



Well History

Well Name: **Schaefer 7TD**

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|-----------------------------------|--|---|-----------------------------|-------------------------------------|---------------------------------|--------------|--|--|--|
| API 05123321050000 | | Surface Legal Location SESE 7 6N 66W | | Field Name Wattenberg | | State CO | | Well Configuration Type Directional | |
| Ground Elevation (ft) 4,630.00 | Original KB Elevation (ft) 4,644.00 | KB-Ground Distance (ft) 14.00 | Spud Date 1/6/2011 15:15 | Rig Release Date 1/11/2011 00:30 | On Production Date 5/16/2011 | Abandon Date | | | |

Job

Drilling - original, 1/6/2011 06:00

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|--------------------------|---|------------------------|-----------------------|--|
| Job Category Drilling | Primary Job Type Drilling - original | Start Date 1/6/2011 | End Date 1/10/2011 | Objective Directionally drill and log new Codell well |
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Daily Operations

| Start Date | Summary | End Date |
|------------|---|-----------|
| 12/8/2010 | M & M Excavation built location, access to location, trenching and berming around location was done for appropriate BMP's. Holloway Enterprises moved in two fresh water tanks and began hauling fresh water. RMES hauled spud mud. DJR installed temp fence. Location is prepared for rig move. | 12/9/2010 |
| 1/6/2011 | Ensign Rig 5 spud at 15:15 hours 06-Jan-11. Drilled 12-1/4" surface hole to 699'. Ran 16 joints 8-5/8", 24#/ft casing (675') set at 689' KB. Cemented by Cementers Energy with 490 sacks Class "G" + 3% CaCl2 + 1/4# celloflake/sk (15.2 ppg, 1.18 ft3/sk). Plug down at 04:15 hours 07-Jan-11. Circulated cement. | 1/7/2011 |
| 1/7/2011 | NU BOP. Tested BOP and casing to 493 psig. Currently drilling at 2514' (1815'). 7-7/8" Bit #1:FX55M. Drilling with water. Last survey: 16.6 at 243.1 azimuth at 2313'. Coord: 129' S, 241' W, 273' VS, 2282' TVD. BHA: Bit, motor, ubho, 2 monel DC's and 12 joints HWDP (454'). | 1/8/2011 |
| 1/8/2011 | Drilling at 5606' (3092'). 7-7/8" Bit #1:FX55M. Drilling with water. Last survey: 0.7 at 236.9 azimuth at 5533'. Coord: 463' S, 873' W, 988' VS, 5405' TVD. BHA: Bit, motor, ubho, 2 monel DC's and 12 joints HWDP (454'). | 1/9/2011 |
| 1/9/2011 | Drilled to 7519' TD (1913'). 7-7/8" Bit #1:FX55M. Mud wt. 9.2; visc. 50. Projected survey at TD: 0.9 at 164.9 azimuth at 7519'. Coord: 476' S, 877' W, 998' VS, 7391' TVD. BHA: Bit, motor, ubho, 2 monel DC's and 12 joints HWDP (454'). Made short trip above Niobrara. C&C mud. Currently LDDP. Note: Reached TD at 23:30 hours 09-Jan-11. | 1/10/2011 |
| 1/10/2011 | Finished LDDP. PSI ran DIL, CDL, CNL, GR from 7519'. Ran 4-1/2" casing and cemented. Rig released at 00:30 hours 11-Jan-11. | 1/11/2011 |

Initial Completion, 2/23/2011 11:00

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| Job Category Completion/Workover | Primary Job Type Initial Completion | Start Date 2/23/2011 | End Date 3/1/2011 | Objective |
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Daily Operations

