

Application Bulletin

TEMPORARY CARBON SYSTEM REMOVES HYDROCARBONS

Temporary Carbon System Removes Residual Hydrocarbons

Following integrity testing and repair of a refined products pipeline in Canada, Imperial Oil wanted to hydrotest the 170-mile pipeline to assure its integrity.

The hydrotesting used more than 4.3 million gallons of water. Highly contaminated with free gasoline and residual hydrocarbons picked up from the line, the water was pumped into a 5 million gallon storage tank.

Imperial wanted to remove and re-use free gasoline product from the storage tank water and safely dispose of the hydrocarbons that had dissolved in the water. They contracted with one firm to skim free gasoline off the top of the tank and with Laidlaw Environmental Services Ltd., to manage the procurement and operation of a temporary water treatment process.

Laidlaw determined the best approach was an activated carbon system to adsorb high levels of benzene, toluene, xylene, phenols and other hydrocarbons in the storage tank. Total contaminant concentration was over 100 parts per million in the stored pipeline water.

Laidlaw awarded a contract to Calgon Carbon Canada for the temporary water purification project. Under the agreement, the user paid a monthly fee and avoided major capital expenditures for a carbon adsorption system.

Results from a carbon system pilot study conducted prior to full-scale treatment showed non-detectable levels of organic chemicals in the treated water.

Lab data confirming high efficiency removal, along with a plant for full-scale treatment, were submitted to the Metropolitan Toronto Public Works Department. Upon approval, Calgon delivered a skid-mounted, pre-engineered dual module adsorption system to the storage tank site.

Each of the two adsorber units was filled with 20,000 pounds of liquid phase reactivated carbon and then set up to operate in series.

Operating 24 hours a day, the system completed the project in two weeks. Treated tank water was approved for discharge to the Toronto sanitary sewer system.

After treatment was completed, U.S. and Canadian transportation permits were obtained and the spent carbon was taken to a Calgon Carbon RCRA Part B permitted reactivation site in the U.S.

BTX Analysis of Storage Tank Water

Compound	Influent to Carbon	Effluent from Carbon
	PPB	PPB
Benzene	14,100	non-detectable
Toluene	77,000	non-detectable
M&P Xylene	10,400	non-detectable
Ethyl Benzene	2,900	non-detectable
O-Xylene	5,050	non-detectable

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