Transportation of Radioactive Material/Waste Program

I. Purpose

A. To provide the requirements for transporting the CPN Hydroprobe and Troxler Moisture gauges over public roadways for the sole purpose of performing tasks for WMU

<table>
<thead>
<tr>
<th>NOTE:</th>
<th>Transporting radioactive material/waste over public roadways is an infrequent task. Therefore, the current requirements of 10CFR71 and 49CFR must be reviewed to ensure compliance prior to authorizing the transport of a shipment.</th>
</tr>
</thead>
</table>

| NOTE: | Contracting a vendor to assist in the preparation and transport of radioactive material/waste has been used in the past and should be considered for future shipments. |

B. To provide reminders and references for the Radiation Safety Officer of the requirements for transporting radioactive material over the public roadways for the sole purpose of performing tasks for WMU.

C. To provide reminders and references for the Radiation Safety Officer of the requirements for transporting radioactive waste over public roadways.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Purpose</td>
<td>i</td>
</tr>
<tr>
<td>II.</td>
<td>Definitions</td>
<td>2</td>
</tr>
<tr>
<td>III.</td>
<td>Responsibilities</td>
<td>3</td>
</tr>
<tr>
<td>IV.</td>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>References</td>
<td>4</td>
</tr>
<tr>
<td>B.</td>
<td>Standard Requirements for All Packages</td>
<td>4</td>
</tr>
<tr>
<td>C.</td>
<td>General Design Requirements for Packages for Radioactive Material</td>
<td>4</td>
</tr>
<tr>
<td>D.</td>
<td>Specification Communication Requirements</td>
<td>4</td>
</tr>
<tr>
<td>E.</td>
<td>DOT Radioactive Material Category Criteria and Transportation Requirements</td>
<td>7</td>
</tr>
<tr>
<td>F.</td>
<td>Radiological Controls</td>
<td>9</td>
</tr>
<tr>
<td>VI.</td>
<td>Final Conditions</td>
<td>9</td>
</tr>
</tbody>
</table>

**Appendix**

| A.      | Process for Shipping Radioactive Material or Waste                    | 10   |
| B.      | Transportation of the CPN Hydroprobe                                  | 12   |
| C.      | Transportation of the Troxler Roof Moisture Gauge                     | 14   |
| D.      | Transportation of a GC-ECD                                           | 16   |
## II. Definitions

<table>
<thead>
<tr>
<th>A1</th>
<th>The maximum activity of special form radioactivity permitted in a Type-A package. (49 CFR 173.435)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2</td>
<td>The maximum activity of other than special form radioactivity (normal form), LSA, or Surface Contaminated Objects (SCO) permitted in a Type-A package. (49 CFR 173.435)</td>
</tr>
<tr>
<td>Carrier</td>
<td>A person engaged in the transportation of property in a common, contract, or private vehicle.</td>
</tr>
<tr>
<td>Exempted</td>
<td>To release from a requirement to which others are subjected.</td>
</tr>
<tr>
<td>Excepted</td>
<td>To leave out or omit.</td>
</tr>
<tr>
<td>Exclusive Use</td>
<td>The sole use of a conveyance by a single shipper in which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the shipper or receiver.</td>
</tr>
<tr>
<td>Hazardous Material</td>
<td>Includes Radioactive Material and Waste if the specific activity is &gt; 70 Bq/g. A material that has been determined by the Secretary of Transportation capable of posing an unreasonable risk to the health, safety, and property when transported in commerce.</td>
</tr>
<tr>
<td>Hazardous Substance</td>
<td>Radioactive Material and Waste can be hazardous substances. A material, including mixtures and solutions, that (1) is listed in the Appendix to 49 CFR 172.101, or (2) is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the Appendix to 49 CFR 172.101</td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td>Radioactive Material and Waste ARE NOT hazardous waste, unless mixed with a hazardous waste. Any material that is subject to the hazardous Waste manifest Requirements of the Environmental Protection Agency, 40 CFR 262.</td>
</tr>
<tr>
<td>Low Specific Activity (LSA)</td>
<td>Refers to a radioactive material with a specific activity governed by a set criteria in 49 CFR 173.427</td>
</tr>
<tr>
<td>Labels</td>
<td>4&quot; x 4&quot; diamond shape stickers affixed to packages prior to shipping or moving to make individuals aware of potential radiation exposures and to minimize exposures.</td>
</tr>
<tr>
<td>Marking</td>
<td>Information placed conspicuously on items to make individuals aware of potential radiation exposures and to minimize exposures.</td>
</tr>
<tr>
<td>Package</td>
<td>The packaging together with its radioactive contents as presented for transport.</td>
</tr>
<tr>
<td>Packaging</td>
<td>The container or receptacle that make up the containment system for radioactive transport. This includes any absorbent materials, shielding, etc.</td>
</tr>
<tr>
<td>Placards</td>
<td>10.8&quot; x 10.8&quot; diamond shape stickers or plaques affixed to transport vehicles to indicate the hazards associated with the different package contents aboard the vehicle.</td>
</tr>
<tr>
<td>Shipping Papers</td>
<td>The documentation required by the Department of Transportation to identify and manifest a shipment.</td>
</tr>
<tr>
<td>Specification Communication</td>
<td>Specific information placed in or on a package or vehicle required by the Department of Transportation in order to communicate the</td>
</tr>
</tbody>
</table>
hazard associated with the materials transported. The specification communications include Markings, Labels, Placards, and Shipping papers. Each item must comply with set standards as to size, shape, color, and placement.

