

BASIC RADIATION TRAINING

Personnel & Equipment Monitor

Alabama Department of Public Health • Office of Radiation Control • 334.290.6244 • alabamapublichealth.gov/radiation

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Radiation Emergencies: What to Expect at a Community Reception Center (CRC)

Accessible link: <https://www.cdc.gov/nceh/radiation/emergencies/crcs.htm>



Each CRC may be a little different. These are the services that you may receive at a CRC, but you may not need to receive all of these services.

Triage (Sorting)

Upon arrival at a CRC, officials will tell you where to go next.



2023

rev. 1



First Aid/ Medical Care
You will receive first aid services for minor injuries or burns.



Radiation Dose Assessment
You will receive further screening to measure the amount of radiation you received. You may be referred to a hospital or clinic for follow up.



Registration

Once screening shows no contamination, you will go to registration. Officials will collect information about you, your contamination levels (if any), and any symptoms.

IF NEEDED

Contamination Screening

Officials scan you to see if you are contaminated.



IF NEEDED

Decontamination (Wash Station)

If you are contaminated, you will be asked to wash or shower and be given clean clothes. You will be screened again.



Leaving CRC

When you are discharged from the CRC, you may return home or be directed to a public shelter. You will receive instructions for medical follow up, if needed.

For more information visit: www.cdc.gov/nceh/radiation/emergencies/crcs



Centers for Disease Control and Prevention
National Center for Environmental Health

Special attention is given at CRCs to maintain these priorities:



- Keeping families together
- Keeping caretakers and service animals with the people they serve
- Assisting those with access or functional needs

CS 335467-A



SCAN ME

For a digital download of this book!

<https://www.alabamapublichealth.gov/radiation/assets/basic-rad-perm.pdf>

Name: _____ Organization: _____ Telephone #: _____

CONTACTLESS SIGN-IN

USE YOUR PHONE'S CAMERA APP TO AIM AT THIS QR CODE, THEN
SELECT THE LINK THAT APPEARS AUTOMATICALLY.



Or type in the URL below:

<https://bit.ly/orcsignin>

!!!PLEASE CLOSE YOUR BROWSER'S TAB ONCE DONE!!!

Basic Radiation Training

For Personnel & Equipment Monitors

Alabama Department of Public Health
Office of Radiation Control

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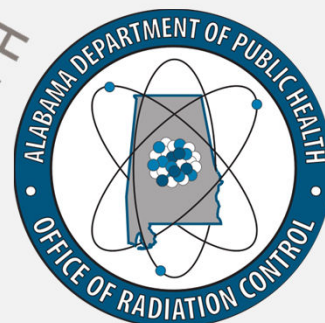
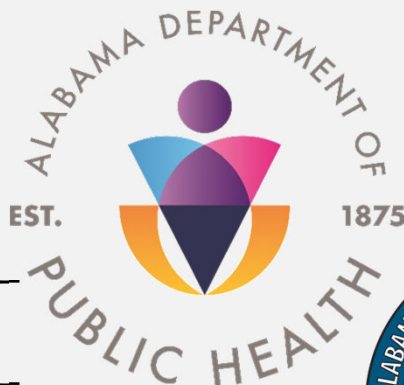
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24-hour ADPH ORC Duty Officer

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Date	Change
3/1/2023	MORGAN: CRC is now Priceville High School & Hartselle Intermediate
	MORGAN: EWD is now Decatur Fire/Police Training Center

Change Log

Videos

- ▶ All videos are now housed on our YouTube channel:



<https://bit.ly/ADPHORCyoutube>

TABLE OF CONTENTS

• Sign In / Introduction / Change Log / ADPH ORC YouTube Channel.....	1-2
• Radiological Survey Meters.....	5
• Ludlum 14C Features.....	6
• Radiation Contamination.....	7
• Ludlum 14C – What is the Meter Reading?.....	8-10
• Survey Meters – Monitoring for Contamination.....	11
• Reminders for PEMs.....	12
• Monitoring for Contamination Flow Chart.....	13
• Portal Monitors – Set Up.....	14
• Portal Monitor Setup Videos.....	15
• Portal Monitors – Screening for Contamination.....	16
• Vehicle Decontamination: Spot Checks.....	17
• Pet Monitoring, Decontamination, & Registration.....	17
• Safety Briefing.....	18
• Personnel Monitoring Equipment.....	19
• Ludlum 14C – Set up & Operation.....	20

The Federal Emergency Management Agency (FEMA), an agency of the Department of Homeland Security (DHS), is required to interview a certain number of emergency workers, personnel and equipment monitors to ensure that they are aware of their radiation dose limits, equipment, and the basics of radiation. The training manual has the following features:

- **Table of contents** for looking up the answers for exercises, evaluations, real-time emergency situations
- **Forms** located in the back of the book that can be used for reception centers, personal radiation exposure records, equipment setup, etc.
- **Maps** for the two nuclear power plants' 10-mile Emergency Planning Zones (EPZ) and the 50-mile Ingestion Pathway Zones (IPZ).
- **Glossary** in the back of the book with radiation terms not routinely used.

Formatting for this guide is as follows:

1. Information *on* the PowerPoint slide
2. Information *below* the PowerPoint slide in the Notes section
3. Information *discussed* in the Basic Radiation Training course by the instructor

TABLE OF CONTENTS

- Ludlum 14-C Just-In-Time Website/QR Code (PDF & Video)..... 21
- Ludlum 26: Battery Installation, Operations, Monitoring Technique, & Shutdown..... 22-25
- Ludlum 26-1: Battery Installation, Operations, Monitoring Technique, & Shutdown..... 26-29
- Glossary..... 30-31
- Just in Time Videos..... 32
- Personnel Monitoring/Decontamination Record..... 33
- Vehicle Monitoring/Decontamination Record..... 34-35
- Just-In-Time Training: Ludlum 14C Survey Meter..... 36-37

Everything you need to know about protecting yourself from radiation can be found in this manual. Therefore, please place this manual in a readily accessible location. For example, law enforcement might place it in a patrol car, or firemen might place a copy in each fire engine.

EWS = Emergency Worker Station (where you get your equipment)

EWD = Emergency Worker Decontamination

CRC = Community Reception Center

MCF = Mass Care Facility (where people are sheltered after going through the CRC, a.k.a. "shelter")

Potassium Iodide (KI) will be administered for Emergency Workers at each EWS and to the general public in affected areas at each CRC.

Henry:

EWS = Henry County EMA Parking Lot

EWD = Houston County Farm Center

CRC = Houston County Farm Center

MCF = Westgate Recreation Center

Houston:

EWS = Houston County Farm Center

EWD = Houston County Farm Center

CRC = Houston County Farm Center

MCF = Westgate Recreation Center

Lauderdale:

EWS = Lauderdale County High School

EWD = Lauderdale County High School

CRC = Brooks High School

MCF = Florence High School

Lawrence:

EWS = Lawrence County EMA

EWD = Moulton Recreation Center

CRC = Moulton Recreation Center

MCF = Moulton Church of Christ, Moulton Elementary School, Moulton Middle School

Limestone:

EWS = Athens/Limestone County Rescue Squad

EWD = all CRCs

CRC = Ardmore High School, Elkmont High School

MCF = all CRCs

Madison:

EWS = N/A

EWD = N/A

CRC = Dr. Richard Showers Recreation Center ; Dublin Park Recreation Center, Madison ; UAH, Spragins Hall

MCF = all CRCs that are activated.

