



Schematic - Current

Well Name: Hahn 23-27

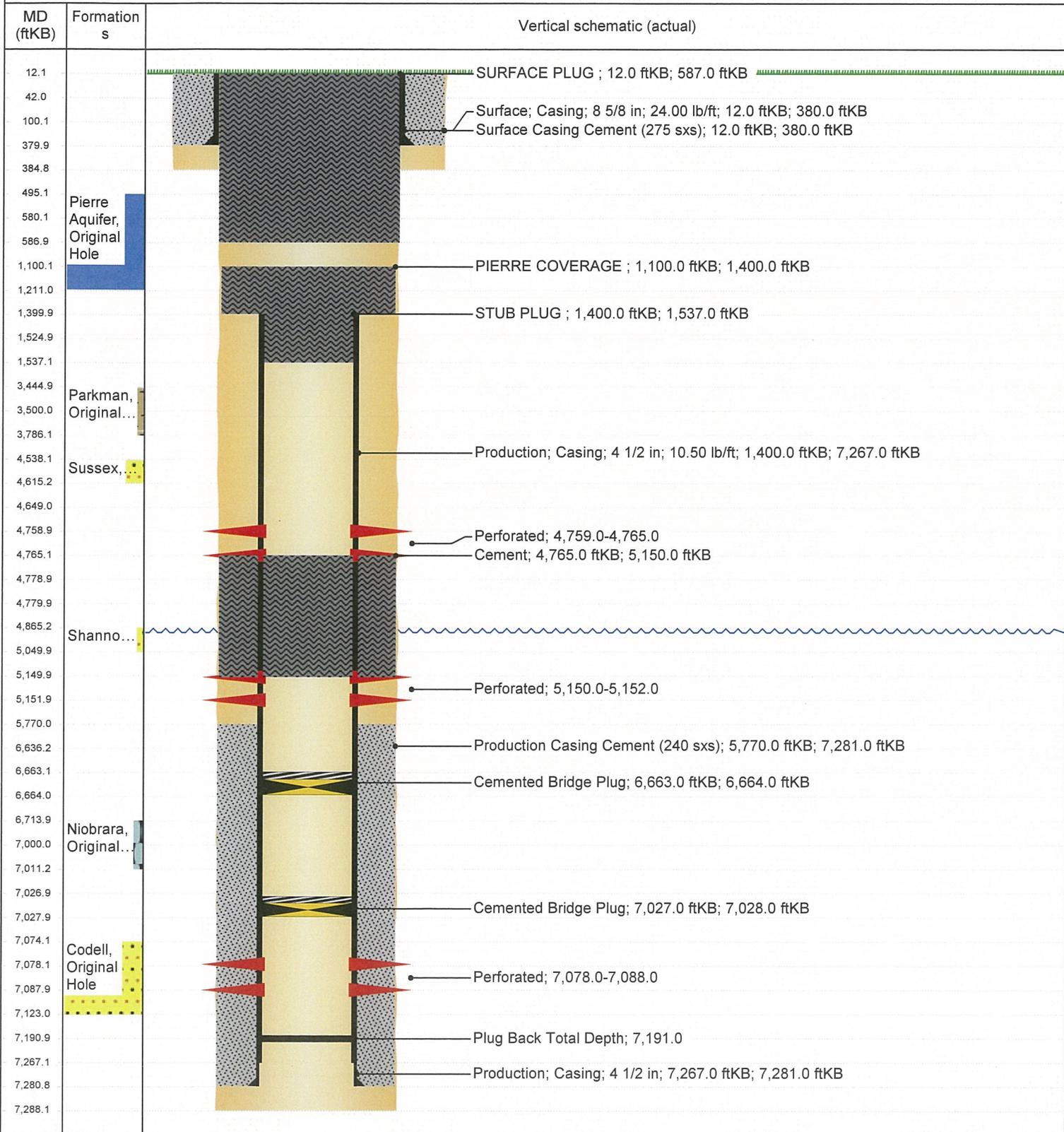
API 05123203460000	Surface Legal Location NESW 27 5N 67W	Field Name Wattenberg	State CO
Well Configuration Type Vertical	Ground Elevation (ft) 4,895.00	Original KB Elevation (ft) 4,907.00	KB-Ground Distance (ft) 12.00

Most Recent Job

Job Category Abandon	Primary Job Type Abandon Well EHS	Secondary Job Type	Start Date 5/10/2018	End Date 5/16/2018
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TD: 7,288.0

Vertical - Original Hole, 5/21/2018 6:33:47 AM





Daily Completion Operations

Date: 5/16/2018
Report #: 5.0

Well Name: Hahn 23-27

Well Name Hahn 23-27	Operator PDC Energy Inc.	API 05123203460000	Well Number 105.001051	Last Mod By RABeam	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NESW 27 5N 67W	Spud Date 3/23/2001	Original KB Elevation (ft) 4,907.00	Ground Elevation (ft) 4,895.00	KB-Ground Distance (ft) 12.00

Daily Operation: 5/16/2018 06:00 - 5/16/2018 18:00

AFE Number	Job Category Abandon	Objective PLUG AND ABANDON WELL	Start Date 5/10/2018	End Date 5/16/2018	Primary Job Type Abandon Well EHS	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 022
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Daily Operations

Report Start Date 5/16/2018	Report End Date 5/16/2018	Daily Field Est Total (Cost) 20,173.00	Cum Field Est To Date (Cost) 79,116.84
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Status at Reporting Time

Operations Summary

CREW TO LOCATION

WELL WAS DEAD THIS AM, OPENED WELL TO FLAT TANK. P/U MULE SHOE AND TIH OUT OF DERRICK 47 JTS TBG TO PUT EOT @ 1537' (137' INSIDE CSG STUB). R/U RIG PUMP, LOADED TBG AND BACKSIDE, ESTABLISHED CIRCULATION AND CONDITIONED HOLE UNTIL CEMENTERS ARRIVED. KILLED PUMP. WELL WAS STATIC, NO PRESSURE AND NO FLOW. R/U O-TEX CEMENT SERVICES. HELD SAFETY MEETING AND PRESSURE TESTED LINES TO 2500 PSI. MIXED UP AND PUMPED 150 SACKS (31 BBLs) 15.8 PPG CEMENT PREBLENDED W/ 2% CaCl FROM 1537' TO 1100'. GOOD CIRCULATION THROUGHOUT ENTIRE JOB AT 2 BBL/MIN RATE. DISPLACED W/ 4.2 BBLs FRESH WATER TO BALANCE PLUG. R/D CEMENTERS. POOH L/D ON FLOAT 29 JTS TBG. LEFT 18 JTS TBG IN THE HOLE W/ EOT @ 587'. R/U O-TEX CEMENTERS. RETESTED LINES TO 2500 PSI. PUMPED 5 BBLs FRESH WATER AHEAD TO ESTABLISH CIRCULATION. MIXED UP AND PUMPED 207 SACKS (43 BBLs) 15.8 PPG CEMENT PREBLENDED TO 2% CaCl FROM 587' TO SURFACE. GOOD CIRCULATION THROUGHOUT ENTIRE JOB AT 2 BBL/MIN RATE. RETURNED 2 BLS CEMENT TO TANK. R/D CEMENTERS. POOH L/D ON FLOAT 18 JTS TBG AND MULE SHOE. TOPPED OFF W/ 5 SACKS (1 BBL). TOTAL CEMENT PUMPED WAS 212 SACKS (44 BBLs). R/D CEMENTERS TO WASH UP. N/D BOPS AND RIGGED DOWN. CEMENT WAS AT SURFACE. DUG UP WELL. CUT AND CAPPED WELL 6' BELOW GROUND LEVEL. WELDED ON MARKER PLATE. BURIED WELL AND TURNED OVER TO THE CONSTRUCTION DEPT TO ABANDON FLOWLINE.