<table>
<thead>
<tr>
<th>Special Form</th>
<th>A radioactive material that would present a direct radiation hazard, but little internal hazard or contamination if released from its package. A solid piece or sealed encapsulated item with no single dimension &lt; 5 mm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport Index (TI)</td>
<td>A dimensionless number placed on the label of a package to designate the degree of control to be exercised by the carrier during transportation. (Exposure rate in mREM/hour at one meter from the external surface of the package is the TI.)</td>
</tr>
</tbody>
</table>

### III. Responsibilities

A. Radiation Safety Officer (RSO)
   1. Ensuring all packages offered for shipment along public roadways are in compliance with the rules and regulation governing material transportation.
   2. Performing surveys and evaluation of survey data.
   3. Providing guidance to the supervisors acting as the shipper of the gauges containing licensed material.
   4. Liaison with a carrier concerning shipments of WMU radioactive material or waste.
   5. Ensure that the 24-Hour emergency response operator is aware of the material being shipped and can provide the needed information to requesting authorities.
   6. Provide specific instructions with the shipping papers for an exclusive use shipment.
   7. Maintaining the documentation in accordance with the Administrative Controls Program.

B. Division of Environmental, Health, and Safety (EHS)
   1. Assist the RSO in the preparations and shipping of Radioactive Material/Waste.
   2. Provide the 24-Hour emergency response operator.

C. Supervisors acting as the shipper for gauges containing licensed material.
   1. Complete the shipping paperwork.
   2. Instruct the drivers of their responsibilities.
   3. Assist the RSO in maintaining compliance with the rules and regulations governing material transportation.
   4. Maintaining the transport packaging and vehicle in proper condition.
   5. Maintaining the documentation required by this program in accordance with the Administrative Control Program.
IV. Requirements

A. References

10 CFR 20 - Standards for Protection Against Radiation
10 CFR 71 - Packaging and transportation of Radioactive Material
49 CFR 171 - General information, Regulation, and Definitions
49 CFR 173 - Shipper's - General Requirements For Shipments and Packages

B. Standard Requirements for All Packages (49 CFR 173.24)
1. No significant release to the environment
2. Maintain the effectiveness of the package - impact resistance, strength, gas containment or relief.
3. No chemical or galvanic corrosion
4. Adequate closures to prevent leakage under normal conditions of transport
5. Must be able to withstand friction and vibration while in transport
6. Metallic devices shall not protrude in a manner likely to cause failure

C. General Design Requirements for Packages for Radioactive Material (49 CFR 173.410)
1. Easily handled and secured during transport
2. Lifting attachment designed for a safety factor of 3
3. Easy to decontaminate
4. Compatible with the contents

