

Memorandum

To: PC-PUMP Users

Date: December 23, 2005

From: Paul Skoczylas

cc:

C-FER File: P077400

Subject: Changes in PC-PUMP in V2.67.

Message:

PC-PUMP V2.67 has the following improvements over PC-PUMP V2.661:

- Fluid level can now go below the pump seating depth, if a shroud or tail joint is present. The fluid level cannot go below the bottom of the tail joint or shroud. Note: this applies only if the perforations are lower—the program will not allow the fluid level to go below the perforations.
- Drive equipment loading has been added to the summary outputs. In order to make room for these, the format of the summary outputs table has changed.
- The “comments” section of the Project Information window is now included in the printouts; this allows users to add text to their printouts.
- There are some new Batch Comparison parameters: Diluent Rate, Diluent Viscosity, GOR, GLR, Water Cut, BS&W. (Note: these apply only for certain input options.)
- A bug prevented rod printouts, either in the Equipment Summary or in the Rod String window, from showing the number of optimized rod guides. This has been corrected in both places.
- International settings are now recognized. The main issue resolved was the display of the spreadsheets in the program; the spreadsheets did not show fractional portions of numbers if the international settings did not use “.” as the decimal. The second implication is that the program now recognizes different currencies for power costs.
- The single-phase flow loss calculations have been revised. It is unlikely that most users will notice a difference in the results. Cases where a difference may occur in the results, relative to earlier versions of the program, are in the use of “Non-Newtonian Effects” in the Advanced Viscosity mode, and in cases near the laminar-turbulent transition.
- If a name of more than 40 characters was added as an equipment name, earlier versions of the program would crash. This has been extended to 256 characters, and the program will not crash if the user tries to exceed that.

Note that PC-PUMP V2.66 and V2.661 were also released as part of the 2005 Maintenance Plan. If you install V2.67, these fixes and improvements will automatically apply. You do not need to install V2.66 or V.661 before installing V2.67.

PC-PUMP V2.66 has the following fixes and improvements over PC-PUMP V2.651:

- Users can now choose to specify “flowing wellhead temperature” instead of temperature gradient. This is not intended to be used when either of the downhole heat generation options are used--a warning message will be issued in those cases.
- A new option has been added to the IPR window to allow users to specify the IPR with a Productivity Index (PI) instead of a test point (for “straight line” IPRs).
- When selecting hollow rods, the “grade” did not appear. It also did not appear in the rod string spreadsheet. It now appears both when selecting, and in the spreadsheets.
- Hollow rods with no upset now indicate “no upset” rather than list an upset diameter the same as the OD.
- Hydrostatic head in the output parameters section is now labelled “Net Hydrostatic Head” to help reduce confusion as to its meaning. This is the difference between hydrostatic head in the tubing and in the casing annulus.
- The torque limit for hollow and continuous rods didn’t show up in the selection area, but was listed in the spreadsheets, and was used correctly. It will now show up in the selection area as well.
- The pump selection filter is now significantly faster than it was in the previous version.
- Error messages which can pop up and require a response would be repeated during a batch calculation in previous versions. These will now appear only once in a batch—the response given will be assumed to apply to all subsequent occurrences during that batch.
- The contact load graph had incorrect labels if hollow rods are used. This has been fixed.
- Various minor formatting issues on print-outs have been improved.

PC-PUMP V2.661 has the following fix over PC-PUMP V2.66:

- When rod guides are selected for rods with off-sized pins, they are associated with the rod body size and not the pin size.