

Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

June 22, 2000

10 CFR 50, Appendix E Section V

U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, D.C. 20555-0001

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In the Matter of	)	Docket Nos.	50-259	50-390
Tennessee Valley Authority	)		50-260	50-391
			50-296	50-327
				50-328

TVA CENTRAL EMERGENCY CONTROL CENTER (CECC) - EMERGENCY PLAN IMPLEMENTING PROCEDURE (EPIP) REVISIONS

In accordance with the requirements of 10 CFR Part 50, Appendix E, Section V, enclosed are copies of the Effective Page Listing and revisions to CECC EPIPs.

PROCEDURE		EFFECTIVE DATE
EPIP	EPL	6/15/00
EPIP-9	Rev. 21	6/15/00
EPIP-23	Rev. 16	6/15/00

The enclosed information is being sent by certified mail. The signed receipt signifies that you have received this information and will be taken as verification that the NRC copies of the plan have been updated, and the superseded material has been destroyed.

U.S. Nuclear Regulatory Commission Page 2 June 22, 2000

If you have any questions, please contact Everett Whitaker at (423) 751-6369.

Sincerely,

Ralph H. Shell

Mark J. Burzynski Manager Nuclear Licensing

Enclosures cc (Enclosures): U.S. Nuclear Regulatory Commission (Enclosures 2) Region II Atlanta Federal Center 61 Forsyth Street, SW, Suite 23T85 Atlanta, Georgia 30303-8931 [Enclosures provided NRC Senior Resident Inspector Browns Ferry Nuclear Plant by site DCRM] 10833 Shaw Road Athens, Alabama 35611 NRC Senior Resident Inspector [Enclosures provided Sequoyah Nuclear Plant by site DCRM] 2600 Igou Ferry Road Soddy Daisy, Tennessee 37379-3624 NRC Senior Resident Inspector [No enclosures, by request Watts Bar Nuclear Plant of site resident] 1260 Nuclear Plant Road

Spring City, Tennessee 37381

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#### CECC-EPIP-9 EMERGENCY ENVIRONMENTAL RADIOLOGICAL MONITORING PROCEDURES REVISION LOG

Rev. No.	Date	Revised Pages
0	3/22/88	All (Changed from IPD to EPIP)
1	07/08/88	Pages 1 & 2, Page 3 of App. E, Page 4 of App. G, Page 3 of App. I
22	4/26/89	All
3	5/15/90	All
4	07/02/90	1, 2, 5, Att. A, pg. 1; Added Att. R (pgs. 1-4)
5	11/09/90	Pages 4 & 5
6	12/11/90	Page 4 (only)
7	03/25/91	All (*Title changed)
8	10/25/91	All
9 .	5/15/92	All
10	11/25/92	All pages revised to issue instructions for use of new scalers which are being placed in the environmental monitoring vans.
11	06/15/93	Pages 4, 5, 9; Att. I, pg. 1; Att. J, pg. 1; Att. K; pg. 1; Att. M, pg. 1, Att. Q, pg. 1; Att. R, pg. 2; all other pages reissued.
12	11/09/93	2-8; 10-11; Att. A, pg. 1-4; Att. B, pgs. 1-5; Att. C, pg. 1; Att. D, pg. 1; Att. E, pg. 1; Att. F, pg. 1, 3; Att. G, pg. 1; Att. I, pg. 1; Att. L, pgs. 1-4; Att. M, pg. 1; Att. N, pg. 2; Att. O, pg. 1; Att. Q, pg. 1; Att. R, pgs. 1-2, 5.
13	11/30/93	Pgs. 1, 4-8, 10-13; Att. A, pg. 4; Att. G, pg. 1; Att. H, pgs. 1-2; Att. I, pg. 1; Att. J, pg. 1; Att. K, pg. 1; Att. L, pg. 4; Att. M, pg. 1; Att. O, pg. 1; Att. S, pgs. 1-2.
14	11/22/94	All
15	05/23/95	All
16	01/04/96	Procedure issued in new format which included in some cases altering the order of statements, editorial changes, and addition of boxes and shading to high light of statements. Additional updating was performed on pages 3, 4, 5, 7, 12, 14, 16, 17, 19, 21, 22, 23, 36. All pages issued.
17	12/9/96	1-4, 6-11, 13-19, 21-25, 28-30, 32-39. Changes per annual review. All pages issued.
18	12/23/97	7, 12, 15, 23, 25, 30, 34, 35 and 36. Update map rev. level, update telephone number, update air sampler instructions, update Barium source chart, change field team form so social security numbers are not read over the radio, update inventory checklists. All pages issued.

# CECC-EPIP-9 EMERGENCY ENVIRONMENTAL RADIOLOGICAL MONITORING PROCEDURES REVISION LOG

Rev. No.	Date	Revised Pages
19	10/27/98	Delete references to TAC backup radios, area code changes, delete reference to BLN HP radio transmitters, revise air sampler operation instructions, add reference for lodine concentration, revise sample parameters for soil and snow samples, revise air sampling instructions, add statement for van crew to take any attendant respirator eye ware, update Ba-133 check source table, clarify items for RMCC and courier kits. Al pages issued.
20	12/21/99	Change "Attachments" to "Appendix". Update Ba-133 check source decay charts. Editorial changes. All pages issued.
21	6/15/00	Annual review, editorial changes, remove reference to BLN repeaters, remove requirement to keep copy of latest inventory check in vans, indicate new packaging for KI remove reference to second Bicron Analyst/Nal set.

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Appendix M:	Courier Kit Inventory

## 1.0 <u>PURPOSE</u>

This procedure describes environmental radiological monitoring during or after an emergency at a TVA nuclear facility.

**CECC EPIP-9** 

#### 2.0 <u>SCOPE</u>

This procedure provides instruction for environmental monitoring under the direction of the plant Radiological Control (RADCON) staff, the Central Emergency Control Center (CECC) or the Radiological Monitoring Control Center (RMCC). Checklists and instructions for the inspection, inventory and use of field equipment are also included within this procedure. Several sequences or options may be used to obtain the same results with equipment operation or sampling techniques. Only one method will be discussed in this procedure.

#### 3.0 ACTIVATION

OPTIONAL:	At an Alert or Unusual Event classification.
MANDATORY:	At a Site Area Emergency or General Emergency unless directed otherwise by the Site Emergency Director.

#### 3.1 Command and Control

As emergency response facilities become operational, command and control shall progress from the Site RADCON staff to the CECC and RMCC. The CECC Environs Assessor has responsibility for control of environmental monitoring efforts.

Since the time of operational status of facilities may vary, instructions may generically refer to "Field Control".

#### 3.2 Site RADCON staff

Shift Supervisor to dispatch Environs Monitoring Teams using Appendix A.
Record field data on Appendix I.

A quick reference Table of Contents is provided at the front of this procedure for detailed instruction on emergency authorizations, dose control and field monitoring strategies and priorities.

Ensure that any DOSE RATE or AIR ACTIVITY survey results are PROMPTLY reported to assist in determining emergency classification levels by the Site Emergency Director. Report survey locations as a <u>distance and direction</u>.

Anticipate contact by the CECC Environs Assessor to coordinate a turnover of field control. The transfer of control should be announced on the radio. Thereafter, contact with all field team personnel should be routed through Field Control to avoid conflict of assignments.

Line denotes revision

# 3.3. Environs Assessor (EA) & Field Coordinator (FC)

Activate per CECC EPIP-7 if not already done.
Record field data on Appendix I.

A quick reference Table of Contents is provided at the front of this procedure for detailed instruction on emergency authorizations, dose control and field monitoring strategy and priorities.

Ensure that any DOSE RATE or AIR ACTIVITY survey results are PROMPTLY reported for considerations on declaration of emergency classification levels by the Site Emergency Director. Report survey locations as a <u>distance and direction</u>.

If reporting to a RMCC obtain a FC kit from the CECC. Ask CECC Emergency Preparedness staff if other equipment needs to be taken to the RMCC (fax, etc.).

BFN RMCC = Morgan County Courthouse basement, Decatur, AL SQN RMCC = Air National Guard Armory, Lovell Field, Chatt., TN WBN RMCC = TEMA Operations Center, Alcoa, TN

Upon arrival at the RMCC, establish TVA phone, radio and fax machine communication.

Ensure other field monitoring support staff are adequately briefed on their expected roles (Courier, Fixed Monitor Retrievers, Field Support).

Direction and control of all field operations shall be limited to one individual on the radio.

#### 3.4 Environs Monitoring Teams

Activate per Appendix B.
Record field data on Appendixes F (dose rates), G (air) and H (terrestrial).

Use column heading numbers for communication of data. Report survey locations as a <u>distance and direction</u>, and if applicable, the sample point. Command centers need distance and direction for decision logic.

A quick reference Table of Contents is provided at the front of this procedure for detailed instruction on radiological protection, equipment operation and sampling techniques.

#### 3.5 Screening Van team

Obtain dosimeters (TLD and 200 mrem self-reading dosimeter). Prepare the vehicle for departure according to WARL procedures. Establish radio contact with the field team control to ascertain team member dose information and obtain assignment.

CECC EPIP-9

#### 3.6. <u>Courier</u>

Couriers transport radioactive samples or deliver personnel, supplies and equipment. Courier personnel shall be familiar with concepts for basic radiation protection. The Courier should avoid plumes or radioactivity contaminated areas due to interface requirements outside the affected area, but may do so at the discretion of Field Control.

Obtain a radio equipped vehicle, Courier Kit, sample transport containers and any spare radiological survey instruments (provided by Corporate Emergency Preparedness).

Obtain briefing from the Environs Assessor or Field Coordinator.

Review the Courier Kit Inventory list (Appendix M), and wear the supplied dosimeters (TLD and 200 mrem self-reading dosimeter). Re-zero as necessary.

A quick reference Table of Contents is provided at the front of this procedure for detailed instructions (emergency phone numbers, inventory lists and operation of equipment).

Upon arrival at the vehicle, establish radio contact with the CECC Environs Assessor or RMCC Field Coordinator.

Obtain the appropriate maps and sample point description book from the Courier Kit for ready reference.

#### 3.7. Fixed Monitor Retrievers

Fixed Monitor Retrievers collect specific samples and environmental TLDs as requested by Field Control. Their duties are similar to non-emergency responsibilities.

Obtain job-specific supplies and equipment and establish communication with the Environs Assessor/Field Coordinator.

Refer to Table of Contents (front of procedure) for detailed instruction on emergency authorizations, dose control and field monitoring techniques and equipment operation.

#### 4.0 FIELD OPERATIONS

#### 4.1 <u>Priorities</u>

During the early phases of a radiological emergency when protective actions must be initiated quickly to be effective, environmental measurements used to calculate the inhalation dose commitment rate to the thyroid and the total body external gamma dose rates to the general public are the most important.

Knowledge of radiological conditions at the site boundary and at distances 2 and 5 miles out from the plant are critical for decisions on emergency classifications and for Protective Action Recommendations to the State.

Environs Monitoring Teams shall perform their tasks according to the following priorities unless directed otherwise by Field Control:

- 1. The first team to activate shall promptly obtain dose rate measurements along the designated site boundary (see 2 mile map) to obtain site boundary survey prior to scaler set-up.
- 2. Upon detection of plume immersion, collect and analyze an air sample for radioiodine and particulates at estimated plume centerline.
- 3. The second team to activate shall focus on locating the (offsite) touchdown point of the plume and collect air samples for analyses.
- 4. As additional teams become available, dispatch to the opposite side of the river should be considered for the contingency of (near plant) wind shifts and the travel time required.
- 5. Send air filter media to the screening van or WARL for further analyses as directed by Field Control.

#### 4.2 <u>Plume Tracking and Survey</u>

When directed by Field Control, Environs Monitoring Teams shall traverse along the assigned route to locate the plume. Travel at approximately 20 mph (during drills, simulate reduced speed as necessary to avoid traffic hazards). Practice safe vehicle operation with attention to height limitations, safe roadside pull-offs and parking, accessing private property and use of the warning strobe lights. Secure cabinets, lead shields, and personnel seat belts prior to vehicle movement.

Monitor the survey meters (open and closed beta shields) to determine plume immersion versus shine.

Record and report data per Appendix F.

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Report "Plume Traverse" readings at the estimated PLUME CENTERLINE. If instructed to survey plume edge, report EDGE. If the centerline cannot be determined (i.e., if required to turn back with rates still increasing), report plume location as UNKNOWN.

NOTE: If less than 2 mrem/hr, report Geiger-Mueller Survey Meter (GMSM) measurements. If greater than or equal to 2 mrem/hr, use measurements from the Ion Chamber Survey Meters (ISM).

If plume immersion is suspected, the following ALARA practices are recommended if surveys are requested: (1) stop vehicle and obtain ISM "Plume Traverse" measurements by placing the meter against the opened air sampling portal, (2) obtain "Near Ground" surveys by use of the rear air lock exit.

