

**FORGE Energy**  
**UL 23 Mercury 1H**  
**API Number: 42-371-39447**

**01/11/2017**

Rig Name:  
00:00 Cost update

**01/13/2017**

Rig Name:  
00:00 Cost update

**01/20/2017**

Rig Name:  
10:00 Wait on Bulldozer  
12:00 PJSM , Bulldozer gathered all plastic on top and inside of Vega frac pit and bunched it up on bottom of frac pit.  
15:00 Dressed up Top and 2 walls of VEGA frac pit w/ Bulldozer.

**01/21/2017**

Rig Name:  
08:30 Dressed 75% of Vega frac pit floor w/ Bulldozer.

**01/24/2017**

Rig Name:  
11:30 Vega Frac Pit , Dressed 50% of Vega frac pit south wall w/ Bulldozer.  
14:30 Transwater delivered equipment to line pit.

**01/25/2017**

Rig Name:  
08:00 Removed Liner plastic from inside Vega Frac pit.  
14:00 Dressed remaining 50% of Vega frac pit south wall w/ Bulldozer , Dressed 100% of Vega frac pit north wall w/ Bulldozer , Dressed remaining 25% of Vega frac pit floor w/ Bulldozer. Filled sand bags.

**01/26/2017**

Rig Name:  
08:00 Trench Vega Frac pit top for liner . cut up and load 10% of Old Frac pit liner  
13:00 Trencher brokedown , Repair trencher  
16:00 Trench Vega Frac pit top for liner - 50% complete.

**01/27/2017**

Rig Name:  
08:00 Trench remaining 50% of Vega Frac pit top for liner , Lay liner , 90% complete.

**01/28/2017**

Rig Name:  
08:00 Vega Frac Pit , Finish stretching and burying Frac Pit Liner around top of Vega Frac pit , Pack Tight around Liner , Install water level meter.  
15:30 Met w/ water well owner , Turn water well on to Frac pit , check for leaks - none seen. rate 2850 BPD

**01/29/2017**

Rig Name:  
15:30 Filling Vega Frac pit ,Starting Meter reading at Vega water well 414.4 , 24 hr meter reading 3551.4 , Pumped 3137 bwpd - 24 hr to Vega Frac pit.

**01/31/2017**

Rig Name:  
08:30 Vega Frac Pit - Childs construction delivered 60 sq yards of caliche  
10:30 Transwater packed off caliche on top of frac pit to hold liner in place. 65% done with top of vega frac pit , packing w/ caliche.  
15:30 72 hr reading at Vega waterwell , 9792 bbls , Made 9378 bbls water in 72 hrs. Pack off caliche on top of liner

**02/01/2017**

Rig Name:  
08:00 Vega Frac Pit, Childs construction delivered 30 sq yards of caliche  
09:00 Transwater packed off caliche on top of frac pit w/ skid steer to hold liner in place. finished remaining 35% , packing w/ caliche  
15:30 96 hr reading at Vega waterwell , 12,865 bbls , Made 12,451 bbls water in 96 hrs , Made 3073 bbls last 24 hrs

**02/04/2017**

Rig Name:  
10:00 Vega Frac Pit , Water transfer laid .7 mi of 8" layflat waterline from Vega waterwell to Vega Frac pit. 167 hr reading at Vega water well 21,938 , Pumped

21,524 bbls of water to Vega Frac Pit ttl.

### **02/05/2017**

Rig Name:

- 07:30 Vega Frac Pit ,PJSM , Sterling water transfer plumbed in 2 - 8" Gate valves at Vega water well manifold.
- 12:30 Turn on waterwell , Load 8" layflat line to Vega frac pit , no leaks , SD
- 12:45 repair 2 welds on manifold at Waterwell
- 13:45 Turn on waterwell , Resume filling Vega frac pit through 8" line and 3" line

### **02/07/2017**

Rig Name:

- 08:00 Vega Frac Pit , Transwater cut up folded and hauled away 40%-50% of old Vega frac pit liner plastic. Filling Vega Frac pit w/ FW , 13:45 - 48 hr reading 8" line 75,150 bbls of FW , 3" line made 5300 bbls last 48 hrs of FW , for a ttl of 80,450 bbls of FW pumped last 48 hrs - combined , Avg 27.93 BPM , ttl water pumped into Vega frac pit so far 104,316 bbls.

### **02/08/2017**

Rig Name:

- 08:00 Vega Frac Pit , Transwater cut up folded and hauled away 25% of old Vega frac pit liner plastic.(75% Finished) SD due to wind. 13:45 pumped 37,250 bbls fw on 8" line last 24 hrs , pumped 2582 bbls fw on 3" line last 24 hrs , for a combined ttl of 39,832 bbls of fw pumped last 24 hrs , Avg rate 27.66 bpm , ttl pumped into Vega Fra pit 144,148 bbls fw.

### **02/09/2017**

Rig Name:

- 08:00 Vega Frac Pit , Transwater cut up folded old Vega frac pit liner plastic
- 09:00 Transwater ran boat for Vega Frac pit dimensions and capacity.Transwater cut up folded old Vega frac pit liner plastic
- 11:00 Transwater cut up folded old Vega frac pit liner plastic and hauled away. Left Location
- 12:30 13:45 pumped 37,262 bbls fw on 8" line last 24 hrs , pumped 2528 bbls fw on 3" line last 24 hrs , for a combined ttl of 39,790 bbls of fw pumped last 24 hrs , Avg rate 27.63 bpm , ttl pumped into Vega Fra pit 183,938 bbls fw. Filling Vega Frac Pit.

### **02/10/2017**

Rig Name:

- 10:00 Filling Vega Frac Pit w/ fw. Pumped a combined ttl of 202,789 bbls fw into Vega Frac pit through 8" , 3" line. Water Level 5' from top of Vega Frac pit.

### **02/11/2017**

Rig Name:

- 09:00 Turn on Vega waterwell , Fill Vega Frac Pit w/ FW
- 12:00 Sterling installed 8" , 3" , Remote Monitoring System meters , Remote Monitoring systems hooked up Remote system. Turn on Vega waterwell at 13:30
- 14:00 Remote Monitoring systems finished at 16:00 , Turn off Vega waterwell at 17:00 Have pumped 214,570 bbls FW into Vega Frac Pit. Water level less than 4' from top of pit on low side of Vega Frac pit.

### **02/12/2017**

Rig Name:

- 08:30 Vega Frac pit , 08:30 Turn on Vega waterwell , fill Vega Frac Pit , 17:30 SD Vega waterwell. Pumped 229,390 bbls FW ttl into Vega Frac pit. Water Level 2'6" from top of Vega Frac pit on Low side of Vega Frac pit.

### **02/14/2017**

Rig Name:

- 14:00 Dropped off Vega Frac pit water sample to FTS in Odessa , Tx

### **04/01/2017**

Rig Name:

- 08:15 Check progress on rig moving off location
- 10:15 Turn on Vega waterwell . filling Vega frac pit at 27.35 bpm through 3" , 8" lines , Met w/ FTSI Rep , caught water samples from Vega frac pit , FTSI rep discussed where to spot frac tanks

### **04/02/2017**

Rig Name:

- 08:00 Right Light delivered Manlift , Forklift , 2- porta potty's , trash trailer.
- 09:45 PJSM
- 10:00 CER Delivered and NU Frac Stack , KLX Torqued up to specs.
- 12:30 KLX Pressure tested Frac Stack 250 psi low , 10,000 psi high , Tested all valves.
- 14:30 Rockwater RU Flowback manifold and lines . KLX pressure tested flowback

- manifold and iron 8k - Test ok.
- 15:30 Magneto roustabouts plumbed Surface Casing bleedoff line , Plumbed 9 5/8" Intermediate bleedoff line , Magneto welder cutoff Mousehole and welded cover. Surface Casing Pressure 0 , 9 5/8" Intermediate SICP 0
- 18:00 Pumped 38,796 bbls water from Vega waterwell to vega frac pit in 24 hrs at 10:15 am , Pumped 13,725 bbls water from 10:15 am to 18:45 pm , SD Waterwell , Water Level 3.5' from top of Vega Frac Pit on Low Side.
- 19:00 Standard Safety delivered Shower Trailer , Setup H2s Light Pkg.

#### 04/03/2017

Rig Name:

- 08:00 Check Vega frac pit , WL 3' from Top of frac pit on low side , Gained 6" due to rain. Surface Casing Pressure 0 , Intermediate SICP 0
- 09:30 PJSM , RU J4 pumping services
- 11:15 Tie on and pressure test 9 5/8" x 5 1/2" Intermediate Csg , Pressure up 2500 psi , Bled off 400 psi in 5 min. , Bled off , Retest , Pressure up 2500 psi on Intermediate Csg , Pressure at 2237 psi in 10 min. , Retest , Pressure up 2500 psi on Intermediate Csg , Isolate pump , Pump side holding , Casing side bleeding off , 10 min 2250 psi , Retest , Pressure up 1070 psi on Intermediate Csg w/ 5 1/2" open , 15 min 890 psi , bled off
- 13:00 RU to WH , Pressure test lines 8k - Test ok
- 13:15 Step rate test , Open WH , Pressure up on 5 1/2" Csg 2500 psi and held for 5 min , Step up to 3000 psi , 3500 psi , 4000 psi , 4500 psi , 5000 psi , Holding pressure for 5 min at each step , Pressure up 5500 psi and held for 30 min , Pressure at 5460 psi in 30 min. Intermediate SICP 500 psi , Pressure up to 6000 psi and held for 5 min , Intermediate SICP 550 psi , Pressure up 6500 psi and held for 5 min , Intermediate SICP 590 psi , Pressure up to 6790 psi and TTS opened , Monitor pressure decline , 3 min 2958 psi , Start Injecting 5250 psi at 1.5 bpm , Injecting 5600 psi at 2 bpm - Pressure walking up , 6350 psi at 2 bpm , 30 bbls pumped , Pressure kickout tripped at 6741 psi at 1.5 bpm , resumed pumping , pressure kickout tripped at 6784 psi at 1.5 bpm , 48 bbls pumped ttl , Resumed pumping , pumping at .65 bpm at 5800 psi , 59 bbls pumped , pumping at 6075 psi at .8 bpm , 88 bbls pumped , pumping at 6300 psi at 1.05 bpm , 110 bbls pumped , pumping at 6250 psi at 1.05 bpm , 118 bbls pumped , pumping at 6450 psi at 1.15 bpm , 120 bbls pumped , Final Injection Rate 6450 psi at 1.15 bpm , 140 bbls pumped TTL , ISIP 5800 psi , 5 min 3671 psi , 10 min 2875 psi , 15 min 2358 psi , Shut-In Well , Bleed off pressure

