L & M Operating, Inc.
PO Box 846
Big Lake, Texas 76932

Drilling Report: Texas Z well #13
API # 42 383 38045

2/27/13 Chuck's Dozer Service moved on location and started building location.
2/28/13 Chuck's Dozer Service building location.
3/1/13 Location level---Crew shut down
3/2/13 No activity
3/3/13 No activity
3/4/13 Chuck's Dozer Service working on location---building working pit and reserve pit---move cellar to location
3/5/13 Chuck's Dozer Service working on location---water and pack—dig working pit
3/6/13 Chuck's Dozer Service finished digging working pits---dig and set cellar---blade and water road---load and deliver pipe rack to location
3/7/13 Chuck's Dozer Service---water road---B & L Equipment checked location and priced installing pit lining
3/8/13 B&L Equipment lining pits
3/8/13---3/17/13 Waiting on drilling rig
3/18/13 Install well sign---Waiting on drilling rig---Rig expected to be here April 8th
3/19/13 Waiting on drilling rig
3/20/13 Waiting on drilling rig. Order 4.50'' casing
3/21/13 Waiting on drilling rig.
3/22/13 Discuss location with Blue Line Drilling pusher---Cellar needs to be reset.
3/23/13 No activity---Waiting on drilling rig
3/25/13 Contact Chucks Dozer Service to reset cellar as per drilling specs.
3/26/13 Chucks Dozer Service reset collar. Called Blue Line Drilling and told them location is ready for conductor pipe, rat hole and mouse hole
3/27/13 No activity---waiting on drilling rig
3/28/13 No activity---waiting on drilling rig

3/29/13 Check location---rat hole, mouse hole and conductor pipe set
3/30/13 No activity
3/31/13 No activity
4/1/13 Waiting on drilling rig
4/2/13 Contacted Blue Line Drilling---should move on Z #13 April 8th
4/3/13 Waiting on drilling rig
4/4/13 Notify Nabors regarding rig moving in and make sure they can handle water needs.
4/5/13 Take Blue Line Drilling copy of drilling permit and ground water protection permit
4/6/13 Waiting on drilling rig
4/7/13 Blue Line Drilling rig 1 moving in the morning. Contacted cementers and notified them. Scheduled water haulers to fill pits in the morning.
4/8/13 Blue Line Drilling Rig #1 moving on location. Nabors hauling fresh water to pits. Trash trailer and portable toilet on location . Haul drilling paper and mud to location. 7:30 pm spud in hole---drilling 12 ¼" hole
4/9/13 7:00 am drilling 12 ¼" hole at 485'
12:45 pm TD surface hole @ 910'---circulate hole---run sweeps. 1:30 pm POH
3:00 pm RIH with 885' of 8 5/8" 24# surface pipe, 8 centralizers and a cement basket/centralizer.
4:00 pm circulate hole and rig up Powerflex Services to cement surface pipe.
4:45 pm cement surface with 450 sacks of cement---circulated 100 sacks to surface
5:50 pm plug down---cement dropped slowly---toped off with 50 sacks of cement and calcium chloride
7:30 pm rig down Powerflex Services---waiting on cement
4/10/13 7:00am drilling cement
4/11/13 5:44 am drilling 7 7/8" hole at 2430'
11:15 am TD hole at 2650' circulate hole 1 hr. POH
Deviation surveys ran as follows:
½ degree @ 985'
½ degree @ 1486'
½ degree @ 1992'

4:45 pm Byrd Casing Crew ran 2650' of 4.5" 10.50# casing in hole.

6:25 pm Powerflex Services cemented casing with 300 sacks of cement

7:35 pm Plug down---float held

8:30 pm Set slips and cut off casing---release rig

4/12/13 Blue Line Drilling rigging down---scheduled to move on the 15th

4/13/13 No activity

4/14/13 Waiting on drilling rig to move off location.

4/15/13 Blue Line Drilling rig moved off location---build fence around pits

4/16/13 Called and scheduled to log well Friday (April 19, 2013).

4/17/13 Waiting on log crew

4/18/13 No activity. Scheduled to log in the morning.

