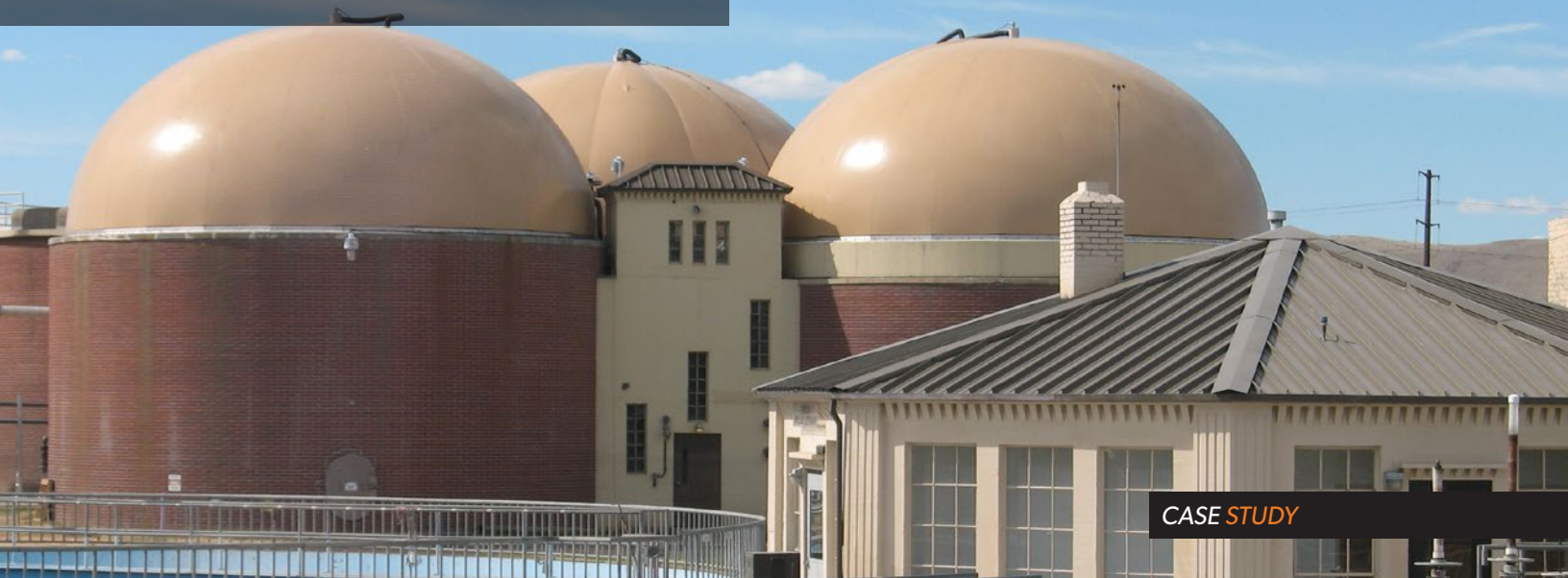


# Exceeding Expectations

## DuoSphere™ Gasholder Membrane Covers



### CASE STUDY

**Location:** Yakima, Washington

**Owner:** City of Yakima

**Engineer:** Black & Veatch

**Contractor:** Apollo, Inc.

### End of Useful Life

The Yakima Regional Wastewater Treatment Plant (WWTP) produces an average of 57.3 million cubic feet of biogas per year from their anaerobic digesters. This biogas is burned in boilers to provide heat for the plant and the anaerobic digestion process.

Previously, Yakima Regional WWTP employed dual membrane gasholders for gas storage. After 13 years of operation with large pressure variations and leaks, it was clear that the existing gasholder digester covers had reached the end of their useful life and needed replacement.

### Equipment Selection

In early 2009, the City of Yakima selected WesTech to replace the existing covers with three (3) new DuoSphere™ gasholder membrane covers.

These new 40 ft covers were installed on the existing tanks and now provide Yakima Regional WWTP with reliable process equipment that meets their energy needs. Because of the high flow and varying treatment

processes that occur at the Yakima Regional WWTP, the city and engineer required a large volume of gas storage at a design pressure of 18 inches of water column.

The DuoSphere met this design criteria by using WesTech's strong, high-quality fabrics that did not require external reinforcing cables. WesTech and Apollo, Inc. were able to overcome installation challenges faced from an uneven tank wall through careful installation and the robust design of these DuoSpheres.

### DuoSphere™ Digester Covers

Quantity	Three (3)
Dimensions	40 ft diameter 15 ft high
Gas Storage	16,000 ft <sup>3</sup> /each

The DuoSphere is an innovative solution for digester gas storage and a strong alternative to steel digester covers. DuoSphere gasholder structures are robust, lightweight, and versatile.

Unlike early industry designs, the DuoSphere has a life expectancy of 20 years. The critical inner gas holding membrane is independent of the outer membrane and inflates/deflates with the amount of gas being stored while the outer membrane remains fully inflated.

This digester cover option provides a cost-effective and practical solution to digester gas storage. This dual membrane system uses fans to pressurize the air space between the membranes and provide a consistent positive pressure to the gas contained within the inner membrane. Other benefits seen from the DuoSphere covers include added control and accuracy, cost-effective biogas storage, and accelerated installation.

### Customer Satisfaction

Steve Brown, the plant manager, said that with their previous covers they were unable to tell how much gas was being stored in the membrane. With WesTech's DuoSpheres he knows exactly how much gas is in each cover and enjoys the new level of control.

As a more economical and functional option than other gasholder covers, the DuoSphere provided Yakima with high volume gas storage, absolute odor containment and effective pressure regulation.