#### 04/04/2017

Rig Name:

- 07:00 PJSM , Surface Csg SICP 0 , Int. SICP 0 , 5 1/2" SICP 1150 psi , Start pumping 5700 psi at 1 bpm on water , 6 bbls pumped , 6030 psi at 1 bpm , 15 bbls pumped , Switch to 500 gals 10% Acetic , On Flush , 6060 psi at 1 bpm , 19 bbls flush gone , 10% Acetic through TTS , Flushed w/ 263 bbls FW , final rate before SD 5425 psi at 1 bpm , ISIP 3600 PSI , 5 min 2882 psi , 10 min 2386 psi , 15 min 2160 psi , 30 min 1970 psi , Resume pumping , 6020 psi at 1.7 bpm , pressure slowly rising , 17 bbls pumped , 6440 psi at 1.5 bpm , 25 bbls pumped , Pumped 34 bbls , 6400 psi at 1.5 bpm
- 13:15 Start 1000 gals 15% HCL , NEFE Acid , On Flush 6700 psi at 1.5 bpm , 11 bbls flush gone , 6610 psi at 1.25 bpm , 75 bbls flush gone , Transmission got hot , attempted to switch pumps , spare pump knocking , let transmission cool , Resume pumping , 6500 psi at 1.2 bpm , 122 bbls flush gone , pumping at 6600 psi at 1 bpm , 190 bbls flush gone , Flushed w/ 264 bbls , All acid through TTS , Overflushed 1 bbl , final rate just before SD 2800 psi at 6.3 bpm w/ 1 pump , going through 2nd pump to find problem while SD , ISIP 2324 psi , 18 min 2000 psi , Resume pumping 8.3 bpm at 2950 psi , 12.4 bpm at 3425 psi , Overflushed 36 bbls , ISIP 2425 psi , 5 min 2115 psi , 10 min 2018 psi , 15 min 1962 psi , Shut-In well
- 18:15 Shut-In well , RD J4 , RU Fesco WL
- 20:00 Make up lube to WH , Pressure test lube 8k - test ok , bled pressure to 2k to equalize , Open WH w/ 2000 psi.
- 21:15 RIH w/ GR/CCL/CBL , Stop at 7292'
- 22:30 POOH running CBL to surface. Est. Top of Cement 4575' , Out of hole w/WL , Shut-In Well
- 03:00 Bled off , LD Lube , Fesco Engineer compiled data and put Cement Bond Log in PDF file.

#### 04/05/2017

Rig Name:

- 07:00 PJSM , Surface Casing Pressure 0 , Intermediate SICP 100 psi , SICP 5 1/2" 1658 PSI
- 07:15 RU ProPetro
- 10:30 Pressure up on Surface Csg 200 psi and held - 2 bbls to load , Switch to Intermediate Csg Pressure up 1020 psi and hold , 1.3 bbls to load , Held pressure for 10 min test ok , Surface Csg pressure 170 psi , Pressure test lines

8k  
11:30 Open 5 1/2" w/ 1610 psi , Establish Injection rate 15 bpm at 3200 psi , ISIP 2109 PSI , Surface SICP 100 psi , Intermediate SICP 760 psi  
12:15 RU Fesco WL , PU Lube , Pressure test Lube 8k - test ok , Bled pressure to 1900 psi , Open WH Rih w/ 5 1/2" Halliburton CBP and Guns , Pumped Plug and guns down at 12 bpm 3047 psi , 300 fpm , SD at 11,852' , (Intermediate SICP 610 psi)(Surface SICP 100 psi)pump 6 bbls 15% HCL NEFE Acid , On flush , 6 bpm at 2635 psi. Hobbs Anchors set and tested Anchors)  
14:00 Finish spotting acid , Pull up and set CBP at 11,842' , Pressure up 6500 psi and held for 5 min - Test ok , Bled pressure to 5000 psi , Pull up to Gun #1 depth , Fire gun #1 , 11,825' - 11,827' , (Moved due to moving Plug) 60 degree phasing , 6 spf , 11 shots ttl , Pull up to gun #2 depth , Ran out of water , to put 6 bbls acid away  
16:00 Put 6 bbls acid away , 3 bpm at 4450 psi , Fire gun #2 11,780' - 11,782' , 6 spf , 10 shots ttl , 60 degree phasing , Pull up and fire gun #3 11,729' - 11,731' , 6 spf , 9 shots ttl , 60 degree phasing , POOH w/ WL logging out. Intermediate Csg 370 psi , Surface Csg SICP 0  
17:30 Out of hole w/ Fesco WL , LD Guns , Verified all shots fired  
18:00 RD Fesco WL , Pro Petro Pressure up on intermediate Csg 2537 psi , 20 min 2414 psi , 30 min 2383 psi , Surface Csg 0 , 5 1/2 SICP 1767 psi  
19:00 Tie onto 5 1/2" Csg , Start pumping for Defit test , Pumping 4 bpm slight break at 5167 psi at 8 bbls pumped , Hard SD at 30 bbls pumped to start Defit test , Rate just before SD 4 bpm at 4917 psi. ISIP 4629 psi , Shut-in well  
20:00 RD ProPetro (Note: All water pumped , 2% KCL substitute w/ Biocide)

#### **04/06/2017**

Rig Name:

09:00 Surface Csg Pressure 0 , Intermediate SICP 1790 PSI , 5 1/2" SICP 1620 PSI , Defit Test , PJSM , Deep Well Services delivered , spotted , manifolded 12 frac tanks , Tan Mar delivered 2 - 2 br , 1-meeting rm trailer ,L&M Backhoe backdrug location , Start Vega waterwell to tophoff vega frac pit , Shutoff Vega waterwell , water level 2'2" from Top of Vega frac pit. SICP Intermediate 1650 psi , Surface Csg pressure 0 , SICP 5 1/2" 1585 psi

#### **04/07/2017**

Rig Name:

09:00 10 am Surface Csg Pressure 0 , Intermediate SICP 1440 PSI , 5 1/2" SICP 1543 PSI , Tan Mar Finished setting up mobile housing , Terra water transfer set pump , Unloaded layflat reels , started laying layflat , Deep Well Services delivered and set 2 Acid tanks.18:15 SICP Intermediate 1325 psi , Surface Csg pressure 0 , SICP 5 1/2" 1527 psi

#### **04/08/2017**

Rig Name:

09:00 09:00 Surface Csg Pressure 0 , Intermediate SICP 1180 PSI , 5 1/2" SICP 1505 PSI , PJSM , Terra water transfer finished laying layflat line , Deep well services delivered and unloaded 195 bbls fw in both Acid tanks , Terra water transfer finished laying layflat line , Set and RU manifold , 15:30 filled frac tanks from Vega frac pit , Test rate 70 bpm ,17:00 Surface Csg Pressure 0 , Intermediate SICP 1100 PSI , 5 1/2" SICP 1495 PSI

#### **04/09/2017**

Rig Name:

08:30 Surface Csg Pressure 0 , 09:00 Intermediate SICP 1000 PSI , 5 1/2" SICP 1478 PSI , PJSM , 11:00 Fesco RD WL Pressure control trailer and moved , FTSI delivered and spotted 3 - Sand Kings , Iso Tank , Staged Frac equipment to Freedom battery. 17:30 Surface Csg Pressure 0 , Intermediate SICP 950 PSI , 5 1/2" SICP 1471 PSI

#### **04/10/2017**

Rig Name:

08:00 Surface Csg Pressure 0 , Intermediate SICP 860 PSI , 5 1/2" SICP 1460 PSI , PJSM , FTSI delivered and spotted 2 - Iso Tanks , (3 ttl) , Elims calibrated Iso Tank for KCL  
13:00 FTSI did maintenance work on 2 Sand Kings  
16:00 FTSI staging equipment to Freedom battery  
18:30 PJSM w/ FTSI night crew , Surface Csg Pressure 0 , Intermediate SICP 850 PSI , 5 1/2" SICP 1452 PSI  
19:00 Spot in and rig up backside of frac crew (blenders, suction discharge hoses, and chemical add trucks). Spotted in 6 pump trucks.

#### **04/11/2017**

Rig Name:

06:00 FTSI spotting pump trucks  
07:00 PJSM , Surface Csg Pressure 0 , Intermediate SICP 800 PSI , 5 1/2" SICP 1445 PSI  
07:30 FTSI spotted pumps , Catalyst dropped off chemical float , RU Rockwater

flowback iron , Fesco spotted WL unit , Crane , Pressure control trailer , Frac manifold rigged up , Frac line 85% rigged up 11 of 14 pumps rigged up  
14:30 Frac line rigged up 14 of 14 pumps rigged up. Hcl Acid unloaded in tanks  
17:00 Rigging up KLX FRV Popoff system on Intermediate Csg , Surface Csg Pressure 0 , Intermediate SICP 800 PSI , 5 1/2" SICP 1437 PSI  
19:00 Finished rigging up release lines, bucket testing all LA's.  
03:00 Pressure test lines, repairing leaks. Pressure test all surface lines to 10,200 psi. Set N2 Pop off at 7,000 psi, Set Annulus FRV to 2,750 psi, function test FRV with 6,800 psi on treatment line (good test, valve opened and closed as designed). Set manual pop off for 5.5"X9.625" annulus to 2,750 psi.

