

Pasadena Citizens' Advisory Council

Summary of April 22, 2014 Meeting

PIPELINES AND SALT DOMES

Matt Cesarz, Technical and Health, Safety, Environmental (HSE) Manager for Equistar Pipeline, spoke to Pasadena Citizens' Advisory Council (PCAC) in late April, 2014 about pipelines and underground salt dome storage.

Pipelines

Equistar Pipeline operates and maintains 1400 miles of pipeline in Texas and Louisiana. They also operate underground hydrocarbon storage facilities in Mont Belvieu and Markham. The amount of feedstocks and products they transport by pipeline is the equivalent of about 1.3 million truck loads or 290,000 rail car loads.

Pipelines are operated by a control center responsible not only for getting quality product to customers but also for monitoring things like flow rate and pressure as well as any signs of abnormal conditions, such as leaks. Multiple isolation valves along a pipeline route can shut off sections of the pipe if needed.

The integrity of a pipeline is maintained in many ways.

- Coatings and cathodic protection are used to prevent external corrosion.
- Chemical inhibitors and cleaning help prevent internal corrosion.
- Aerial patrols are flown every 2 weeks at Equistar Pipeline to look for any signs of problems such as structures encroaching onto the pipeline corridor or dead vegetation indicating a possible leak.
- Every 5 years, a pipeline must be inspected using either hydro testing or an in-line inspection tool. Testing with water under pressure will show whether there are problems with welds, for example. Using a combination inspection tool, sometimes called a "smart pig," reveals dents as well as internal and external corrosion. An odometer on the tool pinpoints the location of the anomaly so the company can return to that spot to make repairs, if needed.

One of the greatest risks to pipeline integrity is being dented or damaged by construction equipment. Even homeowners digging deep in their yard should call 811 to report plans. Pipeline locations are marked with the pipeline operator's name, the substance being transported, and an 800-number so that anyone may contact the company if they have questions or concerns about a particular segment of pipeline.

In general, it costs about \$1,000,000 to install one mile of pipeline. Pipelines are generally built in corridors with other pipelines. There are more than 7500 miles of regulated pipeline in Harris County. Equistar Pipeline owns about 400 of those miles. PCAC members asked Cesarz where they may find maps of pipelines. He recommended two sources:

- Texas Railroad Commission's Public Data Viewer -- <http://www.rrc.state.tx.us/>
- National Pipeline Mapping System (NPMS) -- <http://www.npms.phmsa.dot.gov/>

Interstate pipelines are regulated by the US Department of Transportation (DOT). *Intrastate* pipelines are regulated by the Texas Railroad Commission. Other agencies, like EPA and the Texas Commission on Environmental Quality (TCEQ), also have roles in pipeline oversight.

Salt Domes

In areas where oil and gas are found, there are often salt domes relatively close to the surface that may be used to store hydrocarbons. In this region, the Barber's Hill/Mont Belvieu area has some of the major salt domes. Salt domes are used to store hydrocarbons because salt is inert to them. Salt can be as strong and dense as concrete.

Brine is used to hollow out a cavern in the salt dome. Hydrocarbons are placed into the cavern, where they float on top of the brine. Moving the product into the cavern pushes the brine out of the cavern, where it is degassed to remove any hydrocarbon that came with it, and then sent to a brine pond. To remove the hydrocarbons from the cavern, brine is pumped in, which pushes the product out.

Salt domes are regulated by the Texas Railroad Commission, with EPA and TCEQ also having oversight.