| Start Date | Summary | End Date |
|------------|---|-----------|
| 2/23/2011 | MIRU Superior Wireline. Ran GR/VDL/CBL log finding PBTD @ 7464' and Tail Cement Top @ 6400' Sussex and Shannon have complete coverage, and Lead Cement at Surface. Perforated the Codell formation from 7359'-7367' (3 spf, 11 gram charges, 0.36" entry holes, and 16.82" penetration) 24 holes total. Prepared well for Codell stimulation. | 2/23/2011 |
| 3/1/2011 | 2 Stage Codell / Niobrara: MIRU HES. Well was loaded @ open. (Break 3520 psi @ 2.4 BPM) Pumped 119 bbls of Active pad. Pumped 478 bbls of Slickwater pad, 143 bbls of 22# pHaser pad, 279 bbls of 1.0 ppg 20/40 slurry with 22# pHaser, 412 bbls of 2.0 ppg 20/40 slurry with 22# pHaser, 643 bbls of 3.0 ppg 20/40 slurry with 22# pHaser, 554 bbls of 4.0 ppg 20/40 slurry with 22# pHaser, 84 bbls of 4.0 ppg SB Excel slurry with 22# pHaser. Flushed well to top of the Codell perf (114.4 bbls) with a 3 bbl spacer followed by 24 bbls of 15% HCl followed by 85 bbls claytreated water (Spotting acid @ bottom of Niobrara B Bench). Shutdown (ISDP 4172 psi) (FG 1.0). Fluid contained the following chemicals: .6 gpt CL-23, .4 gpt BA-20, 2.0 gpt GasPerm 1100, 1.25 gpt Clayfix III, 0.5 - 3.0 gpt Vicon NF, 0.15 - 0.75 gpt CAT 3, 2.0 gpt FR-66, 24 ppt WG-18 (217040 lbs 20/40 Preferred Rock) (8000 lbs 20/40 SB Excel). RD HES, MIRU PSI Wireline. MTP = 5828 psi, ATP = 4395 psi, AIR = 32.7 bpm. Pressure response was slightly positive for entire treatment. | 3/1/2011 |
| 3/1/2011 | Niobrara Hybrid: RIH with Halliburton wireline using High pressure control unit and grease head. Set RMOR Cast Iron Flowthru 10k frac plug @ 7280' with a Baker #10. Duel fire 3 1/8" slick gun and EXT charges (22.7 gram, .42 entry hole, 35.1" penetration, 120 degree phasing). Niobrara "B" Bench @ 7174'-7182' (3 SPF) Niobrara A Bench @ 7040' - 7042' (2 SPF) (28 New holes). POOH and RDMO Halliburton Wireline. MIRU HES. Well was loaded @ open. (Break 3527 psi @ 2.2 BPM) Pumped 119 bbls FE-1A Pad, 1401 bbls of Slickwater pad, 153 bbls of 20# pHaser pad, 168 bbls of 1.0 ppg 20/40 slurry with 20# pHaser, 776 bbls of 2.0 ppg 20/40 slurry with 20# pHaser, 835 bbls of 3.0 ppg 20/40 slurry with 20# pHaser, 310 bbls of 4.0 ppg 20/40 slurry with 20# pHaser, 104 bbls of 4.0 ppg SB Excel 20/40 slurry with 20# pHaser. Flushed well to top of the Niobrara B perf (111.5 bbls) Shutdown (ISDP 3615 psi) (FG .95). 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 (239940 lbs 20/40 Preferred rock) (12000 20/40 SB Excel). RD HES. MTP = 6343 psi, ATP = 4978 psi, AIR = 49.4 bpm. Pressure response was flat for entire treatment. Treatment went good. | 3/1/2011 |

Tubing Repair, 5/16/2011 00:00

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| Job Category Completion/Workover | Primary Job Type Tubing Repair | Start Date 5/16/2011 | End Date 5/18/2011 | Objective |
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Daily Operations

| Start Date | Summary | End Date |
|------------|--|-----------|
| 5/16/2011 | ICP 350 psi flowing to FBT on 16/64 choke, SSCP 0 psi, MI&RU Bayou Rig #1, remove choke and blow well down to FBT, controll casing w/60 bbls 2% Claytreat/Biocide water, ND frac valve, NU new Well Head Inc 3K mandrel style tbg head f/WB Supply, NU BOP, Premier Pipe delivered out 252 jts new 2 3/8" 4.7# J-55 EUE 8rd tbg. Well started flowing after NU tubing head and BOP, unload casing for 1 Hr., pressure dropped from 550 to 150 psi, pumped 40 bbls and caught pressure, release pressure, well pushed back all 40 bbls pumped, tried controlling casing three times, unable to controll well. Turn well over to Magna to flow back over night on 24/64 choke, SDFN. | 5/16/2011 |