#### 04/12/2017

Rig Name:

06:00 Surface Csg Pressure 0 , Intermediate SICP 750 PSI , 5 1/2" SICP 1432 PSI , PJSM  
07:00 Fesco Hooked up control lines for WL BOP , Fesco rigged up , RU CER Test pump  
09:30 Pressure up on Intermediate Csg 2500 psi , pop connection leaking , CRV connection leaking , Repair leaks , Set mechanical pop off on Intermediate Csg at 2700 psi , Reset Intermediate FRV pop off to 2500 psi , Bled pressure dn on Intermediate to 1700 psi  
10:45 PJSM , Pressure test lines 10150 psi , Open WH w/ 1402 psi  
12:15 Frac Stage 1 , Open Well SICP 1402 psi. Pump Stage #1. Initial ISIP 2580 psi. Pumped 3,234 gals 15% HCl, pumped 247,422 gals of Slickwater, 48,636 gals of 15# X-link fluid, w/ 159,580 lbs 100 mesh, 126,540 lbs 40/70 White, 47,800 30/50 -Max psi: 6344 psi, Avg psi: 4922 psi, Max rate: 60.9 bpm, Avg rate: 59.2 bpm, 0.90 Frac. Gradient. Approx load to rec 7203 bbls. ISIP: 3419 psi, 5 min: 2380 psi, 10 min: 2234 psi, 15 min: 2061 psi, 5 1/2 X 9-5/8" Avg pressure 1335 psi.  
15:15 Stage #2 Pump Down, Test Lubricator to 7000 PSI. Open Well w/ 2000 psi. RIH & get on depth w/ MJ @ 6508'. RIH & Pump Down @ 14 ppm w/ 2800 psi, 250 - 300 FPM, Spot CFP @ 11,734', Set CFP @ 11,705', PU & Fire Gun #1 @ 11,678'-11,680', 11 Shots. P/U and Fire Gun #2 @ 11,627'-11,629', 10 Shots. P/U & Fire Gun #3 @ 11,576'-11,578', 9 Shots.(All Perf Guns, 6 SPF, 60 Degree Phasing, 19 Gram Charge, .39 EHD.) POOH w/ WL , Out of hole w/ WL.Shut-in well , Ld Lube , Guns and Baker 20 setting tool. Verified all shots fired  
18:00 Load CFP Frac ball , Cleanout FRV pop off.  
18:30 PJSM  
19:00 Frac Stage 2 , Open Well WHPSI 1662 psi. Pumped 3,003 gals 15% HCl, pumped 185,876 gals of Slickwater, 244,734 gals of 15# X-link fluid, w/ 143,300 lbs 100 mesh, 126,220 lbs 40/70 White, 44,060 30/50 -Max psi: 6,919 psi, Avg psi: 6,102 psi, Max rate: 60.5 bpm, Avg rate: 42.7 bpm. Approx load to rec 10,409 bbls. 1.11 Frac. Gradient ISIP: 4,965 psi, 5 min: 4,007 psi, 10 min: 3,256 psi, 15 min: 2,642 psi, 5 1/2 X 9-5/8" Avg pressure 1650 psi.  
\*pumping rates were diminished and pumping pressures were near max, due to adverse reaction from formation when 1.5 ppg 100 mesh was pumped into the perforations.  
00:00 Stage #3 Pump Down, Test Lubricator to 7000 PSI. Open Well w/ 2000 psi. RIH & get on depth w/ MJ @ 6508'. RIH & Pump Down @ 15 ppm w/ 5,800 psi, 250 - 300 FPM, Set CFP @ 11,552', PU & Fire Gun #1 @ 11,525' - 527', 11 Shots. P/U and Fire Gun #2 @ 11,475' - 477', 10 Shots. P/U & Fire Gun #3 @ 11,423' - 425', 9 Shots.(All Perf Guns, 6 SPF, 60 Degree Phasing, 22.7 Gram Charge, .42 EHD.) POOH w/ WL , Out of hole w/ WL.Shut-in well , Ld Lube , Guns and Baker 20 setting tool. Verified all shots fired. Pumped 338 bbl.  
03:00 Load CFP Ball in frac stack, clean out FRV system to pit.  
04:00 Frac Stage 3 , Open Well WHPSI 1,716 psi. Pumped 2,856 gals 15% HCl, displaced acid, started pumping frac job 60 bpm @ 4,900 psi. FracTech N2 pump started leaking. Shut down for repairs.  
05:00 Shut well in. Release pressure, remove and replace bad FracTech N2 Pop-off. Pressure test lines, set N2 pop-off to 6,940 psi.

#### 04/13/2017

Rig Name:

06:00 Frac Stage 3 , Open Well w/ 1,716 psi. Pumped 2,898 gals 15% HCl, pumped 317,688 gals of Slickwater, 48,132 gals linear gel ,80,850 gals of 15# X-link fluid, w/ 159,540 lbs 100 mesh, 122,120 lbs 40/70 White, 0 lbs 30/50 -Max psi: 7524 psi, Avg psi: 6132 psi, Max rate: 52.2 bpm, Avg rate: 42.7 bpm. Approx load to rec 10,838 bbls. 0.95 Frac. Gradient ISIP: 3805 psi, 5 min: 2833 psi, 10 min: 2599 psi, 15 min: 2423 psi. Avg Intermediate backside pressure 1400 psi  
09:15 Stage #4 Pump Down, Test Lubricator to 7000 PSI. Open Well w/ 2200 psi. RIH & get on depth w/ MJ @ 6508'. RIH & Pump Down @ 14 ppm w/ 4750 psi, 250 - 300 FPM, Spot CFP @ 11,404', Set CFP @ 11,394', PU & Fire Gun #1 @ 11,367'-11,369', 11 Shots. P/U and Fire Gun #2 @ 11,316'-11,318', 10 Shots. P/U & Fire Gun #3 @ 11,270'-11,272', 9 Shots.(All Perf Guns, 6 SPF, 60 Degree Phasing, 19 Gram Charge, .39 EHD.) POOH w/ WL , Out of hole w/ WL.Shut-in well . Ld Guns and Baker 20 setting tool. Verified all shots fired.Load CFP Ball in

- frac stack, clean out FRV system to pit. FRV system had system error (Electrical) , bypass , KLX tech enroute.
- 12:15 Frac Stage 4 , Open Well w/ 1,841 psi. Pumped 2940 gals 15% HCl, pumped 154,056 gals of Slickwater, 92,358 gals of 15# X-link fluid, 111,132 gals Linear gel , 159,360 lbs 100 mesh, 126,280 lbs 40/70 White, 46,620 30/50 -Max psi: 7058 psi, Avg psi: 5490 psi, Max rate: 59.7 bpm, Avg rate: 45.9 bpm. Approx load to rec 8676 bbls. 0.87 Frac. Gradient ISIP: 3175 psi, 5 min: 2455 psi, 10 min: 2284 psi, 15 min: 2203 psi , Avg 9 5/8" x 5 1/2" Intermediate pressure 1400 psi , KLX rep repaired FRV unit.(Max pressure when frac ball on seat)
- 18:15 Stage #5 Pump Down, Test Lubricator to 7000 PSI. Open Well w/ 2,000 psi. RIH & get on depth w/ MJ @ 6508'. RIH & Pump Down @ 12 ppm w/ 4,600 psi, 250 - 300 FPM, Spot 1000 gals 15% hcl acid , Spot Caged Ball Frac Plug (Halliburton Obsidian) @ 11,254', Finish last 18 bbl of displacement for acid spot , Set Caged Ball CFP @ 11,246', PU to Gun #1 depth @ 11,219'-221', 11 Shots. Pressure test Frac plug to 6,800 psi (good), release pressure down to 4,500 psi, perforate toe gun (instant pressure drop to 1,900 psi). P/U to Gun #2 depth Fire Gun #2 @ 11,171'-173', 10 Shots. P/U & Fire Gun #3 @ 11,117'-119', 9 Shots.(All Perf Guns, 6 SPF, 60 Degree Phasing, 22.7 Gram Charge, .42 EHD.) Pull up hole into lubricator, set down on tool catcher. Wait for lightning storm to pass.
- 20:30 Shut down for lightning storm.
- 23:00 Finish POOH w/ WL , Out of hole w/ WL. Shut-in well , Ld Lubricator Guns and Baker 20 setting tool. Verified all shots fired. \*\*No sand in tools or guns.
- 00:00 Start all frac trucks and get computers set up. (from being turned off for lightning storm). Cleared FVR of sand.
- 01:30 Frac Stage 5 , Open Well w/ 1,641 psi. Pumped 2,000 gals 15% HCl, pumped 8,107 bbl of Slickwater, 1,669 bbl of 15# X-link fluid, , 160,060 lbs 100 mesh, 125,320 lbs 40/70 White, 46,980 30/50 -Max psi: 6,126 psi, Avg psi: 5,167 psi, Max rate: 61.2 bpm, Avg rate: 57.6 bpm. Approx load to rec 10,048 bbls. 0.97 psi/ft Frac. Gradient ISIP: 3,895 psi, 5 min: 2,643 psi, 10 min: 2,384 psi, 15 min: 2,286 psi.
- 05:00 Pick up guns and plug. Pressure test lubricator to 7k psi.

#### 04/14/2017

Rig Name:

- 06:00 RIH w/ Stage 6 plug and perf , correlate to marker jt , PJSM - Day Shift , SD due to blender issues , POOH w/ wl to 7500' and SD
- 07:15 Troubleshoot problem w/ blender , Fill flush tank for acid spot
- 08:15 Resume stage 6 pumpdown , 14 bpm at 4200 psi , Spot acid , SD at 11,113' , Finish Spotting acid , Pull up and attempt to set Obsidian CBP at 11,093' , saw cap break , waited 5 min , pull up - did not lose any wt , pull up to 11,066 - not dragging , attempt to pressure up - pumping in , pu 10' to 11,056 - no drag , pumpdown at 9 bpm 3000 psi to 11,116' , stop , appears to be a misfire. pooh w/ plug and guns.Out of hole w/ WL , LD plug and guns. troubleshoot problem.
- 11:15 Troubleshoot problem on misfire , Found bent grounding pin on plug shoe. Cap did not break.
- 12:00 Stage 6 Pumpdown-Pressure test lube 7k , Open WH w/1700 psi , RIH & Pump Down @ 14 BPM W/ 3750 PSI, Time Spot 1000 Gal. 15% HCL, Spot Obsidian CFP @ 11102' & Finish Spotting Acid , Set Obsidian CFP @ 11093', Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5200 psi , P/U & Fire Gun #1 @ 11066'-11068', 11 shots , P/U and Spot Gun #2 @ 11015'-11017' , Inject 6 bbls acid 6000 psi at 1.3 bpm , Fire Gun #2 @ 11015'-11017', 10 shots , P/U & Fire Gun #3 @ 10964'-10966', 9 shots , All guns 60 degree phasing , 6 spf , 19 gram charges , .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Visually inspect All Guns Fired. Clean out FRV system , Grease frac valves.
- 15:00 Frac Stage 6 , Pumped 2,000 gals 15% HCl, total fluid pumped 12,000 bbls. 159,180 lbs 100 mesh, 125,760 lbs 40/70 White, 47,840 30/50 -Max psi: 6,097 psi, Avg psi: 5,612 psi, Max rate: 60.1 bpm, Avg rate: 49.4 bpm. 1.08 Frac. Gradient ISIP: 4,737 psi, 5 min: 3,517 psi, 10 min: 2,998 psi, 15 min: 2,691 psi.
- 19:45 Stage 7 Pump down-Pressure test lube 7k, Open WH w/1700 psi , RIH & Pump Down @ 12 BPM W/ 4,100 PSI, Time Spot 1000 Gal. 15% HCL, shut wire line down just past setting depth, Finish Spotting Acid , Set Obsidian CFP @ 10,948', Unable to gain pressure test. Fesco WL talked with Titan (addressable switch company) they recommended we (reset the computer for the switches, pump down, pull back up to Plug depth, try stroke the tool(holding the dial open longer for the cap)). We pulled up hole to 10,800', started pumping 12 bpm and pumped down 40' past 10,948' plug depth, Shut down pumps, pulled up to plug depth, set plug (holding dial for 5 seconds)(felt plug stroke and shear, puled up to toe gun depth and got a good casing/plug test to 6,800 psi, bleed down pressure to 5,200 psi, perforated the toe gun 10,918' - 20'. (pressure fell to 4,700 psi, breakdown formation 5,927 psi (on water), re-spot 24 bbl hcl acid 10 bpm injecting 3 bbl into perforation (10 bpm @ 6,304 psi, upon acid hitting formation pressure fell to 4,050 psi). Pull up and Fire Gun #2 @ 10862'-10864', 10 shots , P/U & Fire Gun #3 @ 10,811-10,813', 9 shots , All guns 60 degree phasing , 6 spf , 19 gram charges , .39 EHD , POOH with

- Setting Tool & Perf Assy. L/D Tools. Visually inspect All Guns Fired. Clean out FRV system , Grease frac valves.
- 00:30 Frac Stage 7 , Pumped 2,000 gals 15% HCl, total fluid pumped 10,360 bbls. 151,900 lbs 100 mesh, 120,620 lbs 40/70 White, 49,080 30/50 -Max psi: 6,561 psi, Avg psi: 5,911 psi, Max rate: 61.1 bpm, Avg rate: 53.9 bpm. 1.05 Frac. Gradient ISIP: 4,455 psi, 5 min: 3,256 psi, 10 min: 2,938 psi, 15 min: 2,683 psi.
- 03:30 Stage 8 Pump down-Pressure test lube 7k , Open WH w/1900 psi , RIH & Pump Down @ 12 BPM W/ 4350 PSI, Time Spot 1000 Gal. 15% HCL, Spot Obsidian CFP @ 10790' & Finish Spotting Acid , Set Obsidian CFP @ 10787', Pressure up to 6800 PSI ,test for 5 min , Bled pressure to 5200 psi , P/U & Fire Gun #1 @ 10,760'-762' , 11 shots , P/U and Spot Gun #2 @ 10709'-711' , Breakdown 6,582 psi, Inject 5 bbls. Fire Gun #2 @ 10,709'-711' , 10 shots , P/U & Fire Gun #3 @ 10,658'-660' , 9 shots , All guns 60 degree phasing , 6 spf , 19 gram charges , .39 EHD.

#### 04/15/2017

Rig Name:

- 06:00 PJSM - Days , POOH with Stage 8 Setting Tool & Perf Assy. L/D Tools. Visually inspect All Guns Fired. Clean out FRV system
- 08:00 Frac Stage 8 , Open Well w/ 2001 psi. Pumped 6930 gals 15% HCl, pumped 441,714 gals of Slickwater, 38010 gals of 15# X-link fluid, 2058 gals Linear gel , 158,500 lbs 100 mesh, 130,500 lbs 40/70 White, 44,000 30/50 White , Max psi: 6433 psi, Avg psi: 5743 psi, Max rate: 59.9 bpm, Avg rate: 55.5 bpm. Approx load to rec 11,478 bbls. 1.0 Frac. Gradient ISIP: 4154 psi, 5 min: 3421 psi, 10 min: 2884 psi, 15 min: 2067 psi , Avg 9 5/8" x 5 1/2" Intermediate pressure 1400 psi
- 14:00 Stage 9 Pumpdown , Pressure test lube 7k , Open WH w/2050 psi , RIH & Pump Down @ 14 BPM W/ 4290 PSI, Time Spot 1000 Gal. 15% HCL, Spot Obsidian CFP @ 10,650' & Finish Spotting Acid , Pull up and set Obsidian CFP @ 10634', Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi , P/U & Fire Gun #1 @ 10607'-10609' , 11 shots , P/U and Spot Gun #2 @ 10556'-10558' , Inject 6 bbls acid 3300 psi at 3 bpm , Fire Gun #2 @ 10556'-10558' , 10 shots , P/U & Fire Gun #3 @ 10505'-10507' , 9 shots , All guns 60 degree phasing , 6 spf , 19 gram charges , .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 300 bbls during Pumpdown Visually inspect All Guns Fired. Clean out FRV system.
- 16:30 Frac Stage 9 , Open Well w/ 1,926 psi. Pumped 3,000 gals 15% HCl, pumped 390,420 gals of Slickwater, 55,482 gals of 15# X-link fluid, 420 gals Linear gel , 159,400 lbs 100 mesh, 126,560 lbs 40/70 White, 47,360 30/50 White , Max psi: 6,090 psi, Avg psi: 5,548 psi, Max rate: 60 bpm, Avg rate: 56.6 bpm. Approx load to rec 10,720 bbls. 0.98 psi/ft Frac. Gradient. ISIP: 3,694 psi, 5 min: 2,403 psi, 10 min: 2,052 psi, 15 min: 2,014 psi.
- 20:00 Shut down for lightning storm.
- 00:00 Stage 10 Pumpdown , Pressure test lube 7k , Open WH w/1,941 psi , RIH & Pump Down @ 12 BPM W/ 4350 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 10,481' , P/U to Gun #1 depth @ 10454'-456' (11 shots), Pressure up to 6800 PSI ,test for 5 min , Bled pressure to 5200 psi, Fire Gun #1, P/U and Spot Gun #2 @ 10,403'-405' (10 shots) , Brkdwn @ 6,234 psi, Inject 5 bbls acid 1.4 bpm @ 5,888 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 10,352'-354' (9 shots) , All guns 60 degree phasing , 6 spf , 19 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 325 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 02:30 Frac Stage 10, Open Well w/ 1,926 psi. Pumped 3,000 gals 15% HCl, pumped 287,986 gals of Slickwater, 62,790 gals of 15# X-link fluid, 420 gals Linear gel , 154,680 lbs 100 mesh, 125,760 lbs 40/70 White, 47,620 30/50 White , Max psi: 6,252 psi, Avg psi: 5,589 psi, Max rate: 60 bpm, Avg rate: 57.9 bpm. Approx load to rec 8,460 bbls. 0.85 psi/ft Frac. Gradient. ISIP: 3,061 psi, 5 min: 2,220 psi, 10 min: 1,976 psi, 15 min: 1,912 psi.
- 05:30 Pick up guns and plug for Stage 11 pump down.

#### 04/16/2017

Rig Name:

- 06:00 Stage 11 Pumpdown , Pressure test lube 7k , Open WH w/1,900 psi , RIH & Pump Down @ 12 BPM W/ 4350 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 10,323' , P/U to Gun #1 depth @ 10,301'-303' (11 shots), Pressure up to 6800 PSI ,test for 5 min , Bled pressure to 5200 psi, Fire Gun #1, P/U and Spot Gun #2 @ 10,250'-52' (10 shots) , Brkdwn @ 6,299 psi, Inject 5 bbls acid 1.9 bpm @ 6,000 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 10,198'-200' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 320 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 09:00 Frac Stage 11 , Open Well w/ 2596 psi. Pumped 3948 gals 15% HCl, pumped 328,608 gals of Slickwater, 68,418 gals of 15# X-link fluid, 21,504 gals Linear gel , 159,220 lbs 100 mesh, 126,220 lbs 40/70 White, 47,760 lbs 30/50 White , Max psi: 6211 psi, Avg psi: 5470 psi, Max rate: 60.2 bpm, Avg rate: 57.4 bpm. Approx load to rec 9784 bbls. 0.98 Frac Gradient , ISIP: 3932 psi, 5 min: 2208