THIS IS THE FINAL REPORT.

NOTE THERE WAS 33 JTS 4 1/2" 10.5# CSG AND 216 JTS 2 3/8" 4.70# J-55 8RD TBG SOLD FROM THIS WELL TO KARST. THERE WAS ALSO 2-10' PUP JOINTS FMTD TO PDC INVENTORY.

Operations Next Report Period

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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	
07:00	08:00	1.00	2.00	RTRIP	Tripping	
08:00	10:00	2.00	4.00	CIRC	Circulating	
10:00	11:00	1.00	5.00	CEMT	Cement Squeeze	PUMPED STUB/PIERRE PLUG
11:00	12:00	1.00	6.00	RTRIP	Tripping	
12:00	14:30	2.50	8.50	CEMT	Cement Squeeze	PUMPED SURFACE PLUG
14:30	15:00	0.50	9.00	RTRIP	Tripping	
15:00	16:00	1.00	10.00	SRIG	Rig Up/Down	
16:00	17:00	1.00	11.00	ROTH	Other Rig Work	
17:00	18:00	1.00	12.00	TRAV	Travel - From Location	



Daily Completion Operations

Date: 5/15/2018
Report #: 4.0

Well Name: Hahn 23-27

Well Name Hahn 23-27	Operator PDC Energy Inc.	API 05123203460000	Well Number 105.001051	Last Mod By RABeam	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NESW 27 5N 67W	Spud Date 3/23/2001	Original KB Elevation (ft) 4,907.00	Ground Elevation (ft) 4,895.00	KB-Ground Distance (ft) 12.00

Daily Operation: 5/15/2018 06:00 - 5/15/2018 16:00

A/E Number	Job Category Abandon	Objective PLUG AND ABANDON WELL	Start Date 5/10/2018	End Date 5/16/2018	Primary Job Type Abandon Well EHS	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 022
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Daily Operations

Report Start Date 5/15/2018	Report End Date 5/15/2018	Daily Field Est Total (Cost) 13,473.00	Cum Field Est To Date (Cost) 58,943.84
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Status at Reporting Time

Operations Summary

CREW TO LOCATION WELL WAS DEAD THIS AM, OPENED WELL TO FLAT TANK. P/U MULE SHOE AND TIH OUT OF DERRICK 47 JTS TBG TO PUT EOT @ 1537' KB (137' INSIDE CSG STUB). R/U RIG PUMP, LOADED TBG AND BACKSIDE, ESTABLISHED CIRCULATION AND CONDITIONED HOLE FOR 4 HOURS. LOCATION WAS STILL TOO MUDDY TO GET CEMENTERS IN. KILLED PUMP. TOOH S/B IN DERRICK 47 JTS TBG. L/D MULE SHOE. HAD RIG AUDIT. SWI, SDFD, CREW TO THE YARD.

Operations Next Report Period

PUMP SURFACE PLUG

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	
07:00	07:30	0.50	1.50	SMTG	Safety Meeting	
07:30	08:30	1.00	2.50	RTRIP	Tripping	
08:30	12:30	4.00	6.50	CIRC	Circulating	
12:30	13:30	1.00	7.50	RTRIP	Tripping	
13:30	14:30	1.00	8.50	ROTH	Other Rig Work	
14:30	15:00	0.50	9.00	LOCL	Lock Wellhead & Secure	
15:00	16:00	1.00	10.00	TRAV	Travel - From Location	



Daily Completion Operations

Date: 5/14/2018
Report #: 3.0

Well Name: Hahn 23-27

Well Name Hahn 23-27	Operator PDC Energy Inc.	API 05123203460000	Well Number 105.001051	Last Mod By RABeam	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NESW 27 5N 67W	Spud Date 3/23/2001	Original KB Elevation (ft) 4,907.00	Ground Elevation (ft) 4,895.00	KB-Ground Distance (ft) 12.00

Daily Operation: 5/14/2018 06:00 - 5/14/2018 16:00

AFE Number	Job Category Abandon	Objective PLUG AND ABANDON WELL	Start Date 5/10/2018	End Date	Primary Job Type Abandon Well EHS	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 022
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Daily Operations

Report Start Date 5/14/2018	Report End Date 5/14/2018	Daily Field Est Total (Cost) 8,598.05	Cum Field Est To Date (Cost) 45,470.84
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Status at Reporting Time

Operations Summary

CREW TO LOCATION
WELL WAS DEAD THIS AM, OPENED WELL TO FLAT TANK. R/U RANGER WIRELINE SERVICES. P/U RIH W/ LOGGING TOOL. LOGGED FROM 1500' TO SURFACE. LOG SHOWED HEAVY MUD FROM 950' TO 1200'. POOH AND R/D WIRELINE. N/D BOPS AND WELL HEAD. P/U STS 4 1/2" CSG SPEAR. UNLANDED CSG PULLING 100K. N/U SURFACE SPOOL AND BOPS. CHANGED EQUIPMENT OVER TO 4 1/2". WORKED CSG STRETCH FOR 3 HOURS TO BREAK UP MUD. GOT ENOUGH STRETCH TO CUT CSG. R/U RANGER WIRELINE. P/U RIH W/ JET CUTTER. CUT CSG @ 1400'. POOH AND R/D WIRELINE. POOH L/D ON FLOAT 33 JTS 4 1/2" 10.5# CSG. COULD NOT GET CEMENTERS INTO LOCATION DUE TO MUDDY CONDITIONS. SWI, SDFD, CREW TO THE YARD.

Operations Next Report Period

PUMP SURFACE PLUG

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	CUT CSG AT 1400'
07:00	09:00	2.00	3.00	EWLL	Logging	
09:00	12:00	3.00	6.00	ROTH	Other Rig Work	
12:00	13:00	1.00	7.00	EWLO	Other	
13:00	15:00	2.00	9.00	RTRIP	Tripping	
15:00	16:00	1.00	10.00	TRAV	Travel - From Location	



Daily Completion Operations

Date: 5/11/2018
Report #: 2.0

Well Name: Hahn 23-27

Well Name Hahn 23-27	Operator PDC Energy Inc.	API 05123203460000	Well Number 105.001051	Last Mod By RABeam	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NESW 27 5N 67W	Spud Date 3/23/2001	Original KB Elevation (ft) 4,907.00	Ground Elevation (ft) 4,895.00	KB-Ground Distance (ft) 12.00

Daily Operation: 5/11/2018 06:00 - 5/11/2018 18:00

AFE Number	Job Category Abandon	Objective PLUG AND ABANDON WELL	Start Date 5/10/2018	End Date	Primary Job Type Abandon Well EHS	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 022
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Daily Operations

Report Start Date 5/11/2018	Report End Date 5/11/2018	Daily Field Est Total (Cost) 15,556.61	Cum Field Est To Date (Cost) 36,872.79
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Status at Reporting Time