Morgan:

EWS = Morgan County EMA (however, some equipment is prepositioned)

EWD = Decatur FD/PD Training Center

CRC = Priceville High School, Hartselle Intermediate School

MCF = Priceville High School, Hartselle Sparkman Civic Center

RADIOLOGICAL SURVEY METER(S)

Ludlum 14C



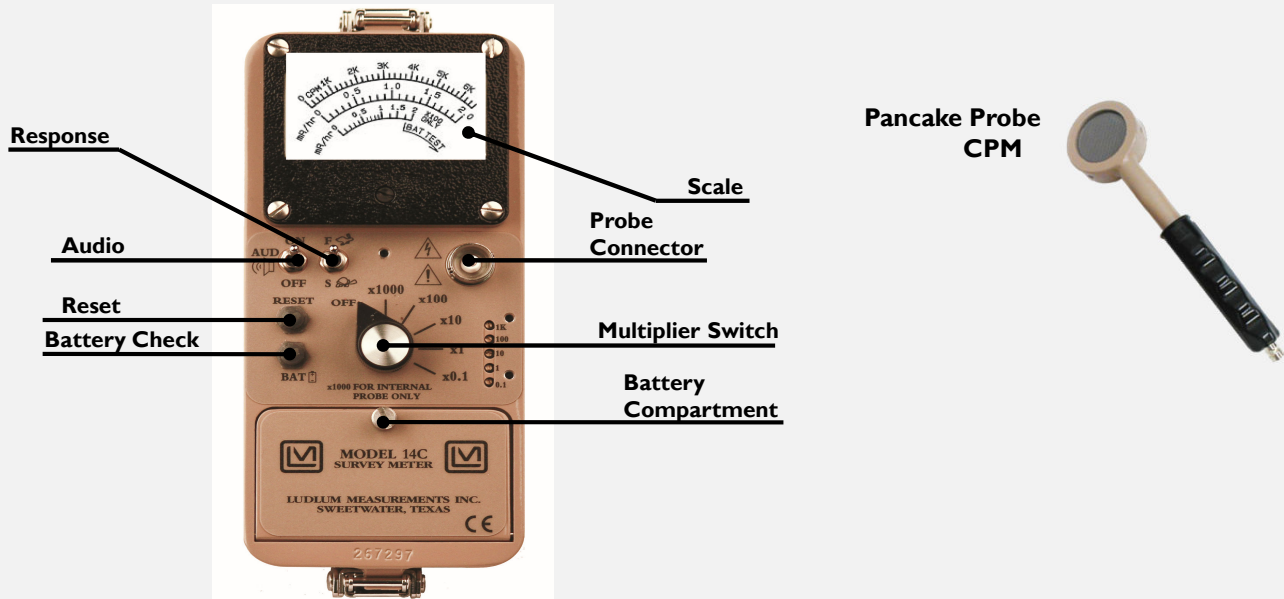
The Ludlum 14C survey meters are highly sensitive broad range radiation detectors.

The Ludlum 14Cs may have two probes. The “pancake” probe (Ludlum 44-9) is used to survey for radiation contamination. The HP “hotdog” probe (Ludlum 44-38) is used to measure radiation exposure rate. The broad range of the Ludlum 14C is 0 – 6,600,000 cpm or 0 – 2,000 mR/hr.

The Ludlum 14C can detect radiation contamination and discriminate between beta and gamma radiation. When using the pancake probe, face the window toward the equipment/personnel being surveyed, thus the Ludlum 14C will detect both beta and gamma radiation. By flipping the probe over and facing the window away from the equipment/personnel being surveyed, the Ludlum 14C will detect gamma radiation only.

When using the hotdog probe with the shield open, the Ludlum 14C will detect beta and gamma radiation. By closing the shield, the Ludlum 14C will detect gamma radiation only.

LUDLUM 14C



Parts of the Ludlum 14C:

1. Response Switch – Turn to the “F” position for a fast response.
2. Audio Switch – Turn to the “ON” position to hear the clicks.
3. Reset Button – Press this button when you change the multiplier switch for the meter to read a different scale.
4. Battery Check Button – Press this button to ensure batteries are good. The hairline will peg to the “BAT Test” or “BAT OK” area on the scale.
5. Scale – Use the top scale when monitoring for contamination (CPM). Use the middle scale when measuring dose rate when the meter is set on the X0.1, X1, and X10. And use the bottom scale when measuring dose rate when the meter is set on the X100 and X1,000.
6. Probe connector – Connect cable to probe connector and the probe.
7. Multiplier Switch – A 6-position switch marked OFF, x1000, x100, x10, x1, x0.1. Always set switch at X0.1 to check background and to monitor for contamination.
8. Battery compartment – Two “D” size batteries.

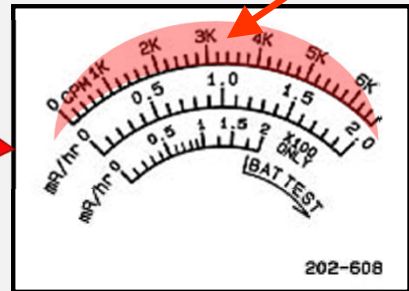
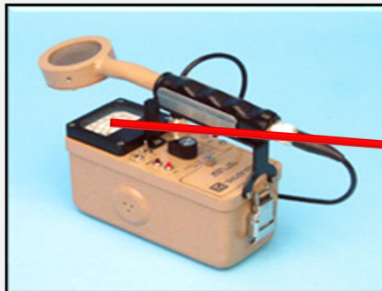
RADIATION CONTAMINATION

- Survey Meter = Speedometer
- It can go up and down.
- Look for a **sustained** reading.



0-6,600 CPM
Pancake Probe

**Only Use Top Scale
(Counts per minute
a. k. a. CPM)**



A contamination reading from a survey meter can be compared to the rate of speed registered on an automobile speedometer. A speedometer tells us our rate of speed in miles per hour.

We can use a survey meter to determine if radioactive contamination is present. Radioactive contamination is measured in COUNTS PER MINUTE (CPM) and can be measured with a survey meter such as a Ludlum 14C (top scale).

The face plate of the Ludlum 14C has three (3) scales and a hairline. The top scale is used when monitoring for contamination. The middle scale is used for measuring exposure rate. The bottom scale is also used for measuring exposure rate but only when the multiplier switch is in the X100 or X1,000 position.

Contamination is always measured in CPM (Counts Per Minute). Use the pancake probe (44-9) for contamination survey. Always start on the lowest scale of X0.1.

NOTE: With the dial set on the X0.1 (lowest), the CPM scale is reading 0-600 CPM.

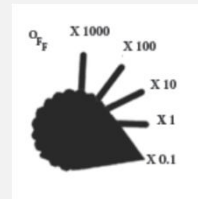
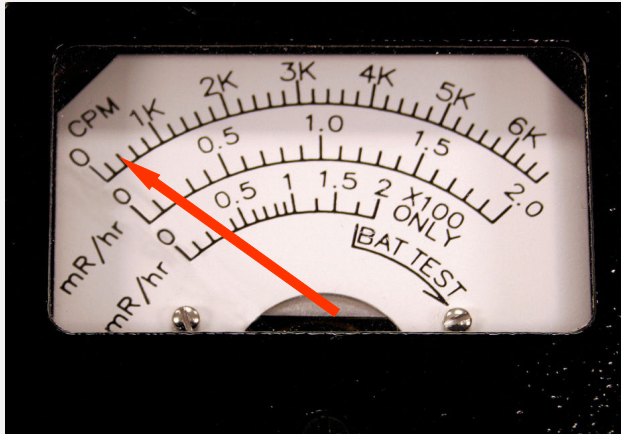
Dial set on X1, the CPM scale reads 0-6,000 CPM.

Dial set on X10, the CPM scale reads 0-60,000 CPM.

Dial set on X100, the CPM scale reads 0-600,000 CPM.

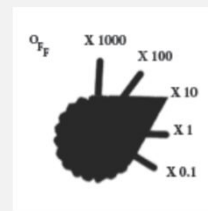
Dial set on X1000, the CPM scale reads 0-6,000,000 CPM.

LUDLUM 14C WHAT IS THE METER READING?



Good for background

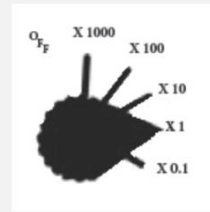
LUDLUM 14C WHAT IS THE METER READING?



Skill check

LUDLUM 14C

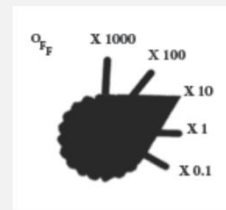
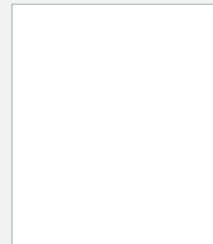
WHAT IS THE METER READING?



Good contamination

LUDLUM 14C

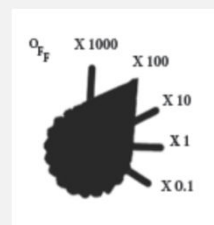
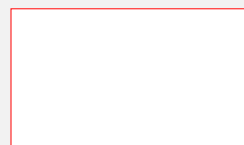
WHAT IS THE METER READING?



Skill check

LUDLUM 14C

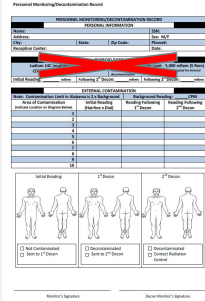
WHAT IS THE METER READING?



