

Memorandum

To: PC-PUMP® Users

Date: October 12, 2007

From: PC-PUMP® Team

cc:

C-FER File: R001

Subject: List of Changes in v2.69

Message:

The following changes have been made to PC-PUMP since v2.68 was released.

- The program can now use HASPs or Hardlocks for security. This was done in the expectation that Hardlocks may not be adequately supported in the future.
- The calculation of flow loss past couplings is now considered in multiphase flow. This will not have a substantial effect in most cases—the exception is where there are tight clearances, in which the new calculations will show a higher pressure loss, which we believe is more accurate.
- The program will now allow for the use of the Pump Filter to find only those pumps which have rotor major diameters smaller than the drift diameter of the selected tubing.
- The Rod string window forces things to be done in the right order. For example, until a “type” is selected, everything else is greyed out. This should make the window easier to use for those unfamiliar with it.
- Submergence has been added to outputs. This is just pump seating depth minus fluid level, but, in some cases, it is easier to think about a higher number representing more fluid over the pump—the fluid level is measured from surface, so a lower number represents more fluid over the pump.
- In DHD mode, there is now an option for considering a motor lead attached to the main cable. When turned on, the program does not check if the main cable will fit between the casing wall and the motor or drive assembly. All other cable calculations (voltage loss, temperature, etc.) are performed assuming the main cable extends to the motor.
- A high rod stress warning will now be issued when rod stress exceeds 100% of yield.