



Well History

Well Name: Durnell #1

API 05123115120000	Surface Legal Location SENE 2 4N 66W	Field Name Wattenberg	State CO	Well Configuration Type Vertical
Ground Elevation (ft) 4,668.00	Original KB Elevation (ft) 4,680.00	KB-Ground Distance (ft) 12.00	Spud Date 12/14/1983 00:00	Rig Release Date 12/22/1983 00:00

Daily Operations		
Start Date	Summary	End Date
11/17/2009	Move rig, pump & tank to location.	11/18/2009
11/18/2009	Try to spot rig in on well w/ two winch trucks, ground thawed out, wait till morning	11/19/2009
11/19/2009	Move in rig w/ winch trks. STP- 20#, SCP-600#. RU PU Kill well w/ 40 bbls down csg & 10 bbls down tbg. NU BOPs, TOO H w/ 223 jts+ NC/SN. RU H&S Testers, TIH hydrotesting 2 3/8" tbg to 7K psi, (all tbg tested good) RD tester, PU & tag fill w/ 43' LD tag jts + 2 more jts, drain pump & hard lines & SWIFN.	11/20/2009
11/20/2009	STP- 200#, SCP-320#; Blow down well, NU JU head, break circulation, clean out 7171.62' KB.circulate hole clean,LD 3 jts,ND BOP& land tbg @ 7097.62' KB w/ 223 jts+ SN/NC.RU swab bottle, run broach to SN,RD swab,RD PU tank & pump.	11/21/2009
11/23/2009	ITP-Blow, ICP- Blow, Made 20 swab runs, mud on cups, Recovered 109 bbls, FTP-Blow, FCP-210#, FFL-4800'	11/24/2009
11/24/2009	ITP-40#,ICP-250#,ISP-200#,IFL-4500', Make 23 swab runs, water & trace of mud, Recovered 58 bbls. FTP-Blow, FCP- 140#, FSP-190#, FFL- 6900'	11/25/2009
11/26/2009	ITP-Blow, ICp- 220#, ISP- 220#, IFL-4500', Make 24 runs Recovered 63 bbls, FTP- Vac, FCP-150#, FSP-150#, FFL-6900' Total of 230 bbls	11/27/2009
11/29/2009	ITP- Vac, ICP- 230#, ISP-Blow, IFL- 3400', Make 22 swab runs, Recovered 89 bbls. FTP- Vac, FCP-100#, FSP- 80#, FFL- 6400' Recovered 319 total BBLS	11/30/2009
4/3/2013	SCP 0 psi, STP 0 psi, SSCP 50 psi, MIRU Bayou Rig #008 had to use dozer to spot rig and equipment in, opened well to rig tank, ND WH, NU BOP's, unlanded tubing, tubing pulling 25K over string weight, RU circulation equipment, broke circulation, rolled hole clean, no mud in returns, pressure increase on surface casing and small amount of circulation established up surface casing, all condensate returns up surface, PU TIH w/ 2 tag jts, tagging 45" in, TOO H standing back w/ 221 jts of tubing, well landed @ 7031.72 w/ 221 jts (110.28' above Codell), tag depth @ 7072.72' w/ 223 jts (69.28' above Codell). SI and isolated well, drained lines, prepared for next day operations.	4/3/2013
4/4/2013	SCP-0, ISCP-0. opened well to rig tank, MIRU Pick Testers. PU 3 7/8" bade bit, and casing scraper dressed for 4 1/2" 11.6# casing from RMOR(tools=5.95'). TIH testing to 6,000 psi. 221 jts.. All tubing tested good. RD tester. RU circulation equipment, broke circulation, circulated up through surface valve, POOH to the derrick w/220 jts. and LD 1 jt and tools. MIRU Nabors Completion Services. RIH w/Wyoming Completions 4 1/2" CIBP, and collar locator getting on correct depth. Set CIBP @ 6,900 (44' above Niobrara)'. POOH and LD tools. PU dump bailor filled w/2 sacks of cement. RIH and dumped cement on top of CIBP. POOH and RD Nabors. ND BOP and tubing head. Repaired cap on casing head. Threads just needed to be cleaned up. NU tubing head and BOP. PU 32A tension packer for 4 1/2" 11.6# casing. TIH and started hunting holes @ 2,100' w/66 jts.. Found holes from 3,445'-825'. POOH and LD packer. finished TOO H to derrick. SI and isolated well, drain lines,prepared for next day operations, SDFN	4/4/2013