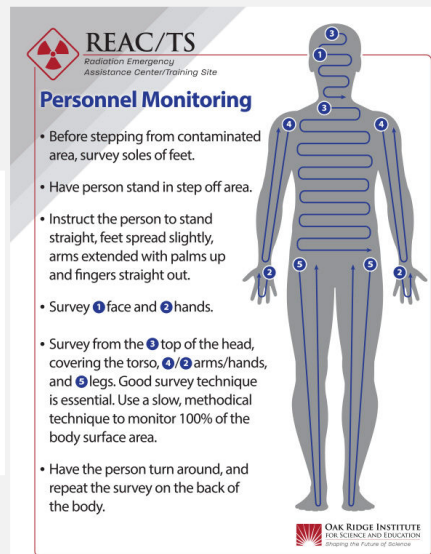
Skill check

SURVEY METERS: MONITORING FOR CONTAMINATION

- Ludlum 14C
 - Use 44-9 “Pancake” Probe
 - Open windows
- Hold probe 1 inch away
- Start at the head
 - Move probe 1-2 inches per second
- Always monitor “top-side”
 - Avoid having the meter face upward to prevent contamination from falling onto probe
- Remember soles of feet
- Contamination
 - 2 X background



A personnel monitoring record form with sections for 'PERSONNEL MONITORING/CONTAMINATION RECORD', 'PERSONNEL INFORMATION', 'MONITORING DATA', and 'CONTAMINATION DATA'. It includes fields for name, ID, date, and time, and a grid for recording monitoring results. A red arrow points to the 'MONITORING DATA' section.



REAC/TS
Radiation Emergency
Assistance Center/Training Site

Personnel Monitoring

- Before stepping from contaminated area, survey soles of feet.
- Have person stand in step off area.
- Instruct the person to stand straight, feet spread slightly, arms extended with palms up and fingers straight out.
- Survey ① face and ② hands.
- Survey from the ③ top of the head, covering the torso, ④ arms/hands, and ⑤ legs. Good survey technique is essential. Use a slow, methodical technique to monitor 100% of the body surface area.
- Have the person turn around, and repeat the survey on the back of the body.

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FOR SCIENCE AND EDUCATION**
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Monitoring for contamination using a Ludlum 14C:

1. Using the pancake probe, face the window toward the equipment/personnel.
2. Start at the top of the head.
3. Hold pancake probe 1 inch away.
4. Move at a rate of 1-2 inches per second.
5. Pay close attention to the hair and soles of the shoes.
6. When contamination is detected, record on a personnel/monitoring record where the contamination was found.

NOTE: If the hairline reaches the max amount, step away from the person, switch the dial to the next position, push the reset button then continue monitoring. Repeat steps if needed. Once contamination is no longer present in that area and has been recorded on the personnel/monitoring record, remember to turn the scale back to the lowest scale and continue the survey.

Typical background radiation using a Ludlum 14C is 50 cpm. Twice background radiation warrants decontamination.

REMINDERS FOR PERSONNEL & EQUIPMENT MONITORS

FOR EWs and PEMs

- All emergency workers are advised to make a reasonable effort to limit their total dose, while at the same time accomplishing their emergency responsibilities.
- Read dosimeters and record at least every 30 minutes.**
- Do not take Potassium Iodide (KI) until instructed by your county EMA.
- Control your exposure to radiation by your time, distance and shielding.**

FOR PEMs ONLY

- Contamination level in Alabama is (2x) twice background (open window) and will warrant decontamination.
- Monitoring technique: 1 inch away and move 1-2 inches per second.**
- On lowest scale (x0.1), the Ludlum 14C meter scale will read 0-600 cpm.
- Do a response check and calibration verification, cover probe, and obtain background.**
- Use CPM scale when monitoring for contamination.

Alabama Radiation Control

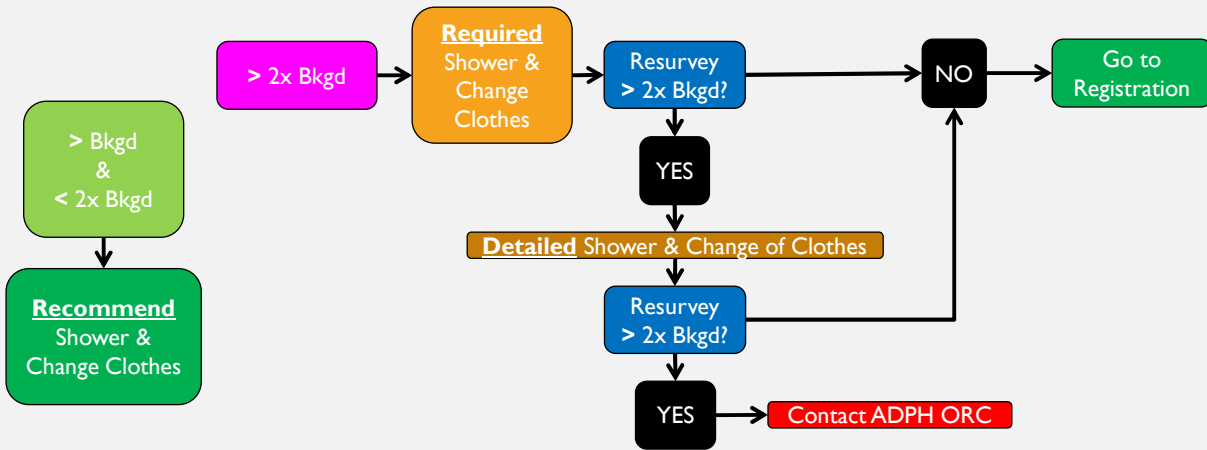
The back of the green wallet size card shows key reminders for both EWs and PEMs *as well* as key reminders for just PEMs.

Remember – You can carry/have the green wallet-sized card at all times. This green card lists all your limits and keynotes since you may not have access to the manual.

MONITORING FOR CONTAMINATION FLOW CHART

SURVEY ALL EVACUEES FROM CONTAMINATED AREAS

Contamination = 2x Bkgd on Ludlum 14-C/26/26-1 (Bkgd = ~60 CPM)



1. If survey readings are greater than (>) background radiation but less than (<) twice background radiation , a shower and change of clothes is recommended.
2. If survey readings are greater than twice background radiation (2x), a shower and change of clothes is required. Contamination can be localized therefore required actions maybe limited to washing hands, removal of shoes, etc. for decontamination.
3. After a shower and change of clothes, a survey reading of twice (2x) background will require a detailed decontamination.
4. Conduct another survey of individual and if greater than (>) background radiation then contact the Office of Radiation Control

PORTAL MONITORS

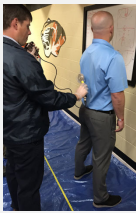
- Used to screen large populations for radioactive contamination



PERSONNEL MONITORING/DECONTAMINATION RECORD			
PERSONAL MONITORING INFORMATION			
NAME	_____		
ADDRESS	_____		
PHONE	_____		
EMPLOYER	_____		
LOCATION OF MONITORING: _____ DATE: _____ TIME: _____ OPERATOR: _____			
EXTERNAL CONTAMINATION			
Area of Contamination	Dose Rate (mR/hr)	Decontamination Method	Residual Reading (mR/hr)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

1. Back (Top Left)	5. Back (Top Right)
2. Back (Bottom Left)	6. Back (Bottom Right)
3. Front (Top Left)	7. Front (Top Right)
4. Front (Bottom Left)	8. Front (Bottom Right)

Monitor's Signature: _____ Station Number's Signature: _____



Portal monitors look similar to metal detectors in court houses and are used in the Radiological Emergency Preparedness (REP) program counties to quickly screen large populations for contamination. Portal monitors can be used to screen personnel and vehicles for radiation contamination.

