles)
N/6°	A	T10	Pole on south side Masserant, 2 poles west of Chinavare (2.1 miles)
NNE/23°	B	T11	Pole northeast corner of Milliman and Jefferson Roads (6.2 miles)
NNE/29°	B	T12	Pointe Moullie Game Area - Field Office, pole near tree north area of parking lot (6.3 miles)
N/356°	A	T13	Labo Road and Dixie Highway - Pole on southwest corner with light (4.1 miles)
NNW/337°	R	T14	Labo Road and Brandon Roads - Pole on southeast corner near RR (4.4 miles)
NW/315°	Q	T15	Pole behind Newport Post Office (3.9 miles)
WNW/283°	P	T16	Pole, southeast corner of War and Post Roads (4.9 miles)
W/271°	N	T17	Pole, northeast corner Nadeau and Laprad Roads - near mobile home park (4.9 miles)
WSW/297°	M	T18	Pole, northeast corner Mentel and Hurd Roads (4.8 miles)

TAB 11: EMERGENCY TLD COLLECTION

TLD STATIONS

Direction/Sector/Station No.			Location (approximate miles)
SW/236°	L	T19	First pole east of Fermi siren on Waterworks Road northeast corner of intersection of Sterling State Park Road entrance drive Waterworks (in Sterling State Park) (5.2 miles)
WSW/257°	M	T20	Pole south side of Williams Road, 8 poles west of Dixie Highway (Special Area) (2.7 miles)
WSW/238°	M	T21	Pole, north side of Pearl at Parkview -Woodland Beach (2.7 miles)
S/172°	J	T22	Pole, north side Pointe Aux Peaux Road, 2 poles west of Long (Site Boundary) (1.2 miles)
SSW/195°	K	T23	Pole, south side of Pointe Aux Peaux Road, 1 pole west of Huron next to vent pipe (Site Boundary) (1.1 miles)
SW/225°	L	T24	Fermi gate along Pointe Aux Peaux Road - on fence wire west of gate (Site Boundary) (1.2 miles)
WSW/251°	M	T25	Pole, Toll Road, 13 poles south of Fermi Drive (1.5 miles)
WSW/259°	N	T26	Pole, Toll Road, 6 poles south of Fermi Drive (1.1 mile)
SW/225°	L	T27	Pole, northeast corner MacMillan and East Front Street (6.8 miles)
SW/229°	L	T28	Pole, southeast corner of Mortar Creek and Laplaisance (10.6 miles)
WSW/237°	M	T29	Pole, east side of South Dixie Highway, 1 pole south of Albain Road (Control) (10.3 miles)
WSW/247°	M	T30	Pole, St.Mary's Park, corner of Elm and Monroe Streets, south side of parking lot next to river (Special Area) (7.8 miles)
WSW/255°	M	T31	First pole west of entrance drive, Milton "Pat" Munson Recreation Reserve - North Custer Road (Control) (9.6 miles)
WNW/295°	P	T32	Pole, corner of Stoney Creek and Finzel Roads (10.3 miles)
NW/317°	Q	T33	Pole, west side of Grafton Road, 1 pole north of Ash/Grafton intersection (9.2 miles)
NNW/338°	R	T34	Pole, west side of Port Creek Road, 1 pole south of Will Carleton Road (9.7 miles)

TAB 11: EMERGENCY TLD COLLECTION

TLD STATIONS

Direction/Sector/Station No.			Location (approximate miles)
N/359°	A	T35	Pole, south side South Huron River Drive, across from Race Street (Special Area) (6.9 miles)
N/358°	A	T36	Pole, northeast corner Gibraltar and Cahill Roads (9.1 miles)
NNE/21°	B	T37	Pole, south corner of Adams and Gibraltar Roads (across from Humbug Marina) (9.8 miles)
WNW/294°	P	T38	6594 North Dixie Highway (private residence) (1.7 miles)
S/176°	J	T39	Southeast corner Protected Area Fence (PAF) (0.3 miles)
S/170°	J	T40	Midway along OBA, PAF (0.3 miles)
SSE/161°	H	T41	Midway between OBA and shield wall, PAF (0.2 miles)
SSE/149°	H	T42	Midway along shield wall, PAF (0.2 miles)
SE/131°	G	T43	Midway between shield wall and auxiliary boilers, PAF (0.1 miles)
ESE/109°	F	T44	Opposite Onsite Storage Facility door, PAF (0.1 miles)
E/86°	E	T45	Northeast corner, PAF (0.1 miles)
ENE/67°	D	T46	Northeast side of barge slip, on fence (0.2 miles)

