



Well History

Well Name: NHF 33-21

API 05123211820000	Surface Legal Location NWSE 21 5N 63W	Field Name Wattenberg	State CO	Well Configuration Type Vertical
Ground Elevation (ft) 4,590.00	Original KB Elevation (ft) 4,600.00	KB-Ground Distance (ft) 10.00	Spud Date 1/21/2003 00:00	Rig Release Date 1/30/2003 00:00
On Production Date 3/2/2003				

Job

Drilling - original, 1/21/2003 00:00

Job Category Drilling	Primary Job Type Drilling - original	Start Date 1/21/2003	End Date 1/29/2003	Objective Drill a New Codell Well
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Daily Operations

Start Date	Summary	End Date
1/21/2003	Caza Rig #1: Move in and rig up. Drill rat and mouse holes and spud 12 1/4" hole at 5:15 PM. TD 12 1/4" hole at 416' at 10:30 PM. Condition mud; circulate hole, and short trip.	
1/22/2003	Caza Rig #1: Trip out at 1 AM and began running 8 5/8" casing. Presently conditioning hole and working casing in hole.	
1/22/2003	Caza Rig #1: Ran 9 joints of new, 24#, J-55, 8 5/8" casing to 396'. Set at 406'. Rig up Cementer's Well Service and pumped 205 sacks of Class G cement + 3% CaCl2 + 1/2# flake per sack. Plug down at 9 AM with good circulation throughout the job. Wait on cement, nipple up and test BOP (15 min at 300 psi). Began drilling with 7 7/8" bit at 6:15 PM.	
1/23/2003	Caza Rig #1: At 2189' and drilling 7 7/8" hole. Last survey: 1.5 degrees at 1188'.	
1/23/2003	Caza Rig #1: At 4661' and drilling 7 7/8" hole. Last survey: 1.5 degrees at 4445'.	
1/25/2003	Caza Rig #1: @ 6214' and drilling 7 7/8" hole. Last survey: 1 degree at 5434'.	
1/26/2003	Caza Rig #1: @ 6829' and drilling 7 7/8" hole. Trip for hole in DP @78 stand.	
1/27/2003	Caza Rig #1: @ 6932' and drilling 7 7/8" hole. Trip for mud motor and repair cat head on rig.	
1/28/2003	Caza Drilling Rig #1: At 7281' and drilling 7 7/8" hole	
1/29/2003	Caza Drilling Rig #1: At 7420' and drilling 7 7/8" hole.	
1/29/2003	Caza Drilling Rig #1: TD 7 7/8" hole at 7448' at 12:30 PM. Condition mud and clean hole. Short trip and condition hole. Trip out and stand back drill string. Rig up Phoenix and log hole at 9 PM.	
1/30/2003	Caza Drilling Rig #1: Rig down Phoenix and trip back to bottom and condition hole. Began tripping out and laying down drill string at 5 AM. Out of the hole at 11:30 AM and MIRU PSI and ran Comp Density/Comp Neutron/Dual Induction Log. LTD @ 7447' KB. RU casing crew. Ran Topco Auto Fill Guide Shoe, 14' shoe joint, 172 joints of 10.5 #/ft, M-65, 4 1/2" casing with 1 joint of 11.6 #/ft, N-80 on top of casing string. Casing set @ 7432' KB. PBTD @ 7428' KB. RU BJ Services and pumped 10 bbl pre flush, 10 bbl mud flush, 6 bbl (20 sx) 50/50 poz, 192 bbl (270 sx) Premium Lite + additives and 110 bbl (340 sx) 50/50 poz + additives. Released wiper plug and displaced with 118 bbl treated water. Plug down OK @ 7:15 pm. ECT @ 3000'. Released rig @ 8:00 pm.	

Initial Completion, 2/4/2003 00:00

Job Category Completion/Workover	Primary Job Type Initial Completion	Start Date 2/4/2003	End Date 2/26/2003	Objective Complete a New Codell
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Daily Operations

Start Date	Summary	End Date
1/30/2003	Caza Drilling Rig #1: Rig down Phoenix and trip back to bottom and condition hole. Began tripping out and laying down drill string at 5 AM. Out of the hole at 11:30 AM and MIRU PSI and ran Comp Density/Comp Neutron/Dual Induction Log. LTD @ 7447' KB. RU casing crew. Ran Topco Auto Fill Guide Shoe, 14' shoe joint, 172 joints of 10.5 #/ft, M-65, 4 1/2" casing with 1 joint of 11.6 #/ft, N-80 on top of casing string. Casing set @ 7432' KB. PBTD @ 7428' KB. RU BJ Services and pumped 10 bbl pre flush, 10 bbl mud flush, 6 bbl (20 sx) 50/50 poz, 192 bbl (270 sx) Premium Lite + additives and 110 bbl (340 sx) 50/50 poz + additives. Released wiper plug and displaced with 118 bbl treated water. Plug down OK @ 7:15 pm. ECT @ 3000'. Released rig @ 8:00 pm.	
2/4/2003	MIRU Nuex Wireline. Ran GR/DL/CBL finding a PBTD of 7417' KB. Primary cement top @ 6030' KB, unable to determine secondary cement top. Perforated the Dakota from 7297' to 7305' KB with 24, .34 diameter holes, 3 spf, 120 deg phasing. RDMO	
2/7/2003	MIRU BJ Services. Frac'd the Dakota with 648 bbl Vistar 20# fluid system and 50460# 20/40 mesh white sand. Breakdown @ 3232 psig; MTP - 4560 psig; ATP - 2800 psig; AIR - 10.4 bpm; 4 ppa sand; ISIP - 3586 psig; Flushed with 115 bbl. Open well to tank on 12/64 choke.	
2/10/2003	MIRU DJR. TIH with 30 joints of 2 3/8" tubing with N.C. S.C. before shutting down for high winds.	
2/11/2003	Ran tubing in well, tag sand @ 7228'. Circulated to 7440'. Pulled tubing up and landed @ 7228'. RU swab unit, broach tubing, swab 41 bbl and SDFN.	
2/12/2003	RDMO DJR. Moving swab rig in.	
2/14/2003	MIRU swab rig. NU swab tee & swab line. Gauged well pressures, 280/200. Blow down well, all gas. Swab well. SFL @ 4,120'. FFL @ 4,800' + slightly gas cut. Rec. 70 bbls H2O. FP blow/260. SI well. Drain swab line.	
2/18/2003	Gauged well pressures, 355/580. Blow down well, all gas. Fine sand in swab tee. Swab well. SFL @ 4,510'. FFL scattered. Stopped swabbing due to sand/mud plug @ 6,153'. Stand by for hot oil unit. RU B&J. Load csg. Broke plug loose w/gas from csg. Cont'd load hole & circ. Took 100 bbls to break circ. Circ 40 bbls. RD hot oil unit. Pull 2 swab runs. SI well. FP vac/vac. Drain swab line.	
2/19/2003	Gauged well pressures, vac/vac. RIH w/sinker bar. Tagged fill @ 7,364' MD. Swab well. SFL @ 790'. FFL @ 2,460' + G.C. Rec. 91 bbls H2O. FP blow/150. SI well. ND & drain swab line.	
2/20/2003	Gauged well pressures, 400/340. NU swab line. Blow down well, all gas. Swab well. SFL @ 3,390' + G.C. FFL @ 1,270' + V.G.C. Rec. 58 bbls H2O w/trace of sand & oil. Built to 460# & gradually broke to 300#. Flowed briefly after last 7 runs. FP strong blow/300. SI well. ND & drain swab line. SD for repairs.	
2/21/2003	Gauged well pressures, 800/710. NU swab line. Install 24/64 choke. Unload well. Installed 16/64 choke. Flow 2 hrs, made 7 bbls H2O. Well started to load up. Pulled choke. Unload well, did not die down enough to swab. SI well to build pressure. FP 50/500. ND & drain swab line.	