#### 4.3 <u>Sample Point Maps</u> (latest revision levels)

BFN 2 Mile	Rev. 2, 1 July 1994	WBN 2 Mile	Rev. 2, October 1997
BFN 10 Mile	Rev. 2, 16 May 1994	WBN 10 Mile	Rev. 1, 20 May 1993
BFN 50 Mile	Rev. 2, 1 July 1994	WBN 50 Mile	Rev. 2, 30 August 1993
SQN 2 Mile	Rev. 1, 16 December 1994		
SQN 10 Mile	Rev. 1, 1 February 1994		
SQN 50 Mile	Rev. 1, 30 June 1991		

# 4.4 <u>Radio Protocol</u>

NOTE: During drills or exercises, all personnel should state "THIS IS A DRILL" when transmitting simulated radiological or plant accident conditions, or other information which may cause public concern if it were monitored. Use of "repeat-back's" and phonetic alphabets are recommended

Maintain communication with field team control according to the following sequence. Use the vehicle's external speaker during exits.

- 1. Motorola mobile radio (with repeater activated frequencies)
- 2. Cellular phone
- 3. Leave area of hazard and contact by public phone

The following call signs are designated for field operations:

Base Stations	Mobile Units
CECC	Truck # (Monitoring vehicle)
"Site" TSC	Screening Van
"Site" Plant Lab	Courier
RMCC	Portable # (misc.)

# 4.5 Routine Dose Control

The dose of personnel during emergency operations shall be maintained As Low As Reasonably Achievable (ALARA).

# CAUTION!: Personnel should be aware of potential rapidly changing conditions.

For purposes of this implementing procedure, radiation exposure as expressed in units of R and subunits, thereof, is equivalent to dose (rad) and dose equivalent (rem) based on ANSI N 13.11 development and terminology. Any acute dose greater than 10 rem is generally denoted in units of rad, since that level is considered as the accident range of personnel exposure. Any dose less than that level is considered the protective range of personnel exposure. For purposes of this procedure the assumption of 1 rad = 1 rem is assumed for all levels of exposure.

Field personnel shall report their self-reading dosimeter readings to Field Control at approximately every 100 mrem increment and record doses on Appendix D.

Until isotopic assessments of airborne radioactivity are available, the CECC Environs Assessor shall apply an administrative correction factor of 2 to estimate TEDE doses in airborne radioactivity areas:

#### Estimated TEDE = dosimeter reading x 2

When accident specific radionuclide assessments are available, dose assessment activities should be performed to adjust the correction factors.

Personnel shall advise Field Control when TEDE doses (including pre-emergency doses) approach their <u>individual dose limits</u>. Limits used for declared REP emergency events are based on 10 CFR 20, versus TVA administrative levels. Perform this notification early enough to allow exit from the area prior to exceeding any limits, if higher doses are not authorized.

• Dose limits are to be listed on Appendix D.

• Take protective actions listed in Appendixes F, G and I.

The Environs Assessor shall coordinate appropriate post exposure dose assessments for field personnel.

#### 4.6 <u>Emergency Dose Limits</u>

The dose of personnel during emergency operations shall be maintained As Low As Reasonably Achievable (ALARA). If circumstances require field personnel to remain in a radiologically hazardous area, higher whole body dose limits may be authorized. Any decisions to embark on emergency operations which would result in doses in excess of 10 CFR 20 should be done in consultation with the most senior member of RADCON who is available on a timely basis.

Emergency Dose Authorizations

The SED authorizes if field teams are under control of the site.

The CECC RAM authorizes if teams are under the control of the CECC (The RAM shall inform the CECC Director and TSC RADCON Manager)

Document authorization and acceptance of emergency dose on Appendix E.

Receipt of emergency dose above normal limits shall be on a voluntary basis. Other factors being equal, older volunteers should be selected first. In addition, selection of female volunteers capable of reproduction should be avoided if other volunteers are available.

The use of respiratory protection equipment and protective clothing should be considered to minimize personnel contamination. Personnel shall not enter any area where dose rates are unmeasureable with instruments and dosimetry (i.e., offscale high reading).

Personnel receiving emergency doses shall be informed of the risks involved, including the numerical levels of dose at which acute effects of radiation will be incurred, and numerical estimates of the risk of delayed effects. Recipients shall acknowledge review of this information (located on Appendix E, page 2 of 2) by signature on Appendix E. Dose under these conditions shall be limited to once in a lifetime.

For <u>Lifesaving or Protection of Large Populations</u> the limit is 25 rad TEDE, (when lower dose is not practicable). In this situation, the limit for lens of eye is 75 rad, or three (3) times the TEDE value. The limit for any other organ (including skin and body extremities) is 250 rad, or ten (10) times the TEDE value.

NOTE: Situations may occur in which a dose in excess of 25 rad would be required for lifesaving operations. It is not possible to prejudge the risk that one person should be allowed to take to save the life of another. However, persons undertaking an emergency mission in which the dose would exceed 25 rad to the whole body should do so only on a voluntary basis and with full awareness of the risks involved.

For <u>Protection of Valuable Property</u> the limit is 10 rem TEDE (when lower dose is not practicable). In this situation the limit for lens of eye is 30 rad, or three (3) times the TEDE value. The limit for any other organ (including skin and body extremities) is 100 rad, or ten (10) times the TEDE value.

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## 4.7 Potassium Iodide (KI)

If field personnel are expected to receive a cumulative dose to the thyroid (from inhalation of radioactive iodine) which might exceed 10 rem, then a dose regimen of Potassium Iodide (KI) should be considered. Since Environs Monitoring teams have the greatest potential need for thyroid blocking, KI should be administered at the time of initial dispatch. This action would allow absorption of the KI prior to the exposure. Authorization shall be provided by the most senior member of RADCON who is available on a timely basis. Otherwise, teams are granted authorization by this procedure to self-administer KI in accordance with the TVA Protective Action Levels on Appendixes F, G, and I. Field Control is to be immediately informed of such action.

The decision of KI for field team members other than Environs Monitoring Teams shall be based upon their needs. The CECC Environs Assessor has the responsibility to authorize the administration of KI for field staff under CECC control. The Environs Assessor shall inform the CECC RAM of that action. The person authorizing the issuance of KI shall be familiar with the Food and Drug Administration's approved package insert and ensure each recipient is similarly informed.

Document the authorization and acceptance of KI on Appendix E.

#### 4.8 Contamination Control

Use equipment and materials to identify contamination and minimize its spread to personnel and the vehicle interior. Interior air-lock door should remain closed. Exercise precautions with use of personal protective equipment, such as respirators against adverse impacts to safe vehicle operation. Place contaminated clothing and waste in plastic bags and store in the van until arrangements can be made for final disposal. Contact Field Control for arrangements with personnel and vehicle decontamination.

#### 5.0 <u>COMMUNICATIONS</u>

#### 5.1 Primary Motorola Radio

CAUTION!: Avoid radio damage caused by operating two mobile units which are closer than a few hundred feet. If a backup radio is used, turn the primary radio off.

The **POWER** switch is on the bottom right side of the front control unit.

Select transmitters with MODE switch. Selections are programmed in the following order:

1. WILSON - BFN	4. deleted	7. MONTLKE - SQN
2. BRINLEY - BFN	5. deleted	8. OSWALD - WBN
3. MONTE S - BFN	6. SIGMTN - SQN	9. RSVLT - WBN

VOL adjusts the volume, (range 1-15 with normal volume around 10).

SQL button on keypad unsquelches radio. Press SQL momentarily to display "<u>MONITOR ON</u>" to allow channel monitoring. Display alternates between "MONITOR ON" and "MONITOR OFF".

SQL also used to set the squelch level (0-4). Depress SQL and hold until the beep, then adjust up or down using the MODE switch. Then press HOME to return to normal operation. Repeat adjustment to the minimal level at which continuous static is eliminated.

**HOME** button returns the unit to normal operation after adjustment of squelch. HOME button also returns the unit to the first transmitter in the programming sequence.

**DIM** adjusts brightness of the display (four levels with one off). The primary position for the **DIR** button should be with the red light OFF (unit will now automatically activate the repeater).

**F/R** switch is for activation of either the front/rear control. "REMOTE" or "REAR" display indicates the other control head is operational. Depressing the F/R button repeatedly alternates the front and rear control function.

The SCAN, EMER and keypad keys are not operational.

Use Microphone keypad for entry of radio-phone patch numbers.

NOTE: Ensure the active repeater is displayed (versus "REMOTE" or "REAR") prior to attempting data transmission.

# 5.2 <u>Cellular Telephones</u>

Depress PWR [power]. If unit reads "Loc'd", enter the unlock code of "REP" or 737.

To use unit as a speaker phone (hands-free operation) leave unit in the cradle. The microphone is mounted above the driver's window.

- To answer a call, press SND.
- To hang-up, or clear a number, press CLR/END.
- To place a call, enter number then press SND [send]. If calling long distance, dial the area code with the number (use of "0-" or "1-" may vary with location).
- 24 hour assistance: Public telephone 1-800-333-4004, From vehicle 611

#### 5.3 Important Phone Numbers

Location	Phone	Phone	Fax Machine
CECC Environs	423-751-1623	423-751-1624	423-751-1681
Assessor			
BFN RMCC	423-751-1672	256-351-0441	256-355-1680
SQN RMCC	423-899-9858	423-751-1676	423-855-0190
WBN RMCC	423-981-5608		865-981-5632
BFN TSC RADCON	256-729-3767	256-729-3763	256-729-3742
SQN TSC RADCON	423-843-6472		423-843-6461
WBN TSC RADCON	423-365-8606	423-365-8608	423-365-8365
<b>CECC</b> Operations Duty	423-751-1700	800-237-2322	
Specialist (24 hr)			
TVA Police (to report accidents)		800-82	4-3861

	Vehicle Cellular Phones	
CECC Courier	TV-12332	423- 667-7512
CECC Truck 1	TV-44062	423- 240-6267
SQN Truck 2	TV-44063	423- 240-6268
SQN Truck 3	TV-44053	423- 667-4921
WBN Truck 4	TV-44054	423- 667-4918
BFN Truck 5	TV-44084	256-508-4872
BFN Truck 6	TV-44052	256-656-9623
Screening van (voice & fax)	TV-44019	256-740-1566

#### 5.4 HP Radio System Phone Patch

To place a telephone call from a mobile radio:

Enter proper access code and wait for a dial tone (if no tone, depress # to clear command and restart).

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Access Code	Transmitter Locations	Plant Site/Local Area
"*" 01	Wilson Hydro Plant	<b>BFN/Muscle Shoals</b>
"*" 02	Brinley Mountain	BFN/Decatur
"*" 03	Monte Sano	BFN/Huntsville
"*" 06	Signal Mountain	SQN/Chattanooga
"*" 07	Montlake	SQN/Soddy-Daisy, Dayton
"*" 08	Oswald Dome	WBN/Cleveland, Athens
"*" 09	Roosevelt Mountain	WBN/Spring City, Rockwood

After the dial tone, dial "9" for a second dial tone.

Depress "<u>1</u>" + (<u>Area Code</u>) + <u>7 digit number</u> + "<u>\*</u>". (Chattanooga calls may not require long distance area code.)

Depress "#" to disconnect (hang up).

# 6.0 ELECTRICAL POWER SUPPLIES

Circuit breakers for the vehicle's electrical system are located in a gray breaker box inside the cabinet 8. Additional circuit breakers for the onboard generator are located on the rear facing side of the generator housing.

CAUTION !: Avoid contact with unshielded energized components.

#### 6.1 Vehicle-Installed Generator

Place GENERATOR-SHORE POWER switch to the *neutral* position to avoid attempted starts under load.

Depress generator START/STOP button, and hold until the engine is running.

Place **GENERATOR-SHORE POWER** switch to the *generator* position. Primary vehicle outlets are now supplied power.

The onboard generator may be run continuously during vehicle operation, using the vehicle tank for fuel. If the generator is no longer needed, depress the **START/STOP** button and hold until the engine stops completely.

# 6.2 <u>DC to AC Power Inverter</u> (back up use only)

Ensure vehicle engine is running and MASTER switch on the front console is ON.

Place the INVERTER switch, located on the cabinet door panel, to the ON position.

If power to the wall outlets is not available, ensure the DC Input Circuit Breaker switch on the inverter panel face is in the ON position and ensure the ON/OFF switch is in the OFF position (units run on remote hookup setting)

## 6.3 <u>TVA Siren</u>

CAUTION!: Beware of wasps in the power outlet boxes and potential electrical hazards such as wet ground!

Unlock outlet box using key # 0896. Check Ground Fault Interrupter breaker status.

#### 6.4 Honda Generator (EX1000)

Remove generator from vehicle, add fuel as necessary and attach Ground Fault Interrupter (GFI) cord to generator socket.

Slide ENGINE switch, on front of unit, upward to ON.

Push CHOKE lever, on rear of unit, in direction of arrow to CLOSED.

Pull start cord and prevent it from snapping back against unit.

Turn the CHOKE lever to OPEN as the engine warms up.

#### 7.0 AIR SAMPLING

#### 7.1 <u>Preparation for Plume Air Sample</u>

CAUTION!: Silver Zeolite has a heat-up/explosive potential and may require disposal as a mixed waste.

Load head with a Silver Zeolite cartridge, marked to indicate direction of the air flow.

Install a prefilter (rough side out).

Position the vehicle so that the air sample port is toward the plant or upwind direction.

**Record 1-meter dose rates for the area on Appendix F**. Use ISM if above 2 mrem/hr. Do not obtain near ground dose rates unless instructed.