End of TAB 11

RECOMMENDED SURFACE CONTAMINATION SCREENING LEVELS

Recommended surface contamination screening levels in low background radiation areas
(< 0.1 mR/hr gamma)

Condition	Direct Reading	Recommendation
Before decon	< 2x bkgd	Unconditional release
	> 2x bkgd	Decon
After simple decon (flush with water and wipe)	< 2x bkgd	Unconditional release
	> 2x bkgd	Decon
Full decon (wash with soap or solvent)	< 2x bkgd	Unconditional release
	> 2x bkgd	Continue decon of people
	< 0.5 mR/hr*	Release equipment
After additional full decon effort	< 2x bkgd	Unconditional release
	> 2x bkgd	Send people for special evaluation (medical)
	< 0.5 mR/hr*	Release equipment
	> 0.5 mR/hr*	Use best judgement for equipment

* Denotes closed shield reading including background

EVACUATION/ASSEMBLY MAPS

NOTE: These maps offer directional guidance for Personnel Monitoring Teams (PMTs) at evacuation/assembly locations and provide aid in coordinating the flow of personnel and vehicles. However, these maps and the proposed set-up, can be altered in any way based on the emergency (e.g., number of contaminated personnel, vehicles, or number of PMT responders).

The following information describes the maps to be used by PMTs at the three designated Offsite Evacuation/Assembly locations.

1. The **north** evacuation/assembly area located at the Trenton Channel Power Plant includes the following three maps:

   - Trenton Channel Power Plant (site map)
   - Vehicle/Personnel Flowpath Map
   - Train/Crane Building

2. The **west** evacuation/assembly area located at the Newport Service Center includes the following two maps:

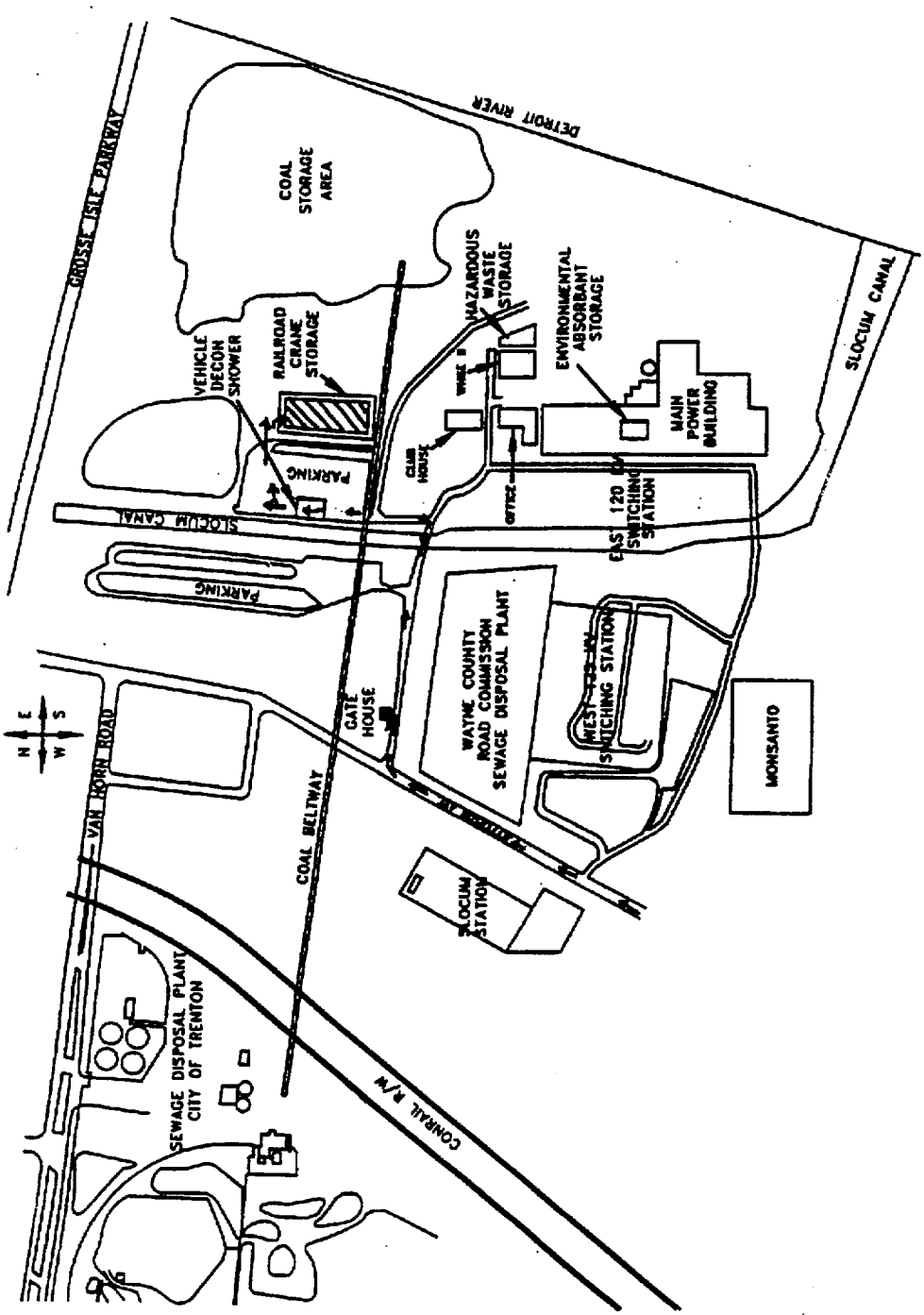
   - Newport Service Center (site map)
   - Vehicle/Personnel Flowpath Map

