



## Well History

Well Name: Kohlhoff 23-22

API 05123230290000	Surface Legal Location NESW 22 7N 64W	Field Name Wattenberg	State CO	Well Configuration Type Vertical
Ground Elevation (ft) 4,880.00	Original KB Elevation (ft) 4,890.00	KB-Ground Distance (ft) 10.00	Spud Date 6/17/2005 00:00	Rig Release Date 6/21/2005 00:00
On Production Date 8/25/2005				

### Daily Operations

Start Date	Summary	End Date
2/14/2018	NO PRESSURES, OPENED WELL, RELEASED TUBING ANCHOR, NU BOP, CIRCULATED OIL AND GAS OUT, PULLED 90 JTS OF 2 3/8 PRODUCTION PIPE TO DERRICK, LD 134 JTS ON ATP'S TRAILER, COME OUT LOADING THE HOLE WITH WATER, MIRU RANGER WIRE LINE, MADE A GAUGE RING RUN DOWN TO 7050' (3.625"), PI 4 1/2 10K CIBP (3.5"), RIH WITH WIRE LINE, SET CIBP AT 7026' CORRELATED WITH LOGS, SPOTTED 2 SACKS OF CEMENT ON TOP OF THE PLUG, PICKED UP SECOND PLUG, SET IT AT 6778' CORRELATED WITH LOGS, SPOTTED 2 SACKS OF CEMENT ON TOP OF THE PLUG, PU LOGGING TOOL, LOGGED FROM 1000' UP TO SURFACE, PRESSURE TESTED CASING UP TO 1000 PSI, HELD GOOD FOR 15 MINUTES, PU PERFORATING GUNS, RIH WITH WIRE LINE, SHOOT 2 1" HOLES AT 750' AND 2 1" HOLES AT 650", RIG DOWN WIRE LINE, PU 2 3/8 MULE SHOE, RIH WITH 2 3/8 PIPE DOWN TO 2929' WITH 91 JTS, SI AND SECURE WELL FOR THE NIGHT, DRAIN PUMP AND LINES, SD	2/14/2018
2/15/2018	NO PRESSURES, OPENED WELL, MIRU O-TEX CEMENT TRUCKS, HELD SAFETY MEETING, ESTABLISHED CIRCULATION WITH WATER, PRESSURE TESTED LINES UP TO 1500 PSI, NO LEAKS, PUMPED 20 SACKS OF 15.8# CLASS G CEMENT DOWN TUBING, BALANCED CEMENT WITH 10 BBL OF WATER, (EOT AT 2929', EST TOC AT 2665') PULLED 20 JTS TO DERRICK, LD 71 JTS ON ATP'S TRAILER, LD MULE SHOE, PU STS'S 4 1/2 32A TENSION PACKER, RIH WITH 21 JTS OF 2 3/8, SET PACKER AT 665' WITH 21 JTS, PUMPED 20 BBL OF WATER DOWN TUBING AT 500 PSI, 1.8 BBL/MIN, COULDN'T GET CIRCULATION, OPENED TUBING BACK TO WORK TANK, GOT 12 BBL BACK, PUMPED 20 BBL DOWN CASING AT THE SAME RATE AND GOT THE SAME RESULT, TRIED THAT 3 TIMES, COULDN'T GET CIRCULATION, PUMPED 1 SACK OF SAPP DOWN TUBING CHASED WITH 15 BBL OF WATER, WAIT FOR 1 HOUR TO ALLOW THE CHEMICAL TO WORK, PUMPED 20 BBL DOWN TUBING AND 20 BBL DOWN CASING AND GOT THE SAME RESULT, RELEASED THE PACKER, POOH, LD PACKER, PU 4 1/2 CEMENT RETAINER, RIH WITH THE 21 JTS, SET CEMENT RETAINER AT 665' WITH 21 JTS, RU CEMENT LINE, PUMPED 75 SACKS (15.4 BBL) OF 15.8# CLASS G CEMENT DOWN TUBING AT 200 PSI, STING OUT OF RETAINER, PUMPED CEMENT DOWN TUBING UP CASING, PUMPED 56 SACKS (11.6 BBL) AND GOT CEMENT ON RETURNS, LD THE 21 JTS, CLEAN UP EQUIPMENT FROM CEMENT, ND BOP AND 3K WELL HEAD, SQUEEZED 10 SACKS (2 BBL) IN TO THE TOP HOLES PUMPING DOWN CASING AND PRESSURED UP, CLOSED WELL, RIG DOWN CEMENT TRUCKS, RACK PUMP AND TANK, RDMOL. PUMPED TOTAL OF 161 SACKS OF 15.8# CLASS G CEMENT WITH THE 20 SACK BALANCE PLUG. FINAL REPORT. MOVE IN ATP CUT AND CAP CREW, DUG DOWN 6' CUT OFF WELL HEAD, WELDED CAP ONTO SURFACE, INSTALLED MARKER PLATE ON CAP, BACKFILLED, SHUT DOWN. FINAL REPORT.	2/15/2018
224 JTS OF 2 3/8 J-55 SOLD TO KARST.		