D. Specification Communication Requirements
1. Shipping paperwork (49 CFR 172.200)
   a. Bill of Lading always require these entries.
      i. The basic description, in the following order:
         a. Proper Shipping Name
         b. Hazard Class (7)
         c. U.N. Identification Number
      ii. 24-hour emergency response telephone number.
      iii. Name of the Shipper.
      iv. Proper page numbering (i.e. 1 of 4).
      v. The total quantity (mass or volume) in appropriate units, except for empty packages.
      vi. The Chemical and Physical Form, if not special form.
      vii. The name of each radionuclide and total package activity.
         a. The activity must be in SI units.
         b. Only list the radionuclides that meet the 95% rule.
      viii. List the category of label and transport Index for each labeled package.
ix. Shipper's certification, if not a private carrier.

b. Additional Entries that may be required:
   i. "RQ" for hazardous substances as part of the description.
   ii. "LSA" or "SCO" group for those shipping categories.
   iii. "HRCQ" as part of the description if the shipment is a Highway Route Controlled Quantity.
   iv. "Waste" if the material is a hazardous waste and the word waste does not appear in the proper shipping name.
   v. "Radioactive Material" if it is not in the proper shipping name.
   vi. Emergency response hazards and guidance may be entered on the shipping paper or may be carried with papers.

c. Excepted from shipping papers.
   i. Shipments of radioactive material excepted packages, if the material is not a hazardous substance (RQ) or hazardous waste.

d. Additional considerations.
   i. Shipping papers must be in the pocket of the left door, or
   ii. Readily visible to a person entering the driver's compartment and within arm's reach of the driver.

e. Disposal manifests for wastes.
   (49 CFR 172.205) and (10 CFR 20 App. G.)
   i. Manifests are currently based on disposal site requirements.
   ii. New rules have been proposed for 10 CFR 20.

2. Marking Packages (49 CFR 172.300)
   a. These markings are always required:
      i. Proper shipping name
      ii. U.N. Identification number
      iii. Name and address of consignor or consignee
   b. Additional markings that may be required:
      i. Gross weight if in excess of 110 pounds.
      ii. Underlined double arrows for liquid packages indicating upright orientation (two on opposite sides).
      iii. "RQ" if the material is a hazardous substance.
      iv. The package type if a Type A or B.
      v. The specification required markings; e.g. DOT 7A Type A and "Radioactive material".
      vi. The certification ID number for approved packages.
      vii. The name and address of both the consignor and consignee.
   c. Excepted from marking.
      i. Empty and Radioactive Instrument and Articles are excepted.
      ii. Limited Quantity packages must bear the marking "radioactive" on the outside of the inner package or the outer package itself.
      iii. Packages must have the UN number on the outside.
   d. Markings must be:
      i. On one (1) side other than the bottom of the package.
ii. Durable
iii. Printed on the package, label, tag, or sign.
iv. Unobscured by labels or attachments.
v. Isolated from other marks.
vi. Represent the hazmat contents of the package.

3. Labeling Packages (49 CFR 172.400)
   a. Radioactive White-I
      i. Surface radiation levels < 0.5 mR/hr.
      ii. TI = 0 (the one meter reading is < 0.05 mR/hr).
   b. Radioactive Yellow-II
      i. Surface radiation levels between 0.5 mR/hr and 50 mR/hr.
      ii. TI less than or equal to 1 (< 1).
   c. Radioactive Yellow-III
      i. Surface radiation levels between 50 mR/hr and 200 mR/hr.
         a. For exclusive use closed vehicles the surface radiation levels may be as high as
            1000 mR/hr.
      ii. TI less than or equal to 10 (< 10).
         a. There is no package TI limit for exclusive use shipments.
   d. Empty
      i. Required for shipment of empty radioactive packages.
      ii. Must cover any previous labels.
   e. Content of labels.
      i. Using symbols, list the radioisotopes in the package.
      ii. The activity in SI units.
      iii. The Transport Index (TI) in the appropriate box.
   f. Labels must be:
      i. Placed on two (2) sides opposite of each other, one of which must be placed near the proper shipping name.
      ii. Printed or affixed to the package surface, not the bottom.
      iii. Be in contrast to with the background.
      iv. Unobscured by markings or attachments.
      v. Within color, design, and size tolerances.
      vi. Represent the hazmat contents of the package.