4/5/2013	SCP 0 psi, SSCP 0 psi, opened well to rig tank, TIH w/ 221 jts 2 3/8" J-55 4.7# to LD, TOO H laying down with 221 jts 2 3/8" tubing onto trailer provided by ATP, tubing was heavily pitted and full of scale, tubing was purchased and hauled away by ATP. installed 4 1/2" frac valve, SI and isolated well, drained lines, RDMOL.	4/5/2013
10/15/2013	SCP 0 psi, SSCP 0 psi, MIRU Bayou #008, opened well to rig tank, ND WH, NU BOP's, PU NC/SN, PU TIH w/ 2 3/8" J-55 4.7# cement work string delivered out by ATP, tagged cement spotted on CIBP @ 6,900.15' w/220 jts, RU circulation equipment, broke circulation, rolled hole clean, TOO H LD 28 jts onto trailer, stood back 192 jts (6200') for cement job, SI and isolated well, drained lines, prepared for next day operations. SDFN.	10/15/2013
10/16/2013	0 psi @ WH, opened well to rig tank, ND BOP's, ND WH, PU landing sub, unland casing, PU to 80K, removed slips, stakced casing out, NU BOP's, PU worked casing for 0-100K getting 57" of stretch, estimated free pipe to 4,859.82', pulled casing to 85k, set in rig slips, RU Wireline, TIH w/jet cutter set up for 4 1/2" casing, correlated logs, got on depth, cut casing at 6,130' TOO H w/ tools, RD wireline, PU on casing, casing was not free, worked casing from 0-100K only getting 10" of pipe out of hole, worked up to 120K, stacking out and working back to 120K several times, getting 8' of pipe out of hole, PU casing spear dressed for 4 1/2" 11.6# casing porvided by STS, speared into casing, worked up to 135K casing released, pulled to next connection, LD spear and sub, RU lay down equipment, TOO H laying down w/80 jts 4.1/2" 11.6# production casing onto trailer provided by Todd Eston in PDC Denver office, leaving 70 jts of casing in hole, installed stabbing vavle, shut in and isoalted well, drained lines, prepared for next day operations. SDFN .	10/16/2013
10/17/2013	0 psi @ Wh, RD lay down equipment, removed casing trailer, spotted in second casing trailer, RU lay down equipment, TOO H laying down w/77 jts 4.1/2" 11.6# production casing onto trailer provided by Todd Eston in PDC Denver office, laid down a total of155 jts plus 10' cut piece, changed equipment over to run 2 3/8" J-55 4.7# cement WS, picked up 2 3/8" mule shoe, TIH w/ mule shoe and 2 3/8" cement work string, tagged in hole w/ 183 jts of tubing EOT @ 5,727.90 (402.10' above casing stub), RU circulating equipuiment, attempted to establish circulation, unable to circulate, TOO H standing back with 60 jts, EOT @ 3,849.61, broke circulation, rolled hole for 1 hour, TIH w/ tubing circulating every 10 jts down to 4,788.21' w/ 153 jts, started circulating large amounts of gas out of well bore, continued circulating at 2 bpm rate at 500 psi for 4 hours (one round trip, total hole volume of 10" open hole w/ 2 3/8" tubing 460 bbls), circulated all gas out of well bore, TOO H standing back w/ 30 jts, leaving EOT @ 3,849.61 w/ 123 jts, installed TIW valve provided by STS, shut in and isoalted well, drained lines, prepared for next day operations. SDFN.	10/17/2013