Operations Summary

CREW TO LOCATION
WELL WAS DEAD THIS AM, OPENED WELL TO FLAT TANK. RELEASED PACKER. P/U RIH W/ 4 JTS TBG. RESET PACKER @ 4840' (75' BELOW TOP SQUEEZE HOLES). R/U RIG PUMP, LOADED TBG AND BACKSIDE, ESTABLISHED CIRCULATION THROUGH SQUEEZE HOLES AND CONDITIONED HOLE FOR 2 HOURS AND ROLLED OUT ALL GAS AND HEAVY MUD. RELEASED PACKER AND TOOH W/ 146 JTS TBG. L/D ON FLOAT 2 JTS TBG. R/U RANGER WIRELINE SERVICES. P/U RIH W/ 4 1/2" STS CICR. SET CICR @ 4780' KB (15' BELOW TOP SQUEEZE HOLES). POOH AND R/D WIRELINE. P/U STINGER AND TIH OUT OF DERRICK 146 JTS TBG. TAGGED CICR. P/U 6' PUP JOINT. R/U RIG PUMP, LOADED TBG AND BACKSIDE, ESTABLISHED CIRCULATION AND ROLLED HOLE WHILE STINGING INTO RETAINER. ESTABLISHED CIRCULATION THROUGH SQUEEZE HOLES AND ROLLED HOLE UNTIL CEMENTERS ARRIVED. KILLED PUMP. WELL WAS STATIC. R/U O-TEX CEMENT SERVICES. HELD SAFETY MEETING AND PRESSURE TESTED LINES TO 2500 PSI. PUMPED 10 BBLs MUD FLUSH AHEAD FOLLOWED BY 10 BBLs FRESH WATER SPACER. MIXED UP AND PUMPED 110 SACKS (39 BBLs) 12.0 PPG 50/50 POZ CEMENT FROM 5150' TO 4765' KB. GOOD CIRCULATION THROUGHOUT ENTIRE JOB @ 2 BBL/MIN RATE. DISPLACED 16.5 BBLs FRESH WATER TO BALANCE PLUG (FULL DISPLACEMENT WAS 18.5 TO CICR). STUNG OUT OF CICR LEAVING 2 BBLs CEMENT ON TOP OF RETAINER. R/D CEMENTERS TO WASH UP. TOOH S/B IN DERRICK 46 JTS TBG AND POOH L/D ON FLOAT 100 JTS TBG AND PUP JOINT. CLEANED UP EQUIPMENT. SWI, SDFD, CREW TO THE YARD.

Operations Next Report Period

CUT AND PULL CSG, PUMP SURFACE PLUG

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	
07:00	09:00	2.00	3.00	CIRC	Circulating	
09:00	11:00	2.00	5.00	RTRIP	Tripping	
11:00	11:30	0.50	5.50	EWLO	Other	SET CICR AT 4780'
11:30	12:30	1.00	6.50	RTRIP	Tripping	
12:30	14:00	1.50	8.00	CIRC	Circulating	
14:00	15:00	1.00	9.00	CEMT	Cement Squeeze	PUMPED SQUEEZE FROM 5150' TO 4765'
15:00	17:00	2.00	11.00	RTRIP	Tripping	
17:00	18:00	1.00	12.00	TRAV	Travel - From Location	



Daily Completion Operations

Date: 5/10/2018
Report #: 1.0

Well Name: Hahn 23-27

Well Name Hahn 23-27	Operator PDC Energy Inc.	API 05123203460000	Well Number 105.001051	Last Mod By RABeam	
District Evans	Field Name Wattenberg	County Weld	State CO		
Well Type Development	Surface Legal Location NESW 27 5N 67W	Spud Date 3/23/2001	Original KB Elevation (ft) 4,907.00	Ground Elevation (ft) 4,895.00	KB-Ground Distance (ft) 12.00

Daily Operation: 5/10/2018 06:00 - 5/10/2018 19:00

AFE Number	Job Category Abandon	Objective PLUG AND ABANDON WELL	Start Date 5/10/2018	End Date	Primary Job Type Abandon Well EHS	Secondary Job Type
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Rigs

Contractor Ranger Energy Services	Rig Number 022
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Daily Operations

Report Start Date 5/10/2018	Report End Date 5/10/2018	Daily Field Est Total (Cost) 21,316.18	Cum Field Est To Date (Cost) 21,316.18
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Status at Reporting Time

Operations Summary

MIRU RANGER RIG #22

IWP TBG- 1220 PSI, CSG- 1220 PSI, SURFACE CSG- 0 PSI. HELD SAFETY MEETING AND FUNCTION TESTED BOPS. OPENED WELL TO FLAT TANK. R/U RIG PUMP, LOADED TBG AND BACKSIDE, ESTABLISHED CIRCULATION AND ROLLED HOLE CLEAN. N/D WELL HEAD TREE AND N/U BOPS. TOOH S/B IN DERRICK 150 JTS TBG AND POOH L/D ON FLOAT 65 JTS TBG. TOTAL TBG IN THE HOLE WAS 216 JTS 2 3/8" 4.70# J-55 8RD TBG AND (2) 10' PUP JOINTS. R/U RANGER WIRELINE SERVICES. P/U RIH W/ GAUGE RING W/ JUNK BASKET DOWN TO 7050'. POOH L/D GAUGE RING. P/U RIH W/ STS 4 1/2" 10K CIBP. CORRELATE WITH LOG AND SET CIBP #1 @ 7028' KB (50' ABOVE TOP CODELL PERFS). DUMP BAILED 2 SACKS OF CEMENT ON TOP OF CIBP. POOH. P/U RIH W/ STS 4 1/2" 10K CIBP. SET CIBP #2 @ 6664' KB (50' ABOVE TOP OF NIO FORMATION). DUMP BAILED 2 SACKS OF CEMENT ON TOP OF CIBP. POOH. R/U RIG PUMP, LOADED CSG W/ FRESH WATER. CLOSED BLIND RAMS AND PRESSURE TESTED CSG TO 1000 PSI. HELD FOR 15 MIN. GOOD TEST. RELEASED PRESSURE. P/U RIH W/ PERF GUNS. SHOT BOTTOM SQUEEZE HOLES @ 5150' KB, 2' GUN, 4 SPF, ALL SHOTS FIRED. PULLED UP AND SHOT TOP SQUEEZE HOLES AT 4765', 6' GUN, 2 SPF, 12 HOLES, ALL SHOTS FIRED. POOH AND R/D WIRELINE. P/U STS COMPRESSION PACKER. R/U PICK TESTING. TESTED IN OUT OF DERRICK 150 JTS TBG TO 6500 PSI. ALL TBG TESTED GOOD. R/D HYDROTESTER. POOH L/D 6 JTS TBG ON FLOAT. SET PACKER ABOVE TOP SQUEEZE HOLES FOR THE NIGHT. SWI, SDFD, CREW TO THE YARD.

Operations Next Report Period

CONDITION HOLE AND PUMP SQUEEZE

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	
07:00	08:00	1.00	2.00	RMOV	Rig Move	
08:00	09:00	1.00	3.00	SRIG	Rig Up/Down	
09:00	10:00	1.00	4.00	CIRC	Circulating	
10:00	10:30	0.50	4.50	BOPI	Install BOP's	
10:30	13:00	2.50	7.00	RTRIP	Tripping	
13:00	14:30	1.50	8.50	EWLO	Other	SET CIBPS ABOVE FORMATION TOPS
14:30	15:00	0.50	9.00	PTST	Pressure Test	GOOD CSG TEST TO 10000 PSI
15:00	16:00	1.00	10.00	EWLP	Perforating	SHOT SQUEEZE HOLES
16:00	18:00	2.00	12.00	RTRIP	Tripping	
18:00	19:00	1.00	13.00	TRAV	Travel - From Location	

RANGER ENERGY SERVICES, LLC

WIRESLINE DIVISION

3333 Center Dr
Milliken, Co



Service Date:

Company Name: PDC		Company Address:			Field Ticket Number: 30001880
Well Name: HAHN 23-27	Field: WATTENBERG	County: WELD	State: COLORADO	Rig Name & Number: Ranger Rig #22	
SERVICE NOTES: CBL 2000' to surface/ Jet cut 4.5" casing @ 1400'			Date: 5/14/2018	Wireline Unit # 222	
				Engineer: J. JOHNSON	
				Operator: T. VAN NEST	
				Operator:	