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| Ground Elevation (ft) 4,630.00 | Original KB Elevation (ft) 4,644.00 | KB-Ground Distance (ft) 14.00 | Spud Date 1/6/2011 15:15 | Rig Release Date 1/11/2011 00:30 |
| | | | On Production Date 5/16/2011 | Abandon Date |

Daily Operations

| Start Date | Summary | End Date |
|------------|--|-----------|
| 5/17/2011 | ICP-250 psi, remove choke and blow casing down to 150 psi. Controll well w/ 60 bbls 2% clay treat w/biocide, PU 3 3/4" x 3 1/8" burn shoe f/RMOR, TIH tallying and PU new 2 3/8" tubing. Tagged sand fill @7,165.44' KB & tools, lay down 1 jt, RU power swivel and circulation equipment. Break circulation, wash down tagging frac plug @7,285.12' KB w/227 jts, drill out frac plug and push it to sand fill below the Codell @ 7,380.52' KB w/230 jts, cleaned out to 7,406.69' KB w/231 jts, unable to make more hole, circulate hole clean (40' of RH below Codell). Lay down 15 jts, leave EOT hanging @ 6,942.085' KB w/216 jts, SI well and secure, SDFN. | 5/17/2011 |
| 5/18/2011 | ITP-0 psi, ICP-0 psi, TOOH to derrick w/216 jts, lay down burn shoe, plug was not stuck in the burn shoe. PU 2 3/8" NC/SN, TIH w/228 jts, PU sub, land tubing w/ 1-8' sub, 228 jts-7,328.86' and NC/SN 1.60', tubing is landed @7,345.46' KB (13.54' above Codell), ND BOP, pack tubing head off. Drop PCS 2 3/8" full port standing valve, RU swab w/ 1.910" broach, broach tubing to SN, seat standing valve in seat nipple, tubing broached good, pull broach and SI well, RD&MO, SDFN. | 5/18/2011 |
| 7/21/2014 | Core Tech RIH w/ 2" JDC and fished plunger @ 4416, fished TWNG @4417, Fished 2 stage @4418, fished Bottom plunger @7400. dropped new slide and sleeve bypass plunger, RIH w/ 2" JDC and set dual stage @ 4485, dropped TWNG and new 2 3/8 PCS AS. | 7/21/2014 |
| 7/20/2015 | Core Tech RIH w/ 2" JDC and fished plunger @ 4507, fished TWNG @4508, Fished 2 stage @4510, fished Bottom plunger @7444. dropped new slide and sleeve bypass plunger, RIH w/ 2" JDC and set dual stage @ 4477, dropped TWNG and new 2 3/8 PCS AS. | 7/20/2015 |

Swab, 6/28/2016 07:00

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| Job Category LOE | Primary Job Type Swab | Start Date 6/28/2016 | End Date 6/28/2016 | Objective |
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Daily Operations

| Start Date | Summary | End Date |
|------------|---|-----------|
| 6/28/2016 | CORE TECH RIH W/ 2" JDC AND FISHED PLUNGER @ 4449 TWNG @4450 2 STAGE @ 4452 BOTTOM PLUNGER @7400 DROPPED NEW SLIDING SLEEVE BYPASS PLUNGER RIH W/ 2" JDC AND SET REBUILT 2 STAGE @4484 DROPPED NEW TWNG AND NE PCS AS. RDMO | 6/29/2016 |

Wireline, 7/15/2017 07:00

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| Job Category Other | Primary Job Type Wireline | Start Date 7/15/2017 | End Date 7/15/2017 | Objective Rebuild 2 Stage |
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Daily Operations

| Start Date | Summary | End Date |
|------------|---|-----------|
| 7/15/2017 | CORE TECH RIH W/ 2" JDC AND FISHED PLUNGER @ 4482 TWNG @ 4483 2 STAGE @ 4486 BOTTOM PLUNGER @ 7400 DROPPED NEW PCS SLIDE AND SLEEVE. RIH W/ 2" JDCAND SET REBUILT 2 STAGE @4454 DROPPED NEW TWNG AND PCS AS. RDMO. | 7/15/2017 |