### Mechanical Integrity Test, <dtmstart>

Job Category	Primary Job Type	Start Date	End Date	Objective
Completion/Workover	Mechanical Integrity Test			MIT Procedures

### Daily Operations

Start Date	Summary	End Date



Service Location: Brighton, Colorado 303-857-7948  
Service Address: 821 County Road 27, Brighton, CO 80603

Service Date:	2/15/2018
Customer:	PDC Energy, Inc.
Address:	PO Box 26
	Attn: Accounts Payable
City:	Bridgeport
St:	WV 26330
Customer Rep:	Eduardo Chavez

Well Name:	
County:	
State:	
API #	
APE #	

Kohlhoff 23-22
Weld
CO
05-123-23029

Job Type:	Surface Squeeze
Service Supervisor:	Klosterman, Austin
Pump #1	740017
Pump #2	

TN #	FL3106
------	--------

FIELD RECEIPT

REF #	Description	unit of measure	unit price	quan	gross	disc	net
CM006	O-Tex Ultra Premium Cement (94lbs/ft3)	94SACK		161			
CT003	Pump Charge 2001-3000'	6-HRS		1			
JM001	Data Acquisition System	JOB		1			
AE014	Environmental Fee*	JOB		1			
ML001	Pickup Mileage	UNTMIL		50			
ML002	Pump Truck/Heavy Vehicle Mileage	UNTMIL		50			
MX001	Bulk Material Mixing Service Charge	SCF		175			
ML003	Bulk Cement Delivery/Return	MILE		412			
CP009	CF-41 (Foam Preventer)	GAL		3			
AE012	Bulk Unit Additional Hours	UNTHRS		4			
CC015	Pump Charge Additional Hours	UNTHRS		4			
CP022	SAPP ( MFC35 )	LBS		50			

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

Customer Authorized Agent:

DISCLAIMER OF LIABILITY: With respect to this report, neither C&J Energy Services nor any of their employees, makes any warranty, product, or process disclosed, or represents that its use would not infringe privately owned rights, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, including the warranties of merchantability and fitness for a particular purpose.



## SERVICE ORDER CONTRACT

Customer: **PDC Energy, Inc.**

Ticket Number: **FL3106**

Lease & Well Number: **Kohlhoff 23-22**

Date: **2/15/2018**

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, he 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: \_\_\_\_\_



<b>C&amp;J ENERGY SERVICES</b> O-TEX CEMENTING	<b>Summary</b>		Ticket Number	FL3106	at Date	2/15/2018
COUNTY	COMPANY	PDC Energy, Inc.		API Number	05-123-23029	
WELL NAME	Weld	RIG	JOB TYPE			
Kohlhoff 23-22		Ranger #3		Surface Squeeze		
SURFACE WELL LOCATION		O-TEX Field Supervisor		CUSTOMER REP		
Sec22: T7N:R64W		Austin Klosterman		Eduardo Chavez		
EMPLOYEES						
Field, Tony						
Peterson, Ryan						
WELL PROFILE						
Max Treating Pressure (psi):		1000		Bottom Hole Static Temperature (°F):		
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	750	650		
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	2929	0		
Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (ft)	TVD to (ft)
Production	4.5	10.5	P-110	2929	0		
Type	Size (in)	Weight (lb/ft)	Grade	TMD From (ft)	TMD to (ft)	TVD From (ft)	TVD to (ft)

**CEMENT DATA**

Stage 1:  
Type: Balance Plug

From Depth (ft): 2929 To Depth (ft): 2672

Volume (sacks): 20 Volume (bbbls): 4

Cement & Additives:

100% Class G

Density (ppg): 15.8 Yield (ft³/sk): 1.15 Water Req. 5.00

Stage 2:  
Type: Squeeze

From Depth (ft): 750 To Depth (ft): 640

Volume (sacks): 75 Volume (bbbls): 15.4

Cement & Additives:

100% Class G

Density (ppg): 15.8 Yield (ft³/sk): 1.15 Water Req. 5.00

Stage 3:  
Type: Production Casing Plug

From Depth (ft): 660 To Depth (ft): 0

Volume (sacks): 56 Volume (bbbls): 11.6

Cement & Additives:

100% Class G

Density (ppg): 15.8 Yield (ft³/sk): 1.15 Water Req. 5.00

Stage 4:  
Type: Squeeze

From Depth (ft): 0 To Depth (ft): 0

Volume (sacks): 10 Volume (bbbls): 2

Cement & Additives:

100% Class G

Density (ppg): 15.8 Yield (ft³/sk): 1.15 Water Req. 5.00

**SUMMARY**

Preflushes:	10 bbls of Fresh Water	Calculated Displacement (bbl):	Stage 1	Stage 2
	bbls of	Actual Displacement (bbl):	10	
	bbls of		10	
Total Preflush/Spacer Volume (bbl):	10	Plug Pump (V/N):	N/A	Bump Pressure (psi):
Total Slurry Volume (bbl):	33	Lost Returns (V/N):	N (if Y, when)	N/A
Total Fluid Pumped	53			
Returns to Surface:				

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

Job went according to program and customer's request. Job went well. After installing a packer and running into the hole to desired depth rig was unable to receive adequate returns. PDC decided to pull the packer and run in with a CICR. PDC requested we pump 75sx of G Neat slung into CICR and then sting out of CICR to fill production casing. Additional pump and Additional bulk hrs started after initial 6hrs of being on location. Per PDC hand we were to be on location at 0630.



C&J ENERGY SERVICES OILFIELD SERVICES						CEMENTING JOB LOG				Project Number	Job Date	
Customer							FL3106				2/15/2018	
Brighton, Colorado 303-857-7948							State				County	
Lease Name Well No.							CO				Weld	
Kohlhoff 23-22							Customer Representative				Phone	
Job Type							Eduardo Chavez				970-397-0599	
Surface Squeeze							API Number					
Man Hours							05-123-23029					
30												
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.						
2/15/2018		6:30					Arrive on location					
2/15/2018		6:40					Tailgate meeting					
2/15/2018		6:50					Rig in					
2/15/2018		7:20					Safety meeting / JSA					
2/15/2018		7:30				2500	Pressure test					
2/15/2018		7:32	5 bbl	2.50		350	Fresh ahead					
2/15/2018		7:34	4 bbl	2.50		200	20sx @15.8ppg (Yield 1.15) Neat G					
2/15/2018		7:37	10 bbl	2.50		200	Displace to balance					
2/15/2018		8:00					Wait on rig to TOH, rig up CICR, RIH to 660'					
2/15/2018		14:04				2700	Pressure test					
2/15/2018		14:06	5 bbl	2.00		300	Fresh ahead					
2/15/2018		14:09	15.4 bbl	2.00		300	75sx @15.8ppg (Yield 1.15) Neat G stung into CICR					
2/15/2018		14:17	11.6 bbl	2.00		300	56sx @15.8ppg (Yield 1.15) Neat G to receive returns to surface					
2/15/2018		14:26					Wait on rig to TOH, Nipple down well head, Install valve on casing					
2/15/2018		15:21	2 bbl	0.50		500	10sx @15.8ppg (Yield 1.15) Neat G, Down casing, Squeezing top holes					
2/15/2018		15:30					Wash up, Rig out					
2/15/2018		16:00					Job complete					
2/15/2018		16:30					Leave location					
<b>JOB CALCULATIONS</b>												
1st Cement Plug - From 2929' to 2672' / Cement Coverage = 257' / 20sx @15.8ppg (Yield 1.15)												
Displaced to balance w/ 10bbbls												
2nd Cement Plug - From 750' to 640' in annulus (Stung into CICR) 75sx @15.8ppg (Yield 1.15)												
3rd Cement Plug - From 660' to 0' inside 4 1/2" Production Casing (Stung out of CICR) 56sx @15.8ppg (Yield 1.15)												
Squeezed 10sx @15.8ppg (Yield 1.15) into top holes												
<b>CASING DATA</b>												
4 1/2" 10.5lbs Production Casing - From 2929' to 0'												
2 3/8" Tubing - From 2929' to 0' (1st Plug)												
2 3/8" Tubing - From 660' to 0' (2nd Plug)												
CICR @ 660' w/ Top holes @ 650' and Bottom holes @ 750'												
<b>ANNULAR DATA</b>												
4 1/2" 10.5lbs Production Casing inside 10" OH - From 750' to 640'												
PLEASE NOTE ANY CONTRACTOR ISSUES OR COMMENTS BELOW												

Client PDC  
Ticket No. 3106  
Location Sec22:T7N:R64W  
Comments See job log.