RUN	CODE	DESCRIPTIONS	QTY	UNIT PRICE	DISCOUNT	AMOUNT
1	1000-001	Set Up Charge Cased Hole Unit	1	\$ 1,500.00		\$ 450.00
	3000-001	Packoff Operation Charge0#-1000#	1	\$ 900.00		\$ 225.00
2						
	4000-017	Cement Bond Log Depth Charge	2000	\$ 0.50		\$ 200.00
	4000-018	Cement Bond Log Operation Charge	2000	\$ 0.50		\$ 200.00
	4000-009	Simultaneous Gamma Ray Log Depth Charge	2000	\$ 0.12		\$ 60.00
	4000-010	Simultaneous Gamma Ray Log Operation Charge	2000	\$ 0.12		\$ 60.00
	4000-013	Simultaneous CCL Log Depth Charge	2000	\$ 0.10		\$ 50.00
	4000-014	Simultaneous CCL Log Operation Charge	2000	\$ 0.10		\$ 50.00
	5000-011	Jet Cutter Depth Charge	1400	\$ 0.36		\$ 352.80
	5000-014	Jet Cutter Operation Charge for Casing	1	\$ 1,700.00		\$ 1,700.00

SUB TOTAL	\$	3,347.80
Bulk Discount	\$	-
TAX	\$	-
TOTAL	\$	3,347.80

Customer Signature:	Customer Name Printed:	Ranger Energy Services Representative Signature:
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The above estimated charges and data shown are subject to change by Ranger Energy Services, LLC. Payment terms are net 30 Days.

RANGER ENERGY SERVICES, LLC

WIRELINE DIVISION

3333 Center Dr
Milliken, Co



Service Date:

Company Name: PDC		Company Address:			Field Ticket Number: 10001118
Well Name: HAHN 23-27	Field: WATTENBERG	County: WELD	State: COLORADO		Rig Name & Number: RANGER# 22
SERVICE NOTES: SET STS CEMENT RETAINER @ 4786'				Date: 5/11/2018	Wireline Unit # 233 Engineer: A.REAGAN Operator: H.DANFORD

RUN	CODE	DESCRIPTIONS	QTY	UNIT PRICE	DISCOUNT	AMOUNT
1	1000-001	Set Up Charge Cased Hole Unit	1	\$ 1,500.00		\$ 450.00
	3000-001	Packoff Operation Charge0#-1000#	1	\$ 900.00		\$ 288.00
	2000-003	API Type 6BX, 5,000 lb. WP 13-3/8" and smaller	1	\$ 205.00		\$ 61.50
1	8000-007	Cement Retainer Depth Charge	4786	\$ 0.30		\$ 502.53
	8000-008	Cement Retainer Operation Charge	1	\$ 500.00		\$ 135.00
	8000-015	Setting Tool Rental, per tool	1	\$ 1,200.00		\$ 384.00
1	8000-014	Standard Set Power Charge	1	\$ 250.00		\$ 250.00

SUB TOTAL	\$ 2,071.03
Bulk Discount	\$ -
TAX	\$ -
TOTAL	\$ 2,071.03

Customer Signature:	Customer Name Printed: RYAN BEAM	Ranger Energy Services Representative Signature:
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The above estimated charges and data shown are subject to change by Ranger Energy Services, LLC. Payment terms are net 30 Days.

RANGER ENERGY SERVICES, LLC

WIRELINE DIVISION

3333 Center Dr
Milliken, Co



Service Date:

Company Name: PDC		Company Address:			Field Ticket Number: 30001879	
Well Name: HAHN 23-27		Field: WATTENBERG	County: WELD	State: COLORADO	Rig Name & Number: Ranger Rig #22	
SERVICE NOTES: JCGR to 7050' / Set STS CIBP at 7028' with 2 sx cement / Set STS CIBP at 6664' with 2 sx cement / Perf 1ft 4spf @ 5150' / Perf 6' 2spf @ 4765'				Date: 5/10/2018	Wireline Unit # 222	
					Engineer: A. Reagan	
					Operator: J. Johnson	
					Operator: T. Van Nest	

RUN	CODE	DESCRIPTIONS	QTY	UNIT PRICE	DISCOUNT	AMOUNT
1	1000-001	Set Up Charge Cased Hole Unit	1	\$ 1,500.00		\$ 450.00
	3000-001	Packoff Operation Charge 0#-1000#	1	\$ 900.00		\$ 288.00
	2000-003	API Type 6BX, 5,000 lb. WP 13-3/8" and smaller	1	\$ 205.00		\$ 61.50
2	8000-009	Junk Catcher / Gauge Ring Depth Charge	7100	\$ 0.30		\$ 575.10
	8000-010	Junk Catcher / Gauge Ring Operation Charge	1	\$ 500.00		\$ 110.00
3	8000-001	Bridge Plug Depth Charge	7061	\$ 0.30		\$ 741.41
	8000-002	Bridge Plug Operation Charge	1	\$ 500.00		\$ 135.00
4	8000-015	Setting Tool Rental, per tool	1	\$ 1,200.00		\$ 384.00
	7000-006	Dump Bailer Depth Charge	7061	\$ 0.30		\$ 741.41
	7000-007	Dump Bailer Operation Charge	1	\$ 500.00		\$ 110.00
5	8000-001	Bridge Plug Depth Charge	6805	\$ 0.30		\$ 714.53
	8000-002	Bridge Plug Operation Charge	1	\$ 500.00		\$ 135.00
6	8000-015	Setting Tool Rental, per tool	1	\$ 1,200.00		\$ 384.00
	7000-006	Dump Bailer Depth Charge	6805	\$ 0.30		\$ 714.53
	7000-007	Dump Bailer Operation Charge	1	\$ 500.00		\$ 110.00
	6200-000	Hollow Carrier Depth Charge (Expendable)	5150	\$ 0.20		\$ 721.00
	6400-000	Scalloped Gun Carriers, per shot	40	\$ 20.00		\$ 480.00
	6200-000	Hollow Carrier Depth Charge (Expendable)	4765	\$ 0.20		\$ 762.40
	6400-000	Scalloped Gun Carriers, per shot	40	\$ 20.00		\$ 800.00
4	8000-014	Standard Set Power Charge	2	\$ 250.00		\$ 500.00

SUB TOTAL	\$	8,917.86
Bulk Discount	\$	-
TAX	\$	-
TOTAL	\$	8,917.86

Customer Signature:	Customer Name Printed: RYAN BEAM	Ranger Energy Services Representative Signature:
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The above estimated charges and data shown are subject to change by Ranger Energy Services, LLC. Payment terms are net 30 Days.