- psi, 10 min: 2035 psi, 15 min: 1964 psi , Avg 9 5/8" x 5 1/2" Intermediate pressure 1700 psi
- 12:45 Stage 12 Pumpdown , Pressure test lube 7k , Open WH w/1952 psi , RIH & Pump Down @ 14 BPM W/ 4000 PSI, Time Spot 1000 Gal. 15% HCL, Spot Obsidian CFP @ 10185' & Finish Spotting Acid , Pull up and set Obsidian CFP @ 10175', Pressure up to 6500 PSI ,test for 5 min - test ok , Bled pressure to 5100 psi , P/U & Fire Gun #1 @ 10,148'-10,150', 11 shots , P/U and Spot Gun #2 @ 10,097'-10,099' , Inject 6 bbls acid 2250 psi at 3 bpm , Fire Gun #2 @ 10,097'-10,099', 10 shots , P/U & Fire Gun #3 @ 10,046'-10,048', 9 shots , All guns 60 degree phasing , 6 spf , 22.5 gram charges , .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 234 bbls during Pumpdown Visually inspect All Guns Fired , Clean FRV valve.
- 15:30 Frac Stage 12 , Open Well w/ 1740 psi. Pumped 3,000 gals 15% HCl, pumped 327,919 gals of Slickwater, 73,836 gals of 15# X-link fluid, 1,512 Linear gel , 158,900 lbs 100 mesh, 125,960 lbs 40/70 White, 47,860 lbs 30/50 White , Max psi: 6,317 psi, Avg psi: 5,512 psi, Max rate: 60 bpm, Avg rate: 56.2 bpm. Approx load to rec 9,697 bbls. 1.04 Frac Gradient , ISIP: 4,402 psi, 5 min: 2,457 psi, 10 min: 2,234 psi, 15 min: 2,114 psi.
- 20:30 Stage 13 Pumpdown , Pressure test lube 7k , Open WH w/1,941 psi , RIH & Pump Down @ 12 BPM W/ 4,169 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 10,318', P/U to Gun #1 depth @ 9,995'-9,997' (11 shots), Pressure up to 6800 PSI ,test for 5 min , Bled pressure to 5200 psi, Fire Gun #1 (pressure fell from 5,200 psi to 2,000 psi), P/U and Spot Gun #2 @ 9,944'-46' (10 shots) , Brkdwn @ 2,000 psi, Inject 5 bbls acid 1.5 bpm @ 2,600 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 9,898'-900' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 290 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 22:30 Frac Stage 13 , Open Well w/ 1820 psi. Pumped 3,000 gals 15% HCl, pumped 270,887 gals of Slickwater, 60,858 gals of 15# X-link fluid, 1,260 Linear gel , 156,200 lbs 100 mesh, 125,820 lbs 40/70 White, 49,980 lbs 30/50 White , Max psi: 6,261 psi, Avg psi: 5,002 psi, Max rate: 60 bpm, Avg rate: 58 bpm. Approx load to rec 8,024 bbls. 0.89 Frac Gradient , ISIP: 3,337 psi, 5 min: 2,429 psi, 10 min: 2,215 psi, 15 min: 2,011 psi.
- 02:00 Stage 14 Pumpdown , Pressure test lube 7k , Open WH w/1,800 psi , RIH & Pump Down @ 12 BPM W/ 3,800 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 9,869', P/U to Gun #1 depth @ 9,842'-44' (11 shots), Pressure up to 6800 PSI ,test for 5 min , Bled pressure to 5200 psi, Fire Gun #1 (pressure fell from 5,500 psi to 2,400 psi), P/U and Spot Gun #2 @ 9,791'-93" (10 shots) , Brkdwn @ 2,000 psi, Inject 5 bbls acid 1.5 bpm @ 2,300 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 9,740'-42' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 280 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 04:30 Start Frac Stage 14 , Open Well w/ 1820 psi. Pumped 3,000 gals 15% HCl. Completed frac after day report change.

#### 04/17/2017

Rig Name:

- 06:00 Frac Stage 14 , PJSM - Days , Pumped 4030 gals of 15% HCL Acid . Pumped 252,419 gals of Slickwater, 60,858 gals of 15# X-link fluid, 1,260 gals Linear gel , 158,000 lbs 100 mesh, 119,900 lbs 40/70 White, 47,450 lbs 30/50 White , Max psi: 6,461 psi, Avg psi: 4,926 psi, Max rate: 60 bpm, Avg rate: 58 bpm. Approx load to rec 8,024 bbls. 0.87 Frac Gradient , ISIP: 3,136 psi, 5 min: 2,262 psi, 10 min: 2,100 psi, 15 min: 2002 psi.
- 07:15 Stage 15 Pumpdown , Pressure test lube 7k , Open WH w/2100 psi , RIH & Pump Down @ 12 BPM W/ 2600 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 9710', P/U to Gun #1 depth @ 9689'-9691' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi, Fire Gun #1, P/U and Spot Gun #2 @ 9638'-9640' (10 shots) , Inject 6 bbls acid 1.2 bpm @ 6,430 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 9587'-9589' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 237 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system
- 09:15 Frac Stage 15 , Pumped 4242 gals of 15% HCL Acid . Pumped 273,168 gals of Slickwater, 50,106 gals of 15# X-link fluid, 0 gals Linear gel , 159,640 lbs 100 mesh, 126,860 lbs 40/70 White, 47,100 lbs 30/50 White , Max psi: 6437 psi, Avg psi: 4432 psi, Max rate: 61.1 bpm, Avg rate: 58.5 bpm. Approx load to rec 7860 bbls. 0.82 Frac Gradient , ISIP: 2831 psi, 5 min: 2245 psi, 10 min: 2100 psi, 15 min: 2018 psi
- 12:15 Stage 16 Pumpdown , Pressure test lube 7k , Open WH w/2040 psi , RIH & Pump Down @ 14 BPM W/ 2600 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 9558', P/U to Gun #1 depth @ 9536'-9538' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi, Fire Gun #1, P/U and Spot Gun #2 @ 9485'-9487' (10 shots) , Inject 6 bbls acid 3 bpm @ 2050 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 9434'-9436' (9 shots) , All auns 60 dearee phasina . 6 spf . 22.5 aram charaes. .39 EHD . POOH with

- Setting Tool & Perf Assy. L/D Tools. Pumped 240 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system. Grease Frac Valves.
- 14:15 Frac Stage 16 , Open WH w/1794 psi , Pumped 3948 gals of 15% HCL Acid . Pumped 294,294 gals of Slickwater, 62,160 gals of 15# X-link fluid, 0 gals Linear gel , 159,300 lbs 100 mesh, 126,280 lbs 40/70 White, 47,500 lbs 30/50 White , Max psi: 6122 psi, Avg psi: 4527 psi, Max rate: 60.2 bpm, Avg rate: 59.0 bpm. Approx load to rec 8484 bbls. 0.84 Frac Gradient , ISIP: 2942 psi, 5 min: 2356 psi, 10 min: 2190 psi, 15 min: 2106 psi
- 17:15 Stage 17 Pumpdown , Pressure test lube 7k , Open WH w/2100 psi , RIH & Pump Down @ 14 BPM W/ 2600 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 9410', P/U to Gun #1 depth @ 9383'-9385' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi, Fire Gun #1, P/U and Spot Gun #2 @ 9332'-9334' (10 shots) , Inject 6 bbls acid 2.6 bpm @ 2189 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 9281'-9283' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 213 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 19:30 Frac Stage 17 , Open WH w/1794 psi , Pumped 3948 gals of 15% HCL Acid . Pumped 247,282 gals of Slickwater, 47,040 gals of 15# X-link fluid, 1,260 Linear gel , 158,180 lbs 100 mesh, 125,040 lbs 40/70 White, 47,080 lbs 30/50 White , Max psi: 6,866 psi, Avg psi: 4,673 psi, Max rate: 60.2 bpm, Avg rate: 58.0 bpm. Approx load to rec 7,132 bbls. 0.87 Frac Gradient , ISIP: 3,175 psi, 5 min: 2,307 psi, 10 min: 2,146 psi, 15 min: 2,076 psi
- 22:30 Stage 18 Pumpdown , Pressure test lube 7k , Open WH w/1940 psi , RIH & Pump Down @ 12 BPM W/ 2,800 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 9,258', P/U to Gun #1 depth @ 9,230'-32' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5600 psi bled down to 2,000 psi, Fire Gun #1, P/U and Spot Gun #2 @ 9,174'-76' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 2,325 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 9,128-30' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 255 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 00:30 Frac Stage 18 , Open WH w/1814 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 251,697 gals of Slickwater, 44,982 gals of 15# X-link fluid, 1,260 Linear gel , 158,080 lbs 100 mesh, 130,100 lbs 40/70 White, 47,480 lbs 30/50 White , Max psi: 6,482 psi, Avg psi: 4,768 psi, Max rate: 60.2 bpm, Avg rate: 57.0 bpm. Approx load to rec 7,190 bbls. 0.88 Frac Gradient , ISIP: 3,233 psi, 5 min: 2,225 psi, 10 min: 2,100 psi, 15 min: 2,020 psi
- 03:30 Stage 19 Pumpdown , Pressure test lube 7k , Open WH w/2,000 psi , RIH & Pump Down @ 12 BPM W/ 3,200 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 9,100', P/U to Gun #1 depth @ 9,072'-74' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5600 psi bled down to 1,900 psi, Fire Gun #1, P/U and Spot Gun #2 @ 9,028'-30' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 2,300 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 8,975'-77' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 250 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.

#### 04/18/2017

Rig Name:

- 06:00 CER Greased Frac valves
- 06:30 PJSM - Days , Waiting on 100 mesh sand.
- 10:30 Unloaded 100 mesh sand.
- 11:45 Frac Stage 19 , Open WH w/ 1662 psi , Pumped 3654 gals of 15% HCL Acid . Pumped 270,522 gals of Slickwater, 53,004 gals of 15# X-link fluid, 10,542 gals Linear gel , 158,740 lbs 100 mesh, 125,300 lbs 40/70 White, 46,000 lbs 30/50 White , Max psi: 6281 psi, Avg psi: 4428 psi, Max rate: 60.1 bpm, Avg rate: 58.3 bpm. Approx load to rec 8268 bbls. 0.85 Frac Gradient , ISIP: 2980 psi, 5 min: 2246 psi, 10 min: 2098 psi, 15 min: 2015 psi
- 14:45 Stage 20 Pumpdown , Pressure test lube 7k , Open WH w/2000 psi , RIH & Pump Down @ 14 BPM W/ 2600 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CBP @ 8956'(Moved down 5' collar) , P/U to Gun #1 depth @ 8924'-8926' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi, Fire Gun #1, P/U and Spot Gun #2 @ 8873'-8875' (10 shots) , Inject 6 bbls acid 2.7 bpm @ 2025 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 8822'-8824' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Guns and setting tool. Pumped 203 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system
- 16:45 Frac Stage 20 , Open WH w/ 1783 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 281,971 gals of Slickwater, 43,848 gals of 15# X-link fluid, 1,260 Linear gel , 156,680 lbs 100 mesh, 126,140 lbs 40/70 White, 46,040 lbs 30/50 White , Max psi: 6,360 psi, Avg psi: 4,665 psi, Max rate: 60 bpm, Avg rate: 57.8 bpm. Approx load to rec 7,878 bbls. 0.82 Frac Gradient , ISIP: 2,800 psi, 5 min: 2,128 psi, 10 min: 2,007 psi, 15 min: 1,947 psi
- 19:45 Stage 21 Pumpdown , Pressure test lube 7k , Open WH w/1,950 psi , RIH &