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Note: Onboard generator power fluctuations affecting flow rate may occur during simultaneous use of the roof top air conditioner unit. It may be necessary to cut the air conditioner off during sampling; or to use the AC/DC inverter as the power source. If power is interrupted during a sample collection, the unit will display the collected sample data upon restoration of power.

# 7.2 Radeco H810 Air Sampler - GRAB SAMPLE

Grab Sample: 5 minute run at 60 LPM (2 CFM) flow rate

Turn power ON using rocker switch on side of unit.

After display stops scrolling, depress the CLEAR key to reset the unit. Display should now read "TARGET VOLUME: 300 LITERS".

Depress green START key to begin sample collection, then following the message "WARM UP DELAY IN PROGRESS", observe the display to confirm the desired flow rate of 60 LPM. Adjust as necessary using the recessed slotted screw head above the on-off switch. To perform adjustments, turn the slotted screw head clockwise to increase flow rate and counter-clockwise to decrease flow rate. Since the digital display is very accurate, a flow rate ± 6 LPM (10%) is satisfactory. Close cabinet door during sampling.

Sampler will automatically shut off upon collection of pre-set volume (300 Liters).

# 7.3 Radeco H810 Air Sampler - CONTINUOUS RUN

Continuous Run: 30 LPM (1 CFM) flow rate

Turn power ON using rocker switch on side of unit.

After display stops scrolling, depress the **CLEAR** key to reset the unit. Display should now read "TARGET TIME XXXX" or "TARGET VOLUME XXXX".

Depress green START key to begin sample collection, then following the message "WARM UP DELAY IN PROGRESS", observe the display to confirm the desired flow rate of 30 LPM. Adjust as necessary using the recessed slotted screw head above the on-off switch. To perform adjustments, turn the slotted screw head clockwise to increase flow rate and counter-clockwise to decrease flow rate. Since the digital display is very accurate, a flow rate  $\pm$  3 LPM (10%) is satisfactory.

Depress STOP key to end sample.

## 7.4 Analysis of Air Sample

Close sampling portal and cabinet door at end of sampling. If using a power inverter, turn it OFF when not in use.

Relocate as necessary for ALARA purposes prior to continuing.

Remove the cartridge and seal it in plastic wrap. Be cautious of cartridge heat up and the effect on the plastic wrapping. Survey the cartridge with a GMSM (beta shield closed).

If  $\leq 1$  mrem/hr, analyze with the NaI detector, record data on Appendix G, column 12.

If > 1 mrem/hr, do NOT analyze with the NaI detector. Advise Field Control and approximate iodine concentration using the formula below:

 $\mu \text{ Ci/cc} = \frac{\text{Average Front \& Back contact rate (mrem/hr) x 5.1 x 10}^{-3}}{\text{Sample Volume in Liters}}$ Note: Formula referenced in RIMS L91 880217 801

Remove the prefilter with tweezers, and survey using the Bicron Surveyor 50.

If < 50,000 CPM, analyze in GM detector, record data on Appendix G, column 13.

If >50,000 CPM, do NOT analyze in the GM detector. Contact Field Control for instructions.

Label and package all samples for transfer to the Courier. (Refer to section 8.5).

Report data per Appendix G. Report results as "Less than MDA" if below values and background rates listed on Appendix G.

Note: Minimum Detectable Activities for Bicron Analysts per memorandum to C. D. Pond, from J. L Lobdell, dated March 28, 1995 (RIMS L91 950328 800). Do not delete!

#### 8.0 TERRESTRIAL SAMPLES

#### 8.1 <u>Vegetation Sample</u>

If possible, avoid sampling an area sheltered by trees and obtain samples which are representative of the pasturage where the grass depth is as close to uniform as practical.

**RECORD** a one-meter GMSM window-closed measurement on a sample label.

Using grass cutters, cut grass near the ground. Avoid pulling up grass since roots are not desired. Pack a marinelli beaker to obtain as large a mass as practical. The sample parameter is activity per kilogram.

Seal the beaker cover with electrical tape, keeping the tape slightly stretched while wrapping.

Affix a sample label with the date, time, location, sample type, exposure rate at one meter above ground and the initials of the collector.

Repeat the sampling process, placing the second sample in a zip-lock plastic bag instead of a beaker. Label in the same manner, using a <u>separate</u> sample number.

#### 8.2 Soil Sample

Soil samples should be collected from areas that are relatively free of vegetation, rocks and roots. If vegetation cover can not be avoided, it should be sampled with the soil and the analytical results combined to measure the total deposition per surface area.

**RECORD** a one-meter GMSM window-closed measurement on a sample label.

Prepare the hole cutting tool (approx. 4.25 inches in diameter) to obtain the soil sample by adjusting the collar above the cutting tube for a 2 or more inch cutting depth.

Collect 5 core samples from a square meter area (4 corners and 1 center). The desired sample parameter is square meters, do not obtain more or less core samples.

Note: 5 core diameters equals 0.046 square meters. Screening van/fixed lab may multiply activity/sample results by 22 to obtain activity/square meter).

The correct sample depth is obtained by pushing the core tool fully into the ground, and removing the top one centimeter (about one-half inch) from the top of the core (using the putty knife) as the sample retained.

If the soil is too dry or sandy to allow coring, use the shovel or putty knife to collect material about one centimeter deep (approx. 1/2 inch) in the pattern described above.

Place the sample in a marinelli beaker and seal with electrical tape. Affix a sample label with the date, time, location, sample type, sample area, dose rate at one meter above ground and the initials of the collector.

Repeat the sampling process, placing the second soil sample in a large zip-lock plastic bag instead of a beaker. Label in the same manner, using a <u>separate</u> sample number.

#### 8.3 <u>Snow/Ice Sample</u>

**RECORD** a one-meter GMSM window-closed measurement on a sample label.

Set the core tool for a 4 inch depth. Collect 5 core samples from a square meter area (4 corners and 1 center). The sample parameter is surface area, do not obtain more or less core samples. Ascertain the desired sampling depth from the Environs Assessor, based upon meteorological history.

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Note: 5 core diameters equals 0.046 square meters. Screening van/fixed lab may multiply activity/sample results by 22 to obtain activity/square meter).

Place the snow/ice in double plastic bags. Check bags for leakage.

Take a second sample (new sample number) approximately 3 meters from the first by repeating the above steps.

Affix a sample label to both samples.

After the snow/ice melts, pour each sample into separate sample jugs and transfer the sample labels to the jug(s). The funnel in cabinet 10 may be useful for filling the jug.

NOTE: Instructions for sampling of snow and ice are required per INPO SOER 83-002, "Steam Generator Tube Ruptures", recommendation 11. WBN TROI ID: INPO SOER 83-002, August 22, 1994. Do not delete this reference!

# 8.4 Other Samples

**RECORD** a one-meter GMSM window-closed measurement on a sample label.

Any liquid sample container shall be placed in double poly bags with absorbent material.

Outside bags/container of samples should be dry, non-contaminated, labeled and if necessary display a caution radioactive material tag.

Certain types of environmental samples (i.e., rainwater, milk, food crop, fodder and feed, well water) may be requested by Field Control to assist State activities. The minimum sample quantity, type of container and any special controls will be defined dependent on the needs of the situation.

#### 8.5 Sample Identification and Labeling

Each sample shall be tagged with an identification label containing the following appropriate data:

Sample Number	Sample Type
Sampling Start and Stop Time	Sampling Flow Rate
Location sampled	Time/Date
Name of the Collector	Sample Area (if applicable)

The sample number is composed of the abbreviation of the Truck number (T2-xx), assigned to the vehicle followed by a dash and the consecutive number of the sample and type of sample (i.e., T2-1I, T2-1P). This is important to avoid confusion with State collected samples which may be labeled as "S-#", (T = T VA, S = State).

# 8.6 Isotopic Analysis of Samples

Isotopic analysis of samples may be provided by the screening van or by WARL. Analysis results are to be reported to the Environs Assessor and Field Coordinator.

# 9.0 **OPERATIONAL READINESS** - (Equipment and vehicles)

As a minimum, inspections/inventory checks shall be completed each calendar quarter. Additional inspection guidelines may be contained in location-specific procedures.

#### 9.1 <u>Monitoring Team Vehicles</u>

• Inventories and inspections shall be in accordance with Appendix J.

1

Inspection checklists shall be forwarded to the applicable site Emergency Preparedness
 (EP) Manager prior to the end of the calendar quarter.

A site-specific method of providing accountability control of equipment and materials between inspections shall be practiced. Inventories shall be completed after drills, training, or emergency use. The training instructor is responsible for inventories following training activities and the RADCON organization is responsible for inventories following drills or emergency response. In either case, a signed inventory form with comment confirming the vehicle was returned in the "as found" condition is sufficient. These inventories shall be forwarded to the Site EP Manager prior to the end of the calendar quarter.

#### 9.2 Screening Van Equipment

A screening van is stationed at the Western Area Radiological Laboratory (WARL). Inventories and inspections shall be in accordance with Appendix K.

#### 9.3 Field Coordinator Equipment

A Field Coordinator Kit is available at WARL and the CECC. Inventories and inspections shall be in accordance with Appendix L.

#### 9.4 Courier Equipment

A Courier Kit is available at the Central Emergency Control (CECC). Inventories and inspections shall be in accordance with Appendix M.

# 10.0 <u>REFERENCES</u>

- 10.1 Radiological Emergency Plan.
- 10.2 Collection of Environmental Monitoring Samples, SC-01, Radiological Laboratory Procedures Manual.
- 10.3 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654 FEMA-REP-1, Rev. 1 (1980).

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- 10.4 "Emergency Dose Assessment Procedures for Atmospheric Releases of Radioactivity from TVA Nuclear Plants," TVA Publication RH-82-1-RA1 (1984).
- 10.5 "Evaluation of Radiation Emergencies and Accidents Selected Criteria and Data," International Atomic Energy Agency, Vienna (1974).
- 10.6 "Manual of Protective Action Guide and Protective Actions for Nuclear Accidents", EPA-400, October 15, 1991.
- 10.7 Data Systems Radiological Emergency Procedures, CECC-EPIP-12.
- 10.8 "Domestic Licensing of Production and Utilization Facilities," 10 CFR 50.
- 10.9 TVA CECC EPIP-7, <u>CECC RADIOLOGICAL ASSESSMENT STAFF PROCEDURE</u> FOR ALERT, SITE AREA EMERGENCY, AND GENERAL EMERGENCY
- 10.10 INPO SOER 83-002, "Steam Generator Tube Ruptures", recommendation WBN TROI ID: INPO SOER 83-002, August 22, 1994.
- 10.11 "Standards for Protection Against Radiation", 10 CFR 20.

# Appendix A

# Plant Lab Dispatch

1. Select two qualified persons per team and instruct them to complete Appendix B.

Qualifications

Environs Monitoring Van training	Radiation Worker Training (or equivalent)				
Use of full face respiratory protection	Valid Driver's License				

NOTE: Environs Monitoring Van training is not required if person is limited to vehicle driver duty under direct supervision of a fully qualified team leader.

- 2. For WBN emergencies <u>immediately</u> request a second team from SQN. Instruct SQN staff to establish radio contact with WBN (attempt both WBN repeaters).
- 3. If the response is for a plant release with known or potential radioiodine exposure, request authorization for teams to take KI prior to leaving the building (refer to section 4.7) Simulate for drills and do not take if known allergy exists.
- 4. Complete the following on field personnel: (Provide to CECC for transfer of control.)

Team	Social Security	Y.T. D.	10CFR20	KI Taken	Time
Member	Number	Dose	Limit	Yes/No	of KI
		· · · · · · · · · · · · · · · · ·			

5. Obtain the following from the Control Room or SPDS and advise teams for deployment:

Suspected Release in pro	gress?	Yes /	No	Time:		
Wind Direction (from)		(degrees)		(compass direction)		
Wind Speed		(m.j	o.h)	(Note: meters/se	c. x 2.2 = m.p.h)	

- 6. As teams establish radio contact, test available transmitters to determine the best reception and advise teams of same. If reception is poor, depress "MUTE" for transmitters not selected.
- 7. Report field team data to the TSC per Appendix I.
- 8. Update wind direction periodically to adjust field team deployments.

# Appendix B

# Monitoring Team Activation / Shift Turnover

Complete **PROMPTLY**! Emergency classifications may depend on field data.

#### INITIAL DEPLOYMENT ACTIONS

- Identify which radio transmitter to use for initial contact.
- Collect keys, instruments, sources, KI and any personal respirator spider glasses.
- Request/administer KI if authorized. Simulate for drills and do not take if known allergy exists.
- Monitor dose rates with GMSM while enroute to truck.

# UPON ARRIVAL AT TRUCK

- Don TLD, 200 mrem and 5 rem DRD. (Record DRD readings ONLY on Appendix D.)
- Wrap one GM probe in plastic (bag or saran wrap) and secure outside window with beta window open and facing up. Place second GM and ISM (window closed) inside vehicle.
- Establish contact with Field Control.

