Question 83: What are the variables you consider which impact slurry oil pump life? What is the typical slurry oil pump life that you experience in normal service?

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Slurry oil pump life can be influenced by a number of factors including catalyst carryover from the reactor (which is indicated by BS&W measurements) and the design of the pump itself. Target BS&W for main column bottoms should be below 0.1 wt. %. As BS&W increases, the life span of the pump will decrease significantly.

There are pumps available that are made to withstand high solids content through both the design of the pump itself and metallurgy selections. Ceramic pumps, although brittle, can withstand streams with high solids loading. Many companies offer coatings that can be applied to the pump casing and impeller to help extend the life significantly.

A typical slurry pump life, with a unit performing well, can last anywhere between six months and over four years. It is truly dependent on the design of the pump and the performance of the reactor cyclones. In the past, we have experienced catalyst carryover due to mechanical failures inside the reactor. These failures have led to elevated BS&Ws (0.5 to 2.0 wt.%). The slurry casing life decreased to less than a month, and the impeller/extension lasted between six to eight weeks.

Slurry pump performance can be monitored through motor amp readings and downstream control valve positions.