



MAY 26, 2015: THE LATEST DIMETHYL ETHER INSIGHT FROM CHEMBIOWER

Santa Barbara Deja Vu

May 21, 2015: Santa Barbara, California

Officials responding to the spill, which sent an estimated 21,000 gallons of oil into the water near Refugio State Beach, asked for patience as the massive cleanup effort turned into a 24-hour operation with some 300 workers and 18 boats. Investigators were still working Thursday to determine the cause of the spill from Plains All American Pipeline. Throughout the day, state officials recovered fish and marine animals covered in oil.

Capt. Jennifer Williams of the U.S. Coast Guard said: "You may see some progress early on, maybe in the first week or two. ... But these types of things continue on for perhaps even months."

January 28, 1969: Santa Barbara, California

A offshore Union Oil rig experienced a blowout and more than 3 million gallons of oil coated 35 miles of Santa Barbara County beaches six inches thick. Seabirds, fish and mammals died in droves. The sight of dying, oil covered birds in the same year that the polluted Cuyahoga River caught fire in Cleveland gave birth to the modern environmental movement.

When President Nixon made an appearance in Santa Barbara, he was met by thousands of angry residents and the rallying cry "Get oil out!"

A Plague of Spills

April 9, 2015: Vancouver, British Columbia

[From the National Post] The bunker-fuel spill this month of at least 2,800 liters from the grain ship MV Marathassa, in English Bay, Vancouver was small and localized. The spill revealed large deficiencies on the part of the Coast Guard and raised legitimate doubts about how well a large oil spill would be handled.

B.C.'s coastal waters could soon be home to a growing number of oil tankers. If approved and built, the Trans Mountain project will move great quantities of diluted Alberta bitumen to Burnaby. The oil will be loaded into double-hulled tankers, up to 120,000 tonnes per vessel. Currently, about 50 oil tankers a year depart from Port Metro Vancouver and if the project goes ahead, that number could rise to as many as 400.

A city commissioned report analyzed two spill scenarios in Burrard Inlet in May and in October. It found the economy could suffer more than double the economic losses in spring during peak tourist season. A spill in the month of May would cause total losses ranging from \$380 million to \$1.23 billion, without counting the cost of recovery and cleanup.

January 14, 2015: Longueuil, Quebec

[From the Montreal Gazette] On Wednesday, January 14th, about 28,000 liters of diesel fuel spilled at the city's water filtration plant, but it took several hours for the provincial environment department to be notified. Most of the diesel went into the St-Lawrence River, but some of it ended up in the water at the water treatment plant because of a crack in a sewer line. The water advisory affected about 300,000 people in Vieux Longueuil, St-Hubert, Boucherville and St-Bruno-de-Montarville.

According to the Montreal Gazette (Jan 15, 2015), South Shore residents who are dissatisfied with how the city of Longueuil handled a diesel spill in its water supply are seeking compensation through a class-action suit. A lawyer for several residents filed papers on Monday requesting permission to launch a suit against the city for about \$29 million, \$100 for each of the 288,100 residents affected by the water contamination last week.

Lawyer Jacky-Éric Salvant said the city waited too long before notifying residents of the leak, which was noticed by municipal officials about 4 a.m. last Wednesday. The city didn't put out a no-drinking advisory until about 10 a.m. on Thursday. The lawsuit could also extend to Environment Canada and the private company that owns the Longueuil pumping station, he said.

The Best Available Technology

The Clean Air Act requires that certain facilities employ Best Available Control Technology to control emissions. Clean Air Act of 1990, section 169(3), 42 U.S.C. § 7479(3)

...an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

Dimethyl Ether solves many of the problems that regular diesel and bunker fuel create when released into the environment. There are very few applications where dimethyl ether cannot replace petroleum diesel. Dimethyl Ether is the best available technology for fuels that power transportation or electricity generation.

Our Position is Diesel Power is at the Fork in the Road

The diesel engine is one the most important inventions in history, providing energy for small back-up power application to providing electricity to entire islands, across all continents and oceans, North Pole to South Pole. Diesel engines are used globally for trucking, shipping, rail, electricity generation and any other task requiring reliable power. No other power technology can cover so many diverse applications. The diesel engine also has the highest thermal efficiency of any standard internal or external combustion power source. The engine's high compression ratio and inherent lean burn enables heat dissipation through excess air intake, making it an extraordinarily simple power source.

However, the continued use of conventional diesel fuel presents many challenges. Diesel fuel degrades the environment through the emission of greenhouse gases and particulate matter, while fostering dependence on volatile Middle East oil reserves. Diesel has a shelf life, can gel in cold weather, can get water logged and separates over time. Diesel fuel is poisonous, pollutes water and soil if leaked, requires layers of anti-pollution devices and uses 2 to 8 liters of purified, fresh water for every liter of diesel produced. Today, the compression engine is great power source with a problematic fuel.

The Industry & Government Players Comment

California Div. of Measurements & Standards of the Dept. of Food & Agriculture: "The use of fuels like DME will reduce greenhouse gas (GHG) emissions, improve air quality and lead to a positive impact on California and the environment," said Kristin Macey, director of the Division of Measurement Standards at the California Department of Food and Agriculture, which issued the latest approval of DME fuel.

Dimethyl Ether – Keep the Engine, Change the Fuel

The challenge is to find a fuel for compression engines that is environmentally friendly, stores easily and transported simply. DME can be readily synthesized from abundant natural gas and biomass feedstock using a number of well-established chemical processes. DME is benign, evaporates after a spill, burns smoke free with no sulfur and reduced nitrous oxide and generates 1 to 2 liters of water for each liter of fuel produced. Unlike compressed natural gas (CNG) or liquid natural gas (LNG), most importantly, DME is used in compression engines, which substantially impacts the potential applications of this fuel over LNG, CNG, Ethanol or Methanol. Finally, the path is clear for clean diesel power across the globe.