Job Summary

Ticket Number	Ticket Date
TN# FL3743	5/16/2018

COUNTY	COMPANY	API Number
Weld	PDC Energy, Inc.	05-123-20346
WELL NAME	RIG	JOB TYPE
Hahn 23-27	Ranger #22	Stub Plug
SURFACE WELL LOCATION	O-TEX Field Supervisor	CUSTOMER REP
NESW 27 5N67W	Payne, James	Ryan Beam

EMPLOYEES		
Douglass, Brian		
Peterson, Ryan		

WELL PROFILE			
Max Treating Pressure (psi):		Bottom Hole Static Temperature (°F):	0
Bottom Hole Circulating Temperature (°F):		Well Type:	Oil

Open Hole

1	Size (in)	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
	10	1100	1400		
2	Size (in)	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
	10	380	587		

Casing/Tubing/Drill Pipe

Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
Surface	8 5/8	24		0	380	0	380
Production	4.5	10.5		1400	1537	1400	1537
Tubing	2 3/8	4.7		0	1537	0	1537

CEMENT DATA

Stage 1:	From Depth (ft):	1100	To Depth (ft):	1537
Type: Stub Plug	Volume (sacks):	150	Volume (bbls):	31
Cement & Additives:		Density (ppg)	Yield (ft ³ /sk)	Water Req.
100% Class G+2% CaCl ₂		15.8	1.16	5.00

Stage 2:	From Depth (ft):	0	To Depth (ft):	587
Type: Surface Plug	Volume (sacks):	212	Volume (bbls):	44
Cement & Additives:		Density (ppg)	Yield (ft ³ /sk)	Water Req.
100% Class G+2% CaCl ₂		15.8	1.15	5.00

SUMMARY

Preflushes:	bbls of	Calculated Displacement (bbl):	Stage 1	Stage 2
	10 bbls of Fresh Water	Actual Displacement (bbl):	4.2	
Total Preflush/Spacer Volume (bbl):	10	Plug Bump (Y/N):	N/A	Bump Pressure (psi):
Total Slurry Volume (bbl):	75	Lost Returns (Y/N):	NO	(if Y, when)
Total Fluid Pumped	89.2			
Returns to Surface:				

Job Notes (fluids pumped / procedures / tools / etc.):

Filled Lines with Fresh water, Pressured tested to 2500, Est Circulation with 5bbl, mixed and pumped 31bbls @15.8#, Displaced with Fresh water 4.2 bbl, Rig Pulled up to 587, Est Circulation with 5bbl of Fresh water, Mixed and pumped 44bbls of cement @15.8# Rig took off BOP and topped of with a 1bbl of cement.

Customer Representative Signature: _____

Thank You For Using
O-TEX Cementing



CEMENTING JOB LOG

Project Number	Job Date
FL3743	5/16/2018
State	County
Colorado	Weld
Customer Representative	Phone
Ryan Beam	970-405-8585
API Number	
05-123-20346	

O-Tex Location	Customer
Brighton, Colorado 303-857-7948	PDC Energy, Inc.
Lease Name	O-Tex Field Supervisor
Hahn 23-27	Payne, James
Job Type	Man Hours
Stub Plug	12

USE THIS FORM TO NOTE ANY ISSUES ENCOUNTERED WITH THE PERFORMANCE OF THIS JOB.
THIS MAY INCLUDE TIME AT THE SHOP, ON THE ROAD OR DELAYS WITH DRILLING CONTRACTOR.

DATE	TIME	VOLUME	RATE	PRESS		JOB PROCEDURES
				CSG	Tbg.	
5/16/2018	8:30					Pre Departure meeting
	9:30					Arrived on Location
	9:40					Tailgate meeting
	9:50					Rig In
	10:00					Safety meeting
	10:28	1	bbl	1.50	78	Fill lines
	10:29				2500	Pressure test
	10:30	4	bbl	0.75	3	Est Circulation
	10:37	31	bbl	1.90	61	Mix and pump Cement @15.8
	10:53	4.2	bbl	1.60	17	Displace With Fresh water
	10:57					Shut down
	11:00					Rig Trips pipe to 587ft
	11:15	5	bbl	2.00	45	Est Circulation
	11:25	43	bbl	2.00	70	Mix and pump Cement @15.8
	11:48					Shut down
	12:30					Nipple Down Bop
	12:45	1	bbl	0.50	0	Top off well
	13:30					Rig out
	14:00					Leave location

JOB CALCULATIONS

Tubing 2 3/8 4.7#
Production Casing 4 1/2 10.5#
OH 10in
Surface Casing 8 5/8 24#

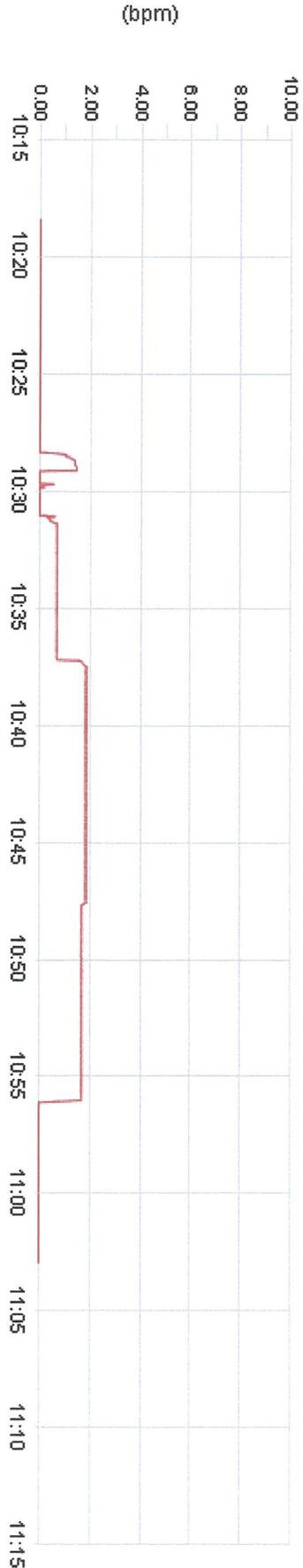
TUBING / CASING DATA

ANNULAR DATA

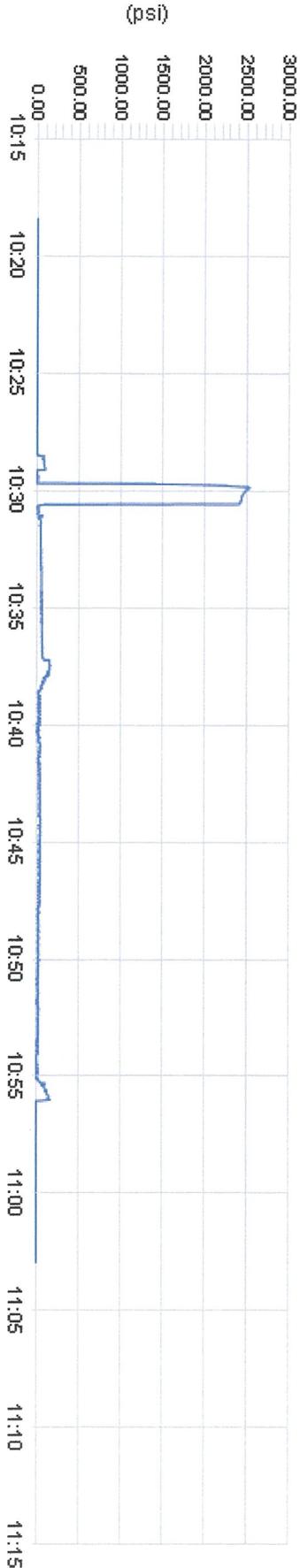
PLEASE NOTE ANY CONTRACTOR ISSUES OR COMMENTS BELOW

Client	PDC ENERGY INC	Client Rep	MR. RYAN BEAM	Supervisor	JAMES PAYNE
Ticket No.	3743	Well Name	Hahn 23-27	Unit No.	445067
Location	NESW 27 5N67W	Job Type	Abandonment Plugs	Service District	BRIGHTON, CO
Comments	SEE JOB OG FOR DETAILS			Job Date	05/16/2018