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Ground Elevation (ft) 4,590.00	Original KB Elevation (ft) 4,600.00	KB-Ground Distance (ft) 10.00	Spud Date 1/21/2003 00:00	Rig Release Date 1/30/2003 00:00
On Production Date 3/2/2003				

Daily Operations

Start Date	Summary	End Date
2/22/2003	Gauged well pressures, 660/680. NU swab line. Install 24/64 choke. Blow down well, all gas. Pull choke. Swab well. SFL @ 2,370' + v.g.c. Flowed after runs. Started making excessive sand (20%). Shut down for 1 hour. Cont'd swabbing, still making sand. FFL @ 5,000' +g.c. Rec. 25 bbls TTL fluid. RIH w/sinker bar. Tagged sand fill @ 7,285', (perfs. covered w/sand). FP blow/340. SI well. ND requisite W.H. connections & swab line. RDMO swab rig.	
2/25/2003	MIRU Key Rig 60. Press - 950/850 psig; Open well flowing @ 250/700 psig on 20/64 choke. Well flowing heavy sand. SWI. MI Lighting Wireline to check PBTB. Tagged sand @ 7294'. Kill well with 80 bbl 2% KCL. NU BOP. TOOH with 80 stands, SDFN.	
2/26/2003	Finish TOOH with tubing. TIH with hydrostatic bailer. Tag sand at 7294. Clean out to 7394. TOOH with bailer. TIH with NCSN 232 jts. Land at 7238 KB. Flange up wellhead. Rig down. MI Action Swab Rig. Recover 25 bbls of H2O. TLTR 80 bbls.	
8/5/2003	MIRU Nuex Wireline. Set a CIBP @ 7250' KB. Perforated the J Sand from 6994'- 98' and 7044'- 50' KB with 3 1/8" DML gun, .34 diameter holes, 2 spf, 180 deg phasing. RDMO Nuex.	
8/6/2003	MIRU BJ Services. Frac'd the J Sand with 2178 bbl of 18# Vistar fluid system, 215840# of 20/40 mesh white sand and 8000# of Super LC 20/40 mesh resin sand. ATP - 977 psig; AIR - 19.7 bpm; Sand staged @ 1#, 2#, 3#, 4#; ISIP - 1125 psig; Flushed with 110 bbl. Open well to tank on 20/64 choke.	
8/7/2003	MIRU DJR Well Service. NU wellhead & BOP. Single in hole with NCSN 230 jts. Tag sand at 7168 KB. Perfs open. Pull up land tubing with NCSN 223 jts at 6960 KB. ND BOP. Flange up wellhead. Broach tubing. Swab. IFL 1800', 0/0. Rec. 58 bbls. FFL @ 2400', vac/blow. TLTR 2218. (Perfs 6994 to 6998 and 7044 to 7050)	
8/8/2003	SFL 1800', 0/blow. Rec. 40 bbls. No sand. Lowered tubing to 6980 KB. Well landed with NCSN 223 + (2) 10' subs at 6978 KB. Rig down. MI swab rig. Rec. total 98 bbls for day. FFL 3200', vac/blow. TLTR 2120 bbls.	
8/9/2003	Swab Report. Morning press, 280/50. SFL 1800'. Final press, blow/170. FFL 2500'. TR 110. TLTR 2010.	
8/11/2003	Swab Report. Morning press, 1000/750. SFL 2200'. Final press, blow/700. FFL 1400'. TR 105. TLTR 1905.	
8/12/2003	Swab Report. Morning press, 750/925. SFL 1100'. Final press, 50# blow/1000. FFL 1900. TR 124. TLTR 1781.	
8/13/2003	Swab report. Morning press, 1000/300. SFL 1400'. Final press 60# blow/1250. FFL 2600. TR 78. TLTR 1703	
8/14/2003	Swab report. Morning press, 1100/1300. SFL 1700. Final press 40# blow/850. FFL 2600. TR 79. TLTR 1624	
8/15/2003	Swab report. Morning press, 850/1100. SFL 1500. Final press strong blow/750. FFL 2400. TR 68. TLTR 1556	
8/18/2003	Swab report. Morning press, 1100/1100. Well flowing. TR 90. Afternoon turned over to prod.	