Client Rep Eduardo Chavez  
Well Name Kohlhoff 23-22  
Job Type Abandonment Plugs

Supervisor A. Klosterman  
Unit No. 740017  
Service District Brighton, CO  
Job Date 02/15/2018

Unit 740017 Density



Unit 740017 Pump Pressure



Unit 740017 Rate Total



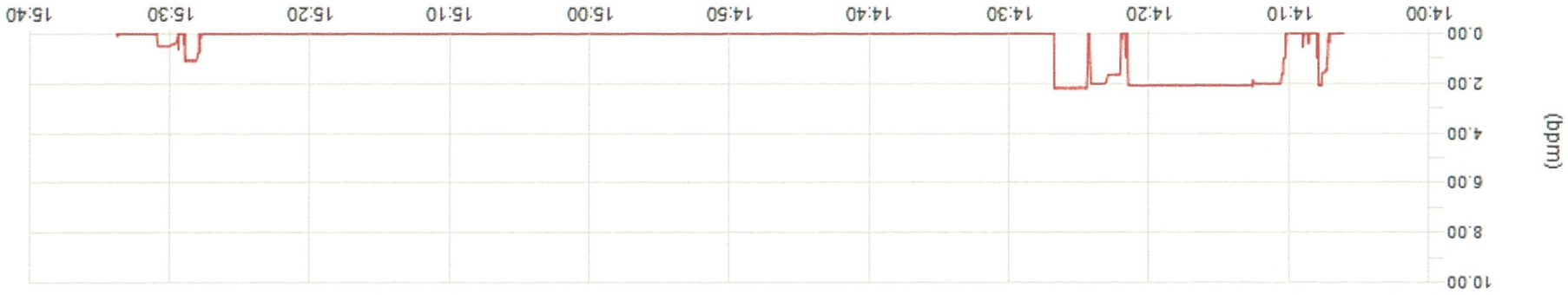


Client PDC  
Ticket No. 3106  
Location Sec22:T7N:R64W  
Comments See job log. 2nd & 3rd plugs.

Client Rep Eduardo Chavez  
Well Name Kohlhoff 23-22  
Job Type Abandonment Plugs

Supervisor A. Klosterman  
Unit No. 740017  
Service District Brighton, CO  
Job Date 02/15/2018

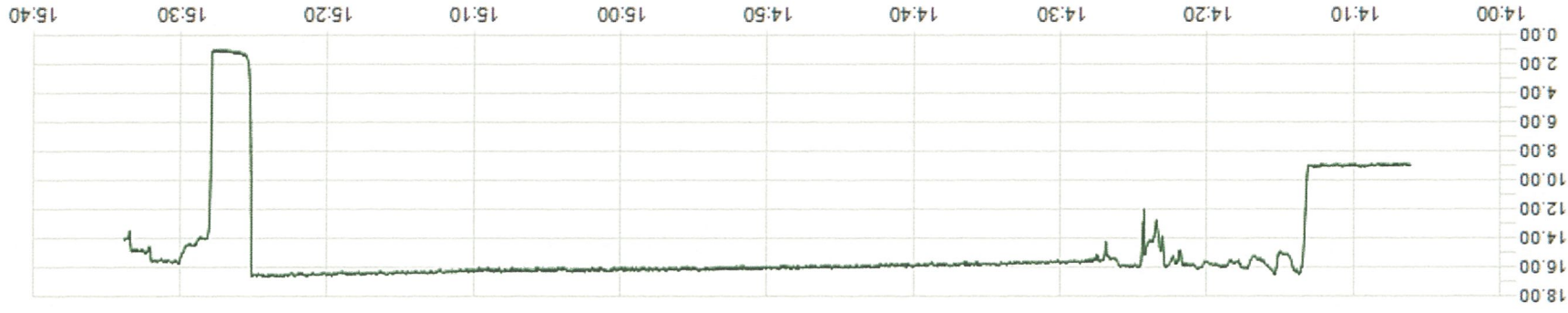
Unit 740017 Rate Total

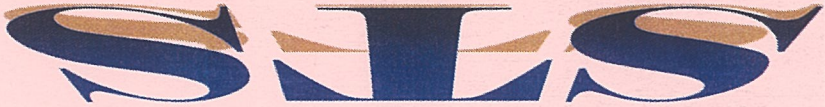


Unit 740017 Pump Pressure (psi)



Unit 740017 Density (lb/gal)