4/19/13 Rigged up Baker Hughes and CNL log from TD to surface---repair fence around pits

4/20/13 Evaluate logs

4/21/13 Evaluate logs

4/22/13 weld on 4.5'' bell nipple---fill in rat hole and mouse hole

4/23/13 set anchors

4/24/13 install connections on surface head to ground level---build pad for pumping unit---fill in around cellar and level

4/25/13 level pad for pumping unit ---pack and water

4/26/13 evaluate logs

4/27/13 evaluate logs

4/28/13 check location---start picking perforations

4/29/13 check on pumping unit & schedule setting unit---discuss logs with Baker Hughes

4/30/13 evaluate logs

5/1/13 discuss logs and perforations with Baker Hughes---scheduled perforation job for Monday, May 6th---check on pumping unit---scheduled pulling unit for Tuesday, May 7th and scheduled acid job for same day.

5/2/13 discuss perforations with Baker Hughes & finalized perforations

5/3/13 waiting on pulling unit

5/4-5/5/13 no activity

5/6/13 lead Baker Hughes and Nabors to location---rig them both up---perforate 13 spots from 2307' to 2494'---RIH with tubing and flush hole with 2% KCL water---acidize in the morning
5/7/13 Rig up Tri-Best and acidize well with 2,000 gal. of 15% NEFE acid---spotted 4 bbls acid over perfs---pull 9 jts. Tubing to 2200' and pack off well head---perfs broke down at 1700psi---balled out twice---ISIP 1900 psi
5 min. 1820 psi
10 min 1790 psi
15 min 1770 psi
wait 2 hrs. and start swabbing---made 9 runs---SDFN
5/8/13 swab well---1st run 90% oil---400' of fluid in hole---made 9 runs and swabbed well down---last 2 runs made all oil---called frac companies for schedule, prices and procedures.---Rig down
5/9/13 Discuss frac procedure with CUDD---email Nabors well perfs, depths, casing sizes and request for prices and procedure
5/10/13 Set pumping unit and base
5/11/13 evaluate frac procedure
5/12/13 tubing and casing have 220 PSI
5/13/13 tubing and casing have 250 PSI---start laying flowline---set post for electric panel---weld cross bars on post---build and set electric panel
5/14/13 Discuss frac with Nabors
5/15/13 through 5/20/13---compare frac procedure, rates, chemicals, volumes and prices between CUDD and Nabors
5/21/13 Called Nabors to schedule frac job---300 psi on tubing and 200 psi on casing---Called CUDD and told them Nabors will do the frac for us.
5/22/13 305 psi tubing and 200 psi on casing
5/23/13 Tie in electricity at disconnect, pump panel, and motor
5/24/13 205 psi on casing and 310 psi on tubing---Tentative frac date scheduled June 13, 2013
5/25/13 through 5/28/13 Waiting to frac well---330 psi on tubing and 210 psi on casing
5/29/13 through 6/4/13 Waiting to frac well---350 psi on tubing and 240 psi on casing---Called Nabors and we are scheduled to frac on June 14---Called to set frac tanks.
June 5 Frac tanks set
June 6-9 Waiting to frac well

June 10 tubing had 370 psi and casing had 250 psi---opened tubing and well flowed for approximately 10 minutes---casing dropped to 200 psi and well died---tubing dropped to 0 psi before it started flowing oil---shut well in and wait to frac well
6/12/13 start filling frac tanks
6/13/13 fill frac tanks---heat fluid---Nabors moved equipment to location for frac in the morning
6/14/13 Frac well with 44,000 gal of 25# linear gel and 60,000# of 20/40 sand.
ISIP 1275
5min 970
10 min 887
15 min 803
Rig down Nabors frac crew---moved Nabors pulling unit to location---haul rods and pump to location
6/15/13 Well on vacuum. Ran 2''x1 ½''x10' pump and rods in hole. Hang on pumping unit and star well to pumping. Pumped up in 11 minutes. Pumping frac water.
6/16/13 Pumping frac water. Pumped 68 bbls water
6/17/13 Pumping frac water. Produced 87 bbls water
6/18/13 pumping frac water. Produced 87 bbls water
6/19/13 pumping frac water. Produced 87 bbls water
6/20/13 pumping frac water. Produced 87 bbls. Water 416 bbls of 1240 bbls recovered
6/21/13 pumping frac water. Produced 87 bbls water---503 bbls recovered
6/22/13 pumping frac water. Produced 87 bbls water---590 bbls recovered
6/23/13 pumping frac water. Produced 87 bbls water---677 bbls recovered---trace of oil
6/24/13 pumping frac water. Produced 87 bbls water---764 bbls recovered---shot fluid level---500' from surface---speed up pumping unit---casing on vacuum
6/25/13 pumping water. Produced 105 bbls water.
6/26/13 pumping water. Produced 100 bbls water
6/27/13 pumping water. Produced 100 bbls water
6/28/13 pumping water Produced 100 bbls water
6/29/13 pumping water Produced 100 bbls water