Unit 445067 Rate Total



Unit 445067 Pump Pressure



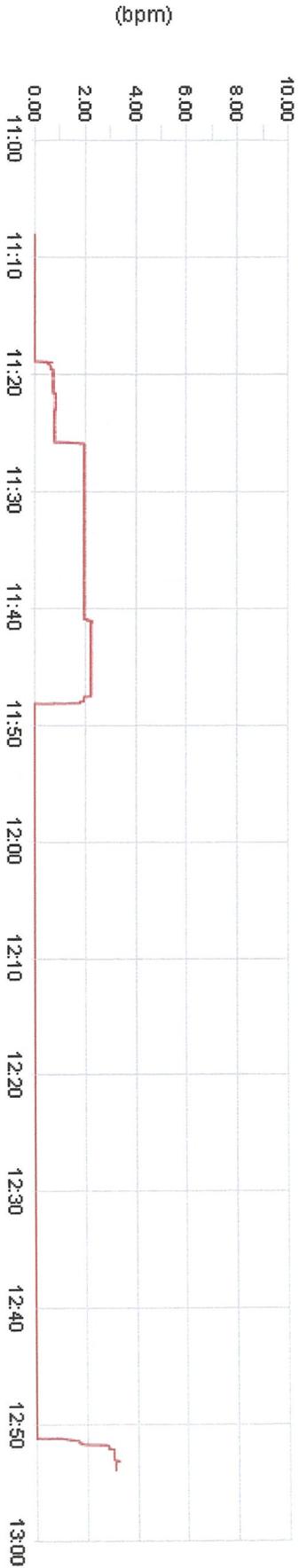
Unit 445067 Density



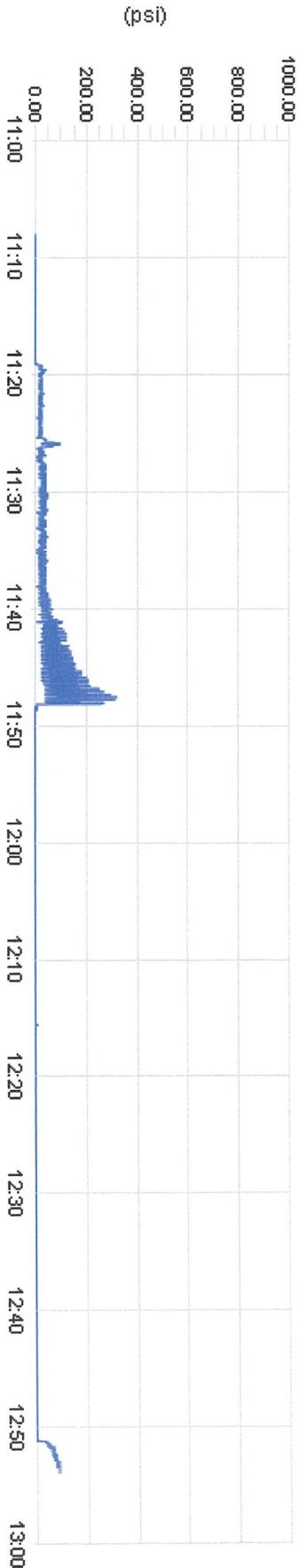


Client	PDC ENERGY INC	Client Rep	MR. RYAN BEAM	Supervisor	JAMES PAYNE
Ticket No.	3747	Well Name	Hahn 23-27	Unit No.	445067
Location	NESW 27 5N67W	Job Type	Abandonment Plugs	Service District	BRIGHTON, CO
Comments	STAGE 2			Job Date	05/16/2018

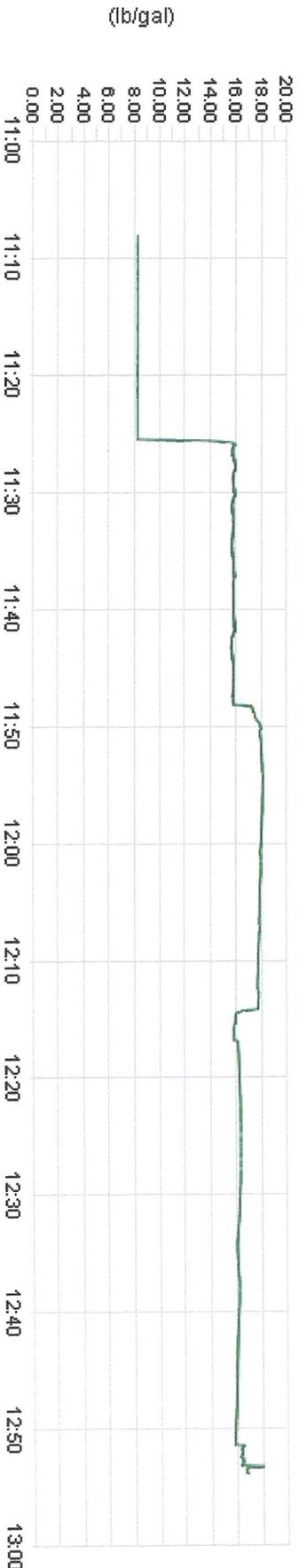
Unit 445067 Rate Total



Unit 445067 Pump Pressure



Unit 445067 Density





Field Cementing Water Analysis

Company: PDC Energy, Inc.
 Well: Hahn 23-27

Test Date: 5/16/2018
 Ticket Number: FL3743

Ion	Sample Volume	Titer	Factor	Concentration	Units	Limit
pH				6		6 - 8
Calcium	50	120	0.801	96	mg/l	<300
Total Hardness				350	mg/l	<600
Chlorides				200	mg/l	<500
Alkalinity				350	mg/l CaCO ³	<600
Slurry Temperature				74	°F	50-80°F

Water Analysis Limits		
	Limits	Potential Impact of Excess
pH	6 - 8	Accelerate or Retard Set Time, Short & Long Term Stability Issues
Calcium	<300	Accelerate Set Times and Higher Mixing Viscosities
Total Hardness	<600	Accelerate or Retard Set Time and Higher Mixing Viscosities
Chlorides	<500	Accelerate Set Time, Higher Mixing Visc, Interfere with fluid loss chemical
Alkalinity	<600	Accelerate or Retard Set Time, Lower Compressive Strength, Higher Visc
Slurry Temperature	50-80°F	Blend will not perform as designed

O-Tex Supervisor Signature: _____

Company Supervisor Signature: _____



SERVICE ORDER CONTRACT

Customer: **PDC Energy, Inc.**

Ticket Number: **FL3742**

Lease & Well Number: **Hahn 23-27**

Date: **5/11/2018**

In consideration of the services and materials to be sold and/or provided by C&J Spec-Rent Services, Inc. ("C&J") under this service order, the above-named customer ("Customer") agrees that:

The services and materials quoted under this service order are based on the best information available at the time that this quotation was prepared. When the actual work is performed the amounts and types of services and materials may require adjustments any pre-quoted items in service order. Actual amounts and types of services and materials will be charged at the time the work is performed. Unit prices from C&J's current price list and discounts quoted are applied as per this service order, unless otherwise noted. Except as otherwise provided for herein, this service order is only for the materials and services quoted hereunder.

The prices and discounts reflected herein are based on C&J being awarded the work on a first call basis. Prices may be adjusted if the work is not on a first call basis. Prices are valid for a period of thirty (30) days following this quotation. Taxes, if any, will be applied to the actual invoice.

All services and materials sold and/or provided by C&J are subject to the terms of C&J's "Contractor's Standard Terms and Conditions" document (the "Terms and Conditions"), which contains provisions concerning risk allocation and warranties associated with C&J's services. The parties hereby agree that all materials and services will be furnished pursuant to the Terms and Conditions and this service order. A copy of the Terms and Conditions is attached to this proposal.