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Daily Operations

Start Date	Summary	End Date
10/18/2013	0 psi @ Wh, opened well to rig tank, TIH w/ 34 jts 2 3/8" cement work string from derrick, tagged in hole w/ 157 jts of tubing EOT @ 5,024.64 (1105.36' above casing stub), RU circulating equipment, circulated down jt # 157, PU attempted to circulate down w/ jt # 158, unable to circulate, tubing plugged off, LD circulating equipment, TOOH standing back with 158 jts, last jt full of heavy mud, LD jt#1, PU TIH w/ mule shoe and 144 jts, tagging hard @ 4608.91', RU circulating equipment, broke circulation, washed down to 4,864.41 w/ 152 jts, rolled hole clean bringing back heavy mud, TOOH standing back w/ 20 jts leaving EOT @ 3,818.31 / 122 jts, installed TIW valve provided by STS, shut in and isolated well, drained lines, prepared for next day operations. SDFN.	10/18/2013
10/19/2013	0 psi @ Wh, opened well to rig tank, TIH w/ 22 jts 2 3/8" cement work string from derrick, tagged in hole w/ 144 jts of tubing EOT @ 4,622.47 (1507.53' above casing stub), RU circulating equipment, circulated down jt # 144, continued PU and circulating down jt by jt to casing stub, tagged stub at 6130.45' w. 192 jts half way in, LD jt 192, rolled hole rest of day EOT @ 6115.34' w/ 191 jts, circulated bottoms up 2 times, bringing back heavy mud then light mud, light mud in returns rest of day, TOOH LD 30 jts, stood back 30 jts, leaving EOT @ 4218.11' w/ 131 jts, installed TIW valve provided by STS, shut in and isolated well, drained lines, prepared for next day operations. SDFN.	10/19/2013
10/21/2013	0 psi @ WH, PU TIH w/ 60 jts 2 3/8" 4.7# J-55 tubing, putting EOT at 6115.34 w/ 191 jts, RU circulating equipment, broke circulation, rolled hole for 2 hours bringing back light mud no oil, RD circulating equipment, MI&RU Halliburton Cement Services to 2 3/8" 4.7# J-55 tubing, hold JSA and procedure meeting. Pressure test lines to 3,500 psi Preflush: Pumped 10 bbl fresh water to establish circulation 1st stage:EOT set @ 6115.34' w/191 jts,mix, batch, and pump 50 sk G&E 15.8 ppg1.15 yield (10.24 bbls) Displace 23 Bbls balancing the plug, Est. TOC @ 6009.93', lay down 20 jts, RU rig circulation equipment, broke circulation, EOT @ 5550.37 w/ 171 jts, circulated tubing volume, TOOH LD w/ 34 jts. 2nd stage:EOT set @ 5,000.00' w/156 jts,mix, batch, and pump400 sks Econocem 12.5 ppg 1.89 yield (134.64 bbls) Displace 13 bbls balancing the plug, Est. TOC @ 3,438.17', lay down 20 jts, RU rig circulation equipment, broke circulation, pumped tubing volume to flush tubing, TOOH LD w/ 139 jts. 3rd stage:EOT set @ 508.36' w/17 jts, mix,batch and pump 180 sks of Varicem 12.0 ppg 2.18 yield (69.88 bbls), returned 0 bbls cement to tank, 11 bbls of 12 bbls mud flush pill returned to tank, Displace 1.0 Bbls, RD and release Halliburton, TOOH laying down remaining 17 jts 2 3/8" 4.7# J-55, SI and isolated well, drained lines, prepared for next day operations, SDFN.	10/21/2013
10/22/2013	0 psi @ WH, Ran plumb bob and 300' tape tagging cement top at 107', MIRU roustabouts, dug around well head, MIRU welder, cut off 8 5/8" surface casing 6' below ground level, MIRU Verra Redimix, topped off 8 5/8" casing with 1 1/2 yard of cement, RD Redmix, welded cap onto surface casing, RD welder, backfilled burying capped casing. RD roustabouts. FINAL REPORT	10/22/2013

The Road to Excellence Starts with Safety

Sold To #: 304535	Ship To #: 3112519	Quote #:	Sales Order #: 900830260
Customer: PETROLEUM DEVELOPMENT CORP - EBUS		Customer Rep: SAILORS, CHAD	
Well Name: Durnell	Well #: 1	API/UWI #: 05-123-11512	
Field: Wattenberg	City (SAP): LA SALLE	County/Parish: Weld	State: Colorado
Lat: N 40.343 deg. OR N 40 deg. 20 min. 34.386 secs.		Long: W 104.737 deg. OR W -105 deg. 15 min. 46.62 secs.	
Contractor: WORKOVER	Rig/Platform Name/Num: Workover		
Job Purpose: Recement Service			
Well Type: Development Well		Job Type: Recement Service	
Sales Person: PLIENESS, RYAN		Srvc Supervisor: FANTASIA, JOSEPH	MBU ID Emp #: 485445

