

IWTU Construction Workers Set Largest Process Vessel

Construction of the Integrated Waste Treatment Unit (IWTU) took a major step forward on Sept. 2, 2009 as crews lifted into place the largest of the six process vessels that will be used to treat radioactive liquid waste stored at the site. The IWTU will use a steam reforming process to solidify the waste for eventual shipment out of Idaho.

The vessel and its skid, or framework, were constructed at Premier Technologies in Blackfoot. (Premier is the main small business partner for CH2M-WG Idaho (CWI), the contractor for DOE's Idaho Cleanup Project.)



[Click on image to enlarge](#)

The Carbon Reduction Reformer vessel and skid weigh approximately 60 tons (120,000 lbs.). Because of the weight of the vessel and the location of the concrete cell designed to house the vessel in the IWTU facility, a Manitowoc crane with a 400 ton capacity was used for the lift.

Some background data on the IWTU project:

The IWTU is being built to treat 900,000 gallons of sodium-bearing waste currently being stored in underground tanks. The IWTU is scheduled for completion in August 2010. Facility testing and startup will begin following completion, with waste treatment commencing in April 2011. Treatment of waste will take approximately 15 months to complete.



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The IWTU will use the THOR[®] 1/2 steam-reforming technology developed by Thor Treatment Technologies to treat the waste. The patented fluidized bed process uses a thermal source to heat both liquid radioactive and hazardous constituents, converting them into a stable solid granular waste form. The solid waste will be placed in canisters and stored awaiting disposal. The IWTU will be the first site to use two fluidized beds in a row. For more information, see <http://thortt.azurewebsites.net/>

Since October 2007:

- 600 tons of reinforcement steel
- 4000 cubic yards of concrete
- More than 300 tons of structural steel
- Power Distribution Center: three sections each weighing more than 50 tons

Some unusual materials:

- Haynes 556 (an alloy that works well in elevated temperatures and corrosive environments)
- Hastelloy 276 (a high-performance alloy designed to have excellent corrosion resistance in a wide range of severe environments)
- AL6XN (hardened stainless steel)

Interesting facts:

- 53,000 square feet when complete
- Built to withstand a 2,500 year seismic event – an earthquake rating of Performance Category 3

Editorial Date September 10, 2009
By Bradley Bugger