- Establish a boundary line at least ten (10) feet for people and vehicles. Verify contamination does not exist on shoes using a hand-held instrument; if contamination is found, then bag and label.
 - Document survey for people on appropriate form. *Note: a chair may be necessary to assist with the individual's balance when requested to pick up feet in order to monitor the soles of a shoe.*
- Unpack and assemble portal monitor per instructions. Power for portal is 110v AC, 6 "D" cell batteries, DC adaptor, or generator.
- Set the base on the ground and insert corresponding labeled sections to base. Detector screens must be facing in and latched.
- Connect horizontal crossover piece to the vertical legs.
- Connect the power cord to the bottom of the Controller Module; then align Controller Module to bottom left section with black connectors. Ensure the pin on back of the bottom left section goes into hole of Controller Module.
- Check for the annual accuracy label which should be affixed to the monitor.
- Connect power cord to 110v AC outlet and turn on the Controller Module using the rocker switch.
- Background count (YELLOW light) will be initialized by portal followed by a GREEN light. The Controller Module has a digital display which is illuminated in RED or GREEN when the beam is broken by a person or vehicle.
- Verify all detectors are operating by taking a 1 μ Ci beta/gamma-emitting check source (e.g. Cs-137) and pass through portal at five points as a minimum check. Each location is operationally checked when the RED light and digital display correspond to the location of the check source.
 - Hold check source at waist level (center line) then step into the portal; an audible alarm with a flashing RED light should be heard when detection occurs.
 - Conduct a separate check for all four quadrants, which include both upper (right and left) and lower (right and left) panels.
- Wrap entire portal monitor with plastic wrap for contamination control, and place appropriate step-off pad(s) for monitoring.
- A RED light and a digital display showing location will trigger the need for a hand-held instrument survey process to be performed.

LUDLUM 52-1-1 INSTRUCTIONS & VIDEO
(PERSONNEL CONFIGURATION):



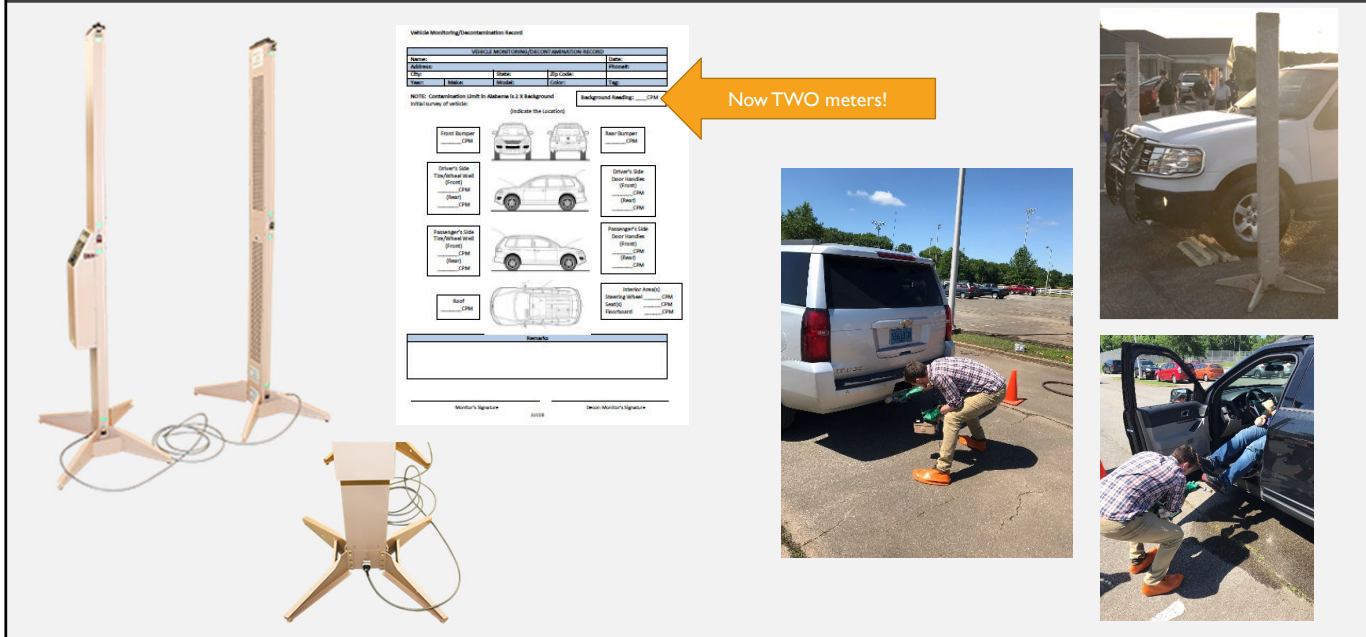
<https://youtu.be/4-6IYR3fQrE>

THERMO SCIENTIFIC TPM-903B INSTRUCTIONS
& VIDEO (PERSONNEL CONFIGURATION):



<https://youtu.be/s5PbB2LCBYg>

PORTAL MONITORS: SCREENING FOR CONTAMINATION



Screening Personnel:

- Establish a boundary line at least ten (10) feet for people and vehicles. Verify contamination does not exist on shoes using a hand-held instrument; if contamination is found then bag and label.
- Document survey for people on appropriate form. *Note: a chair may be necessary to assist with the individual's balance when requested to pick up feet in order to monitor the soles of a shoes.*
- If the person is contaminated using the portal monitor, the individual will be surveyed using a Ludlum 14C handheld survey meter (1 inch away and 1-2 inches per/second) and then directed to the showers.
- If the person is not contaminated, the individual will be directed to go to registration.

Screening Vehicles:

- Assemble portal monitor per instructions *except* base and top plate will not be needed for surveillance of vehicles.
- Base plate will be replaced by two (2) stands connected by cables.
- Protect cables by using a vehicle ramp or available material.
- Instruct drivers to drive slowly through the portal.
- Portals are to be used in tandem with a hand-held instrument. Refer to Vehicle/Monitoring Record for areas to be scanned.
- Document survey for vehicles on appropriate vehicle form.
- Refer to survey form and those in charge for decontamination methods.
- For problems or questions, contact local EMA official.

Contamination level is twice the background (2 X BKG).

VEHICLE DECONTAMINATION: SPOT CHECKS USING SURVEY METER

OUTSIDE

- Air intake/filters
- radiation grills
- front bumper
- Hood
- Windshield
- Roof
- back windshield
- Trunk
- back bumper
- wheel wells
- door handles



INSIDE

- driver's seat (passenger, too, if known to be occupied)
- Pedals (gas, brake, clutch, emergency brake)
- Floorboard
- any handles that could have been touched (e.g., fuel door, truck handle, gear shift)
- steering wheel
- dashboard under windshield
- center console
- any radio/air controls
- air vents

PET MONITORING, DECONTAMINATION, & REGISTRATION

- **For Community Reception Centers, follow the plans for your county's EMA.**



SAFETY BRIEFING

- Equipment
- Dose limits
- PPE



All Emergency Workers will be issued the following equipment:

- **Radiation Exposure Record**
 - **Thermoluminescent Dosimeter (TLD card)**
 - Fill out Radiation Exposure Record information
 - **Low Range Pocket Dosimeter (0-200mR): *black or silver***
 - Fill out Radiation Exposure Record information
 - **High Range Pocket Dosimeter (0-20R): *yellow***
 - Fill out Radiation Exposure Record information
 - **Maximum Radiation Dosage Limit Card (green card)**
 - **Potassium Iodide (KI) will be issued by ADPH KI Nurse. DO NOT TAKE UNTIL TOLD TO DO SO BY EMA.**
- When reading your dosimeter, point toward a good light source. Read through the clip end. Keep the scale in the horizontal position to assure an accurate reading.
 - Read your dosimeters every 30 minutes, and record on your radiation exposure record.
 - The TLD card is your permanent record and cannot be read in the field.
 - Read your dosimeters and record on the Radiation Exposure Record **at least every 30 minutes.**
 - Seek relief at 100mR (black dosimeter)
 - Do not wait until the dosimeter is on 100mR before requesting relief; call when it's approaching 100mR.
 - Your TLD and dosimeters should be worn in your black pouch on the *outside* of your clothing.
 - If you reach the limit on your black low range dosimeter (200mR), use your yellow high range dosimeter (20R).
 - Authorization to exceed emergency worker exposure guidelines must be obtained from the State Health Officer prior to any exposure limit being exceeded. This will be done through the local EMA office.
 - Remember to stay in contact with your department's safety officer.
 - If you have any questions, contact the local EMA office for assistance.

<read the green card dosimetry limits>

Outside Vehicle Decontamination:

- All outside personnel will wear turnout fire gear or OREX water resistant coveralls with face shield, water repellent booties, and gloves.
- Follow all donning and doffing directions when putting PPE on and taking PPE off.
- Do not eat, drink, chew gum, smoke, apply make-up, or put on lip balm while on duty as an emergency worker.

Inside Personnel Decontamination:

- All inside personnel will wear OREX coveralls with face shield, shoe covers, and gloves.
- Follow all donning and doffing directions when putting PPE on and taking PPE off.
- Do not eat, drink, chew gum, smoke, apply make-up, or put on lip balm while on duty as an emergency worker.

