



UPDATE

SUMMER 2009

API 12F Tanks to be Upgraded

Many companies that provide chemicals to the upstream oil industry have installed tanks constructed to the API 12F specification despite not being recognized by the Alberta Fire Code. The Alberta Government recently issued a notice that these tanks are not an acceptable design but offered owners the opportunity to upgrade them by the end of 2011. The most significant alteration necessary will be the addition of emergency venting. Tanks that are acceptable to the Fire Code have mandatory venting devices that are capable of exhausting the increase in vapours that would occur if the tank was to be heated by fire. Emergency venting is an option on the 12F design, leaving most with vents that can only be adequate for normal filling and unloading activities. For illustration of the consequences of inadequate ventilation on a tank exposed to fire go to the website:

<http://www.youtube.com/watch?v=6qcrwNM74sg>

Owners of existing API 12F tanks must provide engineered drawings and an upgrading plan to the authority having jurisdiction. More information is available from the PTMAA.

Tank Maximum Size Increased

The Fire Code limits the size of aboveground tanks used to dispense fuel to 50,000 litres. This limit includes the aggregate volume from multi-compartment tanks. A Variance issued by the Alberta Government allows use of tanks up to 80,000 litres with certain conditions. The total capacity of tanks at fuel dispensing stations is increased from 150,000 litres to 200,000 litres with the Variance. Amongst the qualifying conditions is spill prevention, overfill prevention equipment, as well as spatial separation between the tank and dispenser. Details of the Variance can be seen at this website:

<http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/fire/fcv/FCV4-6-2-1-2.pdf>

Tank Operator Seminars

The PTMAA offers free training seminars for operators of underground storage systems. The next seminars will be held:

July 23 - Camrose

July 28 – Grande Prairie

August 10 – Innisfail

These seminars are particularly useful for owners and operators of single-walled underground tanks and pipe. Owners of aboveground tanks with underground piping would also benefit by attending. For detail and registration for our seminars please call the PTMAA office toll-free at 1-866-222-8265.

Pressurized Piping Leak Detection

The trend in Alberta service stations is use of pressurized piping rather than suction systems. Most underground piping systems being installed today have double-walled piping and sumps where a leak in the piping can be detected. Older systems do not have secondary containment on product piping and often rely on mechanical leak detectors to alert the operator to a problem. The Code requires that mechanical leak detectors are tested annually to ensure they are operating properly. This type of leak detection does not pick up small leaks so it is very important that their operation is checked annually.

It might be useful for owners of mechanical leak detectors (MLD's) to understand how they work. With suction pumping systems if the leak gets large enough the pump will not function properly. With pressurized piping there is no obvious indication of a problem. The MLD is basically a pressure-operated valve with three positions: wide open, test flow (limited to 11.3 L/hr) and restricted flow (11.3 L/min). A spring inside the stem of the MLD continually tries to move the valve into the restricted flow position. The pressure of the liquid causes the spring to be compressed and the valve to open. If there is a leak in the pipe and the MLD is operating properly the pressure of the liquid will decrease and the spring should win the tug-of-war and move the valve mechanism to the restricted

flow position. Restricted flow rate is about 11 litres per minute. Normal flow is approximately 38 litres per minute. The next time the pump is turned on a leak of smaller than 11 litres per minute will cause the MLD to go into a “test” mode which reduces the flow to only 11 litres per hour. It is this reduced flow rate that is supposed to be noticed by the operator and reported to the station manager.

MLD's are subject to false alarms. Product in the tank and product in the pipe can be at different temperatures. A difference in the temperature can reduce the pressure in the line and trip the MLD. This can be especially problematic where aboveground tanks supply underground lines. In summer conditions, relatively warmer temperature product flows into the cooler temperature pipeline. The product will contract, resulting in a loss of pressure and a false alarm on the MLD. Air pockets can also create false positive results.

There are more reasons for not detecting actual leaks, however. Pipe with lots of slope between the MLD and the dispenser may always provide sufficient pressure on the detector to not cause it to trip, even if there is a leak near the dispenser. Mechanisms in the MLD can wear and their sensitivity to pressure change may get less precise. If pressure on a line is always maintained and there are no leaks, the MLD mechanism may not move for months, or even years. Deposits may cause the moving parts to stick and not respond to a pressure change.

The Alberta Fire Code requires that MLD's be checked annually to ensure they are operating properly. If your piping system does not utilize sensors which look for fugitive product and you are fully reliant on mechanical leak detectors it is imperative they work properly. At their best, MLD's do not detect small leaks; the required 11.3 litres per hour translates into 1900 litres a week that can be lost under the detection range. Have your MLD's calibrated and a record kept of the name of the service company and the date the service was provided.

Biodiesel Gaining Popularity

The biodiesel industry got a big boost from the Alberta Government this past winter when a Renewable Fuel Standard was announced. To be implemented in July of 2010 this standard will require 5% ethanol content in gasoline and 2% renewable content in diesel. The Alberta Biodiesel Association sees rapid expansion for their

industry. For tank manufacturers and contractors, growth in the use of biodiesel will be positive as new storage requirements will have to accommodate an expected 2 billion litres in the coming 2 to 5 years. Biodiesel is derived from renewable feedstock such as vegetable oil, animal fat and used grease. The feedstock is blended with low sulfur diesel with the blend typically in the range of 5 –20% depending on the season and outside temperatures. According to the Biodiesel Association, their product results in lower pollution, less toxicity, increased engine life and a higher output vs. input of energy.

Fire Inspector Training

In its promotion of safe petroleum facilities and consistent enforcement of tank regulations, the PTMAA will again be offering municipal fire officials training. Past training was focused on underground systems but with the great trend towards using aboveground tanks, classroom and field training will now incorporate fuelling facilities with aboveground systems. Training will be offered in Calgary and Edmonton. For a schedule and registration, please call the PTMAA office.

Check Your Monitoring Wells

If you have single-walled underground tanks and piping it is very important to sample groundwater monitoring wells at least once a month. PTMAA statistics show that 40% of tank operators are not checking their wells. Used long enough, these systems will leak and if you don't find a leak using inventory control your last line of defense is the monitoring well. Check them monthly and keep a log of findings to show the inspector.

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Disclaimer:

This newsletter is intended only as a “plain English” guidance to assist storage tank owners, operators, and contractors in understanding and implementing Alberta Fire Code requirements. It is not intended to supplement or replace any regulatory requirements. In the event of any inadvertent conflict between this guidance and Alberta Fire Code regulation, the Fire Code shall control.