- Pump Down @ 12 BPM W/ 3,200 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 8,798', P/U to Gun #1 depth @ 8,768'-70' (11 shots), Pressure up to 6800 PSI ,test for 5 min, bled pressure to 6,000 psi. Fire Gun #1 (pressure fell to 2,780 psi), P/U and Spot Gun #2 @ 8,720'-8722' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 3,200 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 8,669'-71' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 250 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 22:15 Frac Stage 21 , Open WH w/ 1783 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 288,308 gals of Slickwater, 41,748 gals of 15# X-link fluid, 1,260 Linear gel , 158,300 lbs 100 mesh, 125,380 lbs 40/70 White, 47,000 lbs 30/50 White , Max psi: 5,842 psi, Avg psi: 4,277 psi, Max rate: 60 bpm, Avg rate: 59 bpm. Approx load to rec 7,984 bbls. 0.83 Frac Gradient , ISIP: 2,870 psi, 5 min: 2,123 psi, 10 min: 1,993 psi, 15 min: 1,929 psi
- 01:15 Stage 22 Pumpdown , Pressure test lube 7k , Open WH w/1,890 psi , RIH & Pump Down @ 12 BPM W/ 2,800 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 8,645', P/U to Gun #1 depth @ 8,618'-20' (11 shots), Pressure up to 6800 PSI ,test for 5 min, bled pressure to 6,000 psi. Fire Gun #1 (pressure fell to 1,940 psi), P/U and Spot Gun #2 @ 8,567'-69' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 2,040 psi (BRKDWN 2,700 psi), Fire Gun #2 , P/U & Fire Gun #3 @ 8,520'-22' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 250 bbls during Pump down, Visually inspect All Guns Fired. Clean out FRV system.
- 02:45 Frac Stage 22 , Open WH w/ 1783 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 287,338 gals of Slickwater, 47,082 gals of 15# X-link fluid, 1,260 Linear gel , 158,280 lbs 100 mesh, 127,320 lbs 40/70 White, 47,060 lbs 30/50 White , Max psi: 6,397 psi, Avg psi: 4,336 psi, Max rate: 60 bpm, Avg rate: 59 bpm. Approx load to rec 8,089 bbls. 0.82 Frac Gradient , ISIP: 2,758 psi, 5 min: 2,195 psi, 10 min: 2,100 psi, 15 min: 2,054 psi
- 05:30 Start. Stage 23 Pumpdown , Pressure test lube 7k , Open WH w/2,000 psi , RIH & Pump Down @ 12 BPM W/ 2,300 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 8,492', P/U to Gun #1 depth @ 8,465'-67' (11 shots), Pressure up to 6800 PSI ,test for 5 min. Fire Gun #1 (pressure fell to 2,000 psi), P/U and Spot Gun #2 @ 8,414'-16' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 2,150 psi (BRKDWN 2,181 psi), Fire Gun #2 , P/U & Fire Gun #3 @ 8,363'-65' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD.

#### 04/19/2017

Rig Name:

- 06:00 POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 241 bbls during Stage 23 Pump down, Visually inspect All Guns Fired. Clean out FRV system
- 07:30 Frac Stage 23 , Open WH w/ 1910 psi , Pumped 4032 gals of 15% HCL Acid . Pumped 282,072 gals of Slickwater, 46,410 gals of 15# X-link fluid, 0 Linear gel , 154,400 lbs 100 mesh, 123,220 lbs 40/70 White, 46,000 lbs 30/50 White , Max psi: 5503 psi, Avg psi: 4224 psi, Max rate: 60.5 bpm, Avg rate: 59.3 bpm. Approx load to rec 7938 bbls. 0.80 Frac Gradient , ISIP: 2655 psi, 5 min: 1972 psi, 10 min: 1858 psi, 15 min: 1804 psi
- 10:30 Stage 24 Pumpdown , Pressure test lube 7k , Open WH w/1800 psi , RIH & Pump Down @ 14 BPM W/ 2500 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @8339 ' , P/U to Gun #1 depth @ 8312'-8314' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi, Fire Gun #1, P/U and Spot Gun #2 @ 8261'-8263' (10 shots) , Inject 6 bbls acid , 2.6 bpm @ 2100 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 8208'-8210' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Guns and setting tool. Pumped 186 bbls during Pump down, Visually inspect All Guns . Clean out FRV system
- 12:00 Frac Stage 24 , Open WH w/ 1761 psi , Pumped 3948 gals of 15% HCL Acid . Pumped 278,754 gals of Slickwater, 53,424 gals of 15# X-link fluid, 0 Linear gel , 159,200 lbs 100 mesh, 125,560 lbs 40/70 White, 45,100 lbs 30/50 White , Max psi: 5673 psi, Avg psi: 3845 psi, Max rate: 60.2 bpm, Avg rate: 58.8 bpm. Approx load to rec 8015 bbls. 0.78 Frac Gradient , ISIP: 2486 psi, 5 min: 1951 psi, 10 min: 1857 psi, 15 min: 1809 psi
- 15:00 Stage 25 Pumpdown , Pressure test lube 7k , Open WH w/1800 psi , RIH & Pump Down @ 14 BPM W/ 2500 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CBP @8186 ' , P/U to Gun #1 depth @ 8159'-8161' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5100 psi, Fire Gun #1, P/U and Spot Gun #2 @ 8108'-8110' (10 shots) , Inject 6 bbls acid , 2.8 bpm @ 3140 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 8052'-8054' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Guns and setting tool. Pumped 184 bbls during Pump down, Visually inspect All Guns fired . Clean out FRV system , Grease frac valves.
- 17:00 Frac Stage 25 , Open WH w/ 1606 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 281,600 gals of Slickwater, 42,210 gals of 15# X-link fluid, 1,260 x Linear gel , 159,320 lbs 100 mesh, 123,180 lbs 40/70 White, 45,100 lbs 30/50 White , Max psi: 4,823 psi, Avg psi: 3,758 psi, Max rate: 60 bpm, Avg rate: 58

bpm. Approx load to rec 7,834 bbls. 0.81 Frac Gradient , ISIP: 2,688 psi, 5 min: 1,985 psi, 10 min: 1,900 psi, 15 min: 1,857 psi

20:00 Stage 26 Pumpdown , Pressure test lube 7k , Open WH w/1,900 psi , RIH & Pump Down @ 12 BPM W/ 2,400 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 8,028', P/U to Gun #1 depth @ 8,006'-08' (11 shots), Pressure up to 6800 PSI ,test for 5 min. Fire Gun #1 (pressure fell to 2,061 psi), P/U and Spot Gun #2 @ 7,955'-57' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 1,814 psi (BRKDWN 2,181 psi), Fire Gun #2 , P/U & Fire Gun #3 @ 7,906'-08' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD.

21:30 Frac Stage 26, Open WH w/ 1,800 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 277,372 gals of Slickwater, 55,146 gals of 15# X-link fluid, 1,260 x Linear gel , 158,200 lbs 100 mesh, 124,000 lbs 40/70 White, 49,820 lbs 30/50 White , Max psi: 6,083 psi, Avg psi: 4,315 psi, Max rate: 60 bpm, Avg rate: 59 bpm. Approx load to rec 8,057 bbls. 0.86 Frac Gradient , ISIP: 3,074 psi, 5 min: 2,106 psi, 10 min: 1,963 psi, 15 min: 1,887 psi

00:30 Stage 27 Pump down , Pressure test lube 7k , Open WH w/1,900 psi , RIH & Pump Down @ 12 BPM W/ 2,400 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 7,880', P/U to Gun #1 depth @ 7,853'-55' (11 shots), Pressure up to 6800 PSI ,test for 5 min. Fire Gun #1 (pressure fell to 1,893 psi), P/U and Spot Gun #2 @ 7,802'-04' (10 shots) , Inject 6 bbls acid 2.0 bpm @ 1,900 psi (BRKDWN 2,400 psi), Fire Gun #2 , P/U & Fire Gun #3 @ 7,751'-53' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD.

02:00 Frac Stage 27, Open WH w/ 1606 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 281,600 gals of Slickwater, 42,210 gals of 15# X-link fluid, 1,260 x Linear gel , 159,320 lbs 100 mesh, 123,180 lbs 40/70 White, 45,100 lbs 30/50 White , Max psi: 4,823 psi, Avg psi: 3,758 psi, Max rate: 60 bpm, Avg rate: 58 bpm. Approx load to rec 7,834 bbls. 0.81 Frac Gradient , ISIP: 2,688 psi, 5 min: 1,985 psi, 10 min: 1,900 psi, 15 min: 1,857 psi

05:00 Stage 28 Pumpdown , Pressure test lube 7k , Open WH w/1,900 psi , RIH & Pump Down @ 12 BPM W/ 2,400 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 7,730', P/U to Gun #1 depth @ 7,700'-02' (11 shots), Pressure up to 6800 PSI ,test for 5 min., Bled Pressure to 5500 psi , Fire Gun #1 (pressure fell to 1,900 psi), P/U and Spot Gun #2 @ 7,649'-51' (10 shots) , Inject 6 bbls acid 2.8 bpm @ 1930 psi (BRKDWN 2,300 psi), Fire Gun #2 , P/U & Fire Gun #3 @ 7,598'-600' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD.