PERSONNEL MONITORING EQUIPMENT

Radiation Exposure Record

Name: _____ SSN (last 4): _____
 Agency: _____ DOSE: _____
 Date: (MM/YY) _____ TLD# _____

Note: Read dosimeter every 30 minutes

#	Time (24 hr)	Reading		Start	End	Total
		Low Range	High Range			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Vehicle Monitoring/Decontamination Record

Name: _____ SSN: _____
 Address: _____
 City: _____ State: _____ Zip Code: _____
 Phone: _____
 Background Reading: _____ CPM

Personnel Monitoring/Decontamination Record

PERSONAL INFORMATION
 Name: _____ SSN: _____
 Address: _____ City: _____ State: _____ Zip Code: _____
 Telephone: _____
 Occupation: _____

PERSONNEL MONITORING/DECONTAMINATION RECORD

Area of Contamination	Background Reading	
	Initial Reading	Reading Following Decontamination
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Initial Reading: _____ 1" Decon: _____ 2" Decon: _____

Decontamination: _____
 Contaminated: _____
 Corrected: _____

1. KI tablet

 - When do you take the KI? (when your county EMA has instructed you to)
 - How often and how many should you take? (one (1) 130 mg tablet or two (2) 65 mg tablets every 24 hours as needed)
 - Who should not take KI? (a person who has a known medical history to iodine)
2. Thermoluminescent Dosimeter (TLD Card)

 - Can you read a TLD card? (No)
 - What does the TLD card serve as? (Your legal permanent record)
3. Two Pocket Dosimeters. One low range and one high range.

 - By color, which is the high range? (Yellow)
 - What units are used by the high range dosimeter? (0-20 Roentgen) or (0-5 Roentgen)
 - How often would you check and record your dosimeters? (Every 15-30 minutes; Read 15 minutes in > 1 mR/hr field or every 30 minutes < 1 mR/hr field)
 - What is your seek relief limit? (100 milliroentgen)
 - Which dosimeter would you be reading? (Black or Silver- Low range, 0-200 milliroentgen)
4. Record your pocket dosimeter readings on the Radiation Exposure Record.
5. Ludlum 14C .

 - How fast and how far should you monitor for contamination? 1 inch away and 1 inch per/second.
 - What is the contamination level in Alabama? 2 x background.
 - Is the probe open or closed to monitor for contamination? Open.
 - When is the only time the probe is closed? Checking the thyroid for the uptake of radioactive iodines.
6. Record survey readings on the "Personnel Monitoring/Decontamination Record" and "Vehicle Monitoring/Decontamination Record".

LUDLUM 14C-SET UP & OPERATION



Survey Meter Calibration

Cal Date _____ Due Date _____

Model _____ Serial # _____

* Range within 10%

X _____

X _____

X _____

X _____

X _____

Ded. Ck. Source S/N _____

Act. _____ Range +/- 20%

R (44-2) _____

D (44-9) _____

D (44-38) _____

Calibrated By: _____

Alabama Radiation Control
Montgomery, AL • 334-206-5391

Before any possibly contaminated individuals arrive at the reception center, check the operation of the survey meter and record background radiation at that location. Then follow the steps below:

1. Verify annual calibration due date has not expired.
2. Conduct a physical inspection of meter.
3. Turn the multiplier switch to the "Off" position.
4. Turn toggle switches to "AUD ON" and to "FAST RESPONSE."
5. Open battery compartment beneath handle and install 2 D-cell batteries.
 1. Correct polarities are engraved on inside of lid. (+) should touch the positive side of battery. (-) should touch the negative side of the battery.
6. Connect cable to unit and a pancake (44-9) probe. Remove protective cover from probe.
7. Turn Multiplier Switch to lowest scale (X0.1) and press and hold "BAT" button. Needle should deflect to "BAT OK" or "BAT TEST."
8. Open the source window and place open probe against source while looking for visual needle deflection and listening for an audible sound. Then remove the probe from the source. This is a "response check."
9. Turn toggle switches to "AUD OFF."
10. Place open probe against source for visual needle deflection, then scale up with Multiplier Switch until a steady reading is obtained that is not off-scale. This is a "calibration check."
 - a. Each probe shall read within +/- 20% of the reference reading found on the calibration sticker.
11. Cover probe with plastic wrap, non-freezer plastic bag, or latex/nitrile glove. This prevents the probe from being contaminated. If using bag, secure to probe tightly using rubber band to ensure nothing is hanging down. If using glove, fold back fingers and tape down toward handle.
12. Turn toggle switches to "AUD ON" and to "SLOW RESPONSE." Close source windows. Change multiplier switch to X0.1 and press "RESET."
13. Take a background radiation reading with probe open window (X0.1 position) using the pancake probe (44-9). Average background using a Ludlum is typically 50 counts per minute (cpm).
14. Turn toggle switch to "FAST RESPONSE."
15. For problems, contact the local EMA.

**Follow instructions attached to Ludlum for reference*

LUDLUM 14-C JUST IN TIME WEBSITE



<http://bit.ly/ludlum14cjit>

1. Assembly instructions (PDF)
2. Assembly video

LUDLUM 26: POWER ON: BATTERY INSTALLATION



1. Grab the ring on the screw.
2. Turn the ring one quarter turn counter-clockwise.
3. Release and remove the battery cover.
4. Install two AA batteries. **Positive polarities point toward the pancake probe.**
5. Firmly insert the barb of the battery cover completely into the body of the Model 26.
6. Replace the cover and turn ring one quarter of a turn clockwise to secure.

Battery Installation

A low-battery indicator appears at the bottom of the LCD when less than 16 hours of battery life remain.

When this indicator is present, follow the above steps to replace the two standard AA batteries.



LUDLUM 26: CALIBRATION CHECK

- **Remove plastic protective filter**
- **Calibration check**
 - Calibration check source...
 - Keep in case and hold probe directly over
 - Wait for stabilization
 - Match value to calibration certificate
- $\pm 20\%$ of calibrated value

Instrument Operational Test

Turn the instrument ON by pressing the ON/ACK button for about a second, and then releasing.

The instrument should activate all the LCD segments and the audio. Observe the device during this time.

If any LCD segments are missing, or audio fails to work, the device is in need of repair.

The instrument then displays the firmware version number and activates the Alarm LED briefly. Should the Alarm LED fail to turn on, the device is in need of repair.

Response Check

A reference reading with a check source, 1 μCi (37 kBq) of Cs-137 for example, should be obtained at the time the instrument is received in the field. If at any time the instrument fails to read within 20% of the reference reading when using the same check source, it should be sent to a calibration facility (i.e., ADPH ORC) for recalibration and/or repair.



LUDLUM 26: PROTECTION & BACKGROUND



- Cover probe with cling wrap
 - Form smooth/tight surface
 - Nothing hanging down from probe (i.e., rubber band it tightly in place)
- Get background reading

Normal Operation & Changing Units

The instrument will then move to normal operation, displaying the current rate for the Primary units (default: cpm).

Malfunction Diagnostic

If the detector stops detecting radiation for 60 seconds, normally through a puncture of the thin mica window, the Model 26 will flash a zero reading for the currently selected units.

Detector Over Range

If the unit has an internal malfunction that causes it to count high or excessively, the unit flashes the maximum rate for the currently selected units as a warning.

The user should ensure whether this is being caused by a high radiation field or by internal malfunction.



LUDDLUM 26: MONITORING TECHNIQUE

- Attach band to wrist/forearm
 - Does not allow for hanging objects
 - If meter is dropped, does not hit ground
- Maintain grip on meter at all times
- **1/2 inch away @ 1 inch/second for a radiation**
- **1 inch away @ 1-2 inches/second for b radiation**
- **1 inch away @ 1-2 inches/second for g radiation**
 - Pause if count rate increases.
 - Re-survey to find location of highest count.
- **cpm / kcpm (contamination)**
 - **2 X Background (cpm) = contamination level in Alabama**
 - **Do NOT use the dose equivalent filter.**



LUDDLUM 26: SHUTDOWN



- **Power Off**
 - Turn off by removing batteries
 - Restore everything into the case.

LUDDLUM 26: TRAINING VIDEO

<https://youtu.be/ybLKYksin6s>



LUDLUM 26-1: POWER ON: BATTERY INSTALLATION



1. Grab the ring on the screw.
2. Turn the ring one quarter turn counter-clockwise.
3. Release and remove the battery cover.
4. Install two AA batteries.
Positive polarities point toward the pancake probe.
5. Firmly insert the barb of the battery cover completely into the body of the Model 26-1.
6. Replace the cover and turn ring one quarter of a turn clockwise to secure.