BY SIGNING IN THE SPACE PROVIDED BELOW, CUSTOMER (I) ACKNOWLEDGES RECEIPT OF A COPY OF THE TERMS AND CONDITIONS, AND (II) AGREES THAT THE TERMS AND CONDITIONS SHALL GOVERN ALL SERVICES AND MATERIALS SOLD AND/OR PROVIDED HEREUNDER. THE UNDERSIGNED FURTHER WARRANTS AND REPRESENTS THAT THE UNDERSIGNED IS AUTHORIZED TO EXECUTE THIS SERVICE ORDER AS CUSTOMER'S AGENT.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMERS AGENT.

Customer Authorized Agent: _____



Job Summary

Ticket Number		Ticket Date
TN#	FL3742	5/11/2018

COUNTY	COMPANY	API Number
Weld	PDC Energy, Inc.	05-123-20346
WELL NAME	RIG	JOB TYPE
Hahn 23-27	Ranger #22	Squeeze
SURFACE WELL LOCATION	O-TEX Field Supervisor	CUSTOMER REP
NESW 27 5N67W	Klosterman, Austin	Ryan Beam

EMPLOYEES		
Peterson, Ryan		
Williamson, Garrick		
	Abdi, Aden	

WELL PROFILE			
Max Treating Pressure (psi):	1500	Bottom Hole Static Temperature (°F):	0
Bottom Hole Circulating Temperature (°F):		Well Type:	Oil

Open Hole

1	Size (in)	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
	10	5150	4765		
2	Size (in)	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)

Casing/Tubing/Drill Pipe

Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (Ft)	TVD to (Ft)
Tubing	2.375	4.7	J-55	4786	0		
Production	4.5	10.5	P-110	5150	0		

CEMENT DATA

Stage 1:	From Depth (ft):	5150	To Depth (ft):	4765
Type: Squeeze	Volume (sacks):	110	Volume (bbls):	39

Cement & Additives:	Density (ppg)	Yield (ft ³ /sk)	Water Req.
50% Type III+50% Poz F+0.2% WG-4P+0.3% CF-41P+1% CFL-3+4% FWC-2+0.5% SMS	12	1.99	10.95

SUMMARY

Preflushes:	10 bbls of SAPP	Calculated Displacement (bbl):	16.5	Stage 1	Stage 2
	10 bbls of Fresh Water	Actual Displacement (bbl):	16.5		
	_____ bbls of _____				
Total Preflush/Spacer Volume (bbl):	20	Plug Bump (Y/N):	n/a	Bump Pressure (psi):	n/a
Total Slurry Volume (bbl):	39	Lost Returns (Y/N):	N (if Y, when)		
Total Fluid Pumped	75.5				
Returns to Surface:	_____ bbls				

Job Notes (fluids pumped / procedures / tools / etc.): Job went according to program and customer's request. Job went well.

Thank You For Using
O-TEX Cementing

Customer Representative Signature: _____



CEMENTING JOB LOG

Project Number	FL3742	Job Date	5/11/2018
State	Colorado	County	Weld
Customer Representative	Ryan Beam	Phone	970-405-8585
API Number	05-123-20346		

O-Tex Location	Brighton, Colorado 303-857-7948	Customer	PDC Energy, Inc.
Lease Name	Hahn 23-27	O-Tex Field Supervisor	Klosterman, Austin
Well No.		Man Hours	10

USE THIS FORM TO NOTE ANY ISSUES ENCOUNTERED WITH THE PERFORMANCE OF THIS JOB.
THIS MAY INCLUDE TIME AT THE SHOP, ON THE ROAD OR DELAYS WITH DRILLING CONTRACTOR.

DATE	TIME	VOLUME	RATE	PRESS		JOB PROCEDURES
				CSG	Tbg.	
5/11/2018	13:30					Arrive on location
5/11/2018	13:40					Tailgate meeting
5/11/2018	13:50					Rig in
5/11/2018	13:55					Safety meeting / JSA
5/11/2018	14:01				3390	Pressure test
5/11/2018	14:03	10	bbl 1.50		280	Fresh + Sapp
5/11/2018	14:08	10	bbl 1.70		300	Fresh
5/11/2018	14:14	39	bbl 2.00		50	110sx @12ppg (Yield 1.99) 50:50 Type III / Poz
5/11/2018	14:36	16.5	bbl 2.00		590	Displaced to leave 2bbls on CICR @
5/11/2018	15:00					Wash up / Rig out
5/11/2018	15:30					Job complete
5/11/2018	16:00					Leave location

JOB CALCULATIONS

Annular Cement Plug - From 5150' to 4765' / Cement Coverage = 385'

Annular Estimated TOC = 4765'

Casing Cement Plug - From 5150' to 4661' / Cement Coverage = 489'

Casing Estimated TOC = 4661'

Displaced to leave 2bbls on top of CICR @ 4786' w/ 16.5bbls

CASING DATA

2 3/8" Tubing - From 4786' to 0'

4 1/2" Production Casing - From 5150' to 0'

10" OH - From 5150' to 4765'

CICR @ 4786'

Top perms @ 4765' / Bottom perms @ 5150'

ANNULAR DATA

4 1/2" Production Casing inside 10" OH - From 5150' to 4765'

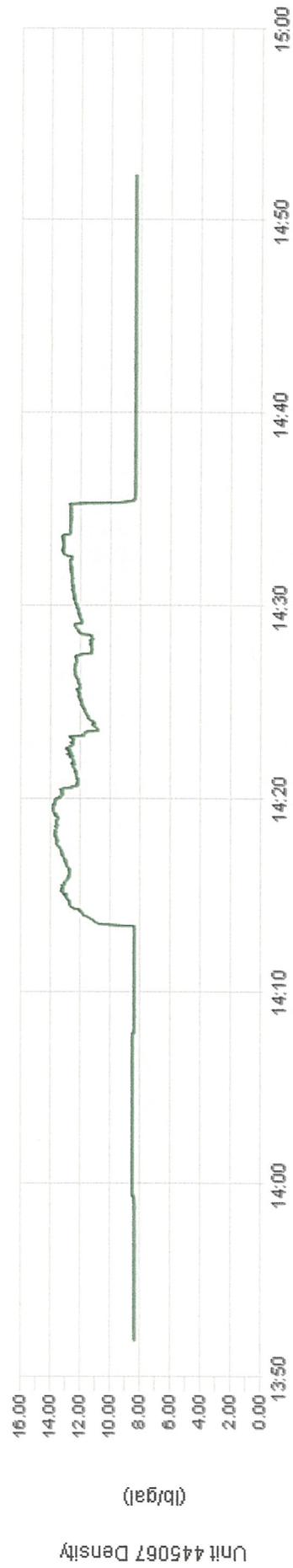
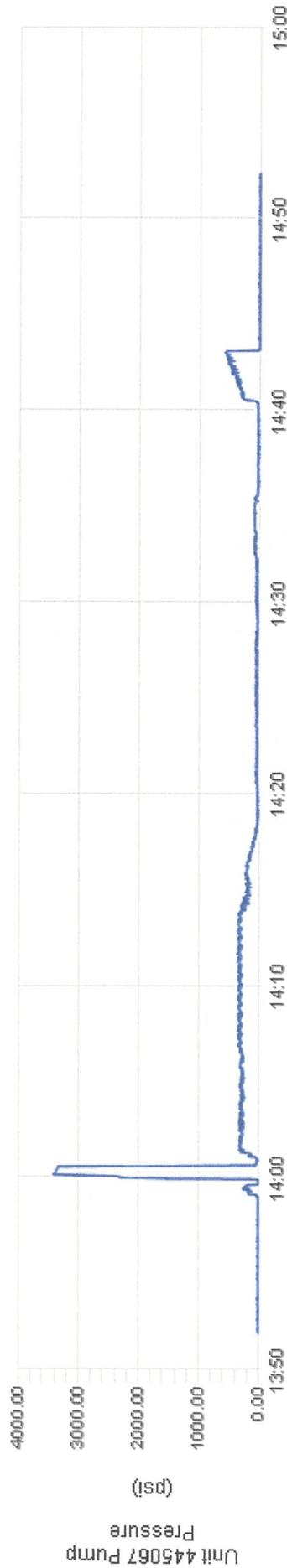
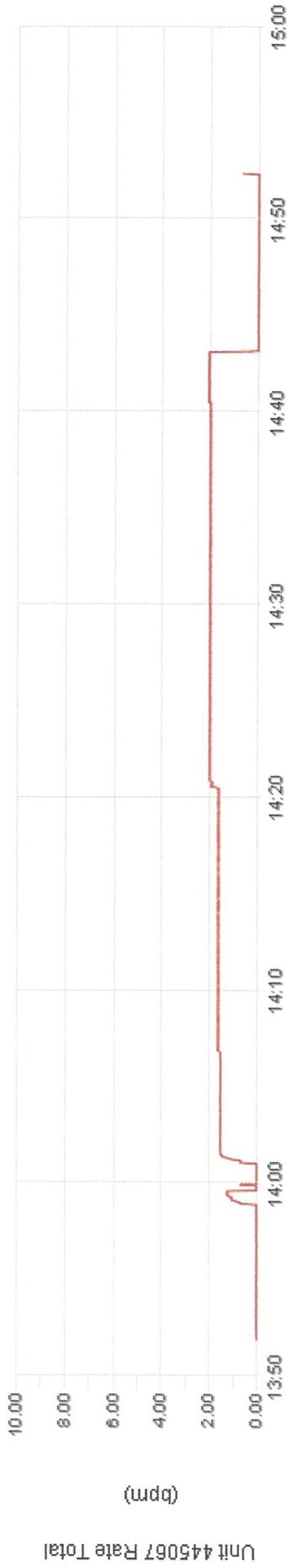
PLEASE NOTE ANY CONTRACTOR ISSUES OR COMMENTS BELOW