6/30/13 pumping water Produced 100 bbls water---well starting to show a trace of oil. The casing has 10 psi.
7/1/13 pumping mostly water---traces of oil---casing has 50 psi
7/2/13 pumping water and a trace of oil---casing 60 psi
7/3/13 well was shut down for 16 hrs due to gun bbl. Problems---repairs made and started well at 12:00 pm. 70 psi on casing
7/4/13 well pumping with ½ percent oil cut---80 psi on casing
7/5/13 pumping water with small cut of oil
7/6/13 pumping water with small cut of oil
7/7/13 pumping water with ½ percent cut of oil---90 psi on casing
7/8/13 pumping water with a trace of oil---100 psi on casing---shoot fluid level---685' below surface---called for pulling unit and pick up a Baker AD-1 tension packer
7/9/13 Rig up Nabors pulling unit and pull rods and pump out of hole---ran in 10 jts of tubing to make sure perforations open to bottom---set packer at 2461' and test bottom 4 perforations---run pump and rods in hole---well pumped up within 10 minutes---pumping oil with a small trace of water---well pumped ½ way down in an hour---SDFN
7/10/13 well pumped down---still making 98% oil---POH and raise packer to open up 3 more perfs. Set packer to pump below packer---pumped up in 15 minutes with a high cut of oil---pumping water after 2 hrs. SDFN
7/11/13 well pumping 100% water. POH rods and pump.---POH tubing and packer. Install a perforated sub above packer and plugged end of packer. Set packer below top perforation (2307). Pumped up in 12 minutes with a high % oil cut. One hour later pumping water.
7/12/13 through 7/15/13 pumping 100% water---catch water sample and take into lab---shut well down and call for pulling unit
7/16/13 to 7/22/13 7/18 water results in. Extremely high chloride count indicating Queens water. Waiting on pulling unit to flip packer and test middle perforations.
7/23/13 Rig up Nabors pulling unit and pull rods and pump out of hole. Release packer and POH. Remove perforated sub and bull plug and run packer back in hole to test perforations below the top perf. Pulled 13 points on packer. SDFN
7/24/13 RIH with pump and rods---turn well on hand and rig down pulling unit---pumped up in 12 minutes---shoot fluid level above packer---500' from surface
7/25/13 pumping water

7/26/13 pumping clear water
7/27/13 through 8/5/13 pumping water
8/6/13 pumping water---caught water sample and take in for analysis---shoot fluid level to make sure were not communicated with top perf…fluid level 383' from surface---turn well off and call for pulling unit
8/7/13 through 8/13/13 waiting on water analysis and pulling unit
8/14/13 water analysis came in with a chloride count of 90,000, a probable mix of queens (150,000) and grayburg (40,000). Waiting on pulling unit to pull packer and squeeze water zone.
8/15/13 waiting on pulling unit
8/16/13 waiting on pulling unit
8/17/13 waiting on pulling unit
8/18/19 waiting on pulling unit
8/19/13 contact cementer and discuss squeeze job---contact Rogers Packer and discuss cement tools and procedure to squeeze perforations---contact Nabors regarding pulling unit---should have one Wednesday
8/20/13 waiting on pulling unit
8/21/13 waiting on pulling unit
8/22/13 check on pulling unit---will be on us Monday the 26th. Called Cagle Fishing Tools and scheduled a reverse unit for mid week
8/23/13---8/26/13 waiting on pulling unit---contacted Nabors---pulling should be released to us late today or in the morning
8/27/13 Rig up Nabors pulling unit---unseat pump and POH---release packer and pull tubing---call Roger's Packer and schedule for tomorrow. SDFN
8/28/13 Pick up 4 ½'' HD packer and retrievable bridge plug (RBP)—Run 75 jts and set RBP @ 2432' (GL). Set packer @ 2420 and test RBP to 1000 psi release packer and pull to 2224' ---pack off well head---test annulus to 1000 psi---pump down tubing to establish rate---3.5 bpm @ 550 psi. Release packer---spot 150# of 20/40 sand over RBP Pull 8 jts to set packer @ 1968' (GL) Rig up cement crew (Powerflex)---pressure annulus to 400 psi---establish rate at 3bpm @ 700 psi---mix 200 sks of class C cement and squeeze off perforations from 2307' to 2385' wait 40 minutes and pump into tubing---cement trying to move---wait 15 minutes---still moving
wait 30 minutes---still trying to move
wait 30 minutes---still not set