#### 04/20/2017

Rig Name:

06:00 PJSM - Day's , POOH with Setting Tool & Perf Assy. L/D Tools. Pumped 212 bbls during Stage 28 Pump down, Visually inspect All Guns Fired. Clean out FRV system

08:00 Leak on Low pressure side of Frac manifold , Repair Leak

09:00 Frac Stage 28 , Open WH w/ 1669 psi , Pumped 3990 gals of 15% HCL Acid . Pumped 274,680 gals of Slickwater, 39,270 gals of 15# X-link fluid, 13,902 gals Linear gel , 157,200 lbs 100 mesh, 123,580 lbs 40/70 White, 45,100 lbs 30/50 White , Max psi: 6,283 psi, Avg psi: 4,081 psi, Max rate: 59.6 bpm, Avg rate: 57.9 bpm. Approx load to rec 7967 bbls. 0.81 Frac Gradient , ISIP: 2719 psi, 5 min: 2053 psi, 10 min: 1937 psi, 15 min: 1868 psi

12:00 Stage 29 Pumpdown , Pressure test lube 7k , Open WH w/1800 psi , RIH & Pump Down @ 14 BPM W/ 2500 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 7574' , P/U to Gun #1 depth @ 7547'-7549' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5300 psi, Fire Gun #1, P/U and Spot Gun #2 @ 7499'-7501' (10 shots) , Inject 6 bbls acid , 2.8 bpm @ 4300 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 7445'-7447' (9 shots) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Guns and setting tool. Pumped 210 bbls during Pump down, Visually inspect All Guns fired . Clean out FRV system

14:00 Frac Stage 29 , Open WH w/ 1620 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 290,144 gals of Slickwater, 50,442 gals of 15# X-link fluid, 1,554 gals Linear gel , 158,140 lbs 100 mesh, 126,160 lbs 40/70 White, 47,100 lbs 30/50 White , Max psi: 6,547 psi, Avg psi: 4,293 psi, Max rate: 61 bpm, Avg rate: 59 bpm. Approx load to rec 8,203 bbls. 0.84 psi/ft Frac Gradient , ISIP: 2,894 psi, 5 min: 2,108 psi, 10 min: 1,967 psi, 15 min: 1,860 psi

17:00 Stage 30 Pumpdown , Pressure test lube 7k , Open WH w/1800 psi , RIH & Pump Down @ 14 BPM W/ 2500 PSI, Time Spot 1000 Gal. 15% HCL, set Obsidian CFP @ 7,423' , P/U to Gun #1 depth @ 7,394'-96' (11 shots), Pressure up to 6500 PSI ,test for 5 min , Bled pressure to 5,000 psi, Fire Gun #1, P/U and Spot Gun #2 @ 7,343'-45' (10 shots) , Inject 6 bbls acid , 3 bpm @ 3,700 psi, Fire Gun #2 , P/U & Fire Gun #3 @ 7,288'-90' (9 shots)(Moved gun 4' due to collar) , All guns 60 degree phasing , 6 spf , 22.5 gram charges, .39 EHD , POOH with Setting Tool & Perf Assy. L/D Guns and setting tool. Pumped 205 bbls during Pump down, Visually inspect All Guns fired . Clean out FRV system

19:00 Frac Stage 30 , Open WH w/ 1,650 psi , Pumped 3,000 gals of 15% HCL Acid . Pumped 263,345 gals of Slickwater, 52,206 gals of 15# X-link fluid, 160,580 lbs 100 mesh. 128.280 lbs 40/70 White. 46.100 lbs 30/50 White . Max psi:

5,725 psi, Avg psi: 4,501 psi, Max rate: 61 bpm, Avg rate: 59 bpm. Approx load to rec 7,557 bbls. 0.82 psi/ft Frac Gradient , ISIP: 2,722 psi, 5 min: 2,034psi, 10 min: 1,926 psi, 15 min: 1,874 psi. SWI.

22:30 Pre-Rig Down Safety Meeting.

23:30 Rig Down Wire Line, Frac Crew. ND WL BOP/Crown Valve/Multi-port Goat-head.

#### 04/21/2017

Rig Name:

06:00 Move Frac Tech equipment , ISO Tanks , Fesco WL off location  
10:00 PJSB , Spot Broncs Sandex , Spot 3 ,1/2 pits , Spot Legend CT unit , pump , Crane , Rockwater rigging up plug catcher and Flowback iron , Standard safety RU fans and Air trailer , Tornado ru chemical plant , NU adapter flange and bop , Function test bop , CT Pump would not start.  
13:30 Wait on mechanic to fix CT pump.  
16:30 Mechanic working on Pump electrical system , Spare pump on its way. Fixed pump.  
17:00 Pull test 25k on 2 7/8" connector , Load coil w' 62 bbls , Pressure test connector 3k , Make up KLX BHA w/ 2 7/8" coil connector , 2 7/8" dual back pressure valve , 2 7/8" Terra force jar , 2 7/8" hydraulic disconnect , 2 7/8" circulating sub , 2 7/8" NOV Agitator , 2 7/8" NOV motor , XO w/ 4 5/8" JZ Bit (TTL BHA 29.24) , Test motor 3 bpm at 6000 psi , Make up lube and companion flange.  
19:00 PJSB , Pressure test lube and lines 6500 psi - test (two leaks on lubricator, tightened flange bolts), Test ok , open wh w/ 1300 psi.  
20:00 TIH to 6,500'. Weight Check. PU weight: 14k. Pump rate in: 2.5 bpm @ 5,000 psi. 2.5 bpm out. WHP: 1,300  
21:30 Drilled Plug #1 @ 7,423'. Circ press 4,800 psi. WHP 1,275 psi. WOB 2k. 3 bbl in and 3.5 bbl out. Sent 10 bbl sweep. Drill time 24 min. TIH tag Plug #2.  
22:00 Drilled Plug #2 @ 7,574'. Circ press 4,800 psi. WHP 1,275 psi. WOB 2k. 3 bbl in and 3.5 bbl out. Sent 10 bbl sweep. Drill time 27 min. TIH tag Plug #3. Sweep #1 on surface on time.  
22:45 Coil Tubing Unit Hydraulic Connection broke. Chain off Coil reel, kill engine. Repaired leaking connection.  
23:45 Drilled Plug #3 @ 7,730'. Circ press 6,200 psi. WHP 1,300 psi. WOB 6k. 3 bbl in and 3.5 bbl out. Sent 10 bbl sweep. Drill time 20 min. TIH tag Plug #4. Sweep #2 on surface on time. Ground plug parts, and sand in returns.  
00:30 Drilled Plug #4 @ 7,857'. Circ press 7,700 psi. WHP 1,300 psi. WOB 2k. 3.5 bbl in and 4 bbl out. Sent 10 bbl sweep. Drill time 15 min. TIH tag Plug #5. Sweep #3 on surface on time. Ground plug parts, and sand in returns.  
01:15 Drilled Plug #5 @ 8,005'. Circ press 6,000 psi. WHP 1,100 psi. WOB 2k. 3.5 bbl in and 4 bbl out. Sent 10 bbl sweep. Drill time 15 min. TIH to tag Plug #6 @ 8,186'. #4 Sweep on surface on time. Ground plug parts, and sand in returns.  
02:30 Short trip from Plug #6 @ 8,186' to 6,450'. 3.5 bpm @ 6,000 psi in/3.5 bpm out @ 1,200 psi. PU weight 14k. Sweep #5 on surface on time. Ground plug parts, and sand in returns.  
03:30 TIH, Tag Plug #6 @ 8,186'. 3.5 bpm in @ 6000 psi/3.5 bpm out @ 1,200 psi. PU weight 14K.  
04:30 Drilled Plug #6 @ 8,186'. 3.5 bpm in @ 5,600 psi/3.5 bpm out @ 1,100 psi. WOB 2k. Sent 10 bbl sweep. Drill time 11 min. TIH to tag Plug #7 @ 8,339'. Ground plug parts, and sand in returns.  
05:15 Drilled Plug #7 @ 8,339'. 3.5 bpm in @ 6,400 psi / 3.5 bpm out @ 1,375 psi. WOB 2k. Sent 10 bbl sweep. Drill time 23 min. TIH to tag Plug #8 @ 8,430'. #6 Sweep on surface on time. Ground plug parts, and sand in returns.

#### 04/22/2017

Rig Name:

06:00 Hand over/PJSB. Drilled Plug #8 @ 8,480'in 25 min , 3.5 bpm in , 3.5 bpm out , Circ Press. 6700 , WH 1350 PSI , WOB 2k. Sent 10 bbl sweep. TIH to tag Plug #9 @ 8,622'. #6 Sweep on surface on time. Ground plug parts, sand, and oil in returns.  
08:00 Drilled through plug #9 in 50 min. , Circ. Press. 6270 psi , WH 1375 psi , 3.5 bpm in and out. Wob 4k , Pump 10 bbl sweep  
08:45 Good plug parts in plug catcher from plug 8 , RIH , Tag and drill through plug 10 in 10 min. at 8798' , Circ Press. 6200 psi , WH 1350 psi , 3.5 bpm in , 3.2 bpm out , Wob 4-5k , Pump 10 bbl sweep.  
09:30 RIH , Tag and drill through plug 11 in 13 min. at 8956' , Circ Press. 6200 psi , WH 1150 psi , 3.5 bpm in , 3.5 bpm out , Wob 5-6k , Pump 10 bbl sweep  
09:45 RIH , Good plug parts , sand in plug catcher from plugs 9-11  
10:30 Tag and drill through plug 12 in 15 min. at 9102' , Circ Press. 5800 psi , WH 1000 psi , 3.5 bpm in , 3.7 bpm out , Wob 5-6k , Pump 10 bbl sweep  
10:45 Tag and drill through plug 13 in 27 min. at 9260' , Circ Press. 6200 psi , WH 1000 psi , 3.5 bpm in , 3.6 bpm out , Wob 5-6k , Pump 10 bbl sweep , rih  
11:15 Tag and drill through plug 14 in 23 min. at 9410' , Circ Press. 5750 psi , WH 1000 psi , 3.5 bpm in , 3.5 bpm out , Pump 10 bbl sweep , Wob 5-6k , rih  
11:45 RIH , Good plug parts , sand in plug catcher from plugs 12-13

12:15 Tag and drill through plug 15 in 17 min. at 9558', Circ Press. 6000 psi , WH 1000 psi , 3.5 bpm in , 3.5 bpm out , Pump 10 bbl sweep , Wob 5-6k , rih

12:30 Tag and drill through plug 16 in 18 min. at 9558' , Circ Press. 6000 psi , WH 950 psi , 3.5 bpm in , 3.5 bpm out , Pump 10 bbl sweep , Wob 5-6k , rih

12:45 RIH , Good plug parts , sand in plug catcher from plugs 14-15

13:15 Tag plug 17 at 9846' , POOH to 9300' for short wiper trip , At 9300' - No drag , RIH to 9846' and tag plug 17 (Good plug parts in plug catcher from plug 15)

14:00 Drill through plug 17 in 27 min. at 9846' , Circ Press. 5900 psi , WH 950 psi , 3.5 bpm in , 3.5 bpm out , Pump 10 bbl sweep , Wob 5-6k , (Good plug parts in plug catcher from plug 16) rih

14:30 Tag and drill through plug 18 in 21 min. at 9995' , Circ Press. 6230 psi , WH 870 psi , 3.5 bpm in , 3.5 bpm out , Pump 10 bbl sweep , Wob 5-6k , rih

15:15 RIH , Washing down

16:30 Tag and drill through plug 19 in 33 min. at 10,175' , Circ Press. 6300 psi , WH 850 psi , 3.5 bpm in , 3.5 bpm out , Pump 10 bbl sweep , Wob 5-6k

17:00 RIH , Wash down , Tag plug 20 at 10,328'

18:00 Pump 10 bbl sweep , POOH for short trip , Pump 10 bbl sweep to meet at bottom of lateral

20:00 Short Trip lateral from plug #20 @ 10,328' to 6,500'. (heavy sand and rubber chunks in returns at surface). TIH tag plug #20 @ 10,328'.

