

**BILL OF LADING**  
**STATE OF NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**

Destination: Temporary job sites throughout North Carolina  
Shipper: N. C. Department of Transportation, Division of Highway GAUGE MODEL - 3440

**RQ, RADIOACTIVE MATERIAL, SPECIAL FORM, NOS 7, UN3332**  
**TYPE "A" PACKAGE, CONTAINING:**

Cesium - 137 0.37 Gbq (8.0 mCi)  
Americium 241:Be 1.48 Gbq (40.0 mCi)

RADIOACTIVE YELLOW II LABEL, Transport Index = 0.6

**For Additional Information Contact:**  
**Troxler's 24 Hour Number - (919) 839-2676**

SHIPPER: NC Dept. of Transportation  
PER: Div. of Highways

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

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**EMERGENCY PROCEDURES**

In case of an emergency involving a nuclear gauge, follow steps and emergency procedures listed on the back of the Bill of Lading.

**IMMEDIATELY CONTACT THE STATE WARNING POINT at the following 24-hour emergency numbers:**  
**(919) 825-2500 or 1-800-858-0368**

The Highway Patrol will notify a member of the Radioactive Materials Section.

**MATERIALS AND TESTS CONTACTS**

|                                  | <u>Office</u>             | <u>Night/mobile #</u> |
|----------------------------------|---------------------------|-----------------------|
| Field Services Engineer          | Jim Sawyer (919) 329-4170 | (919) 418-0771        |
| Geo. Field Specialist Supervisor | Lee Madison               | (919) 227-9803        |
| Geo. Field Specialist            | Jeffrey Keck              | (336) 757-6744        |
| Geo. Field Specialist            | Billy Murphy              | (910) 391-8398        |
| Geo. Field Specialist            | Nathan Curry              | (336) 210-0971        |
| Geo. Field Specialist            | Charles Geer              | (704) 985-0531        |
| Geo. Field Specialist            | Peter Rossi               | (252) 399-9446        |

If it is during State office hours, the Division of Radiation Protection should be notified at (919) 814-2250. If the call is placed "Collect", inform the operator that it is an emergency involving radioactive material.

## CHECKLIST TO FOLLOW IN CASE OF AN EMERGENCY

- 1) **IMMEDIATELY CONTACT STATE WARNING POINT (Record on log)**
- 2.) Information to be given to the STATE WARNING POINT:
  - a. Name of Caller
  - b. Call-back number (Keep line available, if possible use second line for further calls)
  - c. Time and location of accident
  - d. Any personal injuries
  - e. Condition of nuclear gauge
  - f. Traffic lane opened or closed
  - g. Type of Radioactive material in the density gauge (from Bill of Lading)
- 2) Contact Resident Engineer and one of the Materials and Tests personnel list on the Bill of Lading (Record on log)
- 3) Priorities for rescue, life-saving, first aid and control of fire are higher than the priority for measuring radiation levels.
- 4) If medical treatment is required, use first aid according to the nature of the injury. Do not delay care and transport of a seriously injured person. Persons exposed to special form sources are not likely to be contaminated with radioactive material
- 5) If there is a fire, and the package is undamaged, move the container from the fire area if you can do so without risk. Do not move damaged packages. The presense of radioactive material should not influence the selection of fire control techniques (water from fire control is not expected to case pollution).
- 6) If there is no fire or after the container has been moved from the fire area, immediately isolate the area where the gauge is at least 15 feet in all directions. Keep unauthorized personnel away.

### TELEPHONE LOG

| NUMBER | TIME | CONTACT MADE yes/no -WHO |
|--------|------|--------------------------|
|        |      |                          |
|        |      |                          |
|        |      |                          |
|        |      |                          |
|        |      |                          |
|        |      |                          |

### POTENTIAL HAZARDS

#### HEALTH

- Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability increases as potential hazard of radioactive content increases.
- Undamaged packages are safe; contents of damaged packages may cause external radiation exposure, and much higher external exposure if contents (source capsules) are released.
- Contamination and internal radiation hazards are not expected, but not impossible.
- Type A packages (cartons, boxes, drums, articles, etc.) identified as "Type A" by marking on packages or by shipping papers contain non-life endangering amounts. Radioactive sources may be released if "Type A" packages are damaged in moderately severe accidents.
- Type B packages, and the rarely occurring Type C packages, (large and small, usually metal) contain the most hazardous amounts. They can be identified by package markings or by shipping papers. Life threatening conditions may exist only if contents are released or package shielding fails. Because of design, evaluation, and testing of packages, these conditions would be expected only for accidents of utmost severity.
- Radioactive White-I labels indicate radiation levels outside single, isolated, undamaged packages are very low (less than 0.005 mSv/h (0.5 mrem/h)).
- Radioactive Yellow-II and Yellow-III labeled packages have higher radiation levels. The transport index (TI) on the label identifies the maximum radiation level in mrem/h one meter from a single, isolated, undamaged package.
- Radiation from the package contents, usually in durable metal capsules, can be detected by most radiation instruments.
- Water from cargo fire control is not expected to cause pollution.

#### FIRE OR EXPLOSION

- Packagings can burn completely without risk of content loss from sealed source capsule.
- Radioactivity does not change flammability or other properties of materials.
- Radioactive source capsules and Type B packages are designed and evaluated to withstand total engulfment in flames at temperatures of 800°C (1475°F).

### PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first.** If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- Priorities for rescue, life-saving, first aid, and control of fire and other hazards are higher than the priority for measuring radiation levels.
- Radiation Authority must be notified of accident conditions. Radiation Authority is usually responsible for decisions about radiological consequences and closure of emergencies.
- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
- Stay upwind. • Keep unauthorized personnel away.
- Delay final cleanup until instructions or advice is received from Radiation Authority.

#### PROTECTIVE CLOTHING

- Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection against internal radiation exposure, but not external radiation exposure.

#### EVACUATION

- **Large Spill**
  - Consider initial downwind evacuation for at least 100 meters (330 feet).
- **Fire**
  - When a large quantity of this material is involved in a major fire, consider an initial evacuation distance of 300 meters (1000 feet) in all directions.

### EMERGENCY RESPONSE

#### FIRE

- Presence of radioactive material will not influence the fire control processes and should not influence selection of techniques.
- Move containers from fire area if you can do it without risk.
- Do not move damaged packages; move undamaged packages out of fire zone.
- **Small Fires**
  - Dry chemical, CO<sub>2</sub>, water spray or regular foam.
- **Large Fires**
  - Water spray, fog (flooding amounts).

#### SPILL OR LEAK

- Do not touch damaged packages or spilled material.
- Damp surfaces on undamaged or slightly damaged packages are seldom an indication of packaging failure. Contents are seldom liquid. Content is usually a metal capsule, easily seen if released from package.
- If source capsule is identified as being out of package, **DO NOT TOUCH.** Stay away and await advice from Radiation Authority.

#### FIRST AID

- Medical problems take priority over radiological concerns.
- Use first aid treatment according to the nature of the injury.
- Do not delay care and transport of a seriously injured person.
- Persons exposed to special form sources are not likely to be contaminated with radioactive material.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Injured persons contaminated by contact with released material are not a serious hazard to health care personnel, equipment or facilities.
- Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.