Battery Installation

A low-battery indicator appears at the bottom of the LCD when less than 16 hours of battery life remain.

When this indicator is present, follow the above steps to replace the two standard AA batteries.



LUDLUM 26-1: CALIBRATION CHECK

- **Remove plastic protective filter**
- **Calibration check**
 - Calibration check source...
 - Keep in case and hold probe directly over
 - Wait for stabilization
 - Match value to calibration certificate
 - $\pm 20\%$ of calibrated value

Instrument Operational Test

Turn the instrument ON by pressing the ON/ACK button for about a second, and then releasing.

The instrument should activate all the LCD segments and the audio. Observe the device during this time.

If any LCD segments are missing, or audio fails to work, the device is in need of repair.

The instrument then displays the firmware version number and activates the Alarm LED briefly. Should the Alarm LED fail to turn on, the device is in need of repair.

Response Check

A reference reading with a check source, 1 μCi (37 kBq) of Cs-137 for example, should be obtained at the time the instrument is received in the field. If at any time the instrument fails to read within 20% of the reference reading when using the same check source, it should be sent to a calibration facility (i.e., ADPH ORC) for recalibration and/or repair.



LUDLUM 26-1: PROTECTION & BACKGROUND



- **Cover probe with cling wrap**
 - Form smooth/ tight surface
 - Nothing hanging down from probe (i.e., rubber band it tightly in place)
- **Get background reading**
 - **Monitoring for contamination**
 - Acquire background
 - **Exposure rate**
 - Acquire background

Normal Operation & Changing Units

The instrument will then move to normal operation, displaying the current rate for the Primary units (default: cpm).

The user may select the Secondary units (default: mR/hr) by pressing the Units button.

Malfunction Diagnostic

If the detector stops detecting radiation for 60 seconds, normally through a puncture of the thin mica window, the Model 26-1 will flash a zero reading for the currently selected units.

Detector Over Range

If the unit has an internal malfunction that causes it to count high or excessively, the unit flashes the maximum rate for the currently selected units as a warning.

The user should ensure whether this is being caused by a high radiation field or by internal malfunction.



LUDLUM 26-1: MONITORING TECHNIQUE

- Attach band to wrist/forearm
 - Does not allow for hanging objects
 - If meter is dropped, does not hit ground
- Maintain grip on meter at all times
- **1/2 inch away @ 1 inch/second for a radiation**
- **1 inch away @ 1-2 inches/second for b radiation**
- **1 inch away @ 1-2 inches/second for g radiation**
 - Pause if count rate increases.
 - Re-survey to find location of highest count.
- **cpm / kcpm (contamination)**
 - **2 X Background (cpm) = contamination level in Alabama**
 - **Do NOT use the dose equivalent filter.**
- **mR/hr / R/hr (exposure rate)**
 - **DO use the dose equivalent filter if available**



LUDLUM 26-1: SHUTDOWN

- **Power Off**
 - Turn off by removing batteries
 - Restore everything into the case.

LUDLUM 26-1: TRAINING VIDEO

<https://youtu.be/ijaxlBZjdbE>



GLOSSARY

- **ALPHA RADIATION** – A positively charged particle emitted from the nucleus of a radioactive element. It has a low penetrating power and has a short range - a few inches. Alpha particles are not an external hazard but are extremely hazardous when introduced into the body.
- **ALARA** – An acronym for As Low As Reasonably Achievable. An approach to radiation protection to control or manage exposures as low as social, technical, economic, practical, and public policy considerations permit. ALARA is not a dose limit but a process to keep dose levels as far below applicable limits as reasonably achievable.
- **BACKGROUND RADIATION** – The radiation in the natural environment, including cosmic rays and radiation from the naturally radioactive elements, both outside and inside the bodies of humans and animals. It is also called natural radiation. The average individual exposure from background radiation is 620 millirem per year.
- **BETA RADIATION** – A negatively charged particle emitted from the nucleus during radioactive decay. It has a medium penetrating power and a range of up to a few feet. Large amounts of beta radiation may cause skin reddening, and are harmful if they enter the body. Beta radiation is an external and internal hazard.
- **CONTAMINATION** – The deposition of unwanted radioactive material on the surface of structures, areas, objects, or personnel. Radioactive material in a location where it is unwanted.
- **CPM** – An acronym for counts per minute and is associated with contamination surveys. The pancake probe (44-9) with the Ludlum 14C is used when detecting for contamination.
- **DECONTAMINATION** – The reduction or removal of radioactive material from a location where it is unwanted.
- **DOSIMETER** – A portable instrument or device used for measuring and registering the total accumulated exposure to ionizing radiation. Examples are pocket dosimeter, TLD or film badge.
- **EMERGENCY CLASSIFICATION Levels** – 1. Notification of an Unusual Event (NOUE), 2. Alert, 3. Site Area Emergency, 4. General Emergency.

GLOSSARY

- **EMERGENCY WORKER** – An individual performing duties to protect the health and safety of the public during a radiological emergency (e.g., firemen, school bus driver, police, highway personnel, medical personnel, etc.)
- **EXPOSURE** – The absorption of radiation or ingestion of a radionuclide.
- **EXPOSURE RATE** – The measure of radiation by a device (survey meter) over some time period, usually an hour.
- **GAMMA RADIATION** – A high energy photon emitted from the nucleus of an atom. It has the most penetrating power and a range of up to hundreds of feet. Gamma rays will penetrate the internal organs; therefore, they are an internal and external hazard.
- **GEIGER-MUELLER COUNTER** – A radiation detection and measuring instrument. It consists of a gas-filled tube containing electrodes, between which there is an electrical voltage but no current flowing. When ionizing radiation passes through a tube, a short intense pulse of current passes from the negative electrode to the positive electrode and is measured or counted. The number of pulses per second measures the intensity of radiation.
- **ION** – An atom that has too many or too few electrons, causing it to be chemically active; an electron that is not associated (in orbit) with a nucleus.
- **IONIZING RADIATION** – Any radiation capable of displacing electrons from atoms, thereby producing ions. Examples: alpha, beta, gamma, x-rays, neutrons and ultraviolet light. High doses of ionizing radiation may produce severe skin or tissue damage.
- **INVERSE SQUARE LAW** – The law states the gamma rays intensity is inversely proportional to the square of the distance from a point source. Therefore, doubling the distance from a point source of gamma radiation decreases the exposure rate to one-fourth (1/4) the original exposure rate.

GLOSSARY

- **IONIZATION** – The process of adding one or more electrons to, or removing one or more electrons from, atoms or molecules, thereby creating ions. High temperatures, electrical discharges, or nuclear radiation can cause ionization.
- **LITHIUM FLUORIDE** – A chemical compound used in thermoluminescent dosimeters.
- **KCPM** – An acronym for kilo counts per minute (thousands of counts per minute).
- **MILLI** – A prefix meaning one-thousandth (1/1000) or divides a basic unit by 1000. For example, millirem is one-thousandth part of a rem)
- **PERSONNEL MONITORING EQUIPMENT**– Devices designed to be worn by a single individual for the assessment of dose equivalent such as film badges, thermoluminescent dosimeters (TLDs), and pocket dosimeters.
- **POTASSIUM IODIDE (KI)** – A chemical form of stable iodine that can be used by the body to block absorption of radioiodine by the thyroid gland.
- **RAD** – An acronym for Radiation Absorbed Dose . The special unit of absorbed dose. One (1) rad is equal to an absorbed dose of 100 ergs/gram or 0.01 joule/kilogram (0.01 gray).
- **RADIATION** – Is energy in the form of rays or high-speed particles. Radiation occurs naturally as in sunlight. Radiation is also manmade in the form of x-rays, medical treatments, nuclear weapons, and commercial nuclear power facilities. All forms of electromagnetic radiation make up the electromagnetic spectrum.
- **RADIOACTIVE MATERIAL** – Any material which spontaneously emits particle or photon radiation in an effort to expend excess energy.
- **RADIOACTIVITY** – The spontaneous emission of radiation, generally alpha or beta particle often accompanied by gamma rays from the nucleus of an unstable isotope.

