

# Southwestern Engineering Co

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## SECO TRANSPORTATION INSTRUCTION & QA MANUAL

FOR

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PART 1

RECEIVING RADIOACTIVE MATERIAL

NOTES:

1. A package of radioactive material must be accepted from the carrier at the time it is delivered. [10CFR20.205(a)(1)]
2. If a package of radioactive material is to be held at the carrier's terminal, it must be picked up expeditiously upon receipt of notification from the carrier of its arrival. [10CFR20.205(a)(2)]
1. Upon receipt of a package of radioactive material, survey the exterior surfaces of the package to insure that the radiation levels do not exceed 200 milliroentgens per hour. [10CFR20.205(c)]
2. Survey three feet from the exterior surfaces of the package to insure that radiation levels do not exceed 10 milliroentgens per hour. [10CFR20.205(c)]
3. For packages containing radioactive material in normal form (i.e. not in special form), make contamination wipe tests of the exterior surfaces of the package. Count these wipes to insure that contamination levels do not exceed 0.01 microcuries per 100 square centimeters. [10CFR20.205(b)]
4. Record the results of these surveys on the Receiving Report. If any of the above limits are exceeded, notify the Radiation Safety Officer. [10CFR20.401(b)]
5. Record on the Receiving Report the source, model number, serial number, isotope, activity, shipping container model number and serial number.
6. Inspect the package for any evidence of physical damage. Record the result of this inspection on the Receiving Report.
7. Forward a copy of the Receiving Report to the Radiation Safety Officer.



RECEIVING & SHIPPING  
OF  
RADIOACTIVE BYPRODUCTS MATERIAL

RECEIVING

Survey Meter S/N \_\_\_\_\_ Calibration Date \_\_\_\_\_

Source S/N \_\_\_\_\_ Curies \_\_\_\_\_

Shipping Container S/N \_\_\_\_\_

(1) Acceptance Survey Of Shipping Container @ Surface \_\_\_\_\_

(2) Acceptance Survey Of Shipping Container @ 1 Meter \_\_\_\_\_

(3) Leak Test Information Received \_\_\_\_\_

(4) Source Changer Locked & Key Received \_\_\_\_\_

(5) Hardware & Shipping Information Received \_\_\_\_\_

Radiographer \_\_\_\_\_

SHIPPING

Survey Meter S/N \_\_\_\_\_ Calibration Date \_\_\_\_\_

Source S/N \_\_\_\_\_ Curies \_\_\_\_\_

Shipping Container S/N \_\_\_\_\_

(1) Survey Reading @ Surface \_\_\_\_\_

(2) Survey Reading @ 1 Meter \_\_\_\_\_

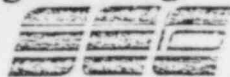
(3) Leak Test Information Stored \_\_\_\_\_

(4) Shipping Container Locked & Key Removed \_\_\_\_\_

(5) Labels Are Correct And Posted \_\_\_\_\_

(6) Shipping Container Secured For Shipment \_\_\_\_\_

Radiographer \_\_\_\_\_






PART II

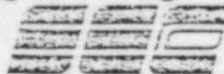
SHIPPING RADIOACTIVE MATERIAL

SUBPART A

SHIPMENT OF RADIOGRAPHIC SOURCES

1. Insure that the source is secured in the proper shielded storage position in the shipping container.
2. Attach a security seal with an identification mark to the package closure. [49CFR173.393(b)]
3. If the shipping container is to be packaged inside a crate or other outer packaging, the outer packaging must be strong enough to withstand the normal conditions of transport. Place the shipping container in the outer package with sufficient blocking to prevent shifting during transportation. [49CFR173.25]
4. Survey the package at the surface and at three feet from the surface to determine the proper radioactive shipping labels to be applied to the package. Use the criteria of Table II.1. [49CFR172.403]

	Surface	3 Feet
RADIOACTIVE-WHITE I: 	0.5mR/hr	None
RADIOACTIVE-YELLOW II 	50mR/hr	1.0mR/hr
RADIOACTIVE-YELLOW III 	200mR/hr	1 CmR/hr



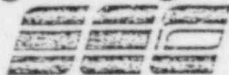
PART II (continued)

SUBPART A

5. Properly complete two shipping labels indicating the contents (<sup>192</sup>Iridium, <sup>60</sup>Cobalt, ecc.), the number of curies and the Transport Index (maximum radiation level measured at three feet from the surface of the package; used on Yellow II and Yellow III labels only. {49CFR172.403(g)})
6. Insure that any old shipping labels have been removed from the package. Apply the two properly completed radioactive shipping labels to two opposite sides of the package.  