3. The **south** evacuation/assembly area located at the Monroe Power Plant includes the following two maps:

   - Monroe Power Plant (site map)
   - Vehicle/Personnel Flowpath Map

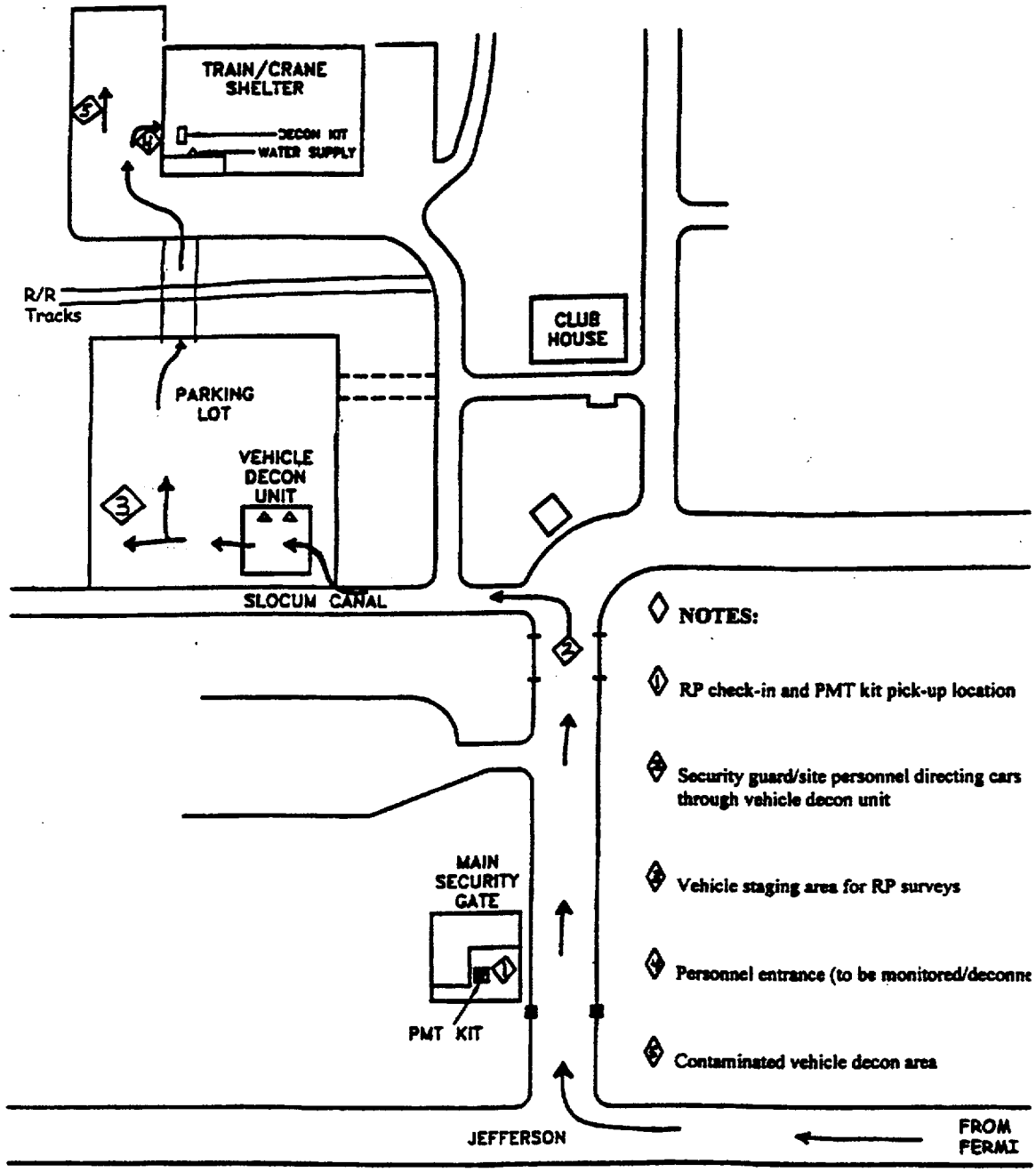
EVACUATION/ASSEMBLY MAPS

