



Deer Park Community Advisory Council

Summary of November 28, 2011 Meeting

Flare Study Results Surprise Deer Park Community Advisory Council

Deer Park Community Advisory Council (DPCAC) learned that some findings were unexpected when results of a 2010 study of plant flares were released recently by the Texas Commission on Environmental Quality (TCEQ). Explaining the study and its conclusions at the late November DPCAC meeting was Steve Hansen of Shell, representing East Harris County Air Partners (EHCAP). David Brymer, Director of TCEQ's Air Monitoring Division, added comments and answered questions. The findings are anticipated to lead to changes in the way plants operate some flares and flare appearance to communities.

Within Deer Park, there are 50 flares among 7 of the 14 plants in DPCAC. (Some plants don't have the kind of chemicals or processes that call for flares.) Three of the fifty flares are used only for emergencies, such as to avoid overpressuring equipment when there is a total loss of power. Of the 50 flares, 24 receive process vents continuously. Thirteen of the 50 flares are combination flares, serving both purposes. Over the past few years as plants have implemented efforts to minimize flare venting, some flares now operate at the very low end of their vent flow design (they have been "turned down" significantly). The TCEQ flare testing focused on flares operating under that "high turndown" scenario.

Of the 50 flares in Deer Park plants, 13 use steam and 25 use air to improve or "assist" in mixing of gases for better combustion, to reduce visible emissions, and to avoid heat damage to the little burners that constitute a flare tip. Flare operations have been regulated for decades by US EPA rules. Flare operators have been trained to add sufficient steam to meet rules that allow no more than 5 minutes of visible emissions (smoking) in a 2-hour period. More steam "assist" results in less smoke and has historically been regarded as more desirable by communities and flare operators.

The study measured a flare's ability to destroy gases under limited conditions. Historically, formulas for calculating flare emissions have assumed that 98% of material sent to a flare was burned and only 2% released to the atmosphere if certain operating criteria were met. DPCAC saw photos of flares operated under different testing conditions. For example, while a flare

with no visible flame and just a small amount of steam may look good, that may not mean that it is operating with adequate destruction efficiency. Alternately, a flare with a good visible flame and smoke at the point that it first becomes visible (at its “incipient smoke point”) destroyed 99.4% of the test gases vented to it.

DPCAC community members were glad to hear that destruction percentages were very high in the large flaring incidents that occur when a plant has a major upset. When asked if the TCEQ flare study results indicate that reported flare emissions may have been underestimated for certain operating conditions, the speakers indicated that it could have occurred – but it would be nearly impossible to confirm. They reminded members that air monitors measure what’s actually in the air, not what is estimated to be there. Air monitoring trends show a steady improvement in air quality. Knowing more about how flare emissions have been estimated does not change the results of these measured trends.

TCEQ has provided the study results to EPA so the results can be integrated into EPA’s ongoing flare regulation development. Industry, environmental groups, and agencies are working together (the EHCAP effort is one example) to better understand flare operations to improve destruction efficiency. Based on the finding of their study, TCEQ is developing operating guidance for flare operators. As a result of plants implementing these flare operating changes, communities may see more small yellow-orange flames and more incipient smoking at flares, but the benefit will be reduced emissions from flares. DPCAC members will continue to follow this issue.

DPCAC is a forum for community-industry dialogue that meets again on Mon. Jan. 23, 2012 for its annual “State of the Plant” reports and to plan programs for the coming year. For details about the 6 p.m. meeting, contact Johan Zaayman at 713/246-6151.