{49CFR172.403(f)}
7. Mark the outside of the package with the proper shipping name (Radioactive Material, Special Form, n.o.s.) and identification number (NA9182) if not already marked. {49CFR172.300}
8. If a shipping container is packaged inside a crate or other packaging mark the outside package "Inside package complies with prescribed specifications" and list the appropriate DOT Specification Number of Type B Certificate Number and the words "TYPE B" or "TYPE A" if applicable. {49CFR172.310; 49CFR173.393a; 49CFR173.25.}
9. Perform a radioactive contamination wipe test of the shipping package and insure that the wipe test does not exceed 0.001 microcuries per 100 square centimeters. {49CFR173.397; 49CFR173.393(n)(9)}
10. Properly complete the shipping papers indicating:
  - a. Proper shipping name (i.e. Radioactive Material, Special Form, n.o.s.) and identification number (NA9182).
  - b. Name of Radionuclide (i.e. <sup>192</sup>Iridium, <sup>60</sup>Cobalt)
  - c. Physical or chemical form (or Special Form)
  - d. Activity or Source (expressed in curies or millicuries)
  - e. Category of Label applied (i.e. Radioactive Yellow III)
  - f. Transport Index
  - g. USNRC Identification Number or DOT Specification Number (i.e. USNRC: USA/9032/B or DOT-7A)
  - h. For export shipments, IAEA Identification Number (i.e. IAEA: USA/9032/B)

{49CFR172.203(d)}



PART II (continued)

SUBPART A

i. Shipper's Certification:

"This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport according to the applicable regulations of the Department of Transportation."  
49CFR172.204(a)

Notes: 1. For air shipments, the following shipper's certification may be used:

"I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in proper condition for carriage by air according to applicable national governmental regulations".  
49CFR172.204(c)

2. For air shipments, the package must be labeled with a "CARGO AIRCRAFT ONLY" label and the shipping papers must state:  
49CFR172.402(b)

"THIS SHIPMENT IS WITHIN THE LIMITATIONS PRESCRIBED FOR CARGO-ONLY AIRCRAFT"  
49CFR172.204(c)

3. If the package also used depleted uranium as shielding material, the shipping paper must also include the following information:

Radioactive Device, n.e.s.; UN2911  
Uranium-238; Solid Metal;  
\_\_\_\_\_curies



PART II

SHIPMENT OF RADIOACTIVE MATERIAL

SUBPART B

SHIPMENT OF EMPTY DEPLETED URANIUM SHIELDED

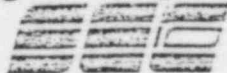
CONTAINERS AND COLLIMATORS

1. If the container is to be packaged inside a crate or other outer packaging, the outer packaging must be strong enough to withstand the normal conditions of transportation. Place the container in the outer package with sufficient blocking to prevent shifting during transportation. [49CFR173.25]
2. Perform a radioactive contamination wipe test of the shipping package and insure that the wipe test does not exceed 0.001 microcuries per 100 square centimeters. [49CFR173.393(n)(9); 49CFR173.397]
3. Survey the package at the surface and at three feet from the surface to determine the proper radioactive shipping labels to be applied to the package. [49CFR172.403]
  - a. If the surface radiation level is less than 0.5 milliroentgens per hour and there is no measurable radiation level at three feet from the surface, no label is required. Mark the outside of the package with the proper shipping name (RADIOACTIVE DEVICE, n.o.s.), the identification Number (UN2911) and the statement "Exempt from specification, packaging, marking and labeling, and exempt from the provisions of 49CFR173.393 per 49CFR173.391(c). Exempt from the requirements of 49CFR Part 175 per 49CFR175.10(a)(6)."

[49CFR173.391(c), 49CFR175.10(6)]

Properly complete the shipping papers indicating:

- (1) Proper shipping name (Radioactive Device, n.o.s.) and identification number (UN2911)
- (2) Name of Radionuclide (Depleted Uranium)
- (3) Physical or chemical form (Solid Metal)
- (4) Activity (in curies or millicuries)
- (5) The statement "Exempt from specification packaging, marking and labeling, and exempt from the provisions of 49CFR173.393 per 49CFR173.391(c). Exempt from



PART II (continued)

SUBPART B

The requirements of 49CFR Part 175 per 49CFR175.10(a)(6)."  
[49CFR172.204(c)(4)]

(6) Shipper's Certification:

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

[49CFR172.204(a)]

NOTES: 1. For Air Shipments, the following shipper's certification may be used:

"I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in proper condition for carriage by air according to applicable national governmental regulations."

[49CFR172.204(c)]

2. For Air Shipments, the following statement must appear:

"This shipment is within the limitations prescribed for passenger aircraft in accordance with 49CFR175.10(a)(6)."

[49CFR172.204(c)(3)]

b. If the surface radiation level exceeds 0.5 milliroentgens per hour, or if there is a measurable radiation level at three feet from the surface, use the criteria of Table II.I to determine the proper radioactive shipping labels to be applied to the package. Mark the outside of the package with the proper shipping name (RADIOACTIVE MATERIAL, LSA, n.o.s.) and the Identification Number (UN2912). If the container is packaged inside a crate or other outer packaging, mark the outer package with the statement: "Inside Package Complies with Prescribed Specifications."