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# IF YOU ARE THE FIRST TEAM TO ACTIVATE

- DELAY scaler set-up. Obtain updated wind direction and plant release status.
- Unless directed otherwise, immediately obtain dose rate measurements along the designated site boundary route per the 2 mile EPZ map. NOTE: Wind direction may fluctuate from the reported direction, therefore, actively search for the plume and report survey results per Appendix F.
- Upon arrival at downwind sector, COLLECT a GRAB air sample, (I & P) even if survey meters indicate background levels. If necessary, go to a low background area to complete the remaining items below and report air sample results per Appendixes F & G.

# COMPLETE FULL OPERATIONAL READINESS ACTIONS

- Complete scaler set up per Appendix C.
- Complete Appendix E if KI was authorized and administered.
- Confirm the truck has at least three-quarters capacity of gas. If equipped, operate on rear tank first (generator runs off front tank).
- Contact field team control to report/confirm dose and limits, synchronize watches, report operational status and request assignment. Note key events in logbook.

- U

Unless directed otherwise, the second team to activate should obtain surveys at 2 and 5 miles out to support SED decisions. Refer to the table below for BFN releases

Estimated plume maximum for BFN Stack release							
Stability Class	A	В	C	D	E	F - G	
Downwind (miles)	0.4	0.8	1.5	5.0	12.5	18.5	

• Coordinate inventory requirements per section 9.1 at end of shift or event termination.
CECC EPIP-9

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#### Appendix C

counts

Scaler Set-Up : Bicroi	Analyst/Nal Detector
Name:	Analyst Serial #:
Date:	Calibration due date:

1. Perform battery check and position NaI detector in shielded pig.

2. Install cables. Set unit to: Range: <u>x1000</u> Channel: <u>1</u> Response: <u>S</u> Audio: <u>OFF</u>

3. Enter a 1 minute background count:

Note: If count time is not 1 minute, set the <u>1/1/10</u> selector inside the instrument cabinet to 1. See illustration on instrument.

4.	Enter a 1 minute Ba <sup>133</sup> contact count:	counts
5.	Enter net counts: (Step 4 minus Step 3)	counts
6.	Enter Ba <sup>133</sup> activity from chart below:	μCi
7.	Enter Step 5 divided by Step 6:	<u> </u>
8.	Enter acceptance range from instr. label:	to

If Step 7 result is within the acceptance range, instrument is ready for use. Record NaI correction factor from label to Air Data form.

9. If unit fails, check source position. NaI probe, cable, and Bicron Analyst are paired, DO NOT SWITCH. Contact Field Control if replacement scalers are necessary.

Barium Source Activity Chart							
	1999	2000					
Source ID	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
Ba <sup>133</sup> -02-Pt84	.070	.069	.068	.067	.066	.065	.064
Ba <sup>133</sup> -04-Pt84	.072	.071	.070	.069	.068	.067	.066
Ba <sup>133</sup> -05-Pt84	.071	.070	.069	.068	.067	.066	.065
Ba <sup>133</sup> -08-Pt84	.072	.071	.070	.069	.068	.067	.066
Ba <sup>133</sup> -10-Pt84	.069	.068	.067	.066	.065	.064	.063
Ba <sup>133</sup> -11-Pt84	.073	.072	.071	.070	.069	.068	.067
Ba <sup>133</sup> -12-Pt84	.070	.069	.068	.067	.066	.065	.064

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#### Appendix C

Scaler Set-Up : Bicro	on Analyst/GM Detector
Name:	Analyst Serial #:
Date:	Calibration due date:

- 1. Connect cable to shielded detector and perform a battery check.
- 2. Set unit to: Range: <u>x1000</u> Channel: <u>Out</u> Response: <u>S</u> Audio: <u>OFF</u>
- 3. Enter a 1 minute background count: \_\_\_\_\_ counts

Note: If count time is not 1 minute, set the <u>1/1/10</u> selector inside the instrument cabinet to 1. See illustration on instrument.

4. Place  $Tc^{99}$  source on planchet shelf closest to GM tube.

5.	Enter a 1 minute Tc <sup>99</sup> count:	counts
6.	Enter net counts: (Step 5 minus Step 3)	counts
7.	Enter Tc <sup>99</sup> activity from source box label:	dpm
8.	Enter Step 6 divided by Step 7: (efficiency)	<u>counts</u> dpm
	If Step 8 result is within the acceptance range o	f 0.06 to 0.10, instrument is

f Step 8 result is within the acceptance range of 0.06 to 0.10, instrument is ready for use. Record GM efficiency (step 8) onto Appendix G.

9. If unit fails, check source position. If necessary, the GM tube height can be adjusted slightly. Contact Field Control if replacement scalers are necessary.

		Appendix D	
		Dose Log	
Vehicle Call	Sign: (1)	Social Securi	ty #
Name: (17)_		Emergency T	LD #
10 CFR 20 L	<i>_</i> imit	YTD (Prior t	o incident)
	(mrem) (18)	(19)	(mren
Time	Dosimeter Reading "AS READ" (mrem)	Total Incident Dose "AS READ" (mrem)	TEDE Estimate "AS CORRECTED" per Field Co (mrem)
•			
Vehicle Call	Sign: (1)	Social Securi	tv #
Vehicle Call Name: (17)	Sign: (1)	Social Securi Emergency T	ty #
Vehicle Call Name: (17) _ 10 CFR 20 I	Sign: (1)	Social Securi Emergency T YTD (Prior t	ty # LD # o incident)
Vehicle Call Name: (17)_ 10 CFR 20 I	Sign: (1) 	Social Securi Emergency T YTD (Prior t (19)	ty # LD # o incident)(mren
Vehicle Call Name: (17) _ 10 CFR 20 I Time	Sign: (1) Limit(mrem) (18) Dosimeter Reading "AS READ" (mrem)	Social Securi Emergency T YTD (Prior t (19) Total Incident Dose "AS READ" (mrem)	ty # LD # o incident) (mren TEDE Estimate "AS CORRECTED" per Field Co (mrem)
Vehicle Call Name: (17) _ 10 CFR 20 I Time	Sign: (1) 	Social Securi Emergency T YTD (Prior t (19) Total Incident Dose "AS READ" (mrem)	ty # LD # o incident) (mren TEDE Estimate "AS CORRECTED" per Field Co (mrem)

CAUTION: BE ATTENTIVE TO PROTECTIVE ACTION LEVELS.

# CECC EPIP-9

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#### Appendix E

Page 1 of 2

#### **Emergency Authorizations**

#### 1. <u>Emergency Dose Limits</u>

The persons listed below acknowledge they have volunteered to receive an emergency dose, have been briefed on the emergency situation, and are aware of possible consequences of being exposed to a radiation dose up to the authorized limits (see page 2 of 2).

Signature	Social Security #	Limit	Date
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		

AUTHORIZED BY:

· · · · · · · · · · · · · · · · · · ·		
(Name and title)	(Date)	(Time)

#### 2.0 Issuance of Potassium Iodide (KI)

The persons listed below acknowledge they have been authorized to take KI on a voluntary basis and have read and understand the information provided on the Food and Drug Administration approved package insert.

#### Approved Dose: 1 tablet (130 mg) per day

Signature	Social Security #	Time Taken	Date
· · · · · · · · · · · · · · · · · · ·			

AUTHORIZED BY:

(Name and title)

(Date)

(Time)

Emergency Environmental Radiological Monitoring Procedures

# **CECC EPIP-9**

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Appendix E

Page 2 of 2

#### **Emergency Authorizations**

#### **EPA EMERGENCY DOSE RISK INFORMATION**

I.

Health Effects Associated with Whole Body Absorbed Doses Received Within a Few Hours <sup>1</sup> .					
Whole Body	Early		Whole Body	Prodromal	
Absorbed Dose	Fatalities <sup>2</sup>		Absorbed Dose	Effects3	
(rad)	(percent)		(rad)	(percent)	
140	5		50	2	
200	15		100	15	
300	50		150	50	
400	85		200	85	
460	95		250	98	

<sup>1</sup> Risks will be lower for protracted exposure periods.

<sup>2</sup> Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

<sup>3</sup> Forewarning symptoms of more serious health effects associated with large doses of radiation.

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Approximate Cancer Risk to Average Individuals from 25 rem Effective Dose					
Equivalent Delivered Promptly.					
Age at Dose	Risk of Premature Death	Average years of life lost if			
(years)	(deaths per 1,000 persons	premature death occurs			
	exposed)	(years)			
20 to 30	9.1	24			
30 to 40	7.2	19			
40 to 50	5.3	15			
50 to 60	3.5	11			

Note: Tables referenced from the Environmental Protection Agency's "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", (EPA-400), May 1992, tables 2-3 and 2-4., page 2-12. Emergency Environmental Radiological Monitoring Procedures

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### CECC EPIP-9 DOSE RATE MEASUREMENTS

# APPENDIX F P

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GMSM GMSM	w/o # w/c #	······	ISM w/o # ISM w/c #			Surv Surv	reyor 50 # reyor 50 #		REPORT COLUMN NUMBERS FOR TYPE OF SURVEY 1 thru 7 = Plume Traverse				
Date		Team Members					1 thru 10 = Stationary Survey						
1		2		3	4	(5)	6	$\bigcirc$	8	9	10		
TEAM #	SAMPLE POINT	LOCATION DISTANCE MILES	DIRECTION DEGREES	TIME TAKEN	PLUME E C ?	GM or ISM	1 ME mren W / C	TER n/hr W / O	GM or ISM	CON mrea W / C	TACT m/hr W / O		

### TVA PROTECTIVE ACTION LEVELS

1 A.	Any exposure rate $> 25$ mrem/hr and radioiodine (I-131) air activity is not known.	1A.	Potassium Iodide (KI) recommended, notify Field Control.
1 B.	Any measured dose rate $> 200$ mrem/hr.	1 B.	Evacuation recommended, notify Field Control.
1 C.	Any measured dose rate $> 10$ rem/hr.	1 C.	Evacuation mandatory, notify Field Control.
2 A.	TEDE dose of 5 rem.	2 A.	Evacuate unless higher dose is authorized, notify Field Control.
2 B.	TEDE dose of 25 rad.	2 B.	Evacuation mandatory, notify Field Control.

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Date:	Na I Scaler #	GM Scaler #:
Grab Air Sampler #	Na I Correction Factor:	GM Efficiency:
Cont. Run Sampler #	<sup>131</sup> Iodine MDA = $2.0 \text{ E} - 9$ (if bkg. < 255)	Particulate MDA = $2.0 \text{ E} - 9$ (if bkg < $276$ )
Team	<sup>131</sup> Iodine $\mu$ Ci/cc = (CPM) (Correction Factor)	Particulate $\mu$ Ci/cc = (CPM) (4.505 E - 10).
Members	volume in liters	(efficiency) (volume in liters)

1		2		3				(16)				(12)	(13)
TEAM #	I S.P. D	LOCATI Distance	ON Direction	Start Stop	Run Time	Flow LPM	Sample VolL	Sample ID	Counts Rates in CPM Bkg. Gross. Net		PM Net	<sup>131</sup> Iodine μCi/cc	Particulate µCi/cc
									-				
	······												
								· · · · ·					
						<u> </u>							
											· · · ···		
			· · · · · · · · · · · · · · · · · · ·	L		TVA	PROTEC	TIVE AC	TION LEV	VELS			
3 A.	Radio	biodine (	I-131) air	activity >	8.0 E-7	μCi/cc (	(40 DAC)		Potassium Io	odide (KI) rec	ommended	, notify Field C	Control.
4 A.	Partic	culate air	activity >	• 1.2 E-7	μCi/cc (4	0 DAC)	)		Respiratory	protection rec	commended	l, notify Field (	Control.
4 B.	Particulate air activity > 6.0 E-7 $\mu$ Ci/cc (200 DAC)							Respiratory protection mandatory, notify Field Control.					
4 C.	Partic	culate air	activity >	• 6.0 E-6	µCi/cc (2	000 DA	LC)		Evacuation mandatory, notify Field Control.				

