



# Vertical Cask Transporter



## Vertical Cask Transporter

### VCT Dimensions

- Maximum width: 17.75 feet
- Overall height: Fully Extended 21.75 feet
- Wheel diameter: ~5 feet

### Weight/Lifting Capacity

- Unburdened transporter weight: ~47.5 tons
- Rated lifting capacity: 90 tons
- VCT weight with loaded cask: 135 tons

### Cask Engagement Features

- 4 inch thick lifting lugs attach to Vertical Storage Cask
- Lifting lug yoke on swivel attaches to mobile gantry crane

### Engineered for Safe Cask Transport

- NAC International, an international supplier of nuclear fuel storage systems, and Lift Systems, Inc., which specializes in equipment to lift and transport heavy and oversized loads, designed and constructed the Vertical Cask Transporter to interface with the WVDP's Vertical Storage Casks.
- The equipment is designed and tested to meet stringent industry standards.
- Safety features include advanced systems for stopping, parking, load securement and lift limiting devices.



*The Vertical Cask Transporter (top photo) that will be used for outdoor transport of HLW storage casks at the West Valley Demonstration Project and the tow tractor that will pull it are pictured above.*

The West Valley Demonstration Project (WVDP) is preparing to package and relocate 278 canisters (275 production canisters and 3 end-of-process canisters) of vitrified high-level waste (HLW) from inside the Main Plant Process Building (MPPB) to a new on site storage location. The 47-ton Vertical Cask Transporter (VCT) is a mobile hydraulic gantry crane that will be used for the heavy hauling operation at the WVDP.

The specially-designed VCT is one of three task-specific pieces of heavy lifting/hauling equipment that will be used to maneuver the storage casks through loading and storage procedures. The VCT will operate entirely outdoors, where it will transport empty concrete storage casks to the MPPB and the 87-ton loaded casks from the MPPB to the Storage Pad. It is equipped with a diesel engine for lifting the casks, but will be towed by a separate GT50 aircraft tow tractor, which is commonly used to move airplanes.

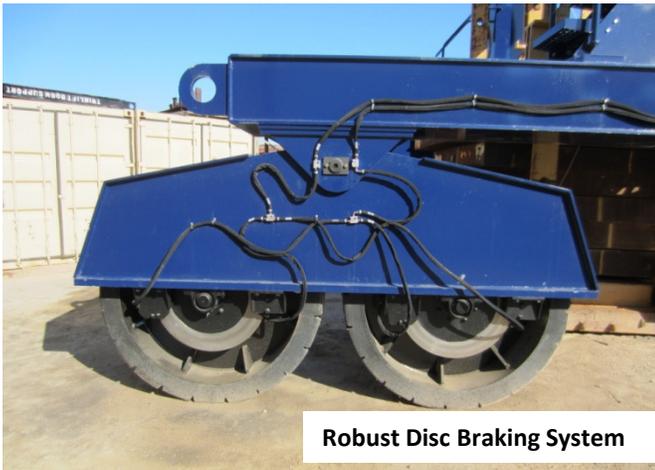
The VCT is designed to operate under the wide temperature and humidity ranges that exist at the WVDP. Operating at its maximum loaded speed of approximately 2 miles per hour, on-site transport of a loaded storage cask from the MPPB to the Storage Pad will take approximately 3 hours.



# Vertical Cask Transporter



**Load Testing at Vendor Facility**



**Robust Disc Braking System**



**A Similar Transporter Used to Transport a Nuclear Fuel Storage Cask**

## Cask Loading and Transport

The series of steps involved with loading and transporting the High-Level Waste (HLW) Vertical Storage Casks (VSC) from the Main Plant Process Building (MPPB) to the HLW Storage Pad require several movements of the bulky steel-line concrete storage casks. The WVDP's Vertical Cask Transporter (VCT) will play an important role in transporting casks for loading and placement in storage. To facilitate loading and storage, the VCT will:

- Pick up empty VSCs at the fabrication area in the WVDP's North Parking Lot
- Deliver the empty VSCs to the entrance of the Load-In Facility (LIF)
- Pick up VSCs loaded with 5 canisters at the LIF
- Transport loaded VSCs approximately one-half mile from the MPPB to the HLW Storage Pad
- Position the loaded VSCs on the Storage Pad

Lifting and transporting the VSCs requires precision and the utmost attention to safety. Design of the Vertical Cask Transporter, which is specifically made for outdoor movement and positioning of the WVDP's casks, is based on similar transport equipment used for moving spent nuclear fuel in concrete storage casks at nuclear power plants.

### Proven, Safe, Long-Term Storage Technology

#### The WVDP HLW Storage System

- Maximizes the use of off-the-shelf technology
- Safely and securely packages HLW in multi-pack configuration to reduce handling and shipping costs
- Offers maintenance-free, passive storage
- Meets high nuclear quality assurance standards
- Interfaces with NRC Type-B licensed transportation casks

The West Valley Demonstration Project (WVDP) is a U.S. Department of Energy-led environmental remediation project located approximately 35 miles south of Buffalo, NY. CH2M HILL Babcock & Wilcox, LLC, (CHBWV) was formed to meet the specific requirements of Phase 1 decommissioning of the WVDP. The limited-liability partnership combines the experience and capabilities of CH2M HILL Constructors Inc. (CH2M HILL), Babcock & Wilcox Technical Services Group, Inc. (B&W), and Environmental Chemical Corporation (ECC).