4. Placarding the Transport Vehicle (49 CFR 172.500)
   a. Required
      i. All shipments containing Radioactive Yellow-III packages.
      ii. Exclusive use shipments of LSA or SCO.
      iii. Any shipment that contains a Highway Route Controlled Quantity.
   b. Placards must be:
      i. Displayed on all four sides of the vehicle.
      ii. Visible from the direction they face.
      iii. Clear of appurtenances and other devices.
      iv. At least three inches from any markings that may reduce its ability to communicate the hazard.
      v. Upright and on-point such that the words read horizontally.
vi. In contrast with the background or have a lined border to distinguish from the background.

vii. Placed such that dirt and water from the vehicle will not cover them.

viii. Securely attached to the vehicle or in a holder.

5. Emergency Response Information (49CFR172.600)
   a. 24-hour emergency telephone number.
   b. Immediately available to any authority responding to an incident.
   c. Not required when a shipment is excepted from the shipping paper requirements.
   d. Minimum information:
      i. Basic description and technical name of the hazardous material.
      ii. Immediate hazards to health.
      iii. Risks of Fire or Explosions.
      iv. Immediate precautions to be taken.
      v. Immediate methods for handling fires.
      vi. Initial methods for handling spills and leaks.
   e. Emergency response information must be:
      i. Printed legibly and in English.
      ii. Available away from the package.
      iii. Presented on a shipping paper, separate document, or a dangerous cargo manifest.
      iv. Maintained with the same requirements for the shipping papers.

6. Packaging (49 CFR 172.410)
   a. Must have a copy of the Certification of Compliance and supporting documents.
   b. Must comply with the conditions and restrictions of the Certificate of Compliance.

E. DOT Radioactive Material Category Criteria and Transportation Requirements (49 CFR XXX.XXX)

| NOTE: | Refer to the applicable CFRs for the requirements to ship material and waste. |

1. Excepted Quantities
   a. Limited Quantity (173.421, 422)

<table>
<thead>
<tr>
<th>Activity</th>
<th>173.425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package</td>
<td>Excepted quantity package</td>
</tr>
<tr>
<td>Radiation levels</td>
<td>173.421</td>
</tr>
<tr>
<td>Contamination levels</td>
<td>173.443</td>
</tr>
<tr>
<td>Specification Communications</td>
<td>173.421</td>
</tr>
<tr>
<td>Non-Specification Communications</td>
<td>173.422</td>
</tr>
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</table>
b. Instruments and Articles

<table>
<thead>
<tr>
<th>Activity</th>
<th>173.425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging (173.424)</td>
<td>Excepted quantity package</td>
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<tr>
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<td>173.424</td>
</tr>
<tr>
<td>Contamination levels</td>
<td>173.443</td>
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<tr>
<td>Specification Communications</td>
<td>173.421</td>
</tr>
<tr>
<td>Non- Specification Communications</td>
<td>173.422</td>
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</tbody>
</table>

2. Type A

<table>
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<th>Activity</th>
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<tbody>
<tr>
<td>Packaging</td>
<td>Type A</td>
</tr>
<tr>
<td>Radiation levels</td>
<td>173.441</td>
</tr>
<tr>
<td>Contamination levels</td>
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<tr>
<td>Specification Communications</td>
<td>172</td>
</tr>
<tr>
<td>Non- Specification Communications</td>
<td>None</td>
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</table>

3. Type B

<table>
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<th>&gt; A1 or A2, 173.435</th>
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</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>Type B</td>
</tr>
<tr>
<td>Radiation levels</td>
<td>173.441</td>
</tr>
<tr>
<td>Contamination levels</td>
<td>173.443</td>
</tr>
<tr>
<td>Specification Communications</td>
<td>172</td>
</tr>
<tr>
<td>Non- Specification Communications</td>
<td>None</td>
</tr>
</tbody>
</table>