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
FANTASIA, JOSEPH Brandon	7.5	485445	HINKLE, BRADLEY Dean	7.5	512123	TAUILILI, SAIAI	7.5	123456
TORREY, SPENCER Kenneth	7.5	549837						

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10866497C	30 mile	10977079C	30 mile	11562544C	30 mile	11562570C	30 mile

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
10-21-2013	7.5	7						
TOTAL			<i>Total is the sum of each column separately</i>					

Job

Job Times

Formation Name	Formation Depth (MD)	Top	Bottom	Called Out	Date	Time	Time Zone
				On Location	21 - Oct - 2013	07:00	MST
Form Type			BHST	Job Started	21 - Oct - 2013	09:00	MST
Job depth MD	6096. ft		Job Depth TVD	Job Completed	21 - Oct - 2013	14:00	MST
Water Depth			Wk Ht Above Floor	Departed Loc	21 - Oct - 2013	14:30	MST
Perforation Depth (MD)	From		To				

Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
10" Open Hole				10.				500.	6096.		
12" Open Hole				12.				258.	500.		
8 5/8" Surface Casing	Unknown		8.625	8.097	24.			.	258.		
Tubing	Unknown		2.375	1.995	4.7	8 RD	J-55	.	6096.	.	6096.

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			
Float Collar					Retainer					SSR plug set			
Insert Float										Plug Container			
Stage Tool										Centralizers			

Miscellaneous Materials

Gelling Agt	Conc	Surfactant	Conc	Acid Type	Qty	Conc	%
Treatment Fld	Conc	Inhibitor	Conc	Sand Type	Size	Qty	

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft ³ /sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	15.8# PlugCem	PLUGCEM (TM) SYSTEM (452969)	50.0	sacks	15.8	1.15	5.0	2	5.0
	5 Gal	FRESH WATER							
2	12.5# EconoCem	ECONOCEM (TM) SYSTEM (452981)	164.0	sacks	12.5	1.89	10.27	3	10.27
	10.27 Gal	FRESH WATER							
3	MUD FLUSH III	MUD FLUSH III - SBM (528788)	12.00	bbl	8.4	.0	.0	2	
4	VariCem 12.#	VARICEM (TM) CEMENT (452009)	180.0	sacks	12.	2.17	12.3	2	12.3
Calculated Values		Pressures			Volumes				
Displacement		Shut In: Instant		Lost Returns		Cement Slurry		Pad	
Top Of Cement		5 Min		Cement Returns	0	Actual Displacement		Treatment	
Frac Gradient		15 Min		Spacers		Load and Breakdown		Total Job	
Rates									
Circulating		Mixing		Displacement		Avg. Job			
Cement Left In Pipe	Amount	0 ft	Reason	Shoe Joint					
Frac Ring # 1 @	ID	Frac ring # 2 @	ID	Frac Ring # 3 @	ID	Frac Ring # 4 @	ID		
The Information Stated Herein Is Correct				Customer Representative Signature					

The Road to Excellence Starts with Safety

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Customer: PETROLEUM DEVELOPMENT CORP - EBUS		Customer Rep: SAILORS, CHAD	
Well Name: Durnell		Well #: 1	API/UWI #: 05-123-11512
Field: Wattenberg	City (SAP): LA SALLE	County/Parish: Weld	State: Colorado
Legal Description:			
Lat: N 40.343 deg. OR N 40 deg. 20 min. 34.386 secs.		Long: W 104.737 deg. OR W -105 deg. 15 min. 46.62 secs.	
Contractor: WORKOVER		Rig/Platform Name/Num: Workover	
Job Purpose: Recement Service			Ticket Amount:
Well Type: Development Well		Job Type: Recement Service	
Sales Person: PLIENESS, RYAN		Srvc Supervisor: FANTASIA, JOSEPH	MBU ID Emp #: 485445

