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**Question 18: Due to lower product octane requirements, has your strategy for dumping and screening fixed-bed reforming catalyst changed from the standard recommendation of three years or three in-situ regenerations?**

**PATEL** (Valero Energy Corporation)

As with any catalyst, the deactivation rate is a function of processing similarity; and consequently, if the unit is targeting lower octane values, regeneration requirement can become less frequent. It is really up to the refiner to make the decision as to whether or not to let the cycle extend out longer because of the lower production of the coke or to regenerate more proactively on an annual basis to ensure that the yield losses are maintained at a minimum. Regenerating more frequently can also ensure that engineers and Operations people are trained in the regen procedures and that the unit is ready for gasoline mode.

Regardless, it is important to monitor the burn profile during the regen as this will be the true indicator of whether the catalyst needs to be dumped and screened. If a unit is coming up on a regen and has not been dumped and screened for a few years, then it is also good practice to dump and screen. The dump and screen scope should be planned for in advance so that the equipment onsite is ready. In case one is needed, it can be done. Then the catalyst should be a dump-and-screen if a maldistribution is observed during the carbon bone step, like  $\Delta T$  (delta T; temperature differential) or high reactor  $\Delta P$  (delta P; pressure differential). Conducting a dump-and-screen based on the regeneration cycle is a more preferred way over the dumping and screening based on a time of the service, especially for the operating board where the octane requirements are low.

**DUNHAM** (UOP LLC, A Honeywell Company)

Yes, I think the assumption here is that regeneration is the more severe operation; that is, when you are generating fines. So if you regenerate less often, you will not need to dump and screen. But there are other factors that could come into play. During the normal run, there may be reasons why you are building up pressure drop, deteriorating the catalyst, or laying coke, trash, or fines down on the catalyst. So I do not think that just regeneration cycle or time can be used to make this decision.

**JIM PROROCK** (Husky Energy Line)

In our fixed-bed reformers, we monitor the bed profiles and watch for when the  $\Delta T$  (delta T; temperature differential) is not occurring on a reactor. When the top of the bed dies and the  $\Delta T$  profile on the reactor is not complete, you see it exit the bed. So no, we used to do it on a timed basis, but now we monitor the reaction and make a choice based on that kind of a performance.

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