4. Low Specific Activity (LSA-I, LSA-II, LSA-III), Exclusive Use Domestic

<table>
<thead>
<tr>
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<th>173.403</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>173.427</td>
</tr>
<tr>
<td>Radiation levels</td>
<td>173.441 b,c,e</td>
</tr>
<tr>
<td>Contamination levels</td>
<td>173.443 b or d</td>
</tr>
<tr>
<td>Specification Communications</td>
<td>Placards and Shipping papers</td>
</tr>
<tr>
<td>Non- Specification Communications</td>
<td>Radioactive - LSA Driver Instructions RQ if required</td>
</tr>
</tbody>
</table>

5. Surface Contaminated Object (SCO-I, SCO-II)

<table>
<thead>
<tr>
<th>Activity</th>
<th>173.403</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>173.427</td>
</tr>
<tr>
<td>Radiation levels</td>
<td>173.441 b,c,e</td>
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<tr>
<td>Contamination levels</td>
<td>173.443 b or d</td>
</tr>
<tr>
<td>Specification Communications</td>
<td>Placards and Shipping papers</td>
</tr>
<tr>
<td>Non- Specification Communications</td>
<td>Radioactive - SCO Driver Instructions RQ if required</td>
</tr>
</tbody>
</table>
F. Radiological Controls
   1. Radiation Limits (49 CFR 173.441)
      a. ≤ 200 mREM/hr on any external surface of a package, unless the it is being shipped exclusive use in a closed transport vehicle.

   2. Loose Contamination Limits (49 CFR 173.443)
      a. ≤ 2,200 dpm/100 cm² averaged over 300 cm² β−γ
      b. ≤ 220 dpm/100 cm² averaged over 300 cm² α

V. Final Conditions
   A. Radioactive material/waste is transported in compliance with all rules and regulations.

   B. Copies of paperwork documenting the transportation of radioactive material, waste, gauges, etc. is filed in accordance with the Administrative Controls Program.
Appendix A

Process for Shipping Radioactive Material or Waste

The following steps are to be conducted by the RSO:

A. Preparation for Shipping a Dry Material or Waste
   1. Determine the proper packaging to be used for the shipment of material or waste.
      a. Package the material or waste.
   2. Determine if notifications must be made before transporting.
   3. Arrange for a carrier.
      a. Ensure the carrier's personnel are trained if the shipment requires a trained driver.
   4. Survey the package to determine the Specification Communications required.
   5. Attach the required markings and labeling.

NOTE: Shipping of liquids should be avoided if possible.

B. Preparation for Shipping a Liquid or Damp Material or Waste
   1. Determine the proper packaging to be used for the shipment of material or waste.
      a. Package the material or waste.
      b. Place sufficient suitable absorbent material to absorb twice the volume of the liquid contents, or use the method prescribed in B.1.c.
         i. The absorbent material must be compatible with the package contents, and
         ii. Suitably positioned to contact the liquid in the event of leakage
      c. Place the primary container in a secondary containment container.
         i. The secondary container must be designed to assure retention of the liquid contents within it.
   2. Determine if notifications must be made before transporting.
   3. Arrange for a carrier.
      a. Ensure the carrier's personnel are trained if the shipment requires a trained driver.
   4. Survey the package to determine the Specification Communications required.
   5. Attach the required markings and labeling.

C. Shipping the Material or Waste
   1. Survey the package to verify the Specification Communications are correct.
   2. Complete the Shipping papers.
      a. Ensure the forms are legible.
      b. Cover sheet.
c. Bill of Lading.
d. Radioactive Material Shipping Manifest, if required.
e. Exclusive use instructions, if necessary.
f. Emergency Response Information.

3. Inspect the transport vehicle.
   a. Integrity of the vehicle.
   b. Locks and seals intact.
   c. A radiation / contamination survey may be required prior to loading.
   d. Verify all exterior indicator lights are functioning properly.
   e. Verify head and tail lights are functioning properly.

4. Inspect the package.
   a. Integrity is intact.
   b. Surfaces dry and clean enough to allow integrity checks.
   c. Seals intact.
   d. Closure devices intact and properly functioning.
   e. Tamper seals in place, if required.
   f. Specification Communications are displayed properly.

5. Load the package on the vehicle.

6. Survey the vehicle.
   a. Determine the vehicle Specification Communications required.
   b. Affix the required communications to the vehicle.