North Evacuation/Assembly Area - Trenton Channel Power Plant Site Map



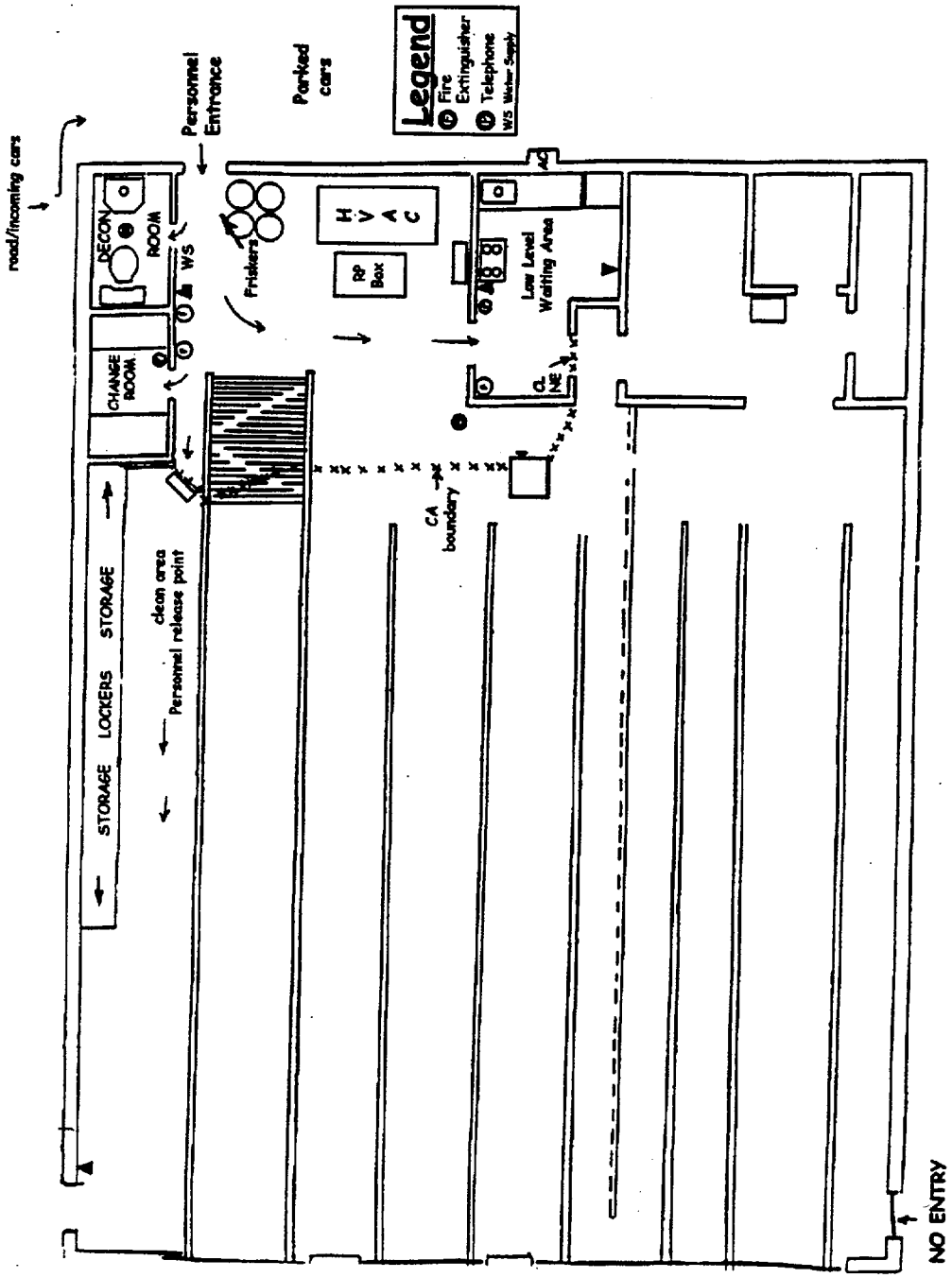
EVACUATION/ASSEMBLY MAPS

North Evacuation/Assembly Area - Trenton Channel Power Plant
Vehicle/Personnel Flowpath Map