close valve with 500 psi on tubing and SDFN
8/29/13 open valve---no pressure---tubing full of fluid---release packer and POH---rig up reverse unit and RIH with 6 3'' drill collars with cone bit and 61 jts of pipe (2523') hook up swivel to circulate hole---Tag cement @ 2179'---start drilling---cement still green---pull one stand and shut down until morning and try again.
8/30/13 drill cement to top of retrievable bridge plug---circulate 30 minutes---pressure up on casing to 500 psi---bled to 0 psi---POH---shut down until after holiday(9/3/13)
9/3/13 RIH and wash the remainder of sand off RBP. Latch on RBP and POH. Pick up Arrowset packer and RIH. Set at 2426' (75 jts.) Placed 2' sub on top and packed well off. Pressured up on back side and tested wellhead---OK. Waiting on frac crew.
9/4/13 Schedule frac for 9/13/13.
9/5/13 – 9/9/13 Waiting on frac crew
9/10/13 Set frac tank and start filling with fresh water---install frac valve on tubing
9/11/13 Waiting on frac crew. Finish filling frac tank
9/12/13 Frac tank full---Nabors moving frac equipment to location
9/13/13 Rig up Nabors frac crew for a single entry frac down tubing---frac well with 20,000gal 25# x-link gel with 27,000# of 20/40 Brady sand---treated well at and average rate of 8.4 bpm. ISIP was 1334 psi. One hour later the well had 950 psi. Two hours later the well had 950 psi.
9/14/13 600 psi on well---Install 6/64'' choke and open well---300 psi one hour later---well started flowing gel and sand---clean out choke and shut down until morning.
9/15/13 400 psi on well---flowing gel and sand---shut down
9/16/13 400 psi on well---open well---flowing frac water with some slugs of gel---50 psi on well remove choke---flowing small stream of frac water
9/17/13 Release Arrowset packer---POH---Tally back in hole with tubing to find tag---tagged 28' below bottom perforation @ 2522'---RIH with 2''x1.5''x10' RWBC pump, 27- 5/8'' rods and 67- ¾'' rods---Space out pump and hang well on. 5:00 pm well pumping frac water.
9/18/13 Well pumping 33% oil cut---Produced 20 bbls oil, 9 mcf gas
9/19/13 Well pumping 33% oil cut---well produced 8 bbls oil and 12 mcf gas---gun bbl leveling out oil and water levels

9/20/13 Well pumping 33% oil cut---well made 10 bbls oil and 10 mcf of gas
9/21/13 Well pumping 35% oil cut---well made 10 bbls oil and 9 mcf of gas
9/22/13 Well pumping 35% oil cut---well made 12 bbls oil and 10 mcf of gas.
9/23/13 Well pumping ---60% oil cut---made 10 bbls oil and 10 mcf of gas.
9/24/13 Potential test---well pumping---made 12 bbls oil, 3 bbls of water and 10 mcf of gas.
9/25/13 Well pumped 8 bbls oil, 3 bbls water and 9 mcf of gas
9/26/13 Well pumped 8 bbls oil, 4 bbls water and 9 mcf of gas
9/27/13 Well pumped 10 bbls oil, 3 bbls water and 10 mcf of gas
9/28/13 Well pumped 8 bbls oil, 3 bbls water and 10 mcf of gas
9/29/13 Well pumped 8 bbls oil, 5 bbls water and 8 mcf of gas
9/30/13 Well pumped 9 bbls oil, 3 bbls water and 10 mcf of gas---work on potential report
10/1/13 Well pumped 8 bbls oil 9 mcf gas and 2 bbls water---work on potential report
10/2/3 File potential report---well produced 8 bbls oil and 2 bbls water
10/3/13 File corrections on potential report---final report