GLOSSARY

- **RCA** – An acronym for Radiation Control Agency.
- **REM** – Roentgen Equivalent in Man. The special unit of dose equivalent in man. It is measurement of the effect of all types of radiation on the human body.
- **ROENTGEN (R)**– A unit of exposure to ionizing radiation in air. It is radiation effect in air from x-rays or gamma rays.
- **SHIELDING** – Any material or obstruction that absorbs radiation and thus tends to protect personnel or material from the effects of ionizing radiation
- **SURVEY METER** – Any portable radiation detection instrument adapted for inspecting an area to establish the existence and amount of radioactive material present.
- **TEDE** – An acronym for Total Effective Dose Equivalent. Total Dose = External Dose + Internal Dose.
- **THERMOLUMINESCENT DOSIMETER (TLD)** – An extremely accurate device used to measure and provide a permanent record of exposure to radiation.
- **X-RAY** – A photon originating from the electron cloud rather than from the nucleus of an atom. One form of electromagnetic radiation. It has penetrating power like gamma radiation. X-rays will penetrate the internal organs; therefore, they are an internal and external hazard.

JUST IN TIME VIDEOS

- Portal Monitor: Ludlum 52-1 (Assembly for Personnel Configuration Only)
 - <https://youtu.be/4-6lYR3fQrE>
 - **Note:** wrap in plastic before turning on for background and doing response checks
 - **Note:** AC adaptor optional
 - **Note:** check calibration date on label performed by ADPH
- Portal Monitor: TPM-903A (Assembly for Personnel & Vehicle Configurations)
 - <https://youtu.be/s5PbB2LCBYg>
 - **Note:** wrap in plastic before turning on for background and doing response checks
- Frisker: Ludlum 26 Training (Personnel & Vehicle Monitoring)
 - <https://youtu.be/qHRozznOdRk>
 - **Note:** wrap probe in plastic
 - **Note:** check calibration label from ADPH
 - **Note:** Alarms are set for 2x background



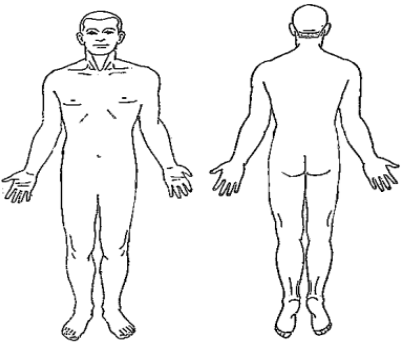
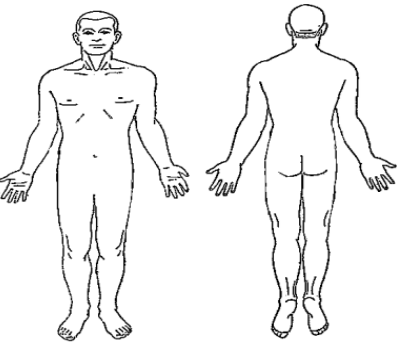
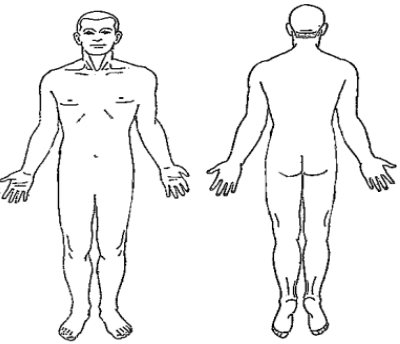
JUST IN TIME VIDEOS

- Frisker: Ludlum 26-1 (overview only)
 - <https://youtu.be/ijaxlBZjdbE>
 - **Follow all training for Ludlum 26, but note features of 26-1**
- Survey Meter: Ludlum 14C (overview only)
 - <https://youtu.be/lm16jXwxRP0>
 - **Note:** Follow ADPH Just In Time training sheet for instructions of assembly & ADPH protocols for monitoring
- Pocket Dosimeter Zeroing: Using CDV-730 Charger (quick overview)
 - <https://youtu.be/0yxneFuqDQE>
- Pocket Dosimeter: Usage of Low & High Range Dosimeters
 - https://youtu.be/Nez1_pi_8z4
 - **Note:** Although many protocols in the video are in line with ADPH protocols, always follow ADPH protocols



PERSONAL INFORMATION			
Name:			SSN:
Address:			Sex: M F
City:	State:	Zip Code:	Phone#:
Reception Center:			Date:

EXTERNAL CONTAMINATION			
Note: Contamination Limit in Alabama is 2 x Background		Background Reading: _____ CPM	
Area of Contamination (Indicate Location on Diagram Below)	Initial Reading (CPM)	Reading Following 1 st Decon (CPM)	Reading Following 2 nd Decon (CPM)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Initial Reading	1 st Decon	2 nd Decon
		
<input type="checkbox"/> Not Contaminated <input type="checkbox"/> Sent to 1 st Decon	<input type="checkbox"/> Decontaminated <input type="checkbox"/> Sent to 2 nd Decon	<input type="checkbox"/> Decontaminated <input type="checkbox"/> Contact Radiation Control

Name:			Date:		
Address:			Phone#:		
City:		State:		Zip Code:	
Year:	Make:	Model:	Color:	Tag:	

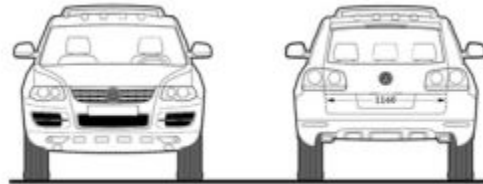
NOTE: Contamination Limit in Alabama is 2 X Background

Background Reading Meter A: ____ CPM
 Background Reading Meter B: ____ CPM

1 Initial survey of vehicle:

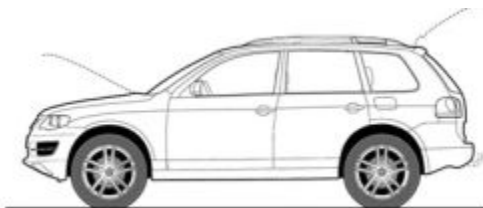
(Indicate the Location)

Front Bumper ____ CPM	Air Intake/Filters (specify location) _____
Front Grill ____ CPM	_____ CPM
Hood ____ CPM	_____ CPM



Trunk ____ CPM
Rear Bumper ____ CPM

Driver's Side Tire/Wheel Well (Front) ____ CPM (Rear) ____ CPM
Driver's Side Front Windshield ____ CPM



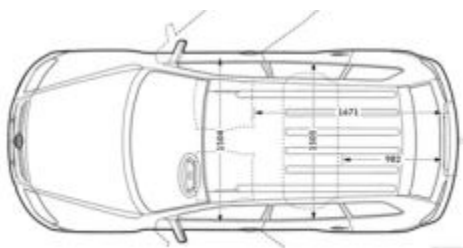
Driver's Side Door Handles (Front) ____ CPM (Rear) ____ CPM
Driver's Side Back Windshield ____ CPM

Passenger's Side Tire/Wheel Well (Front) ____ CPM (Rear) ____ CPM
Passenger's Side Front Windshield ____ CPM



Passenger's Side Door Handles (Front) ____ CPM (Rear) ____ CPM
Passenger's Side Back Windshield ____ CPM

Roof ____ CPM

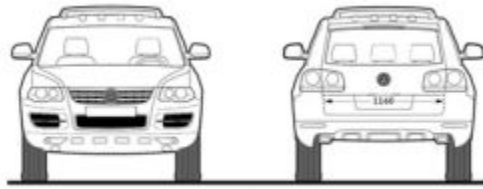


Interior Area(s)	
Steering Wheel	____ CPM
Pedal (gas)	____ CPM
Pedal (brake)	____ CPM
Pedal (clutch)	____ CPM
Pedal (emerg. brake)	____ CPM
Driver's Seat	____ CPM
Passenger's Seat	____ CPM
Back Seat (specify)	____ CPM
_____	____ CPM
Dashboard	____ CPM
Center Console	____ CPM
Radio/air controls	____ CPM
Air vents	____ CPM
Interior handle (specify)	____ CPM
_____	____ CPM
Floorboard	____ CPM

Remarks

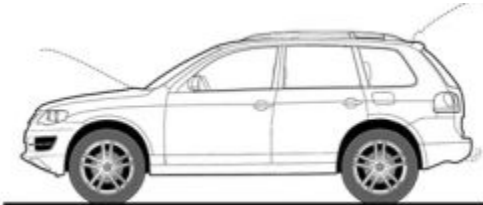
2 Decontamination of vehicle:

Front Bumper	Air Intake/Filters (specify location)
1 st Decon _____ CPM	_____
2 nd Decon _____ CPM	_____
Front Grill	1 st Decon _____ CPM
1 st Decon _____ CPM	2 nd Decon _____ CPM
2 nd Decon _____ CPM	
Hood	1 st Decon _____ CPM
1 st Decon _____ CPM	2 nd Decon _____ CPM
2 nd Decon _____ CPM	