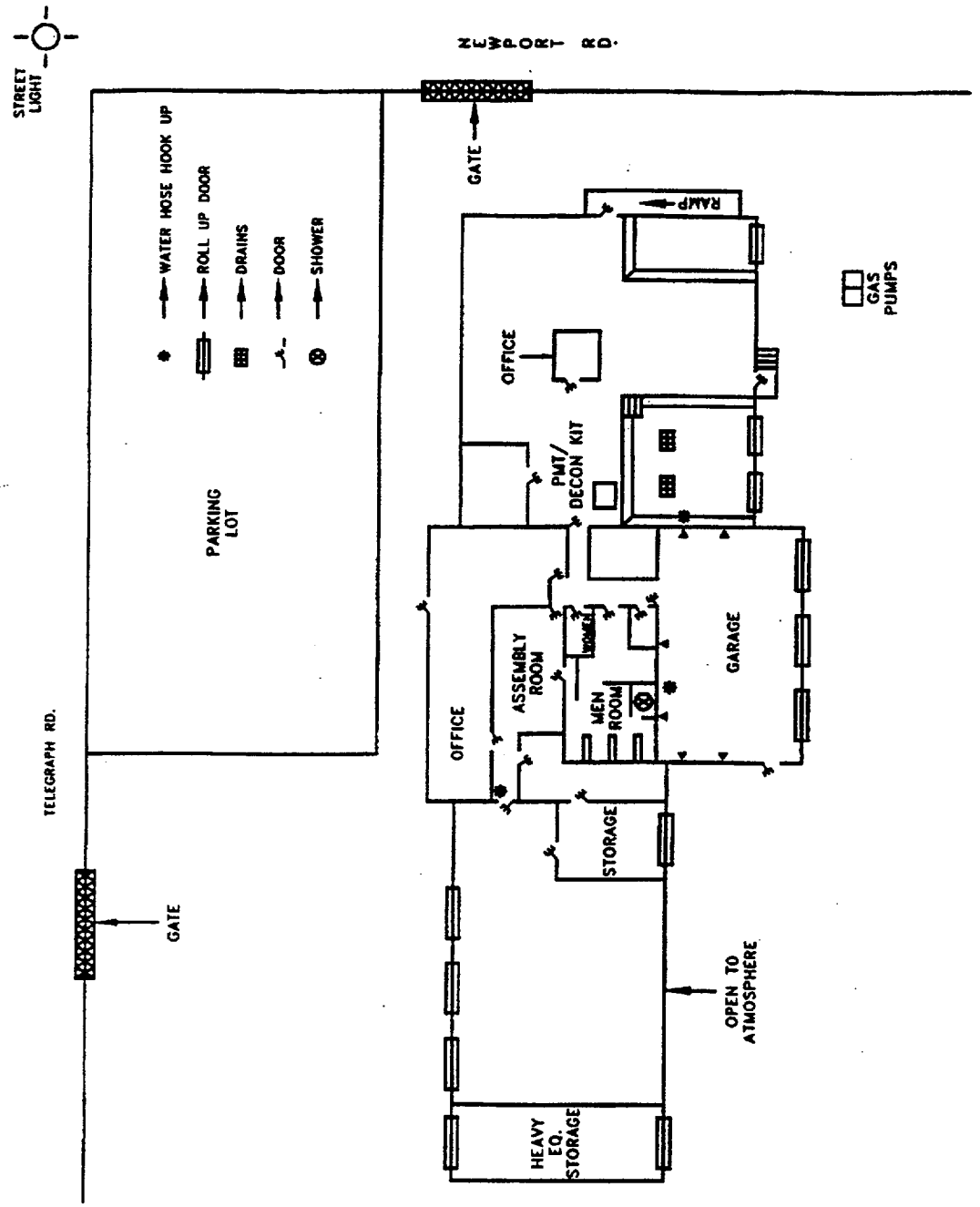
EVACUATION/ASSEMBLY MAPS

North Evacuation/Assembly Area - Trenton Channel Power Plant Train/Crane Building



