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Certification of CSI Double Wall Turbine Enclosure with Integral Reservoir and Brine Filled Interstice

Some regulations, including recent changes in California, require that tank Turbine Enclosures (also known as Sumps) be designed to allow continuous monitoring of the interstice for leaks. Containment Solutions Inc. (CSI) has designed a double wall turbine enclosure that utilizes a brine filled interstice and an integral FRP reservoir with an easily removable sensor for monitoring the interstice for any loss of brine.

The 42" and 48" CSI Double Wall Turbine Enclosure with Integral Reservoir and Brine Filled Interstice has been reviewed and meets the requirements of the California Code of Regulations for Secondary Containment Components.

The performance of the double-wall turbine enclosure containment and monitoring system was reviewed for the following:

1. The ability of the system to monitor the interstice
2. The time for the system to alarm at various leak rates.
3. The effect of temperature changes on the system.

Tests witnessed by Underwriter's Laboratories were performed to verify that brine flows throughout the interstice and that when a leak is present in the system, the leak is communicated through the interstice and the brine level drops in the reservoir. This testing was done on June 4, 2004 and was a part of the testing done by CSI to obtain a UL listing for their double-wall turbine enclosure system.

The sensitivity of the turbine enclosure system to a leak was determined for various leak rates:

Leak Rate (gal/hr)	Time to Detect a Leak (hours)	Time to Detect a Leak (days)
0.005	110.0	4.6
0.050	11.0	0.5
0.100	5.5	0.2

An examination of the effects of temperature changes showed that a large temperature change does not significantly interfere with the operation of the turbine enclosure leak detection system.

The Containment Solutions Inc. Double Wall Turbine Enclosure with Integral Reservoir and Brine Filled Interstice will identify leaks as small as 0.005 gallons per hour over a 4.6-day period. Smaller leaks can also be detected with proportionally longer hold periods.

Signature: H. Kendall Wilcox

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Complete report is available upon request.