00:30 Drilled Plug #20 @ 10,328". 3.5 bpm in @ 6,200 psi / 3.5 bpm out @ 1,100 psi. WOB 2k. Drill time 20 min. Sent 10 bbl sweep. TIH to tag Plug #21 @ 10,458'. Light sand in returns.

01:15 Drilled Plug #21 @ 10,458". 3.5 bpm in @ 6,900 psi / 3.5 bpm out @ 1,100 psi. WOB 2k. Drill time 22 min. Sent 10 bbl sweep. TIH to tag Plug #22 @ 10,634'. Sweep #20 on surface on time. Ground plug parts, and sand in returns.

02:00 Drilled Plug #22 @ 10,634". 3.5 bpm in @ 6,900 psi / 3.5 bpm out @ 1,100 psi. WOB 2k. Drill time 23 min. Sent 10 bbl sweep. TIH to tag Plug #23 @ 10,775'. Sweep #21 on surface on time. Ground plug parts, and heavy sand in returns.

02:45 Drilled Plug #23 @ 10,775". 3.5 bpm in @ 7,000 psi / 3.5 bpm out @ 1,000 psi. WOB 2k. Drill time 25 min. Sent 10 bbl sweep. TIH to 10,855' not making any hole. Sweep #22 on surface on time. Ground plug parts, and heavy sand in returns.

03:30 Pump a 10-10-10 sweep and pipe on pipe due to not making any hole. 3.5 bpm in @ 7,200 psi / 3.5 bpm out @ 1,075 psi. 10-10-10 sweep brought up heavy sand. Pumped pipe on pipe. Started making hole. TIH to plug 24 @ 10,950'.

04:45 Drilled Plug #24 @ 10,940". 3.5 bpm in @ 6,900 psi / 3.5 bpm out @ 1,100 psi. WOB 2k. Drill time 24 min. Sent 10 bbl sweep. TIH to tag Plug #25 @ 11,093'. Sand in returns.

05:30 Drilled Plug #25 @ 11,093". 3.5 bpm in @ 7,000 psi / 3.5 bpm out @ 1,100 psi. WOB 2k. Drill time 24 min. Sent 10 bbl sweep. TIH to tag Plug #26 @ 11,248'. Sweep #24 on surface on time. Ground plug parts, and heavy sand in returns.

#### 04/23/2017

Rig Name:

06:00 Intermediate SICP 1800 psi , Hand over/PJSM. Drilled Plug #26 @ 11,248'in 54 min , 3.5 bpm in , 3.5 bpm out , Circ Press. 6700 , WH 1000 PSI , WOB 5k. Sent 10 bbl sweep. RIH

07:30 Drilled Plug #27 @ 11,394'in 22 min , 3.5 bpm in , 3.5 bpm out , Circ Press. 6100 , WH 1000 PSI , WOB 5k. Pump 10 bbl sweep. RIH

08:45 Drilled Plug #28 @ 11,554'in 28 min , 3.5 bpm in , 3.6 bpm out , Circ Press. 6800 , WH 1000 PSI , WOB 5k. Pump 10 bbl sweep. RIH

09:30 Wash down to Plug 29 , Unloaded Tbg from NOV Tubscope , 222 jts , 2 7/8 6.5# , L80 T&C , Full set pup jts , 5 loose couplings.

10:45 Drilled Plug #29 @ 11,705'in 17 min , 3.5 bpm in , 3.5 bpm out , Circ Press. 6170 , WH 900 PSI , WOB 5k. Pump 10 bbl sweep. RIH

11:00 RIH , Tag PBSD at 11,842' , PU 10' , Pump 10-10-10 sweep , Wait for sweeps to clear bit plus 10 min. , Circ press 6400 psi , wh 900 psi , 3.5 bpm in and out , Good plug parts in plug catcher from plug 28

12:15 POOH w/ CT , Pump 10 bbl sweep to meet at BOC , Got curve sweep to surface - heavy sand , Clean up , CT at 6400' , POOH , Out of hole , Shut-In. SICP 1000 psi

15:15 Break and LD KLX BHA , RU Lines to inject 2% KCL water

16:15 Inject 200 bbls 2% kcl w/ biocide , 7.5 bpm at 2100 psi

17:00 Blowdown coil w/ n2 , RD CT unit

19:00 Well shut in. Empty half frac pits, haul off water from reserve to lower water level, sand-ex, and consolidate fresh water.

03:00 No activities. Shut down

#### 04/24/2017

Rig Name: Red Diamond Well Services #14

06:00 Waiting on service Co's.

08:00 PJSM w/ FESCO & CER.

08:30 Spot & RU WL equipment while waiting on 7 1/16" 10k X 5 1/8" 10k adapter spool.

- 11:15 NU XO spool, PU 4.55" G-ring & junk basket. Found high string in WL.
- 12:15 Cut off 150' of WL rehead WL , PU G-ring found another high string. Lay tools back down & LD lubricator , cut off 100' of WL restring WL threw grease head & rehead WL.  
Set hyd catwalk, pipe racks & put 212 jts 2 7/8" tbg on racks tally tbg. RD flow lines.
- 15:45 PU 4.55" OD GR & JB , test lub to 5000 psi bleed pressure down to 1200 psi OWU w/ 1200 psi on csg , RIH to 7000' , POOH LD JB clean.
- 17:00 PU pkr BHA RIH as follows: (top to bottom)2.312" ID stinger w/ blanking plug in place 1.31' length, AS-1X pkr 6.08'length, 2 7/8" sub 6.08' , XN nipple 2.312" profile w/ 2.205" no/go, 2 7/8" sub 6.33' length, mule shoed CD 0.90' length. correlate to MJ at 6508' , Set pkr at 6820' , PU 20' set back down on pkr , POOH , release pressure , well static , RDMOL Fesco.
- 20:15 ND frac stack leaving 1 master frac valve on well , NU capping flange.

**04/25/2017**

Rig Name: Red Diamond Well Services #14

- 07:00 PJSM
- 07:30 Well static, MIRU Red Diamond WSU, install tbg hanger w/ bull plug in place. ND Master frac valve & NU 5k BOP dressed w/ blind rams on bottom & 2 7/8" tbg rams on top. Test tbg rams 4500 psi (good test) remove tbg sub & test blind rams to 4500 psi. Remove tbg hanger. Cont to RU floor & tongs.
- 10:30 RIH tag pkr at 6825' tbg depth LD 2 jts , space out tbg MU tbg hanger 8' sub & TIW valve. RU pump on tbg circulate 100 bbls 2% kcl bio water w/ pkr fluid followed by 40 bbls 2% kcl bio water. land tbg w/ 16k compression as follows: Inconel 718,6A-PU-HH-NL-3-1 Tbg Hanger, slick jt, 10', 8', 6' & 2' 2 7/8" L80 subs, 49 jts 2 7/8" L80 tbg, glv #8 at 1684.47', 41 jts 2 7/8" L80 tbg, glv #7 at 3021.26', 30 jts 2 7/8" L80 tbg, glv #6 at 4002.52', 21 jts 2 7/8" L80 tbg, glv #5 at 4690.37', 16 jts 2 7/8" L80 tbg, glv #4 at 5215.43, 16 jts 2 7/8" L80 tbg, glv #3 at 5740.35', 16 jts 2 7/8" L80 tbg, glv #2 at 6265.40', 15 jts 2 7/8" L80 tbg, X-nipple 2.312" ID at 6754.73', 1 jt 2 7/8" L80 tbg, glv #1 at 6791.38', 1 jt 2 7/8" L80 tbg, ON/OFF tool (TOP)at 6825.4', AS-1X pkr, 6' sub, XN-nip at 6838.50', 6' sub, CD (EOT 6845.7') Install BPV.
- 16:00 ND BOP NU 5k PRODUCTION TREE ASSEMBLY: ADPT,TBGHD,CW,EN-(CL),5-1/2,7-1/16 10M FLG X 2-9/16 5M STD X 6.25 LG, 410SS,6A-U-FF-NL-1-1 5000 PSI MAX WP test 5000 psi. Remove BPV. Test on/off tool 1500 psi.
- 17:30 MIRU Fesco slickline, RIH tag Blanking Plug at 6809' slickline depth, unable to latch on operator ran retrieving tool for A PX plug. POOH. RIH w/ retrieving tool for standard X-nipple blanking plug, latch onto plug worked 30 min, unable to pull due to hydrostatic pressure, POOH SWI SDFN

**04/26/2017**

Rig Name: Red Diamond Well Services #14

- 06:30 PJSM
- 06:30 MIRU Fesco slickline truck while waiting on rig crew
- 08:30 OWU w/ 0 psi on tbg , RIH w/ retrieving tool for standard X blanking plug. latch onto plug at 6809' work line 1 hr unable to release plug. POOH.
- 11:00 NO ACTIVITY waiting on Fesco to deliver retrieving tools from Percision.
- 14:45 RIH w/ equalizing spear puncture brass disk, POOH.
- 15:30 RIH w/ retrieving tool latch onto blanking plug at 6809', while releasing plug plug slipped threw X-nipple. We are able to travel from XN-nipple to X-nipple free, but unable to pull threw X-nipple. Retrieving tool sheered. POOH
- 16:45 REPIN retrieving tool RIH latch onto Blanking plug at 6809' work line 2 hrs unable to retrieve plug. POOH. SWI SDFN

**04/27/2017**

Rig Name: Red Diamond Well Services #14

- 08:00 PJSM
- 08:30 MIRU Fesco Braded line truck. RIH w/ spear to puncture brass disk at 6809. POOH. RIH w/ Retrieving Tool latch onto Blanking plug at 6809'. Start jarring pulling 2000# working up to 3400# on 10th hit plug came free POOH (No drag threw top X-nipple) Teflon seals were left in hole. Pumped CD out at 2200 psi cleared tbg w/ 5 bbls SWI SICP 1000 psi (pump gage). RDMOL all completion equipment. Release 5 jts & (1) 4' sub to Neil Mayon. Turn well over to Production.