[49CFR172.300, 49CFR173.392(c)(8)]



PART II (continued)

SUBPART B

Properly complete the shipping papers indicating:

- (1) Proper shipping name (Radioactive Material, LSA, n.o.s.) and identification number (UN2912)
- (2) Name of Radionuclide (Depleted Uranium)
- (3) Physical or Chemical Form (Solid Metal)
- (4) Activity (in curies or millicuries)
- (5) Category of Label Applied (i.e. Radioactive Yellow II)
- (6) Transport Index
- (7) USNRC Identification Number or DOT Specification Number (i.e. USNRC USA/9032/B or DOT-7A)
- (8) For Export Shipments, IAEA Identification Number (i.e. IAEA USA/9032/B) [49CFR172.203(d)(1)(viii)]
- (9) Shipper's Certification

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

[49CFR173.204(a)]

NOTES: 1. For Air Shipments, the following shipper's certification may be used:

"I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in proper condition for carriage by air according to applicable national governmental regulations."

[49CFR172.204(c)(1)]

2. For air shipments, the package must be labeled with a "CARGO AIRCRAFT ONLY" label and the shipping papers must state:

[49CFR172.402(b)]

"This shipment is within the limitations prescribed for cargo-only aircraft."

[49CFR173.204(c)(3)]



PART II

SUBPART C    SHIPMENT OF EMPTY LEAD SHIELDED CONTAINERS

1. Insure that the container does not contain a radioactive source.
2. Insure that the container internals are securely closed or contain no radioactive contamination. [49CFR173.29(c)]
3. Perform a radioactive contamination wipe test of the outside of the container and insure that the wipe test does not exceed 0.001 microcuries per 100 square centimeters. [49CFR173.397]
4. Survey the external surface of the container to insure that the radiation levels do not exceed 0.5 milliroentgens per hour. [49CFR173.29(e)]
5. Insure that any old shipping labels have been removed from the package. Attach an "EMPTY" label to the package. [49CFR173.29(e)]



PART III

CARRYING RADIOACTIVE MATERIAL

1. Insure that the vehicle used is in good condition and carries the normal complement of safety equipment including radiation area signs, a length of rope, spare tire, fire extinguisher, a set of vehicle tools and a set of flares. The glove compartment shall contain the registration certificate and an operating flashlight. Additionally, the operator must have a calibrated and operable survey meter and be wearing a film badge and dosimeter.
2. Insure that the container is properly packaged, marked and labeled and the proper shipping papers are completed in accordance with the instructions of Part II.
3. Place the radioactive material container in the vehicle. Secure the container against movement in the vehicle. [49CFR177.634]
4. Survey the driver's compartment to insure that the radiation level does not exceed 2 millirentgens per hour. [49CFR173.393(j)(4)]
5. If the vehicle is transporting a package bearing a "RADIOACTIVE YELLOW III" label, the vehicle must be placarded on all four sides with a "RADIOACTIVE" placard. [49CFR172.504]

Note: Operation of a vehicle which is required to be placarded requires compliance with the Federal Motor Carrier Safety Regulations [(49CFR390-397)]

6. Complete the radioactive material transport checklist. Forward a completed copy to the Radiation Safety Officer upon completion of the carriage.
7. If the vehicle becomes disabled on the road, do not leave the vehicle unguarded when going for help. A message for help may be sent by a passing motorist or the police be enlisted to guard the vehicle.
8. Should any kind of accident occur, make an immediate radiation survey to see where, if at all, the radiation levels are higher than normal. If any abnormal radiation areas exist, keep all persons out of them and get police assistance, if possible. If radioactive sources have escaped from their containers, notify the Radiation Safety Officer. Do not leave the scene without assuring that someone responsible (such as police) will keep people away from radiation areas.

PART III (continued)

9. Collect information pertinent to the accident, such as names of witnesses, names of people involved, names of police, license numbers, circumstances of the accident. Call the Radiation Safety Officer promptly giving him as much information as possible about the condition of the radioactive sources.
10. If a source should escape from its container, the vehicle operator should make no attempt to restore the source by himself, but he should wait for assistance from the Radiation Safety Officer.

DOCKET NO. 71-0579  
CONTROL NO. 26 390  
DATE OF DOC. 01/31/86  
DATE RCVD. 02/03/86  
FCUF \_\_\_\_\_ PDR ✓  
FCAF \_\_\_\_\_ LPDR \_\_\_\_\_  
WM \_\_\_\_\_ I&E REF. ✓  
WDR \_\_\_\_\_ SAFEGUARDS \_\_\_\_\_  
TCFC ✓ OTHER \_\_\_\_\_

DESCRIPTION:

enclosed is their  
Quality Assurance  
Program in response  
to your letter of  
11/25/86  
02/06/86 INITIAL CRC