Fracture Treatment, 8/5/2003 00:00

Job Category Completion/Workover	Primary Job Type Fracture Treatment	Start Date 8/5/2003	End Date 8/18/2003	Objective Frac Jsand and swab
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Daily Operations

Start Date	Summary	End Date
8/5/2003	MIRU Nuex Wireline. Set a CIBP @ 7250' KB. Perforated the J Sand from 6994'- 98' and 7044'- 50' KB with 3 1/8" DML gun, .34 diameter holes, 2 spf, 180 deg phasing. RDMO Nuex.	
8/6/2003	MIRU BJ Services. Frac'd the J Sand with 2178 bbl of 18# Vistar fluid system, 215840# of 20/40 mesh white sand and 8000# of Super LC 20/40 mesh resin sand. ATP - 977 psig; AIR - 19.7 bpm; Sand staged @ 1#, 2#, 3#, 4#; ISIP - 1125 psig; Flushed with 110 bbl. Open well to tank on 20/64 choke.	
8/7/2003	MIRU DJR Well Service. NU wellhead & BOP. Single in hole with NCSN 230 jts. Tag sand at 7168 KB. Perfs open. Pull up land tubing with NCSN 223 jts at 6960 KB. ND BOP. Flange up wellhead. Broach tubing. Swab. IFL 1800', 0/0. Rec. 58 bbls. FFL @ 2400', vac/blow. TLTR 2218. (Perfs 6994 to 6998 and 7044 to 7050)	
8/8/2003	SFL 1800', 0/blow. Rec. 40 bbls. No sand. Lowered tubing to 6980 KB. Well landed with NCSN 223 + (2) 10' subs at 6978 KB. Rig down. MI swab rig. Rec. total 98 bbls for day. FFL 3200', vac/blow. TLTR 2120 bbls.	
8/9/2003	Swab Report. Morning press, 280/50. SFL 1800'. Final press, blow/170. FFL 2500'. TR 110. TLTR 2010.	
8/11/2003	Swab Report. Morning press, 1000/750. SFL 2200'. Final press, blow/700. FFL 1400'. TR 105. TLTR 1905.	
8/12/2003	Swab Report. Morning press, 750/925. SFL 1100'. Final press, 50# blow/1000. FFL 1900. TR 124. TLTR 1781.	
8/13/2003	Swab report. Morning press, 1000/300. SFL 1400'. Final press 60# blow/1250. FFL 2600. TR 78. TLTR 1703	
8/14/2003	Swab report. Morning press, 1100/1300. SFL 1700. Final press 40# blow/850. FFL 2600. TR 79. TLTR 1624	
8/15/2003	Swab report. Morning press, 850/1100. SFL 1500. Final press strong blow/750. FFL 2400. TR 68. TLTR 1556	
8/18/2003	Swab report. Morning press, 1100/1100. Well flowing. TR 90. Afternoon turned over to prod.	

Recompletion, 2/10/2012 12:00

Job Category Completion/Workover	Primary Job Type Recompletion	Start Date 2/10/2012	End Date	Objective Bring annular cement to surface , recomplete Codell, and recomplete Niobrara
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Daily Operations

Start Date	Summary	End Date
2/10/2012	ITP-1,000, ICP-1900, ISCP-0. MIRU Basic rig #1548, blew well down to rig tank, control well w/60 bbls. 2% claytreat/biocide water, ND production equipment, NU BOP. PU 4 tag jts. Fill tagged 115' below codell perfs w/227 jts. LD tag jts.. TOOH and tally 223 jts. of 2 3/8" J-55 4.7# EUE 8rd production tbg. Drain lines and shut in for the weekend.	2/10/2012



Well History

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Ground Elevation (ft) 4,590.00	Original KB Elevation (ft) 4,600.00	KB-Ground Distance (ft) 10.00	Spud Date 1/21/2003 00:00	Rig Release Date 1/30/2003 00:00
On Production Date 3/2/2003				