7. Complete the Shipping papers.
   a. Ensure the forms are legible.
   b. Cover sheet.
   c. Bill of Lading.
   d. Radioactive Material Shipping Manifest, if required.
   e. Exclusive Use instructions, if necessary.
   f. Emergency Response Information.

8. Sign the forms.

9. Obtain the driver's signature.

10. Make copies of the paperwork.
    a. Shipper's Copy
    b. Carrier's Copy
    c. Campus' Copy

11. Give the Carrier Copy to the driver.

12. Instruct the driver to keep the shipping paperwork in the left door pocket or within sight and in reach of an arm.

13. File the documentation.
Appendix B
Transportation of the CPN Hydroprobe

NOTE: The CPN Hydroprobe contains a 50 mCi AM-241/Be source in special form. As such, all users must satisfactorily complete radiation safety training prior to using or transporting this piece of equipment.

The following steps are to be conducted by the user:

A. Determine the Hydroprobe needs to be used.

B. Complete the shipping papers for the gauge.
   1. Basic Description in the following order:
      a. RQ - Reportable Quantity
      b. Proper Shipping Name - Radioactive Material, Type A Package Special Form
      c. Hazard Class (7)
      d. U.N. Identification Number - UN3332
      e. Campbell Pacific Nuclear (CPN) Moisture Density / Nuclear gauge
      f. Model No 503DR
      g. Serial No. H38068311
   2. 24-hour emergency response number (387 - 5555)
   3. Name of the Shipper
   4. Proper page number (i.e. 1 of 1)
   5. The name of each Radionuclide - Am-241/Be
   6. Total activity in SI units - 1.85 GBq (50 mCi)
   7. List the Category of Label and Transport Index -
      a. 1 - Type-A package, labeled Yellow II with a TI of 0.1
   8. Consignee - To Whom and Where the package is going.
   9. Shipper - Name of Person and Western Michigan University
   10. Shipper's certification

C. Inspect the transport vehicle:
   1. Integrity of the vehicle, specifically the area where the gauge will be stored.
   2. Locks are intact and working.
   3. All exterior indicator lights are functioning properly.
   4. Headlights and taillights are functioning properly.

D. Inspect the package:
   1. Integrity is intact.
   2. Seals or locks are in place.
   3. Specification Communications are displayed.
      a. Markings
         i. Proper Shipping name
         ii. U.N. identification Number
iii. Name and Address of Consignor  
iv. RQ  
v. Type-A package  
b. Labels  
i. Radioactive Yellow II  
ii. Affix one label to the side of the package near the Proper Shipping Name.  
iii. Affix a second label to the opposite side from the first.  

E. Load and secure the package on the vehicle.  

F. Sign the Shipping Paper.  

G. Obtain the Driver's signature.  

H. Make copies of the Shipping paperwork.  
   1. Shipper's copy  
   2. Driver's copy  

I. FAX a copy of the shipping paper to the RSO at 387-5888.  
   1. Provides the RSO with the necessary information in the event of an accident or other emergency.  
   2. This FAX is the Campus copy of the shipping paperwork.  

J. Give the Driver a copy of the shipping paper.  

K. Instruct the driver to keep the shipping paperwork in the left door pocket or within sight and in reach of an arm.  

The following steps are to be conducted by the RSO:  
L. File the documentation.
Appendix C
Transportation of the Troxler Roof Moisture Gauge

NOTE: The Troxler Moisture gauge contains a 40 mCi AM-241/Be source in special form. As such, all users must satisfactorily complete radiation safety training prior to using or transporting this piece of equipment.