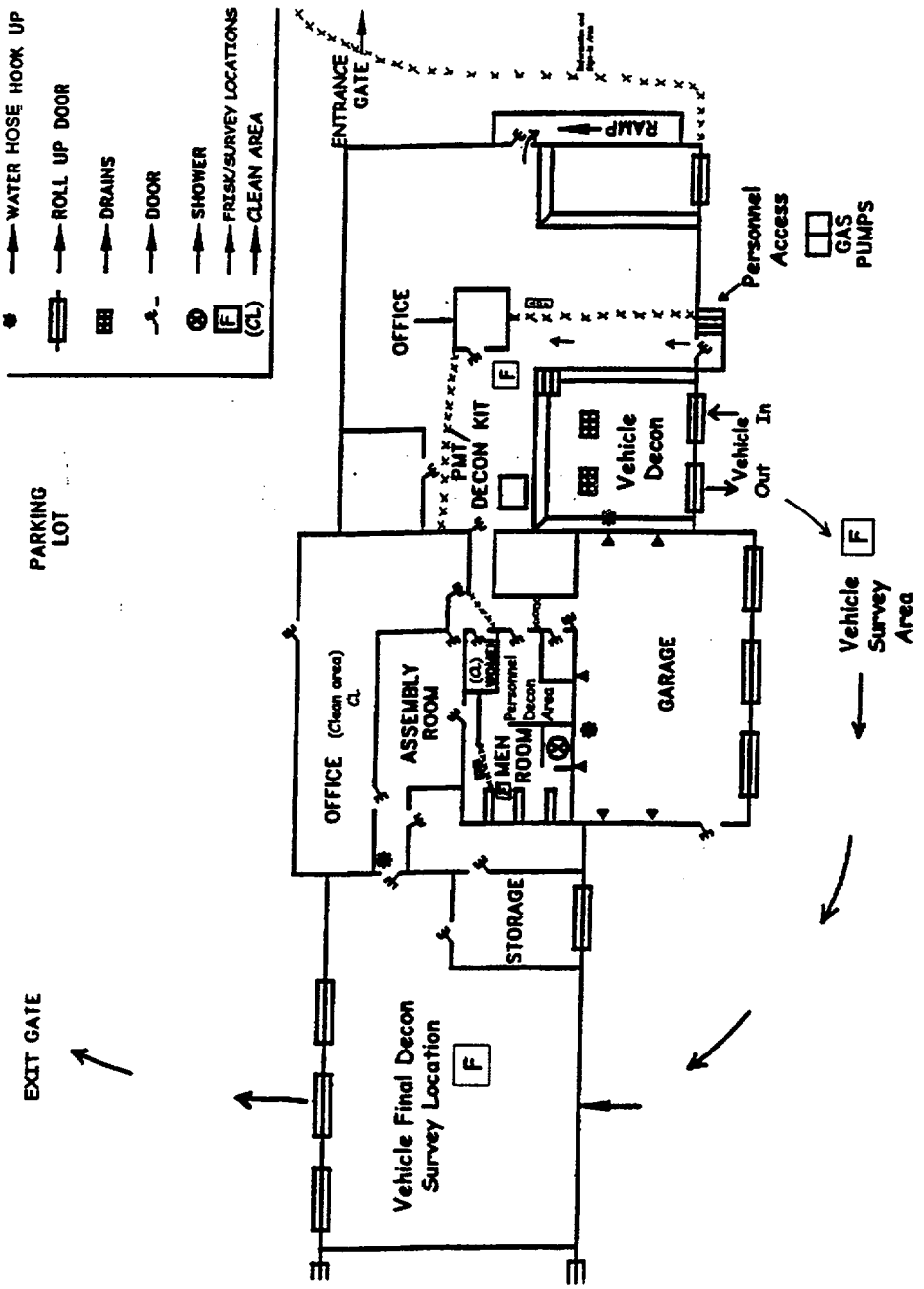
EVACUATION/ASSEMBLY MAPS

West Evacuation/Assembly Area - Newport Service Center
Site Map