Activity Description	Date/Time	Cht #	Rate bbl/min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	
Arrive at Location from Service Center	10/21/2013 07:00							
Assessment Of Location Safety Meeting	10/21/2013 07:15							
Start Job	10/21/2013 09:00							PERFORM PREJOB SAFETY MEETING WITH ALL PRESENT PERSONELL. TUBING @ 6096'.
Test Lines	10/21/2013 09:17						3490.0	PRESSURE TEST LINES TO 3500 PSI.
Pump Spacer 1	10/21/2013 09:20		2	10			560.0	PUMP 10 BBLS WATER TO BREAK AND ESTABLISH CIRCULATION.
Pump Cement	10/21/2013 09:29		2	10			150.0	50 SKS G CEMENT WITH HR5 AND CFR 3 ADDED. MIXED AT 15.8 PPG USING SUPPLIED WATER.
Pump Displacement	10/21/2013 09:34		2	18			10.0	DISPLACE TO BALANCE POINT. PRESSURE WAS SEEN @ 18 BBLS AWAY. SHUTDOWN RELEASE PRESSURE AND PULL SLOWLY OUT OF PLUG.
Shutdown	10/21/2013 09:43							SHUTDOWN WHILE RIG PULLS 34 JOINTS. TUBING TO BE SET @ 5000'.
Pump Spacer 1	10/21/2013 10:10		2	10				PUMP 10 BBLS WATER TO BREAK AND ESTABLISH CIRCULATION.

Cementing Job Log

Activity Description	Date/Time	Cht #	Rate bbl/min	Volume bbl		Pressure psig		Comments
				Stage	Total	Tubing	Casing	
Pump Cement	10/21/2013 10:17		3	134			540.0	400 SKS ECONOCEM MIXED AT 12.5 PPG USING SUPPLIED WATER.
Pump Displacement	10/21/2013 11:01		2	10			7.0	DISPLACE TO BALANCE POINT. PRESSURE WAS SEEN @ 10 BBLs AWAY. SHUTDOWN RELEASE PRESSURE AND PULL SLOWLY OUT OF PLUG.
Shutdown	10/21/2013 11:06							SHUTDOWN WHILE RIG PULLS 139 JOINTS. TUBING TO BE SET @ 508'.
Pump Spacer 1	10/21/2013 12:33		2	12			50.0	PUMP 12 BBLs MUDFLUSH
Pump Cement	10/21/2013 12:47		2	64			43.0	164 SKS SURFACE VARICEM MIXED AT 12 PPG USING SUPPLIED WATER. RAN OUT OF CEMENT BEFORE SEEING CEMENT TO SURFACE. BBL COUNTER INDICATED 64 BBLs (164 SKS) TOTAL CEMENT PUMPED. MIX WATER VERIFIED. DENSITY VERIFIED BY SCALE THROUGHOUT MIXING. SHORT BY 16 SKS
Pump Displacement	10/21/2013 13:15		2	1			48.0	DISPLACE 1 BBL. TO CLEAR TUBING. MUD FLUSH WAS SEEN AT 40 BBLs INTO 65 BBLs TOTAL FLUID PUMPED ON STAGE.
Shutdown	10/21/2013 13:20							
End Job	10/21/2013 13:39							PERFORM RIG DOWN SAFETY MEETING PRIOR TO RIGGING DOWN EQUIPMENT.

3.5 Job Event Log

Time	Description	Graph Label	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Pass-Side Pump Pressure (psi)	Comment
09:11:05	Start Job	Start Job	9.01	0.00	108.00	
09:17:43	Test Lines	Test Lines	9.21	0.00	1623.00	
09:20:33	Pump Spacer 1	Pump Spacer 1	8.97	1.00	172.00	
09:29:52	Pump Cement	Pump Cement	14.79	1.80	537.00	
09:34:57	Pump Displacement	Pump Displacement	12.58	2.00	67.00	
09:43:44	Shutdown	Shutdown	0.78	0.00	21.00	
10:10:51	Pump Spacer 1	Pump Spacer 1	8.06	1.00	55.00	
10:17:44	Pump Cement	Pump Cement	12.52	2.00	494.00	
11:01:54	Pump Displacement	Pump Displacement	12.69	2.30	24.00	
11:06:31	Shutdown	Shutdown	0.75	0.00	13.00	
12:33:01	Pump Spacer 1	Pump Spacer 1	8.00	0.00	5.00	
12:47:58	Pump Cement	Pump Cement	11.41	1.00	4.00	
01:15:04	Pump Displacement	Pump Displacement	12.17	1.20	7.00	
01:20:40	Shutdown	Shutdown	-0.46	0.00	5.00	

4.0 Custom Graphs

4.1 Custom Graph



