

## Flow Loop Services

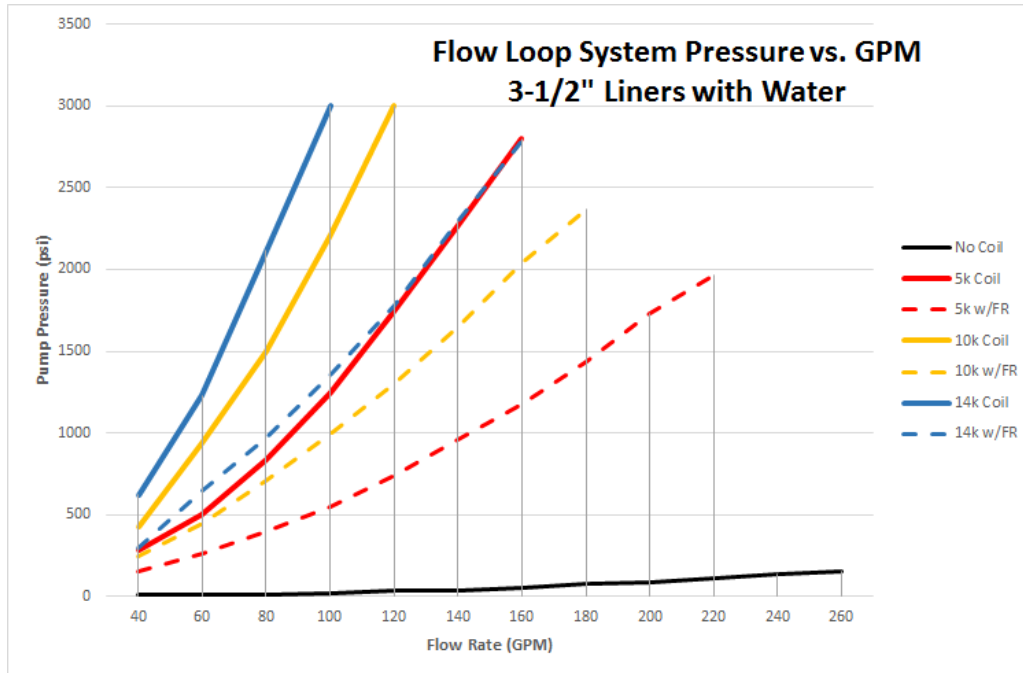
### Pump / Engine Skid

- Caterpillar diesel engine – 400 hp
- Pneumatically controlled transmission
- EW 446 pump – Performance chart below. We have 3 1/2", 4" & 6" liners available
- Air Compressor

W-446 Performance

Liner Size, Inches		5	5-1/2	5	4-1/2	4	3-1/2
Rated Pressure, psi		1,027	1,222	1,479	1,710	2,169	2,816
Pump Speed SPM	Input Power HP	Displacement, GPM					
320	440	661	555	459	397	313	240
270	380	551	463	382	335	264	202
220	320	441	370	306	273	215	166
170	290	330	278	229	211	167	127
120	200	220	185	153	149	118	90
70	200	110	93	76	87	69	52
Volume/Stroke, gallons		2,203	1,851	1,530	1,239	0,979	0,750

Ratings are based on 90% mechanical efficiency and 100% volumetric efficiency.



Note: FR = Friction Reducer, OF-2302HB mixed at 1 gal/1000 gal water

## **FLOW LOOP FEATURES**

### Fluid Tank

- Four compartments of 1000 gallons each
- Two compartments have mud agitators for mixing additives such as LCM, etc.

### Coiled Tubing Reels

- Three spools of coiled tubing
  - Two Reels - 5000 feet each
  - One Reel - 4135 feet
- Tubing size = 2"OD, Wall Thickness = .156"
- Welded hammer unions on all ends

### Tool Cart

- Wheels allow for different orientations
- Load Cell – 5000 lbs.
- Lock down to cement pad if required
- Designed to support up to 8" OD tool
- Pressure transducers available for measuring above and below tool (0-5000 psi)

### Work Trailer

- Convenient data acquisition work area
  - Pump controls – start / stop, throttle, gear shifter, kill switch
  - Transducer cables run into trailer for convenient set up
- Meeting area with large screen monitor
- Air conditioned

### Mud Properties Measurements

- Fann 35 Viscometer
- Mud Balance
- Sand Content Test Kit
- Marsh Funnel

### Other

- 5000 lb. capacity fork lift available
- Secured area for equipment storage
- Barbed wire fence
- Security cameras
- Motion controlled lighting
- Spare fuel available on location – up to 500 gallons



**Figure 1: Flow Loop System**



**Figure 2: 2" Coiled Tubing Reels (14,000+ ft.)**



**Figure 3: Tool Cart and Work Area**



**Figure 4: Mud Tank (Four 1000 gal. segments)**



**Figure 5: EW-446 Caterpillar and Triplex Pump**



**Figure 6: Flow Loop Controls and Data Monitoring**



Figure 7: 6-Pin Male Connection to Surface Panel



Figure 8: Pressure Transducer Connection



Figure 9: 4-1/2"XH (Pin) to 4-1/2"IF (Box) Cross Over



Figure 10: 4-1/2"XH (Box) Cross Over to Hammer Union



Figure 11: 4-1/2"XH (Pin) Cross Over to Hammer Union



Figure 12: 3-1/2" (Pin & Box) Cross Overs to Hammer Unions