The following steps will be performed by the user:

A. Determine the Troxler needs to be used.

B. Complete the shipping papers for the gauge.
   1. Basic Description in the following order:
      a. RQ - Reportable Quantity
      b. Proper Shipping Name - Radioactive Material, Type A Package Special Form
      c. Hazard Class (7)
      d. U.N. Identification Number - UN3332
      e. Troxler Electronics Laboratories, Inc. Roof Moisture gauge
      f. Model No 3216
      g. Serial No. 161 Source Serial No. 47-5723
   2. 24-hour emergency response number (387-5555)
   3. Name of the Shipper
   4. Proper page number (i.e. 1 of 1)
   5. The name of each Radionuclide - Am-241/Be
   6. Total activity in SI units - 1.48 GBq (40 mCi)
   7. List the Category of Label and Transport Index -
      a. 1 - Type-A package, labeled Yellow II with a TI of 0.1
   8. Consignee - To Whom and Where the package is going.
   9. Shipper - Name of Person and Western Michigan University
   10. Shipper's certification

C. Inspect the transport vehicle:
   1. Integrity of the vehicle, specifically the area where the gauge will be stored.
   2. Locks are intact and working.
   3. All exterior indicator lights are functioning properly.
   4. Headlights and taillights are functioning properly.

D. Inspect the package:
   1. Integrity is intact.
   2. Seals or locks are in place.
   3. Specification Communications are displayed.
      a. Markings
         i. Proper Shipping name
         ii. U.N. identification Number
iii. Name and Address of Consignor
iv. RQ
v. Type-A package

b. Labels
   i. Radioactive Yellow II
   ii. Affix one label to the side of the package near the Proper Shipping Name.
   iii. Affix a second label to the opposite side from the first.

E. Load and secure the package on the vehicle.

F. Sign the Shipping Paper.

G. Obtain the Driver's signature.

H. Make copies of the Shipping paperwork.
   1. Shipper's copy
   2. Driver's copy

I. FAX a copy of the shipping paper to the RSO at 387-5888.
   1. Provides the RSO with the necessary information in the event of an accident or other emergency.
   2. This FAX is the Campus copy of the shipping paperwork.

J. Give the Driver a copy of the shipping paper.

K. Instruct the driver to keep the shipping paperwork in the left door pocket or within sight and in reach of an arm.

The following steps are to be conducted by the RSO:
L. File the documentation.
NOTE: The GC-ECDs contain an excepted quantity of material.

The following steps are to be conducted by the user:

A. Shipment preparation
   1. Determine the GC-ECD needs to be shipped or transported to another location.
   2. Notify the Vendor holding the General License of the need to transport the material.
   3. Provide the vendor with the following information:
      a. The instrument serial number
      b. The GL reference number if available
      c. The location to which the instrument is going
      d. The name of the person that will be responsible for the instrument.
   4. Obtain approval from the recipient to ship the item.
   5. Notify the RSO of the need to ship the instrument.
   6. Initiate the Shipper's Certification.

The following steps are to be conducted by the RSO:

7. Survey the instrument.
   a. < 1,000 dpm/100 cm$^2$ averaged over 300 cm$^2$ $\beta-\gamma$
   b. < 20 dpm/100 cm$^2$ averaged over 300 cm$^2$ $\alpha$, if suspected of alpha contamination.
   c. < 90 mR/hr 10 cm from any surface of the instrument.
   d. < 0.05 mR/hr at one meter from any surface of the instrument.
8. Inform the user if the outside of the package will have to be surveyed.
9. Complete the survey information on the Shipper's Certification.
10. Return the Shipper's Certification to the user.

The following steps are to be conducted by the user:

11. Complete the Shipper's Certificate.
12. Make two copies of the Shipper's Certification.
13. Obtain the shipping packaging - Strong, Tight Container
   a. In most instances, a corrugated cardboard box is a sufficient container.
14. Place the item into the container.
   a. Ensure the item will be protected from normal transportation wear.
   b. Notify the RSO for additional surveys.
      i. The RSO will perform additional surveys
         a. < 5 mR/hr on contact to any surface of the package.
         b. < 0.05 mR/hr one meter from any surface of the package.
15. Distribute the copies of the Shipper’s Certification.
   a. The original goes into the package.
   b. A copy goes to the RSO.
   c. A copy is for the user’s records.
16. Seal the package.
17. Place a shipping label on the package.
   a. Recipient’s information.

B. Ship the item.

**The following steps are to be conducted by the RSO:**

C. Complete the shipment record.
   1. Contact the recipient if a signed copy of the Shipper’s Certification is not returned.
   2. Provide the user with a copy of the receipt.
   3. File the documents.
   4. Update the records.