

**AVANTech and Waste Control Specialists (WCS) are offering a new alternative to the single-use steel liners or High Integrity Containers (HICs) currently in use at Nuclear Power Plants (NPPs) for the disposition of sluceable spent water treatment media. This new AVANTech/WCS patent-pending alternative is called the Volume Reduction Container (VRC™). The VRC™ is comprised of two major components: the Reusable Shell and a replaceable Reload Kit.**

## Features of the AVANTech/WCS Volume Reduction Container (VRC™)

- ✓ Processing as usual – There are no required changes at the customer's site since the VRC™ is utilized in place of the current dewatering container and is compatible with existing systems (e.g., fill-heads/fillplates, remote grapples, processing shields, etc.).
- ✓ Available in all common container sizes to accommodate the popular shipping casks (e.g., RT-100, 8-120, 10-160, 14-170, 14-190, 14-210, and 14-215).
- ✓ ALARA friendly container lid closure means no more complicated barrel top drum ring installations or "tighten until you reach the index mark" as with poly screw-in type lid installations.
- ✓ The Reusable Shell is a reusable open-top carbon steel shell that houses the one-time use Reload Kit. The Reusable Shell wall thickness is 3/8 in. and is epoxy coated on the inside and outside. The Reusable Shell (and VRC™) is lifted by slings and/or a grappable lifting ring, and the top has tabs for the mating of the Reload Kit steel lid.
- ✓ The VRC™ incorporates the best of both worlds: 1) The industry-proven rigid steel dewatering container's outer shell; and 2) The specially designed collapsible liner consisting of a watertight, double-walled IP-1 bladder with reinforced outer woven bag for disposal.
- ✓ Cost avoidance – Once the VRC™ container of radmaterial is shipped offsite for final disposition, only the Reload Kit is disposed of, allowing the customer savings at the WCS disposal site. After the Reload Kit is removed/dispositioned, the Reusable Shell is inspected, checked for cleanliness, and then is fitted with a brand new Reload Kit and steel lid (including new dewatering internals). The now fully assembled VRC™ is ready for its next use.

- ✓ Burial Cost Savings – The VRC™ allows the customer to recognize significant savings relating to disposal costs at WCS Texas. When burying waste at WCS, only the collapsible liner is disposed of – not the entire dewatering container. The VRC™ minimizes container costs while maximizing the burial site's waste capacity. *Please contact your WCS representative for details about your specific burial savings.*



For more information, please contact your AVANTech representative at:

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# VRC™ Fill-Head Dewatering Systems

AVANTech, LLC has developed several versions of dewatering systems ranging from simple, conventional dewatering systems, all the way to fully automatic ultra-rapid dewatering systems, all of which can process bead, powdered, or granular medias. Full-time and Demand Services are also available. Below are the two most common for the Volume Reduction Container (VRC™).

## AVANTech Remote Disengaging (RDE) Dewatering System

The AVANTech RDE Fill-Head is capable of being remotely disengaged from the VRC™, saving dose to plant personnel. Typically used in low to moderately high dose rate applications.

### RDE Dewatering System Features

- ✓ Remote disengagement capability
- ✓ Remote monitoring and control of the fill process
- ✓ Remote redundant level indication and control
- ✓ High definition color camera and light source
- ✓ Remote thermal monitoring
- ✓ Remote operated waste inlet isolation valve
- ✓ Remote flush of the fill-head underside to remove any residual resin and reduce contamination/dose rates
- ✓ Remote monitoring and control of the transfer and filling process is provided by an operator interface/panel view unit, PLC, and CCTV monitors.
- ✓ Common distribution header for delivery and control of service air to system components.
- ✓ Common distribution header for delivery and control of service water to system components.
- ✓ Mobile design permits locating the unit in low dose rates areas.
- ✓ Provides the ability to remotely control the AVANTech RDE Fill-Head and AVANTech Manual Air Operated Diaphragm (AOD) Pump Dewatering Skid from a central remote location.



## AVANTech Conventional Dewatering System

The AVANTech Conventional Dewatering System facilitates the gross dewatering of the VRC™ container during and following the transfer evolution utilizing an AOD pump.

### Conventional Dewatering System Features

- ✓ The AOD pump is capable of transferring at a rate of up to 60 gpm at 70 psig with a maximum suction lift of 18 ft of water.
- ✓ As the disposal container is filled, excess water is pumped from the container using the positive displacement AOD pump.
- ✓ During the dewatering process, excess water is removed by pumping with the AOD pump.
- ✓ The disposal container's dewatering internals retain the media (down to 20-micron) while allowing the excess water to be removed by the AOD pump.
- ✓ Remote flush of the fill-head underside to remove any residual resin and reduce contamination/dose rates.
- ✓ The water can be returned to a plant floor drain or recycled for added efficiency and minimization of secondary waste.
- ✓ The AOD pump can be controlled remotely from the RDE Fill-Head control panel.



All equipment and components are designed, procured, fabricated, and tested under AVANTech's approved Quality Assurance Program and comply with US NRC Regulatory Guide 1.143 to the greatest extent possible.