Daily Operations

Start Date	Summary	End Date
2/13/2012	No tubing, ICP-250, blow well down to RT. RU Pick Testers. PU RMOR's 3 7/8" blade bit and casing scraper dressed for 4 1/2" 10.5# casing. TIH and Hydrotesting production tbg. to 6000 psi.. Tested 223 jts. of 2 3/8" J-55 4.7# EUE 8rd. production tubing. All tested good. Ran scraper to 6,973.76' KB. RD Pick Testers and POOH to the ground 223 jts.. LD bit and scraper. RU Superior Well service. RIH w/Baker CIBP for 4 1/2" 10.5# casing. Correlated depth and set plug @ 6,750'. POOH and LD setting tool and PU dump bailor. RIH and dumped 2 sacks of cement ontop of CIBP. POOH and RD Superior Well service. ND BOP and RU Pick Testers. Attempted to test plug but test dropped pressure @ 2000 psi.. RD Pick Testers. NU BOP. Drain lines and shut in for the night.	2/13/2012
2/14/2012	No pressures @ WH. MIRU Superior wireline, RIH w/sinker bar tagging up @ 7,072' (plug failed and dropped below perms). POOH and PU Baker CIBP for 4 1/2" 10.5# casing. RIH and set CIBP @ 6,700'. POOH and PU dump bailor, RIH and dumped 2 sacks of cement on top of CIBP. POOH and RD Superior Well Service. ND BOP and MIRU Pick Testers. Tested casing to 5000 psi. for 15 min.. Tested good. RD Pick Testers, and unlanded casing (had 17" of stretch @ 85000#). NU annular flange. TIH w/1 1/4" CS Hydrill tagging up @ 1,873.60' w/60 jts.. RU circulation equipment, broke circulation and condition hole. Attempted to circulate past obstruction with no succes. Conditioned hole for 3 hrs.. RD circulation equipment and POOH 10 jts., leaving EOT @ 1,561.18' w/ 50 jts. Drain lines and shut in for the night.	2/14/2012
2/15/2012	No pressures @ WH. TIH w/10 jts.. RU circulation equipment and attempted to circulate past obstruction with no success. RD circulation equipment and POOH 60 jts. of 1 1/4 CS Hydrill. ND annular flange and worked casing. (18" of stretch @ 80,000#). NU annular flange and TIH and tagging up w/60 jts. RU circulation, break circulation and attempted to circulate past for 3 hrs.. Decision was made to not cement annular. RD circulation equipment. POOH 60 jts onto trailer. ND annular flange and NU BOP. Drain lines and shut in for the night.	2/15/2012
2/16/2012	No pressures @ WH. MIRU Superior Well Service. RIH w/3 1/8" slickgun, correlated cased/open logs getting on correct depth, re-perforated Codell 6,548'-6,556', 3 spf (24 new holes), 120 degree phasing, 19 gram charges, .41" entry holes w/21.28" penetration, all shots fired, RD e-line. Spotted in float w/2 7/8" N-80 6.5# frac string. PU RMOR's Aeroset packer for 4 1/2" 10.5# casing. TIH w/198 jts. of 2 7/8" frac string setting packer and landing tubing @ 6,492.80' , tools and KB. ND BOP and NU Haliburton frac valve. Well is ready for Codell recomplate. RDMO Basic Rig 1548.	2/16/2012
2/23/2012	Codell : MIRU HES. Well took 0 bbls to load. (Break 4199 psi @ 1.7 BPM) Pumped 119 bbls of Active pad, 476 bbl of slickwater pad, 143 bbls of 26# pHaser pad, 287 bbls of 1.0 ppg 20/40 slurry with 26# pHaser, 476 bbls of 2.0 ppg 20/40 slurry with 26# pHaser, 643 bbls of 3.0 ppg 20/40 slurry with 26# pHaser, 486 bbls of 4.0 ppg 20/40 slurry with 26# pHaser, 86 bbls of 4.0 ppg 20/40 SBXL slurry with 26# pHaser, Flush to top Codell perf (38.5) bbl. Shutdown (ISDP 2671 psi) (FG .84) Fluid contained the following chemicals: .6 gpt CL-23, .5 gpt BA-20, 1.5 gpt GasPerm 1100, FR-66 @ 1 gpt .25 gpt Cla-web, 3.0 - 5.0 gpt Vicon NF, 0.25 - .75 gpt CAT 3, 6.0 gpt WG-18 @ 26 ppt, Losurf-100, (217500 lbs Preferred Rock 20/40) (8000 lbs SBXL 20/40). RD HES. MTP = 7420 psi, ATP = 5001 psi, AIR = 19.4 bpm. Pressure response was slightly positive for entire treatment.	2/23/2012
2/29/2012	ITP-1000, ICP-0, ISCP-0, Blow down to FBT and control w/40 bbls 2% claytreat/biocide water. ND frac valve and NU BOP. Unseat frac packer and LD 8 jts.. POOH to derrick w/190 jts. of 2 7/8" N-80 tubing. MIRU Superior Well service. RIH w/RMOR's 10 K flow through plug, 3 1/8" slick gun, and correlated cased/open logs getting on correct depth setting flow through plug @ 6,450'. POOH and perforated Nio B @ 6,384'-6,392', 3 spf (24 new holes), 120 degree phasing, 19 gram charges, .41" entry holes w/37.97" penetration. POOH and perforated Nio A @ 6,312'-6,314', 3 spf (24 new holes), 120 degree phasing, 19 gram charges, .41" entry holes w/37.97" penetration. POOH and RD Superior Well Service. MIRU Pick Testers. PU RMOR Arrowset packer, TIH from derrick Hydrotesting 190 jst. of 2 7/8". Set packer and landed @ 6,230.02' w/190 jts., tools and KB. ND BOP and NU frac valve. Drain lines and shut in for now. RDMO Basic rig 1548. Well is ready for Nio Frac.	2/29/2012
3/10/2012	Niobrara Hybrid: MIRU HES. Well was loaded @ open, (Break 3301 psi @ 2.5 BPM) Pumped 12 bbl load and break clay-web water, Pumped 24 bbl 15% HCL, Pumped 119 bbl active pad, Pumped 1551 bbls of Slickwater pad, 143 bbls of 22# pHaser pad, 167 bbls of 1.0 ppg 20/40 slurry with 22# pHaser, 786 bbls of 2.0 ppg 20/40 slurry with 22# pHaser, 833 bbls of 3.0 ppg 20/40 slurry with 22# pHaser, 318 bbls of 4.0 ppg 20/40 slurry with 22# pHaser, 79 bbls of 4.0 ppg SB Excel 20/40 slurry with 22# pHaser. Flushed well to top of "B" bench (38.5 bbls) Shutdown (ISDP - 3608 psi) (FG 1.01). Fluid contained the following chemicals: .6 gpt CL-23, 1.0 gpt BA-20, 2.0 gpt GasPerm 1100, 1.25 gpt Clayfix III, 0.5 - 3.0 gpt Vicon NF, 0.15 - .75 gpt CAT 3, 2.0 gpt FR-66, 22 ppt WG-18 1.0 gpt Losurf-100, .30 gpt be-7, (239460 Preferred Rock 20/40) (12000 20/40 SB Excel. RD HES. MTP = 7491 psi, ATP = 6468 psi, AIR = 26.5 bpm. Pressure response was negitive for entire treatment.	3/10/2012
4/20/2012	ITP-400, ICP-50, ISCP-0, MIRU Basic rig 1557. Rig got stuck when getting spotted in. Waited on Wells trucking to pull the rig out. RU circ. to WH. Blew well down to RT and unseat packer. Control well w/20 bbls of 2% claytreat/biocide. ND frac valve and NU BOP. POOH to the trailer w/190 jts. of 2 7/8" N-80 frac string. Drain lines and shut in for the weekend.	4/20/2012
4/23/2012	ICP- 500 psi shut in, blow casing down to FBT and controll well w/40 bbls.PU new 2 3/8" standard seat nipple and RMOR's 3 3/4" x 3 1/8" x 6.95' burn shoe, TIH tallying and picking up production tbg.tagged plug @6451.92' KB w/206 jts. RU circulating equipment and power swivel, break circulation, drill out plug and push it down tagging sand fill below Codell @6598.53' KB w/ 211 jts, cleaned out to 6712.47' KB w/215 jts. Circulate hole clean, RD power swivel and lay down 6 jt. TOOH to derrick w/ 5 stands leaving EOT @6213.32' KB w/199 jts, SI well and secure, SDFN.	4/23/2012
4/24/2012	ITP-0 psi, ICP-0 psi,TOOH to derrick w/199 jts, lay down tools, PU 2 3/8" NC/SN. TIH out of derrick w/ 209 jts, land tubing w/ 1-8' sub, 209 jts-6518.03' and NC/SN-1.60', tubing is landed @6535.63' (12.37') above Codell). ND BOP and pack tubing head off, RU swab w/ 1.910" broach, broach tubing to seat nipple, tubing broached good, pull broach, SI well and secure, RDMOL.	4/24/2012
4/24/2012	MIRU Sava Energy Swab 45 bbls. all water. SDFN @ 6 PM	4/24/2012
4/25/2012	MIRU Sava Energy Swab 117 bbls. 111 water. 6 oil SDFN @ 6 PM	4/25/2012