Client PDC
Ticket No. 3742
Location Sec27:T5N:R67W
Comments See job log.

Client Rep Ryan Beam
Well Name Hahn 23-27
Job Type Abandonment Plugs

Supervisor A. Klosterman
Unit No. 445067
Service District Brighton, CO
Job Date 05/11/2018





Field Ticket #

21989

Date

NO 21989

5/11/2018

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

Bill To Customer:	P D C	PO#		Lease Name:	Hahn	Well #:	23-27
Address:	3801 Carson Ave	County:	CO	Invoice Ref. #:		OCSG #:	
City:	Evans	Job Type:		Casing Sz & Wt:	4-1/2 11.6#		
State:	CO	Legal Description:		Service Man:	MERCED TERRAZAS		
Zip:	80620						
Ordered By:	Ryan Beam						

NO.	RENTALS/SALES	QTY	PRICE	DISC	TOTAL
1	Rental of 4-1/2 Crest II compression packer	1	1,670.00	35%	\$1,085.50
2	Minimum 1st to day rental on compression packer	1	250.00	35%	162.50
3	Sale of 4-1/2 wireline set cement retainer	1	1,633.00	35%	1,061.45
4	Rental of wireline adopter kit and tubing stinger	1	550.00	35%	357.50
5	Rental of 7-1/16 5K BOP flange	1	425.00	35%	276.25
6	Sale of stinger sub	1	325.00		325.00
7	Rental of TIW valve	1	275.00	35%	178.75
8	Rental of 9487 casing spear	1	645.00	35%	419.25
9	Rental of 9487 3.941 spear grapple	1	1,950.00	50%	975.00
10	Rental of 2-3/8 reg pin x 2-3/8 IF box , 2-3/8 spear extension and lifting sub	3	138.00	35%	269.10
11					0.00
12					0.00
13					0.00
14					0.00
Subtotal Taxable Charges					\$5,110.30

SERVICE MANS TIME					
	Service mans time	1	\$850.00		\$850.00
	service mans time	1	850.00		850.00
	Service mans time	1	850.00		850.00
	Inspection charges	9	30.00		270.00
Subtotal Non-Taxable Charges					\$2,820.00

MILEAGE					
	Mileage	35	\$2.95		\$103.25
	Mileage	35	2.95		103.25
	Mileage	35	2.95		103.25
					0.00
Subtotal Non-Taxable Charges					\$309.75

Terms: Net 30 Days					Total Service & Material:	\$8,240.05
					Tax:	\$148.20
					TOTAL CHARGES:	\$8,388.25

Authorized Agent: _____ \$

Date: _____

WALTER CORPORATION

Walter Corporation, LLC 33250 CR 53 Gill, CO 80624

Office: 970.301.2028

Fax: 970.284.6682

Field Ticket #

21990

Date

5/14/2018

NO. 21990

Bill To Customer:	P D C	PO#	Lease Name:	Hahn	Well #	23-27
Address:	3801 Carson Ave	Field:	County:	CO	Invoice \	
City:	Evans	Legal Description:	Job Type:		OCSG #:	
State:	CO	Zip:	Casing Sz & Wt:			
Ordered By:	Ryan Beam		Service Man			

NO.	RENTALS/SALES	QTY	PRICE	DSC	TOTAL
1	Sale of 4-1/2 D & H CIBP	2	700.00		\$1,400.00
2					0.00
3					0.00
4					0.00
5					0.00
6					0.00
7					0.00
8					0.00
9					0.00
10					0.00
11					0.00
12					0.00
13					0.00
14					0.00
Subtotal Taxable Charges					\$1,400.00

SERVICE MANS TIME					
					\$0.00
					0.00
					0.00
					0.00
					\$0.00

MILEAGE					
					\$0.00
					0.00
					0.00
					0.00
					\$0.00

Subtotal Non-Taxable Charges					\$0.00
Terms: Net 30 Days					
Total Service & Material:					\$1,400.00
Tax:					\$40.60
TOTAL CHARGES:					\$1,440.60

Authorized Agent: _____

Date: 5/14/18

P.O. BOX 341
 STERLING, CO 80751
 970-522-8387

**PICK TESTERS
 HYDRO**

TICKET
 NO. DH - 10421

Customer Name: PDC Energy
 Address: _____
 City: _____ State: _____ Zip: _____ Customer Order No.: Ryan Beam
 On Location: 2:30
 On Stand By: _____
 Off Stand By: _____
 Off Location: 5:30

Purpose of Work: Test in Tubing Pressure Used: 6000
 Date: 5-10-18 Lease: HANN Well No: 23-27
 Field: _____ County: weld State: CO Location: _____
 Casing Size & Wt. _____ Tubing Size & Wt.: 2 3/8
 Contractor & #: Ranger 22 Round Trip Miles From _____

Directions:

QUANTITY	DESCRIPTION	PRICE	AMOUNT
150	Joints	2.45	367.50
✓	Mileage <u>Truck</u>	FR	175.-
6	Test Cups	30.-	180.-
4	Hours	85.-	340.-
✓	Methanol <u>Net Com</u>	FR	25.-
	Casing Test		
	Computer Pressure Log		
		Sub Total	1087.50
		Sales Tax	7.02
		Labor	

REPRESENTATIVE BY: [Signature] TOTAL CHARGES Subject to Correction in accordance with Latest Published Price Schedules 1094.52

Holes _____
 Rod Cuts _____
 Bad Pins All tested good!
 Collar Leaks _____
 Split Joints _____

Remarks: _____

I certify that the above material and/or services has been delivered and/or used; that the basis for charges are correctly stated; and that I am authorized to sign this agreement as agent of customer.

Company: _____ By: _____ Date: _____

Thanks For Your Business!