Wireline, 4/3/2018 08:00

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| Job Category Other | Primary Job Type Wireline | Start Date 4/3/2018 | End Date 4/3/2018 | Objective PULL STAGE TOOLS FOR RIG-WBI |
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Daily Operations

| Start Date | Summary | End Date |
|------------|---|----------|
| 4/3/2018 | RU CORETECH RIH FISH PLNG 4445 RIH FISH TWNG 4446 RIH FISH STAGE TOOL 4448 RIH FISH PLNG 7414 RIH NO FISH 7415 OOH RDMO | 4/4/2018 |

WBI - Plug Set Other Operator, 4/13/2018 06:00

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|-------------------------------------|---|-------------------------|-----------------------|--|
| Job Category Completion/Workover | Primary Job Type WBI - Plug Set Other Operator | Start Date 4/13/2018 | End Date 4/16/2018 | Objective SET CIBP AHEAD OF HORIZONTAL FRAC |
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Well History

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|-----------------------------------|--|---|-----------------------------|-------------------------------------|---------------------------------|--------------|--|--|--|
| API 05123321050000 | | Surface Legal Location SESE 7 6N 66W | | Field Name Wattenberg | | State CO | | Well Configuration Type Directional | |
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Daily Operations

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| 4/13/2018 | CREW TO LOCATION. MIRU ENSIGN RIG 313. HELD SAFETY MEETING. ITP: 300 PSI ICP: 400 PSI ISCP: 0 PSI. KILLED WELL WITH 70 BBLs BIO WATER. ND 3K WELLHEAD AND INSTALL 5K FLANGED WELLHEAD. FUNCTION TEST AND NU BOPS. PU 3 JNTS, RIH AND TAG WITH 65'. LD TAG JNTS AND 4' SUB. TOOH TO DERRICK WITH 228 JNTS OF 2 -3/8" 4.7# J-55 8RD EUE TBNG, SN/NC. SECURED WELL. SDFD. CREW TO YARD. DUE TO HIGH WINDS, TBNG WILL BE RE-TALLIED ON SCRAPER RUN. | 4/13/2018 |
| 4/16/2018 | NO PRESSURES, OPENED WELL, MIRU PICK TESTERS, PU 3 7/8 BLADE BIT AND 4 1/2 SCRAPER DRESSED FOR 11.6 CASING, TESTED IN THE HOLE 2 3/8 PRODUCTION PIPE DOWN TO 7415' WITH 228 JTS, RD TESTER, FOUND 1 JOINT WITH HOLE THE REST TESTED GOOD, LD 22 JTS ON THE GROUND, POOH TO DERRICK, LD BIT AND SCRAPER, MIRU RANGER WIRE LINE, PU 4 1/2 10K CIBP, SET IT AT 6980' CORRELATED WITH LOGS, SPOTTED 2 SACKS OF CEMENT ON TOP OF THE PLUG, RD WIRE LINE, LOADED THE HOLE WITH WATER, PRESSURE TESTED CASING AND PLUG UP TO 2200 PSI, HELD GOOD FOR 15 MINUTES, PU 3 7/8 CONE BIT WITH PUMP OFF BIT SUB AND SEAT NIPPLE, RIH WITH 206 JTS OF 2 3/8 J-55, LANDED TUBING AT 6707.98' KB WITH 206 JTS OF 2 3/8 J-55, SEAT NIPPLE, PUMP OFF BIT SUB AND 3 7/8 CONE BIT, ND BOP, INSTALLED 5K TOP FLANGE, PICK TESTERS TORQUE AND TESTED WELL HEAD, RECORDED THE TEST FOR 15 MINUTES, CLOSE WELL, RACK PUMP AND TANK, RDMOL. FINAL REPORT. TUBING DETAILS, KB 206 JTS 2 3/8 J-55 4.7 6692.78 SEAT NIPPLE 1.20 PUMP OFF BIT SUB 2.00 TOTAL 6707.98 | 4/16/2018 |
| NOTE: SENT 22 GOOD JTS OF 2 3/8 J-55 TO ATP'S YARD TO PDC'S INVENTORY. | | |