One radioiodine DAC = $2.0 \text{ E} - 8 \mu \text{Ci/cc}$	One particulate DAC = $3.0 \text{ E} - 9 \mu \text{Ci/cc}$
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DATE:	TEAM MEMBERS:	<u> </u>

(1)		(2)		(3)	(16)	
TEAM		LOCATION		TIME	SAMPLE	REMARKS or
#	SAMPLE	DISTANCE	DIRECTION	COLLECTED	IDENTIFICATON	Where SAMPLE was TRANSFERRED to
	POINT	MILES	DEGREES			
		1				

### SAMPLE IDENTIFICATION ABBREVIATIONS

Р	Particulate (paper filter)	S	Soil	Μ	Milk
I	Radioiodine (charcoal filter)	V	Vegetation	WW	Well Water
TLD	Environmental TLD	SN	Snow	DWSS	Drinking Water Surface Source / River
RW	Rainwater	ICE	Ice		

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Emerge Radiolo Procedu	Emergency Environmental Radiological Monitoring Procedures TVA ENVIRO				CC I MOI	EPIP-9 NITORII	NG RI	ECORI	)	1	Appendix Page 1	x I of 2	Page 31 of 42 Revision 21	
ORIGI CECC RMCC SITE	$ \begin{array}{c c} \underline{N} \\ \hline  & \\ \hline \hline \hline  & \\ \hline \hline \hline  & \\ \hline \hline$	ORDED		DA	TE:			TIME:		SQN WBN	🗇 BFN	RAC REVIEW:	JSE ONLY	
APPEN 1	DIX F DATA	2		(	3)	4	(5)		3)	$\bigcirc$	8	9	10	
TEAM #	SAMPLE POINT	DISTANCE MILES	DIRECTI DEGREI	ON TI ES TA	ME KEN	PLUME E C ?	GM ISM	1 W / Cl	METER LOSED	mrem/hr W / OPEN	GM ISM	CONTAC W / CLOSED	r mrem/hr W / OPEN	
APPEN 1	DIX G DATA	2	.1	[(	3)	4		(16)		<u> </u>	(12)	(	(13)	
TEAM #	SAMPLE POINT	DISTANCE MILES	DIRECTI DEGREI	DN TI ES TA	ME KEN	PLUME E C ?	IDI	SAMPL ENTIFICA	E ATION	<sup>131</sup> IO	DINE AIR 1Ci/cc	PARTIC	PARTICULATE AIR µCi/cc	
	-													
APPEN	DIX D DATA (17)		(3)	(18)		(19)			1	ALL DOSE	UNITS IN	MILLIREM		
	INDIVIDUAL		TIME	DRD "AS REA	D"	TOTAL DR "AS READ	D CO D" FA	ORREC. ACTOR	TEDE "AS CO	ESTIMATE ORRECTED	TEDE LIN	MIT KI T Yes/No	TAKEN ? Time	

Similar to form TVA 7918A

See next page for TVA PROTECTIVE ACTION LEVELS

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## TVA PROTECTIVE ACTION LEVELS

	IF	THEN
1 A.	Any exposure rate > 25 mrem/hr and radioiodine (I-131) air activity is not known.	Potassium Iodide (KI) recommended, notify Field Control.
1 B.	Any measured dose rate $> 200$ mrem/hr.	Evacuation recommended, notify Field Control.
1 C.	Any measured dose rate > 10 rem/hr.	Evacuation mandatory, notify Field Control.
2 A.	TEDE dose of 5 rem.	Evacuate unless higher dose is authorized, notify Field Control.
2 B.	TEDE dose of 25 rad.	Evacuation mandatory, notify Field Control.
3 A.	Radiolodine (1-131) air activity > 8.0 E-/ $\mu$ Cl/cc (40 DAC)	Control.
4 A.	Particulate air activity > 1.2 E-7 $\mu$ Ci/cc (40 DAC)	Respiratory protection recommended, notify Field Control.
4 B.	Particulate air activity > 6.0 E-7 $\mu$ Ci/cc (200 DAC)	Respiratory protection mandatory, notify Field Control
4 C.	Particulate air activity > 6.0 E-6 µCi/cc (2000 DAC)	Evacuation mandatory, notify Field Control.

One radioiodine DAC = $2.0 \text{ E} \cdot 8 \mu \text{Ci/cc}$	One particulate $DAC = 3.0 E - 9 \mu Ci/cc$

### Appendix J Page 1 of 4 Monitoring Team Vehicle Inventory

Note: During quarterly checks, perform Operability Checks (OC) and check battery status with meter. Change out tape as needed.

#### 1.0 The following items may need to be taken to the vehicle upon activation.

Qty	Item	"Sat"	Remarks
1	Bicron Analyst with NaI detector and cable		OC
1	Bicron Analyst for GM use with cable		OC
2	Ion Survey Meters (RO2A or RSO-50)		OC
2	Geiger Mueller Survey Meters (14C or E-530)		OC
2	Bicron Surveyor 50s		OC
2	Air samplers for Grab Samples (H810)		OC
2	Air samplers for Continuous Run (H810)		OC
1	Package of Potassium Iodide		Expiration:
1	Ba <sup>133</sup> check source		ID #
1	Tc <sup>99</sup> check source		ID #

2.0 The following are minimum quantities stored in the vehicle.

**Environs Monitoring Vehicle Booklet** 

1	CECC EPIP-9 (controlled copy)	Rev.
4	Appendix B, CECC EPIP-9 (photocopies)	Rev.
4	Appendix C, CECC EPIP-9 (photocopies)	Rev.
4	Appendix D, CECC EPIP-9 (photocopies)	Rev.
4	Appendix E, CECC EPIP-9 (photocopies)	Rev.
10	Appendix F, CECC EPIP-9 (photocopies)	Rev.
10	Appendix G, CECC EPIP-9 (photocopies)	Rev.
10	Appendix H, CECC EPIP-9 (photocopies)	Rev.
4	Appendix J, CECC EPIP-9 (photocopies)	Rev.
1	CECC EPIP-23 (controlled copy)	Rev.
5	Appendix G, CECC EPIP-23 (photocopies)	Rev.
1	Site-specific EPIP-10 (controlled copy)	Rev.
1	Georgia Public Service Commission Letter of Intent	Date:

#### **Miscellaneous Locations**

1	GM detector in lead shield	OC
1	Fire extinguisher -vehicle cab area (check pressure)	
1	Primary Motorola radio	OC
1	Hand held spotlight	OC
1	First-aid kit	

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### Appendix J Page 2 of 4 Monitoring Team Vehicle Inventory

Work Desk			
Qty	Item	"Sat"	Remarks
1	Battery level tester		OC
2	Flashlights (check battery status)		OC
4	Spare batteries each size (D-cell and 9 volt)		
1	Scientific calculator		OC
2	200 mrem Direct Reading Dosimeters		re-zero
2	5 rem Direct Reading Dosimeters		re-zero
2	TLDs (list expiration date)		Date:
1	Scissors		
1	Allen wrench to fit lead shield top cap bolts		
1	Tweezers		
2	Pens or pencils		
6	Planchets		
20	Radioactive Material tags		
40	Sample labels		

#### Cabinet 1

4	Full-face respirators w/cartridges	
8	Spare respirator cartridges (hepa)	
1	Spray cleaner for decontamination	
15	Massilin cloths	
15	Paper towels	

#### Cabinet 2

	<u> </u>	
Air Sampling Portal vents and electrical outlets		OC

### Cabinet 3

14	Marinelli beakers (500 ml)	
10	Liquid Sample containers)	
1	Sample Transport bag	

#### Cabinet 4

-					
I	1	DC to AC Power Inverter		OC	
			•		

#### Cabinet 5

(Space reserved for air samplers)		

### Cabinet 6

20	Large plastic radwaste bags	
20	Medium plastic radwaste bags	

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## Appendix J Page 3 of 4 Monitoring Team Vehicle Inventory

### Cabinet 7

Qty	Item	"Sat"	Remarks
5	Screw on air sampler heads		
1	Box 2 inch prefilters (minimum of 30 each)		
30	Silver Zeolite air sampler cartridges (list expiration date)		Date:
30	Petri dishes		
30	Small zip-lock bags		
30	Large zip-lock bags		
1	Roll of plastic wrap (Saran type)		
1	Box gloves - thin sample handing type (minimum of 20 pair)		
1	Box smears (minimum of approx. 200)		
1	Roll 2 inch paper masking tape		
1	Roll 2 inch duct tape		
1	Roll Radiation Warning Symbol tape		
1	Roll electrical tape		
1	Dosimeter charger		OC

### Cabinet 8

Electrical switch panel	OC	
Onboard generator (record run time displayed)	OC	hrs.

#### Cabinet 9

1	Logbook	
1	DOT Emergency Response Guidebook	Year:
1	TN, AL and GA State road maps	
1	Sample Point Description book for BFN, SQN, WBN	
6	Area posting signs (Radiation and Contamination Area insert)	
6	Radioactive placards	
1	Trash can	
2	Rain Suits	
2	Insulated coveralls	
	Sample Point Maps, latest revision per EPIP-9 section 4.2	3
2	BFN 2-, 10-, 50- mile sampling point maps	
2	SQN 2-, 10-, 50- mile sampling point maps	
2	WBN 2-, 10-, 50- mile sampling point maps	

### Cabinet 10

1	Set Jumper cables
1	Funnel
1	Siphon pump/hose
1	Set of wrenches
1	Set of screwdrivers
1	Pair of Pliers
1	Hammer
1	Box of 3 reflective triangles

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### Appendix J Page 4 of 4 Monitoring Team Vehicle Inventory

Cabinet 11				
Qty	Item "Sat" Remarks			
24	Pair booties			
24	Pair cotton inserts			
12	Pair Anti-C gloves			
12	Pair rubber shoe covers			
12	Pair coveralls (disposable)			
12	Dressout caps			
12	Hoods			
1	Roll dress-out tape			

### **Outside Compartments**

1 ea.	110 volt extension cord (25-, 50-, 100 ft)	
1	External vehicle power supply cord (shore power)	
8	Wooden stakes	
1	Soil sampling tool	
1	Shovel	
400	Feet of radiological warning barrier rope/ribbon	
1	Box plastic sheeting	
1	Putty knife (4 inch)	
1	Grass cutters	
6	Traffic cones	
1	Can of spray paint for marking of areas (i.e., roadway)	
1	Pair of work gloves	
1	Fire Extinguisher (check pressure)	
1	Ground Fault Interrupter	OC
1	Honda gas generator (EX1000)	OC

Vehicle Location:			_ Vehicle tag #:			
Purpose of Inspection:		Monthly		Quarterly		Post training/drill/response
Additional Comments:						

Additional Comments:

.

Forward for signatures below. EP Manager to receive by end of calendar quarter.

Inspected by:	Date:	
Supervisory Review:	Date:	
EP Manager:	Date:	

### Appendix K Page 1 of 4 WARL Screening Vehicle Inventory

Note: During quarterly checks, perform Operability Checks (OC) and check battery status with meter. Change out tape as needed.

#### 1.0 Items stored in WARL.

Procedures

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Oty	Item	"Sat"	Remarks
1	Geiger Mueller Survey Meter with pancake probe		OC
1	Geiger Mueller Survey Meter		OC
1	Package of Potassium Iodide		Expiration:
2	Calibration sources for Germanium detectors		
1	Radioanalytical Laboratory Procedures Manual		
1	Sample Transport case		
1	ND-76 multi-channel analyzer		

#### 2.0 The following are minimum quantities stored in the vehicle.

#### **Miscellaneous Locations**

2	Intrinsic Germanium detectors	
1	Liquid nitrogen dewar	
2	NIMBI standard power bins	
2	High-voltage power supply modules	
2	Spectroscopy amplifiers	
2	ND 570 ADCs	
2	Fire Extinguishers	
1	Uninterruptible Power Supply	
1	ND 6700 Gamma analysis system with terminal and printer	

#### Cabinet A

_			
Γ	1	Set of wrenches	
Γ	1	Set of screwdrivers	
Γ	1	Pair of pliers	
Γ	1	Set of allen wrenches	
	1	Pair insulated gloves (nitrogen handling)	
Γ	2	Pair leather or canvas work gloves	
Γ	2	Pair cloth glove inserts	

#### **Cabinet B**

1	Tape dispenser with 1 refill
1	Roll of "Radioactive Material" tape
1	Roll 3/4 inch fiber tape
1	Roll 2 inch Scotch tape
1	Roll 2 inch masking tape

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Radiological Monitoring		
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### Appendix K Page 2 of 4 WARL Screening Vehicle Inventory

### Cabinet B (continued)

Qty	Item	"Sat"	Remarks
1	Roll 3/4 inch masking tape		
3	Rolls electrical tape		
1	Calculator		OC
1	Box 2 inch filter papers		
10	Tags (with string)		
25	"Radioactive Material" tags		
1	Bottle alcohol		
1	Pack cotton swabs		
10	Pair rubber or plastic gloves		
1	Direct Reading Dosimeter charger (AC or battery powered)		OC

### Cabinet C

10	Shallow planchets
5	Deep planchets
2	Boxes smears
50	Small Ziplock bags
20	Large Ziplock bags
1	Roll clear plastic wrapping (Saran type)
5	Yellow "Radioactive Material" plastic bags

### Cabinet D

10	Marinelli beakers (500 ml)	
20	Petri dishes	
1	500 ml graduated cylinder	

### Cabinet E

4	D-cell batteries		
2	9-volt batteries		
4	AA batteries		
1	Siphon hose		
1	Box of replacement fuses for equipment		
1	Spotlight	OC	
1	Flashlight with batteries	OC	
1	Balance (3000 gram capacity) with check wts.		