Wireline, 4/23/2018 12:00

Job Category Other	Primary Job Type Wireline	Start Date 4/23/2018	End Date 4/23/2018	Objective SET 2 STAGE
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Well History

Well Name: NHF 33-21

API 05123211820000	Surface Legal Location NWSE 21 5N 63W	Field Name Wattenberg	State CO	Well Configuration Type Vertical
Ground Elevation (ft) 4,590.00	Original KB Elevation (ft) 4,600.00	KB-Ground Distance (ft) 10.00	Spud Date 1/21/2003 00:00	Rig Release Date 1/30/2003 00:00
On Production Date 3/2/2003				

Start Date	Summary	End Date
4/23/2018	Coretech RU, RIH w/ 2" JUC to fish plgr @ 6515', floater @ 6514'. Dropped seated standing valve & bypass plgr. RIH w/ 2" JDC to set 2 stage @ 3901'. Dropped New TWNG and plgr. RDMO	4/23/2018

Swab, 8/9/2018 12:30					
Job Category LOE	Primary Job Type Swab	Start Date 8/9/2018	End Date 8/9/2018	Objective SWAB	

Start Date	Summary	End Date
8/9/2018	ITP100/FTP380 ICP600/FCP450 IFL2300/FFL2300 1RUNS/6BBLS 6 OIL	8/9/2018
8/9/2018	ITP100/FTP300 ICP600/FCP390 IFL2500/FFL2500 1RUN/8BBLS 8 OIL	8/9/2018

WBI - Plug Set Other Operator, 9/27/2018 06:00					
Job Category Completion/Workover	Primary Job Type WBI - Plug Set Other Operator	Start Date 9/27/2018	End Date 9/28/2018	Objective TEST TUBING, SET PLUG ABOVE THE TOP PERFS, TEST CASING AND INSTALL 5K WELL HEAD.	

Start Date	Summary	End Date
9/27/2018	ITP 320 PSI, ICP 520 PSI, ISCP 0 PSI, WELL WAS SHUT IN, MIRU RANGER RIG 03, BLEW DOWN WELL TO RIG TANK, FUNCTION TESTED BOP, CONTROLLED WELL WITH 50 BBL OF CLAYTREAT/BIOCIDE WATER, ND PRODUCTION TREE, NU BOP, PICKED UP TAG JTS, TAGGED WITH 5 JTS 157' , LD TAG JTS, TALLY OUT OF THE HOLE WITH 2 3/8 PRODUCTION PIPE TO DERRICK, TBG WAS LANDED AT 6536.54' WITH 209 JTS 1-8' SUB AND NC/SN, MIRU PICK TESTERS, PU STS'S 3 7/8 BLADE BIT AND 4 1/2 SCRAPER DRESSED FOR 10.5 CASING, RIH WITH PRODUCTION PIPE DOWN TO 6524" WITH 209 JTS, RD HYDRO TESTER, ALL PIPE TESTED GOOD, LD 9 JTS ON THE GROUND, PULLED 200 JTS TO DERRICK, LD BIT AND SCRAPER, SI AND SECURE WELL FOR THE NIGHT, SD.	9/27/2018
9/28/2018	ICP 60 PSI, ISCP 0 PSI, BLEW DOWN WELL TO RIG TANK, PICKED UP STS'S 4 1/2 RBP DRESSED FOR 10.5# CASING, RIH WITH 2 3/8 PRODUCTION PIPE, SET RBP AT 6262' WITH 201 JTS 16' IN ON JOINT 201, LD 1 JOINT, RU CIRCULATING EQUIPMENT, CIRCULATED OIL AND GAS OUT, PRESSURE TESTED CASING AND PLUG UP TO 2000 PSI, HELD GOOD FOR 15 MINUTES, RELEASED THE PRESSURE, LD 4 JTS, SPOTTED 2 SACKS OF SAND ON TOP OF THE PLUG, LD 5 MORE JTS, LANDED TBG AT 5969.94' KB WITH 191 JTS OF 2 3/8 J-55 SEAT NIPPLE AND RETRIEVING HEAD, RU SWAB LUBRICATOR, MADE A BROACH RUN DOWN TO SEAT NIPPLE, RD SWAB LUBRICATOR, ND BOP AND 3K WELL HEAD, INSTALLED NEW 5K WELL HEAD WITH NEW 2" VALON VALVES AND 2 3/8 MASTER VALVE, PICK TESTERS TORQUE AND TESTED WELL HEAD, CLOSE WELL, RACK PUMP AND TANK, RDMOL. FINAL REPORT. TUBING DETAILS 191 JTS 2 3/8 J-55 5957.74 KB 8.00 SEAT NIPPLE 1.20 RETRIEVING HEAD 2.00 TOTAL 5969.94	9/28/2018



