Question 8: How will the recently announced EPA regulations on emissions impact your refinery operation and specific technologies [FCC, hydroprocessing, coking, CDU/VDU (crude distillation unit/vacuum distillation unit), reforming, etc.]?

PATEL (Valero Energy Corporation)

Refinery risk and technology rules were adopted last week on September 29th. They are expected to have a significant impact on the refining industry. The rules require additional control and monitoring of the emissions from the refineries and the emission reporting that is available to the public and other neighboring communities. The revisions include newer requirements for the lead coker flaring operations and fenceline monitoring and the elimination of some of the startup/shutdown emissions in the malfunction provision. The delayed cooker depressuring standard provision states that the coke drum cannot be vented to atmosphere until a pressure of 2 psig (pounds per square inch gauge) or lower, or the refinery average, is reached.

For the existing coker, this will be averaged over 60 cycles. For the new cokers, the standard will apply for each event. The Southern California AQMD (Air Quality Management District) already implemented Rules 11 and 14 last year that limit the depressuring drum pressure to 5 psig for each event. And starting January 1st, 2017, it will go down to 2 psi for each event. Depending on the blowdown system, significant modifications could be required to meet this requirement.

The flare monitoring and operations that are used as a control device for the hazardous air pollutant streams are subject to a new monitoring and control requirement that is designed to guarantee that the flare operates with 98% destruction efficiency at all times. Composition monitoring and automatic control will be required on all flow streams going to the flare, including steam, purge gas, and acid gas to ensure that certain BTU and combustion characteristics are achieved.

Fenceline Monitoring: All refineries will be required to deploy a series of passive absorption tubes around the perimeter of the facility to monitor for benzene. The proposed standard is 2.8 parts per billion on the rolling annual average for an average of 26 events per year. Any incident could trigger a root cause and corrective action analysis to reduce the emissions. All sampling results will be available to the public. Some of the root cause analysis and action plans must be submitted to the EPA.

The SSM (startup/shutdown malfunction) Emission: All sources and regulations must be in compliance with the emission standards at all times, including for the startup/shutdown and the malfunction. Limited exceptions exist for FCC and sulfur recovery units. Otherwise, FCC units that are equipped with scrubber and CO (carbon monoxide) boiler are expected to comply all the time.

Under the proposed revision, the recommended gassing to the atmosphere cannot occur until the vapors are below 10% LEL (lower explosive limit) or pressure is below 5 pounds. The monitoring of the atmospheric PRDs (pressure-relieving devices) will be required. The release event must be analyzed

from these devices to determine the cause and remedy, and there is a firm limit that no more than three events in the three years per device will be allowed. The deadline expected for the fenceline monitoring is December 2017, and the provisions will be effective the following year: December 2018.

SIM ROMERO (KBC Advanced Technologies, Inc.)

There is a P&P tomorrow at 2:00 to discuss methods of addressing the two-pound limit on the delayed cokers. It can be expensive or relatively inexpensive, depending on your choice of equipment and equipment configuration. I will be giving that presentation.

DOMINIC VARRAVETO (Burns & McDonnell)

I just want to point out that in Day 1 of the “Conference Daily” published by Hydrocarbon Processing that is available to everyone, there is an article on page 12 authored by Blake Soyars, Jim Corbit, Greg Neve, and Mark Lockhart from Burns & McDonnell addressing this subject.

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