

is above the upper anti-vortex plate and the oil-water interface is below the lower anti-vortex baffle on the fixed skimmer the automation system will open an automatic valve and start a transfer pump, automatically pumping the oil layer into the oil tanks. No manual skimming should ever be necessary with this automatic skimming system.

Water leaving the Suction/Overflow Tanks is fed to filters and on to the HP pumps via centrifugal charge pumps. The charge pumps and the HP pump motors are controlled by VFDs taking their signals from the tank level driven operating software. That software functions on a priority basis as follows:

1. The charge and HP pumps are managed by the level in the Suction/Overflow Tanks.
  - a. The level in these tanks is fixed at start-up.
    - i. When the level drops in these tanks the LIT signals the PLC which signals the VFD to slow down the charge and HP pumps.
    - ii. When the level in these tanks raises LIT signals the PLC which signals the VFD to speed up the charge and HP pumps.

It should be clear from the above that turndown ratio is a key design feature of the pumps selected by Cimarex. It should also be clear that any and all solids filtered out of the water are solids that Cimarex will not have to remove or dissolve from the disposal well. Given the high cost of well workovers, the cost of filters pales by comparison, which means Cimarex should purchase the best and smallest filters Cimarex can justify using. Filters that are sized to run for four to seven days should be the target.

As mentioned above, keeping the HP pumps running 24/7 translates to longer well life with greater injectivity over the long haul. This means less formation damage and fewer disposal well workovers.

## **NORMAL OPERATIONS**

During normal operations Cimarex should have very little operational interface requirements as the system should essentially run and manage itself via the automation system.