Daily Completion Operations

Date: 9/28/2018
Report #: 2.0

Well Name: NHF 33-21

Well Name NHF 33-21	Operator PDC Energy Inc.	API 05123211820000	Well Number 105.003016	Last Mod By echavez	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NWSE 21 5N 63W	Spud Date 1/21/2003	Original KB Elevation (ft) 4,600.00	Ground Elevation (ft) 4,590.00	KB-Ground Distance (ft) 10.00

Daily Operation: 9/28/2018 06:00 - 9/28/2018 14:00

AFE Number	Job Category Completion/Workover	Objective TEST TUBING, SET PLUG ABOVE THE TOP PERFS, TEST CASING AND INSTALL 5K WELL HEAD.	Start Date 9/27/2018	End Date 9/28/2018	Primary Job Type WBI - Plug Set Other Operator	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 003
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Daily Operations

Report Start Date 9/28/2018	Report End Date 9/28/2018	Daily Field Est Total (Cost) 13,093.00	Cum Field Est To Date (Cost) 23,136.00
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Status at Reporting Time

Operations Summary

ICP 60 PSI, ISCP 0 PSI, BLEW DOWN WELL TO RIG TANK, PICKED UP STS'S 4 1/2 RBP DRESSED FOR 10.5# CASING, RIH WITH 2 3/8 PRODUCTION PIPE, SET RBP AT 6262' WITH 201 JTS 16' IN ON JOINT 201, LD 1 JOINT, RU CIRCULATING EQUIPMENT, CIRCULATED OIL AND GAS OUT, PRESSURE TESTED CASING AND PLUG UP TO 2000 PSI, HELD GOOD FOR 15 MINUTES, RELEASED THE PRESSURE, LD 4 JTS, SPOTTED 2 SACKS OF SAND ON TOP OF THE PLUG, LD 5 MORE JTS, LANDED TBG AT 5969.94' KB WITH 191 JTS OF 2 3/8 J-55 SEAT NIPPLE AND RETRIEVING HEAD, RU SWAB LUBRICATOR, MADE A BROACH RUN DOWN TO SEAT NIPPLE, RD SWAB LUBRICATOR, ND BOP AND 3K WELL HEAD, INSTALLED NEW 5K WELL HEAD WITH NEW 2" VALON VALVES AND 2 3/8 MASTER VALVE, PICK TESTERS TORQUE AND TESTED WELL HEAD, CLOSE WELL, RACK PUMP AND TANK, RDMOL.

FINAL REPORT.

TUBING DETAILS

191 JTS 2 3/8 J-55	5957.74
KB	8.00
SEAT NIPPLE	1.20
RETRIEVING HEAD	2.00
TOTAL	5969.94

Operations Next Report Period

FINAL REPORT.

Weather	Temperature (°F)	Hole Condition	Road Condition
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Time Log

Start Time	End Time	Dur (hr)	Cum Dur (hr)	Code	Code Des	Com
06:00	07:00	1.00	1.00	TRAV	Travel - To Location	CREW TRAVEL, SAFETY MEETING.
07:00	08:30	1.50	2.50	RUTB	Run Tubing	RIH WITH SEAT NIPPLE AND RBP, SET RBP AT 6262'.
08:30	10:00	1.50	4.00	CIRC	Circulating	CIRCULATE OIL AND GAS OUT.
10:00	10:30	0.50	4.50	PTST	Pressure Test	PRESSURE TEST CASING AND PLUG UP TO 2000 PSI FOR 15 MINUTES.
10:30	11:30	1.00	5.50	ROTH	Other Rig Work	MADE A BROACH RUN DOWN TO SEAT NIPPLE.
11:30	12:00	0.50	6.00	BOPR	Remove BOP's	ND BOP, INSTALL 5K TOP FLANGE.
12:00	13:00	1.00	7.00	PTST	Pressure Test	TORQUE AND TEST WELL HEAD.
13:00	14:00	1.00	8.00	SRIG	Rig Up/Down	RACK PUMP AND TANK RIG DOWN.



Daily Completion Operations

Date: 9/27/2018
Report #: 1.0

Well Name: NHF 33-21

Well Name NHF 33-21	Operator PDC Energy Inc.	API 05123211820000	Well Number 105.003016	Last Mod By echavez	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NWSE 21 5N 63W	Spud Date 1/21/2003	Original KB Elevation (ft) 4,600.00	Ground Elevation (ft) 4,590.00	KB-Ground Distance (ft) 10.00

Daily Operation: 9/27/2018 06:00 - 9/27/2018 18:00

AFE Number	Job Category Completion/Workover	Objective TEST TUBING, SET PLUG ABOVE THE TOP PERFS, TEST CASING AND INSTALL 5K WELL HEAD.	Start Date 9/27/2018	End Date 9/28/2018	Primary Job Type WBI - Plug Set Other Operator	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 003
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Daily Operations

Report Start Date 9/27/2018	Report End Date 9/27/2018	Daily Field Est Total (Cost) 10,043.00	Cum Field Est To Date (Cost) 10,043.00
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Status at Reporting Time

Operations Summary

ITP 320 PSI, ICP 520 PSI, ISCP 0 PSI, WELL WAS SHUT IN, MIRU RANGER RIG 03, BLEW DOWN WELL TO RIG TANK, FUNCTION TESTED BOP, CONTROLLED WELL WITH 50 BBL OF CLAYTREAT/BIOCIDE WATER, ND PRODUCTION TREE, NU BOP, PICKED UP TAG JTS, TAGGED WITH 5 JTS 157' , LD TAG JTS, TALLY OUT OF THE HOLE WITH 2 3/8 PRODUCTION PIPE TO DERRICK, TBG WAS LANDED AT 6536.54' WITH 209 JTS 1-8' SUB AND NC/SN, MIRU PICK TESTERS, PU STS'S 3 7/8 BLADE BIT AND 4 1/2 SCRAPER DRESSED FOR 10.5 CASING, RIH WITH PRODUCTION PIPE DOWN TO 6524" WITH 209 JTS, RD HYDRO TESTER, ALL PIPE TESTED GOOD, LD 9 JTS ON THE GROUND, PULLED 200 JTS TO DERRICK, LD BIT AND SCRAPER, SI AND SECURE WELL FOR THE NIGHT, SD.

