



**South Carolina Department of
Health and Environmental Control
Bureau of Land & Waste Management**

CERTIFICATE OF COMPLIANCE

High Integrity Container

AMENDMENT O TO: DHEC-HIC-PL-005

ISSUED TO: EnergySolutions, LLC
Columbia, SC

TO AMEND: Certificate of Compliance DHEC-HIC-PL-005 in its entirety to read:

1. Application:

This certificate is applicable to containers specified below for use at Chem-Nuclear Systems, LLC burial facility at Barnwell, South Carolina for containment and disposal of low-level radioactive waste as specified in South Carolina Radioactive Material License No. 097.

2. General Design:

The design, materials, manufacture and use of the containers shall conform to the specification and analysis which have received approval of the Department or the U.S. Nuclear Regulatory Commission including the latest revision of:

- A. Design Fabrication and Testing submittal, STD-D-03-001 Rev 1.
- B. Quality Assurance Operational Plan for NUHIC, Envirolene and Radlok Containers, FO-QA-PN-001 Rev. 1.
- C. Shipping, Receiving, Handling, Usage and Storage of NUHIC Radlok and Envirolene Polyethylene HICs, FO-OP-PR-001 Rev 1.
- D. Drawings:
 - 1) Radlok[®] 179 & 195 Container Assembly, STD-03-140 Rev 16.
 - 2) Radlok[®] 179 & 195 Standard Lifting Mechanism, STD-03-137 Rev 18
- E. Structural Analysis of Radlok[®]179 Container and Lifting Mechanism, as amended October 26, 1992, STD-C-03-013.
- F. Structural Analysis of Radlok[®]-95 High Integrity Container & Lifting Mechanism, as amended October 26, 1992, STD-C-03-024.
- G. Radlok[®]195 and Radlok[®]179 Compression Test Report, STD-R-03-015 Rev 0.
- H. Radlok[®]179 & 195 Drop Test Report, STD-R-03-016 Rev 0.
- I. Drop Tests of a Radlok[®]195 with Solidified Contents, STD-R-03-018 Rev 0.

3. Applicable Approved Containers:

This Certificate shall apply to the P-179 (Radlok®179), and P-195 (Radlok®195) High Integrity Containers.

4. Quality Assurance:

The containers shall be manufactured, stored and used in accordance with the Quality Assurance Operational Plan for NUHIC, Envirolene and Radlok Containers, FO-QA-PN-001 Rev. 1.

5. User Requirements:

- A. Use of this container shall be in accordance with the Shipping, Receiving, Handling, Usage and Storage of NUHIC Radlok and Envirolene Polyethylene HICs, FO-OP-PR-001 Rev 1.
- B. Specification for determining the location of sealing marks on NUHIC and Radlok® High Integrity Containers and Lids, FO-OP-PR-002, Rev 0.

6. Specific Limitations:

The following specific limitations for the containers described and identified in this Certificate shall apply and be strictly adhered to:

- A. Free Standing Liquid: Any free standing liquid must be non-corrosive and less than one-percent (1%) by waste volume.
- B. Radiation: The specified activity of dewatered resins shall not exceed 350 uCi/cc of isotopes having greater than five year half-lives. Other waste forms shall not exceed 1.0×10^8 rads (β -, γ) maximum integrated dose to the container.
- C. Chemicals: Organic solvents, petrochemicals, concentrated acid and other chemicals specified in the Shipping, Receiving, Handling, Usage and Storage of NUHIC Radlok and Envirolene Polyethylene HICs, FO-OP-PR-001 Rev 1, are not allowed to be introduced into the container, nor the container subjected to these materials.
- D. Thermal Restrictions: The container and contents must be kept below 170°F for handling, lifting, and disposal. At no time can the container be subjected to temperatures in excess of 200°F due to a process or its contents.
- E. Ultraviolet: The containers shall not be stored in such a way as to cause exposure to sunlight or other ultraviolet radiation to exceed one (1) year.
- F. Weight: The gross weight of the container and contents shall not exceed the values in the following table at any time.

| Container Model | Empty Weight (pounds) | Max. Total Weight (pounds) |
|--------------------|-----------------------|----------------------------|
| P-179 (Radlok®179) | 1090 | 18,500 |
| P-195 (Radlok®195) | 1150 | 18,500 |

- G. Vent: A passive vent as per applicable drawings and reports of Section 2, General Design, is mandatory.

- H. Volumes: The disposal volume for each container shall be as follows for the purpose of burial records. The internal volume shall be for Chem-Nuclear License criteria.

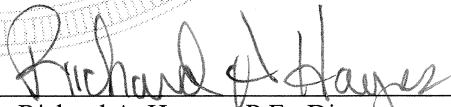
| Container Model | Internal Volume Cubic Feet | Disposal Volume Cubic Feet |
|---------------------|----------------------------|----------------------------|
| P-179 (Radlok® 179) | 156.8 | 179.4 |
| P-195 (Radlok® 195) | 172.9 | 195.7 |

- I. The high integrity container is limited to the following waste forms (Classes A, B and C):
- (1) Dewatered bead resins, powdered resin, and diatomaceous earth
 - (2) Compressible and noncompressible solid waste
 - (3) Filter elements and cartridges
 - (4) Solidified resins, sludges, and liquid waste
 - (5) Incinerator ash, residuals, or equivalent waste which has been rendered non-dispersable in a binding matrix
- J. Waste such as mechanical or cartridge filters, scrap, or other sharp objects placed in the container shall be packaged in a manner in which during handling and transportation the integrity of the container is not altered. This can be achieved by using a fill material around these waste forms.

Any modifications or changes of the container design, materials or usage are subject to prior approval by the Department.

This approval is contingent and does not constitute a final determination by the Department. These containers will be subjected to further evaluations and assessed for their integrity and ability to meet all specified conditions and criteria. Should such an evaluation determine that additional requirements are necessary, appropriate modifications shall be made before their continued use. This Certificate is subject to revocation if warranted.

For the South Carolina Department
of Health and Environmental Control

By: 
Richard A. Haynes, P.E., Director
Division Waste Management
Bureau of Land & Waste Management

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