Trunk
1 st Decon _____ CPM
2 nd Decon _____ CPM
Rear Bumper
1 st Decon _____ CPM
2 nd Decon _____ CPM

Driver's Side Tire/Wheel Well (Front)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Driver's Side Tire/Wheel Well (Rear)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Driver's Side Front Windshield
1 st Decon _____ CPM
2 nd Decon _____ CPM



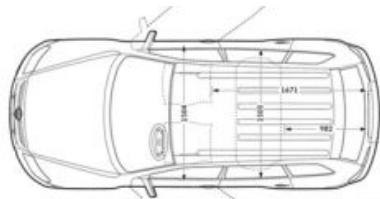
Driver's Side Door Handles (Front)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Driver's Side Door Handles (Rear)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Driver's Side Back Windshield
1 st Decon _____ CPM
2 nd Decon _____ CPM

Passenger's Side Tire/Wheel Well (Front)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Passenger's Side Tire/Wheel Well (Rear)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Passenger's Side Front Windshield
1 st Decon _____ CPM
2 nd Decon _____ CPM



Passenger's Side Door Handles (Front)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Passenger's Side Door Handles (Rear)
1 st Decon _____ CPM
2 nd Decon _____ CPM
Passenger's Side Back Windshield
1 st Decon _____ CPM
2 nd Decon _____ CPM

Roof
1 st Decon _____ CPM
2 nd Decon _____ CPM



	Interior Area(s)	
Steering Wheel	1 st Decon _____ CPM	2 nd Decon _____ CPM
Pedal (gas)	1 st Decon _____ CPM	2 nd Decon _____ CPM
Pedal (brake)	1 st Decon _____ CPM	2 nd Decon _____ CPM
Pedal (clutch)	1 st Decon _____ CPM	2 nd Decon _____ CPM
Pedal (emerg. brake)	1 st Decon _____ CPM	2 nd Decon _____ CPM
Driver's Seat	1 st Decon _____ CPM	2 nd Decon _____ CPM
Passenger's Seat	1 st Decon _____ CPM	2 nd Decon _____ CPM
Back Seat (specify)	_____	_____
	1 st Decon _____ CPM	2 nd Decon _____ CPM
Dashboard	1 st Decon _____ CPM	2 nd Decon _____ CPM
Center Console	1 st Decon _____ CPM	2 nd Decon _____ CPM
Radio/air controls	1 st Decon _____ CPM	2 nd Decon _____ CPM
Air vents	1 st Decon _____ CPM	2 nd Decon _____ CPM
Interior handle (specify)	_____	_____
	1 st Decon _____ CPM	2 nd Decon _____ CPM
Floorboard	1 st Decon _____ CPM	2 nd Decon _____ CPM

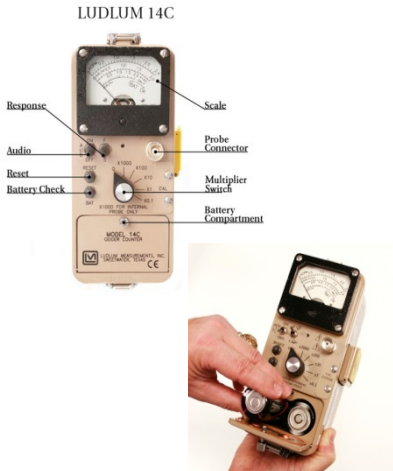
NOTE: In event that after the 2nd attempt to decon still remains above the established contamination limit, isolate vehicle and contact Radiation Control.

METHOD OF DECONTAMINATION:
Wipe inside with damp cloth
Vacuum floorboards
Wash outside with soap and water

FURTHER ACTION REQUIRED:
Decon complete. Refer to Clean Parking Area
Further Decon required. Refer to Secured Parking Area

Remarks

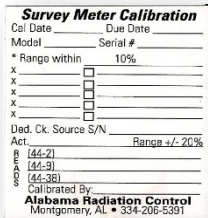
LUDLUM 14C SURVEY METER



Pancake Probe (44-9)



Response Check



Calibration Label

LUDLUM 14C GUIDE

PRE-OPERATIONAL CHECK

- Verify annual calibration due date has not expired.
- Conduct a physical inspection of meter.
- Turn the multiplier switch to the “Off” position.
- Turn toggle switches to “AUD ON” and to “FAST RESPONSE.”
- Open battery compartment beneath handle and install 2 D-cell batteries. Correct polarities are engraved on inside of lid. (+) should touch the positive side of battery. (-) should touch the negative side of the battery.
- Connect cable to unit and a pancake (44-9) probe. Remove protective cover from probe.
- Turn Multiplier Switch to lowest scale (X0.1) and press and hold “BAT” button. Needle should deflect to “BAT OK” or “BAT TEST.”
- Open the source window and place open probe against source while looking for visual needle deflection and listening for an audible sound. Then remove the probe from the source. This is a “response check.”
- Turn toggle switches to “AUD OFF.”
- Place open probe against source for visual needle deflection, then scale up with Multiplier Switch until a steady reading is obtained that is not off-scale. This is a “calibration check.”
- Each probe shall read within +/- 20% of the reference reading found on the calibration sticker. (see “A” on next page)
- Cover probe with plastic wrap, non-freezer plastic bag, or latex/nitrile glove. This prevents the probe from being contaminated. If using bag, secure to probe tightly using rubber band to ensure nothing is hanging down. If using glove, fold back fingers and tape down toward handle.
- Turn toggle switches to “AUD ON” and to “SLOW RESPONSE.” Close source windows. Change multiplier switch to X0.1 and press “RESET.”
- Take a background radiation reading with probe open window (X0.1 position) using the pancake probe (44-9). Average background using a Ludlum is typically 50 counts per minute (cpm).
- Turn toggle switch to “FAST RESPONSE.”
- For problems, contact the local EMA.

CALIBRATION LABEL

Survey Meter Calibration

Cal Date _____ Due Date _____

Model _____ Serial # _____

* Range within _____ 10%

X _____

X _____

X _____

X _____

X _____

Ded. Ck. Source S/N _____

Act. _____ Range +/- 20%

R
E
A
D
S

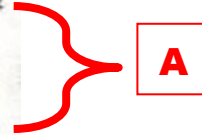
(44-2) _____

(44-9) _____

(44-38) _____

Calibrated By: _____

Alabama Radiation Control
Montgomery, AL • 334-206-5391



Card to be attached with Ludlum 14C

LUDLUM MODEL 14C ASSEMBLY INSTRUCTIONS		
Probe	Setting	Upper Scale - Reads CPM
Pancake 44-9	X 0.1	100 200 300 400 500 600
Contamination	X 1	1,000 2,000 3,000 4,000 5,000 6,000
	X 10	10,000 20,000 30,000 40,000 50,000 60,000
	X 100	100,000 200,000 300,000 400,000 500,000 600,000
Internal Probe	X 1000	1,000,000 2,000,000 3,000,000 4,000,000 5,000,000 6,000,000

- Verify, Inspect, and Turn Off
- **AUD ON + FAST**
 - Response check
 - Battery check
- **AUD OFF + FAST**
 - Calibration check
- **AUD ON + SLOW**
 - Cover probe
 - Background
- **AUD ON + FAST**
 - Monitor

Detailed instructions (PDF) and a video can be found at <https://bit.ly/ludlum14cjit>





RADIOLOGICAL EMERGENCY ASSISTANCE CONTACTS



FOR USE WITH...
EMERGENCIES & INCIDENTS INVOLVING RADIOACTIVE MATERIAL
(NON-REACTOR EMERGENCY)

LICENSEES & REGISTRANTS	FIRST RESPONDER
<p>NON-EMERGENCY: Alabama Radiation Control Office (M-F, 8AM - 5PM CT) 334.290.6244 800.582.1866</p> <p>EMERGENCY: Alabama Radiation Control Office 24-hour Duty Officer 334.324.0076</p>	<p>CALL #1: _____ County EMA (____) _____ - _____</p> <p>CALL #2: Alabama EMA 24-hour State EOC Communication Center 205.280.2310 800.843.0699</p> <p>CALL #3: Alabama Radiation Control 24-hour Duty Officer 334.324.0076</p>

****Current as of
January 1, 2023***

****Destroy all
Earlier Editions***

**Alabama Department of Public Health
Office of Radiation Control
Prattville, AL**

Copies of this document available at
<https://www.alabamapublichealth.gov/radiation>

23

ADPH-RAD-1/REV.23.2