Operations Next Report Period

RUN RBP, SET IT AT 6262', TEST CASING, INSTAL 5K WELL HEAD, RDMOL.

Weather	Temperature (°F)	Hole Condition	Road Condition
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Time Log

Start Time	End Time	Dur (hr)	Cum Dur (hr)	Code	Code Des	Com
06:00	07:00	1.00	1.00	TRAV	Travel - To Location	CREW TRAVEL, SAFETY MEETING.
07:00	08:00	1.00	2.00	RMOV	Rig Move	ROAD RIG TO NEW LOCATION.
08:00	09:00	1.00	3.00	SRIG	Rig Up/Down	RIG UP, PUMP, TANK AND RIG.
09:00	10:30	1.50	4.50	WKLL	Kill Well	BLEW DOWN WELL, CONTROL WELL WITH 50 BBL.
10:30	11:00	0.50	5.00	BOPI	Install BOP's	ND PRODUCTION TREE, NU BOP.
11:00	13:00	2.00	7.00	PULT	Pull Tubing	TAG UP, LD TAG JTS, TALLY OUT OF THE HOLE.
13:00	15:30	2.50	9.50	RUTB	Run Tubing	TEST IN THE HOLE WITH BIT AND SCRAPER.
15:30	17:00	1.50	11.00	PULT	Pull Tubing	RIG DOWN HYDRO TESTER, LD 9 JTS, PULL 200 JTS TO DERRICK.
17:00	18:00	1.00	12.00	TRAV	Travel - From Location	



Daily Work Ticket

Customer Name PDC Energy		Customer AFE #		Date: 9/28/2018	
Mailing Address		City	State	Zip	County WELD
		CO			
Field		Lease		Well NHF 33-21	
Order #					
Work Description	Workover	<input checked="" type="checkbox"/>	Rod	<input type="checkbox"/>	Rod & Tubing
	Swabbing	<input type="checkbox"/>	Tubing	<input type="checkbox"/>	Completion
					Re-entry <input type="checkbox"/>
					P & A <input type="checkbox"/>

Description	Qty.	Rate Hr/Day/Ea	Total
Rig & Crew	6.50 @	\$275.00	\$1,787.50
Extra Labor	7.00 @	\$48.00	\$336.00
Rig Fuel	@		
Pump Fuel	@		
Cementing Services	@		
Extra Cement - Cementing Services	@		
P & A Bidded Cost	@		

Workover Equipment	Qty.	Rate Hr/Day/Ea	Total
BOP	1.00 @	\$300.00	\$300.00
Pump	1.00 @	\$575.00	\$575.00
Tank	1.00 @	\$175.00	\$175.00
Base Beam	1.00 @	\$40.00	\$40.00
Pipe Handler	@		
Loader	@		
Pipe Racks	@		
Power Swivel	@		
JU/Washington H	@		
Rod/TBG Tongs	@		
Adapter Flange	@		
Catwalk	@		

ReCharge Items	Qty.	Rate Hr/Day/Ea	Total
Crew Travel	0.50 @	\$210.00	\$105.00
Tool Pusher	@		
Per Diem	@		
Stripper Rubbers	@		
Pipe Wipers	1.00 @	\$44.00	\$44.00
Tong Dies	@		
Slip Dies	@		
Safety Valve	@		
Fishing Tools-Recharge	@		
Pipe Dope	1.00 @	\$36.00	\$36.00
Handling Equipment	@		
Gas Monitors and Pack	@		

Swabbing Equipment	Qty.	Rate Hr/Day/Ea	Total
Swab Cups - Size	@		
OSR	2.00 @	\$15.00	\$30.00
Swabbing Acid	@		
Fishing Tools	@		
Extra Tank	@		
Permits	@		

Description	Qty	Rate	Total
Miscellaneous	1.00 @	\$35.00 (4 GAS MONITOR)	\$35.00
Miscellaneous	1.00 @	\$80.00 (BROACH)	\$80.00

Discount: \$0.00 (0.00%)
TOTAL BILLABLE AMOUNT \$3,543.50

Description of Work Start Time 6:00 AM Stop Time 1:00 PM

6:00 AM TO 6:30 AM CREW TRAVEL TO LOCATION.
 JSA SAFETY MEETING CHECK PRESSURE 60 PSI OPEN TO TANK TRIP IN WITH R/B/P R/H S/N AND SET AT 6262.00' WITH 201 JTS 16' OUT SET LAYDOWN 1 JTS LOAD WELL BREAK CIRCULATION ROLL THE HOLE CLEAN PRESSURE TEST AT 2000 PSI TESTING GOOD PUT SWAB T RUN BROACH LAYDOWN 4 JTS PUT SAND LAYDOWN 5 MORE JTS AND LANDED WITH 191 JTS AT 5971.94' AND 18 JTS ON THE GROUND NIPPLE DOWN BOP CHANGE WELL HEAD AT 5000 PSI W/H PUT TOP FLANGE AND MASTER VALVE RIG UP TESTER CREW TEST WELL HEAD RACK UP PUMP AND TANK AND RIG DOWN AND MOVE OFF PUT FENCE AND CLEAN LOCATION.