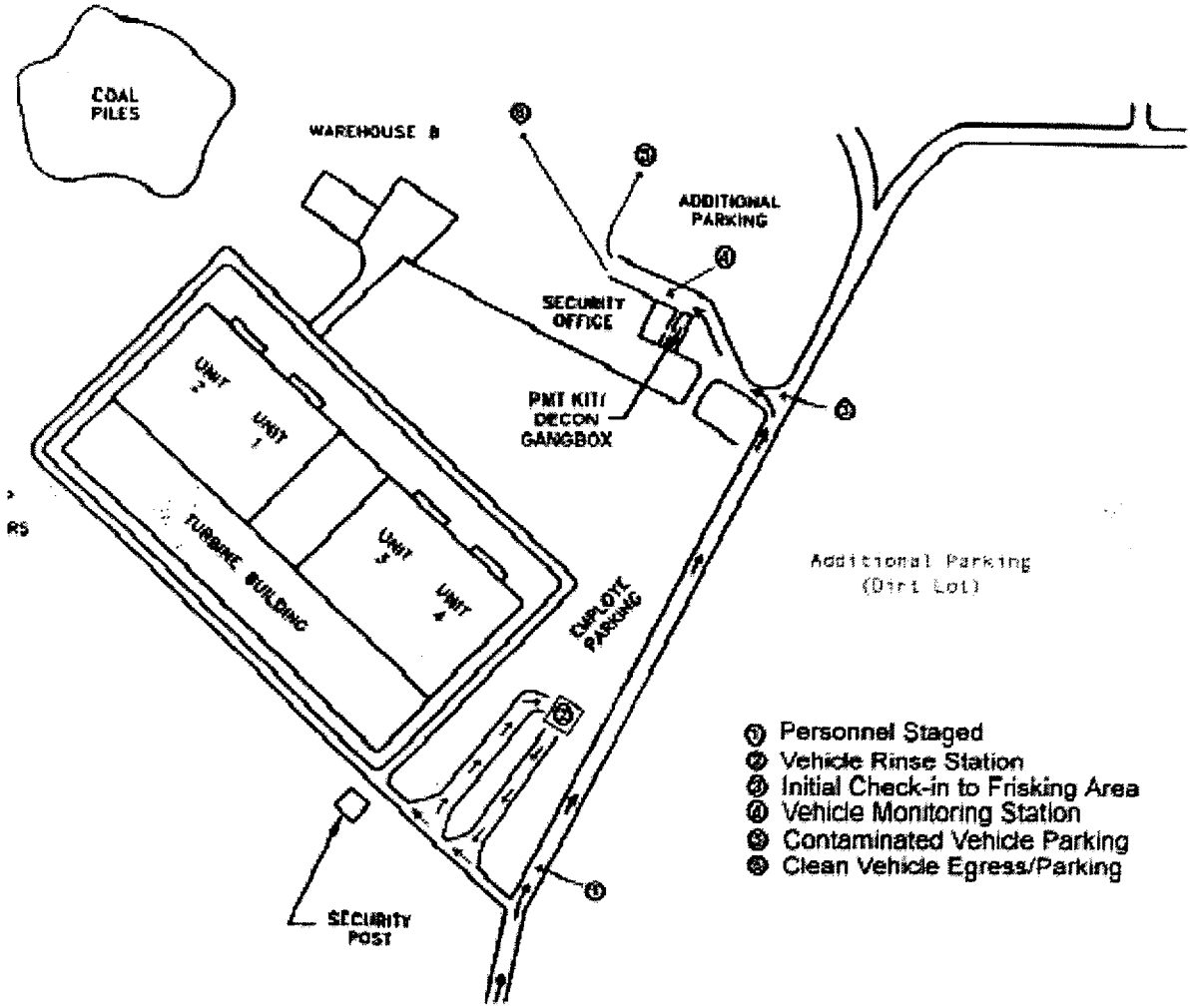
EVACUATION/ASSEMBLY MAPS

West Evacuation/Assembly Area - Newport Service Center
Vehicle/Personnel Flowpath Map