#### Cabinet F

2	Rainsuits	
_		

### Cabinet G

6	Pairs disposable covera	lls	

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### Appendix K Page 3 of 4 WARL Screening Vehicle Inventory

### Cabinet H

Oty	Item	"Sat"	Remarks
2	Orange safety vest		
4	Pairs rubber shoe covers		

#### Cabinet I

1	Radiological Health Handbook			
1	DOT Emergency Response Guidebook	Year		
2	Germanium Detector Manuals			
1	Sample Point Description Booklet (each site)			

### **Environs Monitoring Vehicle Booklet**

1	CECC EPIP-9 (controlled copy)	Rev.
2	EPIP-9, Screening Vehicle Inventory (photocopies)	Rev.
2	EPIP-9, Dose Logs (photocopies)	Rev.
2	EPIP-9, Emergency Authorizations (photocopies)	Rev.
20	Isotopic Analysis forms	
1	Georgia Public Service Commission Letter of Intent	Date:

#### Cabinet J

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#### Cabinet K

1	Can insect repellent
1	Can de-icing fluid
1	Can wasp insecticide
1	First-Aid kit
1	Can decontamination spray or foam

#### Drawer 1

	Sample Point Maps, latest revision per EPIP-9 section 4.3
2	BFN 2-, 10-, 50- mile sampling point maps
2	SQN 2-, 10-, 50- mile sampling point maps
2	WBN 2-, 10-, 50- mile sampling point maps
1	State Highway map for Georgia, Tennessee and Alabama
2	Germanium detector logbooks
1	Germanium detector control chart book
1	Germanium detector efficiency table book

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### Appendix K Page 4 of 4 WARL Screening Vehicle Inventory

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Vehicle Location:	· · · .	Vehicle tag #	#:
Purpose of Inspection:	Quarterly	Dest Training	Dost Drill / Response
Additional Comments:		•••••••	
<ul><li>Place completed cop</li><li>Forward for signatu</li></ul>	py of quarterly in res below.	nventory in front of ve	hicle booklet.

Inspected by:	Date:
WARL Manager:	Date

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#### Appendix L

### Field Coordinator Kit Inventory

### **Emergency Preparedness Implementing Procedures**

Qty	Item	"Sat" Remarks
1	CECC EPIP-7 (controlled copy)	Rev.
1	CECC EPIP-9 (controlled copy)	Rev.
1	CECC EPIP-12 (controlled copy)	Rev.
1	CECC EPIP-23 (controlled copy)	Rev.
1	REND (controlled copy)	Rev.

### Miscellaneous Items<sup>1</sup>

Qty	Iten	"Sat"	Remarks
1	Radiological Health Handbook		
12	TLDs (list expiration date)		Date
1	Scientific calculator		
50	Copies of Environs Monitoring forms (TV 7918A)		Date
10	Copies of Clerical Logsheets		
1	Logbook		
1	Package of Potassium Iodide (list expiration)		Date
1	Flashlight & batteries		
1	DOT Emergency Response Guidebook		Year
1	Tennessee Highway road map		
1	Alabama Highway road map		
1	Georgia Highway road map		
1	Sample Point Description booklet for BFN		
1	Sample Point Description booklet for SQN		
1	Sample Point Description booklet for WBN		

	Sample Point Maps, latest revision per EP	PIP-9 section 4.3
2	BFN 2-, 10-, 50- mile sampling point maps	
2	SQN 2-, 10-, 50- mile sampling point maps	
2	WBN 2-, 10-, 50- mile sampling point maps	

<sup>1</sup> Miscellaneous office supplies may also be contained in the kit for convenience purposes.

Kit Location:		BFN	[
Purpose of Inspection:	Quarterly	Post Training	Post Drill / Response
Additional Comments:			
Inspected by:			Date:
Manager Review:			Date.

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### Appendix M

#### **Courier Kit Inventory**

Qty	Item <sup>1</sup>	"Sat"	Remarks
1	CECC EPIP-9 (controlled copy)		Rev.
1	200 mrem Direct Reading Dosimeter		
1	TLD (list expiration date)		Date
1	Dosimeter charger with battery		
1	Flashlight & batteries		
1	First-aid kit		
1	Scientific calculator		
1	Pair Disposable coveralls		
4	Pair booties		
10	Pair sample handling gloves and cotton liners		
1	Pair work gloves		
1	Package of Potassium Iodide (list expiration)		Date
12	Radioactive Material tags		
12	Sample labels		
12	Yellow "radioactive material" bags		
1	Roll of duct tape		
1	Roll of electrical tape		
1	Rain coat		
1	Logbook		
3	Pens		
1	Sample transport container		
1	DOT Emergency Response Guidebook		Year
1	Highway road map including TN, AL and GA.	ļ	
1	Sample Point Description booklet for BFN		
1	Sample Point Description booklet for SQN		
1	Sample Point Description booklet for WBN		

	Sample Point Maps, latest revision per EPIP-9 section 4.3
1	BFN 2-, 10-, 50- mile sampling point maps
1	SQN 2-, 10-, 50- mile sampling point maps
1	WBN 2-, 10-, 50- mile sampling point maps

<sup>1</sup> Miscellaneous office supplies may also be contained in the kit for convenience purposes.

Purpose of Inspection: Quarterly Post Training

Post Drill / Response

Additional Comments:

Inspected by:	Date:	
Manager Review:	Date:	

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**CECC EPIP Coversheet CECC EPIP-23** Title **REV. 16** Tennessee Valley Authority **RADIOACTIVE MATERIAL CENTRAL EMERGENCY TRANSPORTATION INCIDENTS** CONTROL CENTER **EMERGENCY PLAN Effective Date:** IMPLEMENTING 6/15/2000 PROCEDURES CHAT CECC EPIP CECC-EPIP-23 061500 16 REVIEWED BY: <u>Acmas & Clellin</u> <u>5/24/2000</u> Signature Date WRITTEN BY: C- China 1 Vond Sianature PLAN EFFECTIVENESS DETERMINATION: 5/26/2000 Date Signature CONCURRENCES Date **Concurrence Signature** Manager, EP, Program Planning and Implementation lar Manager, Emergency reparedness Manager, Radiological and Chemistry Services 00 dran 

APPROVAL

MBa insing Dechnical Services 6/15/00 APPROVED BY: Organization Date Signature

#### CECC-EPIP-23 RADIOACTIVE MATERIAL TRANSPORTATION INCIDENTS

#### **REVISION LOG**

Rev. No.	Date	Revised Pages
0	12/12/88	<u>All</u>
1	4/26/89	3
2	10/26/89	Арр. А
3	6/20/90	All (formerly EPIP-21) (Former EPIP-23 transferred to EPIP-13)
4	9/14/90	Pg. 4 (only)
5	5/21/91	Pages 1 - 19
6	02/22/93	Pgs. 1-17 revised. Pages 20-23 added. All pages issued.
7	11/30/93	Pages 3, 15, and 20; all pages issued.
8	06/23/94	Pgs. 5-7; All pages issued.
9	6/27/95	Pgs. 3-6, 11-15, 17, and 18
10	1/3/96	Procedure issued in new format which includes, in some cases,
		boxes and shading to highlight statements. Changed accident to incident in title and through the EPIP. Added definition of transportation incident, revised references section, updated EDO checklist. Added notification of the Senior Nuclear Executive and affected site VP to the CECC Dir. checklist, added WBN phone numbers, changed Appendices to Attachments. All pages issued.
11	5/30/96	Pgs. 2, 4, 6, 8, Att. E; Att. F; annual review, minor changes for clarification, revised to provide flexibility for selection of optional equipment needed by field teams; all pages issued.
12	4/7/97	Annual review, editorial and organizational updates. All pages issued.
13	5/8/97	Page 18 revised to support new air sampling equipment. All pages issued.
14	3/11/98	Annual review. Pages 2, 4, and 5 revised to add instructions to get equipment from plants and consideration for use of still camera and satellite phone, update Corporate Communications titles. Page 15 revised to remove full-face respirators w/HEPA-charcoal filters from equipment list. All pages issued.
15	7/7/98	Update Transportation Equipment list, pages 14 & 15. All pages
16	6/15/00	Annual review. Editorial changes, update area codes, new packaging for KI, add flash lights to inventory list.

#### **RADIOACTIVE MATERIAL TRANSPORTATION INCIDENTS**

#### 1.0 PURPOSE

This procedure provides guidance to TVA personnel under the control of the CECC for response to transportation incidents involving radioactive materials. A transportation incident includes vehicle incidents, leaking containers, or other abnormal situations that could attract attention or require assistance.

#### 2.0 SCOPE

This procedure is applicable to transportation incidents involving radioactive materials to which TVA is requested to respond, including those situations which do not include shipments involving TVA materials or facilities.

#### 3.0 **REFERENCES**

- 3.1 "Carrier and Shipper Responsibilities and Emergency Response Procedures for Highway Transportation Accidents Involving Truckload Quantities of Radioactive Materials," ANSI N14.27, 1986.
- \* 3.2 "Emergency Response Guidebook," Department of Transportation.

#### 4.0 **RESPONSIBILITIES**

#### 4.1 CECC Director

Upon notification of a transportation incident, evaluate the need to staff the CECC and provide overall coordination of the response to the incident. Perform actions per Attachment B and review section 6.0.

NOTE: If an on scene responder requests immediate information concerning the shipment or how to respond to the incident, the information must be provided within 15 minutes from the time the call is received. Additional information is contained in **Attachment B** of this procedure.

#### 4.2 CECC Emergency Preparedness Staff

- 4.2.1 The Manager, EP Program Planning and Implementation Section, or designee, ensures equipment and materials are available and maintained in accordance with section 5.0.
- 4.2.2 Upon notification, the EP Emergency Duty Officer (EDO) shall perform actions per Attachment A.

\*Revision

#### 4.3 Radiological Assessment Manager (RAM)

Upon notification, perform actions per Attachment C and review section 6.0.

#### 4.4 Environs Assessor (EA)

Upon activation, perform actions per Attachment D and review section 6.0.

#### 4.5 Field Coordinator (FC)

Upon activation, perform actions per Attachment D and review section 6.0.

#### NOTE: The EA may assume the functions of the FC

#### 4.6 Monitoring Team

4.6.1 <u>If using a site sampling team vehicle</u> for response to the incident scene, the inventory per CECC EPIP-9 should be sufficient. Obtain additional dosimetry for any persons in addition to the standard 2-person sampling team crew.

If not using a sampling team vehicle for response to the incident scene, gather equipment per Attachment E. Consider Health Physics equipment needs applicable to the emergency and obtain those items from plant inventory (i.e., hand held and extended reach survey instruments, air samplers, and respirators).

- 4.6.2 Consider the need for video camera, still camera, and portable communications (radio, cellular phone or satellite phone).
- 4.6.3 Prior to arrival at the incident scene, review expected actions per Attachment F and review section 6.0.
- 4.6.4 Upon arrival at the incident scene, perform actions per Attachment F and CECC instructions. Utilize applicable CECC EPIP-9 instructions and data forms for radiological monitoring. Complete Attachment G as an incident area survey map.

#### 4.7 Dose Assessment

Upon activation for a transportation incident response, perform actions per instructions of the Radiological Assessment Manager.

#### 4.8 Corporate Communications

- 4.8.1 Upon notification of a transportation incident, the Nuclear Information Duty Officer shall inform the Site Communications Consultant or the Media Relations Duty Officer of the incident.
- 4.8.2 The Site Communications Consultant or Media Relations Duty Officer has the responsibility to establish contact with the CECC Director for coordination and to open a conduit to obtain information concerning the incident.

#### 5.0 OPERATIONAL READINESS OF ENVIRONMENTAL MONITORING EQUIPMENT

#### 5.1 Emergency Environmental Monitoring Vehicles

Emergency Preparedness has vehicles and equipment available for response to a transportation incident. Inspections, inventories, and locations are provided in CECC EPIP-9 and -23.

#### 5.2 Transportation Incident Kit

- 5.2.1 A response kit for situations requiring the use of transportation other than the vehicles referenced in section 5.1, is located at the Central Emergency Control Center (CECC).
- 5.2.2 The contents of the kit are listed in Attachment E. As a minimum, inspections shall be performed by the assigned organization each calendar quarter or after use to ensure operational readiness is maintained.

#### 6.0 GENERAL OPERATIONS FOR ENVIRONMENTAL MONITORING TEAMS

#### 6.1 Radiological and Physical Hazard Precautions

- 6.1.1 Perform applicable radiological monitoring practices upon the approach to an incident area, during on-scene operations, and prior to leaving controlled areas.
- 6.1.2 Be attentive to potential changing conditions (i.e., onset of release due to fire, addition of runoff due to fire-prevention measures, movement of vehicle or container, deterioration of containers due to contact with spilled chemicals, or meteorological conditions).
- 6.1.3 Remain cognizant of individual doses and take action to limit doses ALARA, below individual routine exposure limits. Any decisions to embark on emergency operations which would result in exposures in excess of limits in 10 CFR 20 should be done in consultation with the CECC Radiological Assessment Manager.
- 6.1.4 Assume airborne radioactivity exists until there is direct evidence to the contrary and use appropriate respiratory protection equipment, based on known or suspected airborne hazards.

### CAUTION!: Because some shipments may contain materials that present toxic hazards that exceed radiological hazards, <u>the team shall not enter a plume from a fire</u>. Shipments of radioiodines with significant activity are common for medical purposes. Consider the use of KI if airborne radioiodine is suspected (and actual levels are unknown) and exposure rates greater of 25 mrem/hr are encountered.

6.1.5 Shipments may also involve other hazardous materials (toxics, corrosives, flammables or reactives). Be attentive to contact with materials (either directly or from residues on radiological samples) and to the limitations of your personal protective clothing and equipment.

NOTE: Material information may be listed on shipping papers. Refer to the DOT Emergency Response Manual for specific protective action recommendations if placard or chemical ID information is known. Otherwise, team members shall observe radiological protective actions described in CECC EPIP-9 and as noted on the bottom of exposure rate and air activity data forms.

#### 6.2 Communications for Environmental Monitoring Teams

- 6.2.1 If available, the Emergency Environs Monitoring radio is the primary means of communication if the incident location is within the system coverage.
- 6.2.2 If the radio system is not available, utilize best available alternate means (cellular or satellite telephone).