Payroll Section						
Employee	Rev Hours	Travel Hours	Non Rev Hours	Total		
Tool Pusher Quezada, Julian	0.00	0.00	0.00	0.00		
Operator Caudillo Aguiar, Jesus	6.50	0.50	0.00	7.00		
Derrick Valenzuela, Damian	6.50	0.50	0.00	7.00		
FloorHand Sigala, Luis Armando	6.50	0.50	0.00	7.00		
FloorHand Elias, Spencin	6.50	0.50	0.00	7.00		

No Unreported Incidents Per My Signature

Ranger Tool Pusher

Customer/Agent



Daily Work Ticket

Customer Name PDC Energy		Customer AFE #		Date: 9/28/2018
Mailing Address	City	State	Zip	County WELD
		CO		
Field	Lease	Well		Order #
		NHF 33-21		
Work Description	Workover	<input checked="" type="checkbox"/>	Rod	<input type="checkbox"/>
	Swabbing	<input type="checkbox"/>	Tubing	<input type="checkbox"/>
			Rod & Tubing	<input type="checkbox"/>
			Completion	<input type="checkbox"/>
			Re-entry	<input type="checkbox"/>
			P & A	<input type="checkbox"/>

Description	Qty.	Rate Hr/Day/Ea	Total
Riq & Crew	6.50 @	\$275.00	\$1,787.50
Extra Labor	7.00 @	\$48.00	\$336.00
Riq Fuel	@		
Pump Fuel	@		
Cementing Services	@		
Extra Cement - Cementing Services	@		
P & A Bidded Cost	@		

Workover Equipment	Qty.	Rate Hr/Day/Ea	Total
BOP	1.00 @	\$300.00	\$300.00
Pump	1.00 @	\$575.00	\$575.00
Tank	1.00 @	\$175.00	\$175.00
Base Beam	1.00 @	\$40.00	\$40.00
Pipe Handler	@		
Loader	@		
Pipe Racks	@		
Power Swivel	@		
JU/Washington H	@		
Rod/TBG Tongs	@		
Adapter Flange	@		
Catwalk	@		

ReCharge Items	Qty.	Rate Hr/Day/Ea	Total
Crew Travel	0.50 @	\$210.00	\$105.00
Tool Pusher	@		
Per Diem	@		
Stripper Rubbers	@		
Pipe Wipers	1.00 @	\$44.00	\$44.00
Tong Dies	@		
Slip Dies	@		
Safety Valve	@		
Fishing Tools-Recharge	@		
Pipe Dope	1.00 @	\$36.00	\$36.00
Handling Equipment	@		
Gas Monitors and Pack	@		

Swabbing Equipment	Qty.	Rate Hr/Day/Ea	Total
Swab Cups - Size	@		
OSR	2.00 @	\$15.00	\$30.00
Swabbing Acid	@		
Fishing Tools	@		
Extra Tank	@		
Permits	@		

Description	Qty	Rate	Total
Miscellaneous	1.00 @	\$35.00 (4 GAS MONITOR)	\$35.00
Miscellaneous	1.00 @	\$80.00 (BROACH)	\$80.00

Discount: \$0.00 (0.00%)

TOTAL BILLABLE AMOUNT \$3,543.50

Description of Work Start Time 6:00 AM Stop Time 1:00 PM

6:00 AM TO 6:30 AM CREW TRAVEL TO LOCATION.
 JSA SAFETY MEETING CHECK PRESSURE 60 PSI OPEN TO TANK TRIP IN WITH R/B/P R/H S/N AND SET AT 6262.00' WITH 201 JTS 16' OUT SET LAYDOWN 1 JTS LOAD WELL BREAK CIRCULATION ROLL THE HOLE CLEAN PRESSURE TEST AT 2000 PSI TESTING GOOD PUT SWAB T RUN BROACH LAYDOWN 4 JTS PUT SAND LAYDOWN 5 MORE JTS AND LANDED WITH 191 JTS AT 5971.94' AND 18 JTS ON THE GROUND NIPPLE DOWN BOP CHANGE WELL HEAD AT 5000 PSI W/H PUT TOP FLANGE AND MASTER VALVE RIG UP TESTER CREW TEST WELL HEAD RACK UP PUMP AND TANK AND RIG DOWN AND MOVE OFF PUT FENCE AND CLEAN LOCATION.

Payroll Section					
Employee	Rev Hours	Travel Hours	Non Rev Hours	Total	
Tool Pusher Quezada, Julian	0.00	0.00	0.00	0.00	
Operator Caudillo Aguiar, Jesus	6.50	0.50	0.00	7.00	
Derrick Valenzuela, Damian	6.50	0.50	0.00	7.00	
FloorHand Sigala, Luis Armando	6.50	0.50	0.00	7.00	
FloorHand Elias, Spencin	6.50	0.50	0.00	7.00	

No Unreported Incidents Per My Signature

Ranger Tool Pusher

Customer/Agent



Field Ticket #
22902
Date
9/28/2018

No. 22902

Sater Tools and Services LLC, 2424 6th Ave, Greeley Co 80631 Office 970-356-4644 Fax 970-356-0185

Bill To Customer:		PO#	Lease Name:		NHF	Well #:
Address:			County:	Weld	St:	Invoice Ref. #:
City:		Field:	Job Type:	Casing Sz & Wt:		OCSG #:
State:		Legal Description:	Service Man:	MERCED TERRAZAS		
Ordered By:				QTY	PRICE	DSC
NO.	RENTALS/SALES				TOTAL	
1	Rental of 4-1/2 casing scraper			1	605.00	25%
2	Rental of 2-3/8 reg box x 2-3/8 8rd box			1	125.00	25%
3	Rental of 3-7/8 blade bit			1	125.00	25%
4						0.00
5	Rental of 4-1/2 WLTC retrievable bridge plug set with 201jts 12' out @ 6262.00			1	1,670.00	25%
6	Minimum 1st to 5 day rental on retrievable bridge plug			1	250.00	25%
7						0.00
8	Rental of 5K BOP adopter flange			1	375.00	25%
9	Rental of TIW valve			1	275.00	35%
10						0.00
11						0.00
12						0.00
13						0.00
14	Sale of 20/40 silica sand			2	19.50	
				Subtotal Taxable Charges		\$2,580.25
SERVICE MANS TIME						
	Service mans time			1	\$850.00	\$850.00
						0.00
						0.00
						0.00
						0.00
				Subtotal Non-Taxable Charges		\$850.00
MILEAGE						
	Mileage			30	\$2.95	\$88.50
						0.00
						0.00
						0.00
				Subtotal Non-Taxable Charges		\$88.50
Terms: Net 30 Days						Total Service & Material:
						Tax:
						TOTAL CHARGES:
						\$3,518.75
						\$74.83
						\$3,593.58

Authorized Agent: Eduardo Chavez Date: _____