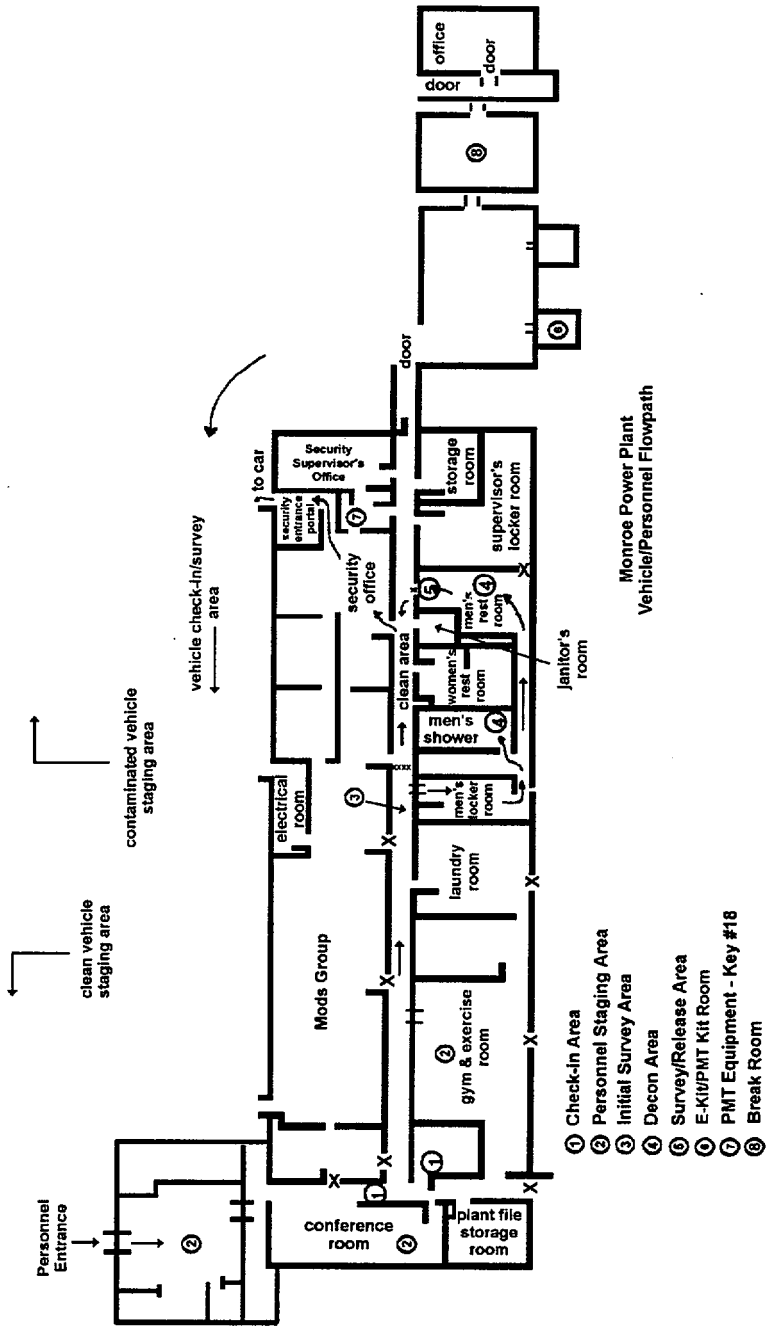
EVACUATION/ASSEMBLY MAPS

South Evacuation/Assembly Area - Monroe Power Plant
Site Map



EVACUATION/ASSEMBLY MAPS

South Evacuation/Assembly Area - Monroe Power Plant
Vehicle/Personnel Flowpath Map



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