NOTE: Additional radio system information and CECC telephone numbers are provided in CECC EPIP-9.

#### 6.3 Incident Scene Activities

The monitoring team shall follow instructions from the CECC and in accordance with Attachment F. Deviations from exact compliance may be necessary in consideration of specific circumstances of the incident; however, personnel safety shall not be compromised.

### 7.0 LIST OF ATTACHMENTS

Attachment A:	EP Emergency Duty Officer (EDO) Checklist
Attachment B:	CECC Director Checklist
Attachment C:	CECC RAM Checklist
Attachment D:	CECC Environs Assessor and Field Coordinator Checklist
Attachment E:	Transportation Incident Equipment
Attachment F:	Incident Scene Activities (Environmental Monitoring Team)
Attachment G:	Incident Area Survey Form
Attachment H:	On Scene Incident Report
Attachment I:	Fitness for Duty Program Administration - TVAN Call-In Sheet

### Attachment A Page 1 of 1

### **EP Emergency Duty Officer Checklist**

### 1. Perform the following notifications:

Time/Init.

<u>.                                    </u>	1	Confirm the CECC Director has been notified by the Operations Duty Specialist. Specialist (Name: Number:)
	_/	Notify the Manager, EP Program Planning and Implementation Section (Barry Marks or designee).
	<u> </u>	Notify the EP Program Manager responsible for EP emergency radiological monitoring equipment and vehicles (David Pond or designee).
*		Notify the Manager, EP State and Local Programs Section (Francis Daniel).
	/	Notify the Nuclear Information Duty Officer. (Name:)

### 2. Establish initial operation of the CECC if it is to be utilized.

# 3. Assist any response team members in obtaining EP equipment and vehicles.

NOTE:	The transportation incident kit assigned to the CECC may be located in the CECC.	
	If a vehicle is not currently available in Chattanooga, refer to EPIP-9, for other vehicle	
	locations. A Portable radio, camera, film, and camcorders may also be available in the EP	
	Staff storage area.	
	Radiological monitoring equipment, supplies, and Potassium lodide tablets may also be	
	available in the CECC area.	

# 4. The issuance of a cellular or satellite phone to the CECC management team should be considered.

\*Revision

Attachment B Page 1 of 6

### **CECC DIRECTOR CHECKLIST**

- 1. Obtain a completed:
  - "Transportation Incident Checklist" (CECC EPIP-22, Attachment A)
  - ODS Radioactive Material Shipment Notification form (from the Operations Duty Specialist if it was faxed by the shipper.)

NOTE: If an on scene responder requests immediate information concerning the shipment or how to respond to the incident, then refer to pages 3, 4, 5, and 6 of this attachment. Requested information shall be provided within 15 minutes from the time that it is initially requested.

- Consult with the on duty CECC Radiological Assessment Manager and Nuclear Information Duty Officer to determine the necessary levels of staffing for the CECC. Inform the ODS to notify selected staff and utilize Attachment I, "Fitness for Duty Program Administration" for documentation.
- 3. If determined necessary, begin preparations to dispatch a CECC Management team from the CECC consisting of management representatives from Emergency Preparedness, Radiological Control, and Communications to the incident site.
- 4. Consult with the on duty CECC Radiological Assessment Manager and determine if an environmental monitoring team should be dispatched.

NOTE: The Radiological Assessment Manager is responsible for providing input, selecting response team members, and arranging transportation.

- 5. Consult with the on duty Radiological Assessment Manager and Nuclear Information Duty Officer to determine if the CECC Management Team should be released to proceed to the incident location.
- 6. Notify the Senior Nuclear Executive of the incident.
- 7. Notify the affected site Vice President of the incident

Attachment B Page 2 of 6

### CECC DIRECTOR CHECKLIST

8. Notify the following: (These notifications may be delegated.)

NOTE: These notifications shall be made for all vehicle accident situations and are optional for other minor incidents as deemed appropriate.

- <u>Time/Init.</u> (Refer to the TVA REND)
- /\_\_\_\_\_\_NRC Office of Inspection and Enforcement-Atlanta (consider notification of Rockville, Maryland if the incident is in a state outside of Region II)
- \_\_\_\_\_/\_\_\_\_ U.S. Department of Transportation
- \_\_\_\_/ State contact for incident location
- /\_\_\_\_ Department of Energy (for information only)
- \_\_\_\_/ American Nuclear Insurers (ANI)
- <u>Time/Init.</u> (Refer to the current CECC notification board.)
- \_\_\_\_\_/\_\_\_\_ Nuclear Information Duty Officer

\_\_\_\_\_ TVA Nuclear Insurance Carrier Contact (if requested by ANI)

- 9. Evaluate the appropriate level of TVA resources to commit and provide overall coordination of those resources.
- 10. Ensure that Federal, State, and local agencies are kept informed, as appropriate, of TVA activities and coordinate TVA's efforts with those agencies.
- 11. Review with the Radiological Assessment Manager any on site and offsite consequences and assess the adequacy and need for measures for the protection of the public.
- 12. Make recommendations to State and local agencies on protective measures for the public.
- 13. Maintain accurate records of decisions made and actions started and completed.
- 14. Ensure Public Information needs are addressed.
- 15. Ensure appropriate recovery actions are taken.

Attachment B Page 3 of 6

### CECC DIRECTOR CHECKLIST

#### **INFORMATION FOR ON SCENE RESPONDERS**

NOTE: Information requested by authorities for immediate action shall be provided within 15 minutes.

#### **Information About Shipments**

a. If you are requested to provide information concerning the shipment, refer to the ODS RADIOACTIVE MATERIAL SHIPMENT FORM which was telecopied to the ODS when the shipment left the TVA facility. Provide any information on the form which may be requested by the on scene responder and tell this individual of any precautions that may be indicated on the form.

#### Information About Emergency Response

b. If you are requested to provide information concerning Emergency Response, then provide any pertinent information contained in pages 4, 5 and 6 of this Attachment.

#### Where To Get Assistance

c. If you are requested to provide information which you have no knowledge of or is not available to you, contact the Shift Manager or the RADCON Lab at the affected plant for assistance at the telephone numbers listed below. If the shipment does not originate at a nuclear plant, the Shift Manager or Site RADCON Staff at a TVA nuclear plant may be able to provide information concerning the radioactive material being shipped.

SQN SM	423-843-6214
SQN RADCON Lab	423-843-6300
*BFN SM	256-729-2213
*BFN RADCON Lab	256-729-2300
WBN SM	423-365-8213
	423-365-8391
WBN RADCON Lab	423-365-8300
	423-365-3351

If you are unable to contact the Shift Manager or RADCON Lab, then contact the Radiological Assessment Manager listed on the CECC Notification Board or one of the Radioactive Materials Specialists listed in the REND. \*Revision Attachment B Page 4 of 6

### **CECC DIRECTOR CHECKLIST**

#### **INFORMATION FOR ON SCENE RESPONDERS**

#### EMERGENCY RESPONSE INFORMATION

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#### **Immediate Hazards to Health**

- a. External radiation from unshielded radioactive material.
- b. Internal radiation from inhalation, ingestion, or skin absorption.
- c. Radioactive material; degree of hazard will vary greatly, depending on type and quantity of radioactive material.
- d. Runoff from fire control or dilution water may cause the spread of radioactive contamination.

#### **Risks of Fire and Explosion**

- a. The primary potential for fire or explosion is from leaking fuel from the motor vehicle.
- b. Some of the packaged materials may burn, but none of them readily ignites.
- c. Radioactive oil (if present in a package) has a potential for fire.

#### **Immediate Precautions To Be Taken**

- a. Keep unnecessary people as far from the transport vehicle as practicable.
- b. Notify State or local police that an incident has occurred involving radioactive material.
- c. Isolate hazard area and deny entry.
- d. Detain uninjured persons and equipment exposed to radioactive material until arrival or instruction of Radiation Authority.
- e. Delay clean-up until arrival or instruction of the Radiological Authority with jurisdiction.
- f. Do not move damaged containers.

Attachment B Page 5 of 6

### **CECC DIRECTOR CHECKLIST**

#### **INFORMATION FOR ON SCENE RESPONDERS**

### EMERGENCY RESPONSE INFORMATION

#### **Immediate Methods of Handling Fires**

- a. Keep everyone at least 150 feet upwind and minimize breathing any of the smoke or fumes from the fire. Greater distances may be necessary if advised by Radiation Authority.
- b. Notify the fire department of the fire and inform them that the transport vehicle is carrying radioactive material.
- c. Self-contained breathing apparatus (SCBA) and structural firefighter's protective clothing will provide limited protection.
- d. If advised by the Radiation Authority, move undamaged containers out of fire zone.
- e. Small Fires: Dry chemical, CO2, Halon, water spray, or standard foam.
- f. Large Fires: Water spray, fog (flooding amounts).
- g. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
- h. Fight fire from maximum distance. Stay away from ends of tanks.
- i. If water pollution occurs, notify the appropriate authorities.

#### Immediate Methods for Handling Spills or Leaks in the Absence of Fire

- a. Establish the restricted area and keep people outside of the area and on the upwind side (if possible).
- b. Enter the spill area only to aid injured persons; limit entry to the shortest possible time.
- c. Unless authorized by the Radiation Authority, do not touch damaged containers or spilled material.
- d. Damage to outer container may not affect primary inner container.
- e. Small Liquid Spills: Take up with sand, earth or other noncombustible absorbent material.
- f. Large Spills: Dike far ahead of liquid spill for later disposal.

### Attachment B Page 6 of 6

### **CECC DIRECTOR CHECKLIST**

### **INFORMATION FOR ON SCENE RESPONDERS**

### EMERGENCY RESPONSE INFORMATION

#### **Preliminary First Aid Measures**

- a. Call emergency medical care if there are any suspected injuries.
- b. Advise medical care personnel that injured persons may be contaminated with radioactive material.
- c. Remove injured persons from any possible contaminated areas (unless the injuries are of a severe nature that would make movement inadvisable).
- d. If not affecting injury, remove and isolate contaminated clothing and shoes; wrap victim in blanket before transporting.
- e. If not injured, detain persons and equipment exposed to radioactive material until arrival or instruction of Radiation Authority.

#### Attachment C Page 1 of 1

#### **CECC RAM CHECKLIST**

- 1. Review incident information. (Refer to CECC EPIP-22, Attachment A completed by the Operations Duty Specialist and any radioactive material shipping papers that may have been telecopied to the ODS.)
- 2. Advise the CECC Director as to the level of staffing required to support the TVA response.
- 3. Select and activate appropriate CECC Radiological staff and Response Team members. Refer to REND for notification listings. Ensure Attachment I is utilized for any call outs

NOTE: A Response Team should be dispatched if radioactive materials require re-packaging. In these events, a radioactive material specialist should accompany the Response Team for technical assistance. Personnel selected for entry into radiological incident areas for field monitoring duties shall be Emergency Environs Sampling Team qualified in accordance with CECC EPIP-9.

The following is provided to assist in notifications: (use as appropriate)

Environs Assessor:	Contacted:
Field Coordinator:	Contacted:
Radioactive Material Specialist:	Contacted:
Response Team Member:	Contacted:
Response Team Member:	Contacted:
Dose Assessor:	Contacted:
Meteorologist:	Contacted:
Mode of Transportation:	Means of Contact:

- 4. Coordinate TVA's radiological assessment activities and keep the CECC Director advised of the status of the TVA response efforts and of radiological assessments.
- 5. Ensure personnel are briefed on known or anticipated conditions and that they are informed of the agency requesting TVA assistance.
- 6. Ensure that all immediate notifications are made as required in the TVAN Radioactive Material Shipment Manual.
- 7. Ensure recovery actions are completed, equipment is returned to an in-service status, and that personnel dosimetry/dose assessment needs are performed.

#### Attachment D Page 1 of 1

#### CECC ENVIRONS ASSESSOR AND FIELD COORDINATOR CHECKLIST

#### Environs Assessor

- 1. If the shipment originated from a TVA nuclear site, obtain a copy of the shipping papers that would have been telecopied to the ODS.
- 2. Provide support for field team preparation and dispatch. Ensure equipment and staff needs are completed.
- 3. In coordination with the RAM, determine response-specific exposure limits and Remaining Allowable Doses for field team personnel and inform them of same.

NOTE: Cross reference exposure control, protective action levels and dose logs with CECC EPIP-9.

- 4. Confirm Response Team personnel eligibility for expected actions in field response (refer to personnel requirements in CECC EPIP-9).
- 5. Determine means of communication to be used by the Response Team (operate CECC base radio console as applicable).
- 6. Review field monitoring instructions per CECC EPIP-9 which apply to the response.
- 7. Maintain a log of Response Team actions and incoming information reported by the Response Team.

#### **Field Coordinator**

- 1. Ensure that departure preparations are complete and in accordance with any special instructions from the RAM.
- 2. Accompany Response Team members to the incident location and supervise TVA personnel at the incident scene per section 6.0 and Attachment F.
- 3. Track TVA personnel exposures on scene.
- 4. Unless instructed otherwise by the RAM, serve as the primary TVA interface with on scene authorities and ensure the CECC is kept informed of operations.
- 5. Ensure necessary surveys are performed and documented.
- 6. Ensure recovery actions are completed and any TVA equipment used is returned to service following operations.