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

Field Ticket #  
21180  
Date

2/15/2018  
Nº 21180

Bill To Customer: P D C		PO#		Lease Name: Kohlhoff		Well #: 23-22	
Address: 3801 Carson Ave		County: Weld		St: CO		Invoice Ref. #:	
City: Evans		Field:		Job Type:		OCSG #:	
State: CO		Legal Description: 78+55 N.6E.35into		Casing Sz & Wt: 4-1/2 11.6#			
Ordered By: Eduardo Chavez				Service Man: MERCED TERRAZAS			

NO.	RENTALS/SALES	QTY	PRICE	DSC	TOTAL
1	Rental of 4-1/2 32A tension packer	1			
2	Minimum 1st to 5 day rental	1			
3	Rental of TIW valve	1			
4	Sale of 4-1/2 cement retainer (tubing set)	1			
5	Rental of retainer mechanical setting tool	1			
6	Sale of stinger stub	1			
7					
8					
9					
10					
11					
12					
13					
14					
SERVICE MANS TIME					
	Service mans time	1			
	Service mans time	1			
MILEAGE					
	Mileage	35			
	Mileage	35			
Subtotal Non-Taxable Charges					
Subtotal Non-Taxable Charges					
Terms: Net 30 Days					

Authorized Agent: \$

Date: 2-16-18







# RANGER ENERGY SERVICES, LLC

## WIRELINE DIVISION

3333 Center Dr  
Milliken, Co



Service Date:

<b>Company Name:</b> PDC		<b>Company Address:</b>		<b>Field Ticket Number:</b>
<b>Well Name:</b> KOHLHOFF 23-22	<b>Field:</b> WATTENBERG	<b>County:</b> WELD	<b>State:</b> COLORADO	<b>Rig Name &amp; Number:</b> 10001099 RANGER #22
<b>SERVICE NOTES:</b>			<b>Date:</b> 2/14/2018	<b>Wireline Unit #</b> 233
RIH JKGR @ 7045' / SET STS CIBP @ 7026' WITH 2 SX CEMENT / SET STS CIBP @ 6778' W 2 SX CEMENT / RUN CEMENT BOND LOG 1000' TO SURFACE / SQUEEZE @ 750' 4SPF 1' / SQUEEZE @ 650' 4SPF 1'.				<b>Engineer:</b> A. REAGAN <b>Operator:</b> S. CARPENTER <b>Operator:</b> N. KINZIE

RUN	CODE	DESCRIPTIONS	QTY	UNIT PRICE	DISCOUNT	AMOUNT
1	1000-001	Set Up Charge Cased Hole Unit	1			
	3000-001	Packoff Operation Charge 0#-1000#	1			
	2000-003	API Type 6BX, 5,000 lb. WP 13-3/8" and smaller	1			
2	8000-009	Junk Catcher / Gauge Ring Depth Charge	7040			
	8000-010	Junk Catcher / Gauge Ring Operation Charge	1			
3	8000-001	Bridge Plug Depth Charge	7026			
	8000-002	Bridge Plug Operation Charge	1			
	8000-015	Setting Tool Rental, per tool	1			
	7000-006	Dump Bailer Depth Charge	7026			
	7000-007	Dump Bailer Operation Charge	1			
4	8000-001	Bridge Plug Depth Charge	6778			
	8000-002	Bridge Plug Operation Charge	1			
	8000-015	Setting Tool Rental, per tool	1			
	7000-006	Dump Bailer Depth Charge	6778			
	7000-007	Dump Bailer Operation Charge	1			
5	4000-017	Cement Bond Log Depth Charge	1000			
	4000-018	Cement Bond Log Operation Charge	1000			
	4000-009	Simultaneous Gamma Ray Log Depth Charge	1000			
	4000-010	Simultaneous Gamma Ray Log Operation Charge	1000			
	4000-013	Simultaneous CCL Log Depth Charge	1000			
	4000-014	Simultaneous CCL Log Operation Charge	1000			
6	6200-000	Hollow Carrier Depth Charge (Expendable)	3000			
	6400-000	Scalloped Gun Carriers, per shot	40			
	6200-000	Hollow Carrier Depth Charge (Expendable)	3000			
	6400-000	Scalloped Gun Carriers, per shot	40			
7	8000-014	Standard Set Power Charge	2			

<b>Customer Signature:</b>	<b>Customer Name Printed:</b> BERNIE CHAVEZ	<b>Ranger Energy Services Representative Signature:</b> ANDREW REAGAN
----------------------------	---	---

The above estimated charges and data shown are subject to change by Ranger Energy Services, LLC. Payment terms are net 30 Days.