### Attachment E Page 1 of 2

# TRANSPORTATION INCIDENT EQUIPMENT

Transportation Incident Kit Bookl		Transportation Incident Kit Booklet	
	Qty	Item	Remarks
	1	CECC EPIP-23 (Controlled copy)	Rev:
	5	CECC EPIP-23 Attachment G (working copy)	Rev:
	1	CECC EPIP-9 (Controlled copy)	Rev:
	5	CECC EPIP-9 Attachment D (working copy)	Rev:
	5	CECC EPIP-9 Attachment E (working copy)	Rev:
	5	CECC EPIP-9 Attachment F (working copy)	Rev:
	5	CECC EPIP-9 Attachment G (working copy	Rev:

General Kit Contents			
	Qty	Item	Remarks
	3	TLDs (list expiration date)	Date:
	3	Direct reading dosimeters (0-200 mrem range)	
	1	Dosimeter charger with battery	
*	1	Package KI (list expiration)	Date:
	1	Calculator	
	3	Mechanical pencils and pens (each)	
	1	US Atlas	
	1	Logbook	
	1	DOT Emergency Response Guidebook	Year:

\* Revision
## CECC EPIP-23

Page 2 of 2 Attachment E

#### TRANSPORTATION INCIDENT EQUIPMENT

		General Kit Contents	
	Qty	ltem	Remarks
	1	Roll 2-inch Radiation Symbol warning tape	
	12	Radioactive Material ID tags	
	6	Radiation/Contamination Area warning signs	
	400 ft.	Yellow and magenta ribbon or rope	
	10	Large yellow plastic bags	
	10	Small yellow plastic bags	
	10	Zip-lock sample bags (approx. 6" and 10")	
	20	Adhesive sample bag labels	
	5	Plastic liquid sample containers (min. 500 ml)	
	5	Charcoal air sampler cartridges	
	5	Silver Zeolite air sampler cartridges	
	1	Air sampler head (for Radeco H 809V)	
	10	Air sampler prefilters	
	10	Plastic petri dishes	
	1	Pair tweezers	
	100	Smears with folders	
	6	Disposable coveralls (anti-contamination)	
	6	Canvas hoods (anti-contamination)	
	6	Skull caps	
	6 pr.	Pair of rubber overshoes	
	6 pr.	Yellow plastic booties	
	12 pr.	Rubber gloves (anti-contamination)	
	12 pr.	Glove liners	
	l pr.	Work gloves (leather/canvas)	
	12 pr.	Latex gloves (surgeon's type)	
	1	Roll of 2-inch duct tape	
	1	Can spray paint (for area marking)	
:	2	Flash lights w/batteries	
tored lo	ocation of	f kit and equipment:	

Additional comments:

Inspected by: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisory Review: \_\_\_\_\_ Date: \_\_\_\_\_

Maintain documentation for 2 years. NOTE:

\*Revision

#### Attachment F Page 1 of 5

#### **INCIDENT SCENE ACTIVITIES**

(Environmental Monitoring Team)

#### 1.0 Actions Immediately Upon Arrival

- 1.1 Each TVA person entering radiation exposure fields shall wear a TLD badge, and a 200 mrem direct reading dosimeter. Record data on CECC EPIP-9 Dose Log.
- 1.2 Place a radiation survey meter in the ON position on a lower range scale to monitor any increase in background as you approach the area.
- 1.3 Locate the senior authority at the incident site, identify yourself, and indicate that you are responding at the request of \_\_\_\_\_\_ (i.e., the State Division of Radiological Health, Emergency Management Agency, etc.).
- 1.4 Obtain a briefing from the senior authority on the physical hazards present (chemical, fire, electrical, etc.).
- 1.5 As necessary, report Attachment H information to the CECC as soon as possible, preferable before proceeding to the following steps.
- 1.6 If requested by the on scene authority, proceed with the remainder of guidance in this attachment.

NOTE: TVA's obligation is to provide radiological support to the on scene local authorities. The local and state authorities have jurisdiction in the emergency response effort even if a TVA vehicle or shipment is involved in the incident.

#### 2.0 Establishment of Area Control

2.1 Request the on scene authority to have people move back from the incident. Nonessential persons and onlookers should be moved a safe distance away, but be aware that some may already be contaminated if the source has been breached.

Recommend an attempt to identify these persons (i.e., obtain name, address, phone numbers, etc.) and as necessary, isolate these persons for the purpose of performing a contamination survey prior to release. (This may also apply to first responders.)

NOTE: Persons suspected of contamination concerns should immediately be advised not to eat, drink, or smoke until surveyed.

#### Attachment F Page 2 of 5

#### **INCIDENT SCENE ACTIVITIES**

(Environmental Monitoring Team)

2.2 Advise fire and rescue personnel to stay upwind or crosswind from the location of the source, if possible. Firefighting and rescue efforts should not be interrupted.

CAUTION!: The life-threatening hazards associated with a vehicle fire and the potential for explosions far outweigh the radiological hazards in almost any case. DO NOT ENTER A PLUME FROM A FIRE!

2.3 If fire fighting efforts are in progress, determine the path of the water runoff and, if possible, advise on the containment and control of runoff.

NOTE: This applies during rainfall as well. Always assume that the source container has failed until confirmed intact.

- 2.4 If rescue of injured persons is still in progress, offer to survey the patient to assist in any notifications to receiving hospitals.
- 2.5 Establish a control area using radiation warning rope and signs using guidance from the DOT Emergency Response Guidebook and from best available information. (The initial posted area may be reduced in size as later survey results indicate.)
- 2.6 If radioactive material has spilled, consider plans to cover/contain the material to reduce its spread. The use of plastic sheeting, plastic bags, or fire department salvage or rescue covers may be used to prevent dispersion by wind, etc.

#### 3.0 Survey of the Incident Scene

- 3.1 Don appropriate personal protective clothing or equipment in preparation for entry into the incident area. Remember to assume that the area may already have been contaminated and that airborne hazards exist, UNTIL INFORMATION IS KNOWN TO THE CONTRARY.
- 3.2 If a fire prevents surveying the area for the foreseeable future, analysis of a sample of the runoff water may indicate whether the source container has been breached. After best available analysis, double bag the sample to prevent leakage until a more detailed analysis can be obtained.

CAUTION!: Be attentive to the possibility of chemical contaminates in the runoff. Collect samples only if safe to do so and if the container is able to withstand contact with the liquid.

Attachment F Page 3 of 5

#### INCIDENT SCENE ACTIVITIES (Environmental Monitoring Team)

- 3.3 If fire and/or smoke is present, and an electrical source is available, attempt to obtain an air sample using the following procedure:
  - 3.3.1 Prepare the air sampler cartridge using a charcoal cartridge (use silver zeolite if Iodine 131 is suspected) and particulate prefilter.
  - 3.3.2 Secure (tape) the extension cord connection with the air sampler plug. While still in a safe area, briefly start the air sampler to adjust the flow rate to 60 liters per minute (2 cfm), then terminate the sample by depressing the STOP key and prepare the sampler to start with the next depression of the START key.
  - 3.3.3 Request that a firefighter in appropriate protective clothing and respiratory protection place the sampler in the plume and depress the START key.

#### CAUTION!: Be attentive to electrical hazards from water runoff.

- 3.3.4 Run the sample for 5 minutes unless instructed otherwise. Stop the air sampler by disconnection of the extension cord with the power source.
- 3.3.5 If a sampling van is present, analyze the cartridge and prefilter according to EPIP-9.

If the sampling van is not available, survey the sample using the Bicron Surveyor 50 for a gross indication of the presence or absence of radioactivity.

CAUTION!: Consider the possibility of the presence of Radon (recount after 30 minutes). Also handle the samples using tweezers and gloves.

- 3.4 If the on scene authority has declared the area to be free of other physical hazards (fire, chemical, electrical, etc.), one person should prepare to make an entry to the control area to perform radiological monitoring. This should be done only with the permission of the on-scene authority. The other person should remain in the clean area to coordinate communications with the on scene incident command and CECC.
- 3.5 Establish some means of communications with the person performing the entry into the controlled area. Approach the vehicle (or source) from an upwind direction. The Gieger-Mueller Survey Meter (GMSM) should be adequate to obtain exposure rates.

Attachment F Page 4 of 5

#### **INCIDENT SCENE ACTIVITIES**

(Environmental Monitoring Team)

NOTE: Allowable DOT radiation limits range on a package ranges from less than 1 mrem/hr up to
1000 mrem/hr, depending on package type and method of transport. Consult the shipping
papers (if available) for the expected dose rates on the package and vehicle exterior.
Additional advice may be available from a TVA Radioactive Material specialist.

3.6 After exposure rates have been determined and recorded, perform a contamination survey. All radioactive material outside its container should be considered transferable contamination, and smear surveys will also be made. Any object that shows detectable contamination above background shall be considered contaminated no matter how small the amount of activity.

NOTE: Consider the type of isotope emission when selecting the type of detection instrument. DOT contamination limits allow up to 2200 dpm/100 cm<sup>2</sup> beta-gamma and 220 dpm/100 cm<sup>2</sup> alpha (transferable) on a package. Consult the shipping papers (if available) for vehicle and package contamination measurements.

- 3.7 The person outside the area should attempt to draw and complete a survey map (Attachment G).
- 3.8 Keep the CECC informed of the survey results.
- \* 3.9 If the source container has failed, or if its condition is not known, frisk personnel at the site.
  \*Recommend that anyone found to be contaminated above BG levels be evaluated by local RAD Health Authorities. Because TVA has no legal authority at the site, TVA personnel cannot make decisions on releasing contaminated persons.
  - 3.10 Advise the on scene authority on the packaging or control of equipment until surveys can be performed (after personnel needs have been addressed).
  - 3.11 Consult with emergency responders to determine the priority of equipment which need to be surveyed for return to service.

#### 4.0 Additional Services for Transportation Incidents

4.1 Decontamination of persons and equipment (even TVA equipment) is the responsibility of State authorities. If requested to assist, contact the CECC for authorization. It may be possible to provide coveralls for contaminated persons, but keep enough to be able to perform your field monitoring duties.

\*Revision

## CECC EPIP-23

Attachment F Page 5 of 5

### INCIDENT SCENE ACTIVITIES

(Environmental Monitoring Team)

- 4.2 As applicable, inform the on scene authority at the scene that persons injured and sent to hospitals in the area may be contaminated. If requested by State officials, assistance may be provided at a medical facility if authorization is provided by the CECC.
- 4.3 Support the coordination of arrangements for the disposal of radwaste.
- 4.4 The team may support clean-up efforts at the scene as requested by the State until no longer needed or until instructed to depart by the CECC. Consult with the CECC before departing the area.

Attachment G Page 1 of 2

#### **INCIDENT SURVEY FORM**

All exposure rate readings in mrem/hr. (contact/30 cm/1 meter). All contamination levels in dpm/100 cm<sup>2</sup>.

SMEAR SURVEYS				
1.	8.	15.		
2.	9.	16.		
3.	10.	17.		
4.	11.	18.		
5.	12.	19		
6.	13.	20.		
7.	14.	21.		

CONTINUED ON BACK

Attachment G Page 2 of 2

#### **INCIDENT SURVEY FORM**

Date	Time	Location	
Survey Meter Type:		Serial #	
Survey Meter Type:		Serial #	
Survey Meter Type:		Serial #	
Survey Meter Type:		Serial #	

Additional Comments:

Description of incident area, personal protective clothing or protective measures taken during survey, etc.

Signature:	Date:
Supervisor:	Date:

Radioactive Material			
<b>Transportation Incidents</b>			

# CECC EPIP-23

Attachment H Page 1 of 1

### **ONSCENE INCIDENT REPORT**

1.	Location of incident				
2.	Radioisotopes involved				
3.	Activity of isotopes				
4.	Markings:White I,Yellow II,Yellow III,LSA				
5.	Description of packages:				
6.	Physical and chemical forms:				
7.	Package identification (specify type A or B, etc.)				
8.	Shipper, carrier, and destination:				
9.	Injuries and receiving hospitals.				
10.	Release(s) of shipment contents to environment:				
11.	Other hazardous materials present (ID numbers, etc):				
12.	Incident description and present status, terrain (including downwind and downslope farms and residential areas).				
13.	Weather conditions.				
14.	Authorities at the scene.				
15.	Phone number (if not using van radio).				
16.	Results of surveys. (Report using CECC EPIP-9 data forms)				
NOTE: Much of this information can be found on the shipping papers. If lost or destroyed in the incident, the driver may be able to help. If all else fails, markings on the vehicle may enable CECC personnel to contact the carrier for information					

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#### ATTACHMENT I Page 1 of 1

#### FITNESS FOR DUTY **PROGRAM ADMINISTRATION**

#### **TVA NUCLEAR CALL-IN SHEET**

Person Calling: \_\_\_\_\_ Date: \_\_\_\_\_

Name	Time Called	Time Needed to Report	Alcohol 5 Hrs.Prior to Report (Y/N)	Fit for Duty (Y/N)	Duty Official Comments
		- - -			
				<u></u>	
					-