



Authorization For Expenditure

Company Entity
CIMAREX ENERGY CODate Prepared
12/31/2015

Region	Well Name	Prospect or Field Name	Property Number	Drilling AFE No.
Anadarko	WOOLFOLK 1H-1720X	CANA CORE PROSPECT (CANA 2)	350116-007.01	2215176

Location	County	State	Type Well		
17-14N-10W Canadian County, OK	Canadian	OK	Oil	Expl	X
			Gas	X	Prod

Estimate Type	Est. Start Date	Est. Comp Date	Formation	Ttl Measured Depth
Original Estimate	04/11/2016	06/11/2016	Mississippi	21,800'
Revised Estimate				Ttl Vertical Depth
Supplemental Estimate				11,800'

Project Description

Drill and complete a horizontal test. Drill to 1500', set surface casing. Drill to 9866', set intermediate casing. Drill to 11317' (KOP). Drill curve at 12 DLS build rate to +/- 11800' TVD and a +/- 9730' long lateral in the Mississippi formation. Run and cement production casing. Stage frac in 42 stages. Drill out plugs. Run production tubing. Flow to sales through new facility.

Intangibles	Dry Hole Cost	After Casing Point	Completed Well Cost
Drilling Costs	\$3,399,000		\$3,399,000
Completion Costs		\$5,307,900	\$5,307,900
Total Intangible Costs	\$3,399,000	\$5,307,900	\$8,706,900

Tangibles			
Well Equipment	\$384,000	\$589,800	\$973,800
Lease Equipment		\$446,000	\$446,000
Total Tangible Well Cost	\$384,000	\$1,035,800	\$1,419,800

Plug and Abandon Cost	\$0	\$0	\$0
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Total Well Cost	\$3,783,000	\$6,343,700	\$10,126,700
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Comments on Well Costs

1. All tubulars, well or lease equipment is priced by COPAS and CEPS guidelines using the Historic Price Multiplier.

Well Control Insurance

Unless otherwise indicated below, you, as a non-operating working interest owner, agree to be covered by Operator's well control insurance procured by Operator so long as Operator conducts operations hereunder and to pay your prorated share of the premiums therefore. If you elect to purchase your own well control insurance, you must provide a certificate of such insurance acceptable to Operator, as to form and limits, at the time this AFE is returned, if available, but in no event later than commencement of drilling operations. You agree that failure to provide the certificate of insurance, as provided herein, will result in your being covered by insurance procured by Operator.

☐ I elect to purchase my own well control insurance policy.

Well control insurance procured by Operator, provides, among other terms, for \$20,000,000 (100% W.I.) of Combined Single Limit coverage for well control and related redrilling and clean-up/pollution expense covering drilling (through completion) with a \$1,000,000 (100% W.I.) deductible.

Marketing Election

Cimarex sells its gas under arm's-length contracts with third party purchasers. Such contracts may include fees. In addition, penalties may be incurred for insufficient volumes delivered over time. Should you choose to market your share of gas with Cimarex, you will be subject to all of the terms of such contracts. Upon written request to Cimarex's Marketing Department, we will share with you the terms and conditions pursuant to which gas will be sold. Failure to make an election below shall be deemed an election to market your gas with Cimarex under the terms and conditions set forth above.

☐ I elect to take my gas in kind.

☐ I elect to market my gas with Cimarex pursuant to the terms and conditions of its contract.

Comments on AFE

The above costs are estimates only and anticipate trouble free operations without any foreseeable change in plans. The actual costs may exceed the estimated costs without affecting the authorization for expenditure herein granted. By approval of this AFE, the working interest owner agrees to pay its proportionate share of actual legal, curative, regulatory and well costs under term of the joint operating agreement, regulatory order or other applicable agreement covering this well.

Cimarex Energy Co. Approval

Prepared by	Drilling and Completion Manager	Regional Manager

Joint Interest Approval

Company	By	Date



2/1/16



Project Cost Estimate

Lease Name:

	BCP - Drilling		ACP - Drilling		Completion /	
	(Dry Hole Cost)				Stimulation	
Intangibles	Codes		Codes		Codes	
Roads & Location Preparation / Restoration	DIDC.100	\$170,000			STIM.100	\$30,000
Damages	DIDC.105	\$28,000				
Mud / Fluids Disposal Charges	DIDC.255	\$110,000			STIM.255	\$120,000
Day Rate ##### DH Days 40.00 ACP Days @ \$5.00 Per Day	DIDC.115	\$1,050,000	DICC.120	\$104,000		
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)	DIDC.120	\$26,000				
Bits	DIDC.125	\$187,000	DICC.125	\$0	STIM.125	\$0
Fuel \$1.80 Per Gallon ##### Gallons Per Day	DIDC.135	\$130,000	DICC.130	\$0		
Water for Drilling Rig / Completion Fluids (Not Frac Water)	DIDC.140	\$30,000	DICC.135	\$1,000	STIM.135	\$0
Mud & Additives	DIDC.145	\$364,000				
Surface Rentals	DIDC.150	\$87,000	DICC.140	\$0	STIM.140	\$146,000
Downhole Rentals	DIDC.155	\$30,000			STIM.145	\$0
Formation Evaluation (DST, Coring including evaluation, G&G Services)	DIDC.160	\$0			STIM.150	\$0
Mud Logging 38.00 Days @ \$1,000.00 Per Day	DIDC.170	\$38,000				
Open Hole Logging	DIDC.180	\$0				
Cementing & Float Equipment	DIDC.185	\$37,000	DICC.155	\$130,000		
Tubular Inspections	DIDC.190	\$17,000	DICC.160	\$10,000	STIM.160	\$0
Casing Crews	DIDC.195	\$21,000	DICC.165	\$25,000	STIM.165	\$0
Extra Labor, Welding, Etc.	DIDC.200	\$22,000	DICC.170	\$5,000	STIM.170	\$0
Land Transportation (Trucking for tangibles)	DIDC.205	\$15,000	DICC.175	\$13,000	STIM.175	\$5,000
Supervision \$4,000.00 Per Day	DIDC.210	\$180,000	DICC.180	\$15,000	STIM.180	\$102,000
Trailer House / Camp / Catering	DIDC.280	\$46,000	DICC.255	\$5,000	STIM.280	\$13,000
Other Misc Expenses	DIDC.220	\$2,000	DICC.190	\$0	STIM.190	\$25,000
Overhead	DIDC.225	\$15,000	DICC.195	\$5,000		
Remedial Cementing	DIDC.231	\$0			STIM.215	\$0
MOB/DEMOB	DIDC.240	\$195,000				
Directional Drilling Services	DIDC.245	\$300,000				
Crane for Construction	DIDC.260	\$45,000				
Solids Control	DIDC.265	\$50,000	DICC.240	\$10,000	STIM.240	\$15,000
Well Control Equip (Snubbing Svcs.)	DIDC.270	\$0	DICC.245	\$0	STIM.245	\$0
Fishing & Sidetrack Operations					STIM.115	\$0
Completion Rig					STIM.260	\$280,000
Coil Tubing					STIM.200	\$213,000
Completion Logging, Perforating, WL Units, WL Surveys					STIM.390	\$113,000
Composite Plugs					STIM.210	\$2,843,000
Stimulation Pumping Charges, Chemicals, Additives, Sand					STIM.395	\$304,000
Stimulation Water / Water Transfer / Water Storage					STIM.305	\$100,000
Cimarex Owned Frac / Rental Equipment						
Legal / Regulatory / Curative	DIDC.300	\$20,000				
Well Control Insurance \$1.00 Per Foot	DIDC.285	\$22,000				
Contingency 0.1 % of Drilling Intangibles	DIDC.435	\$162,000	DICC.220	\$13,000	STIM.220	\$215,000
Construction For Flow Lines						
Construction For Sales P/L						
Total Intangible Cost		\$3,399,000		\$336,000		\$4,524,000

Tangible - Well Equipment						
Casing	Size	Feet	\$ / Foot			
Drive Pipe	0	0.00	\$0.00	DWEB.150	\$0	
Conductor Pipe	0	0.00	\$0.00	DWEB.130	\$0	
Water String	0	0.00	\$0.00	DWEB.135	\$0	
Surface Casing	13.375	1500.00	\$35.00	DWEB.140	\$53,000	
Intermediate Casing 1	9.625	9866.00	\$31.00	DWEB.145	\$306,000	
Intermediate Casing 2	0	0.00	\$0.00	DWEB.155	\$0	
Drilling Liner	0	0.00	\$0.00	DWEB.160	\$0	
Production Casing or Liner	5.5	21800.00	\$19.50	DWEA.100	\$425,000	
Production Tie-Back	0	0.00	\$0.00	DWEA.165	\$0	STIMT.101 \$0
Tubing	2.375	11420.00	\$5.00	DWEB.115	\$25,000	STIMT.105 \$0
Wellhead, Tree, Chokes				DWEB.100	\$0	STIMT.120 \$40,000
Liner Hanger, Isolation Packer						
Packer, Nipples						STIMT.400 \$5,000
Pumping Unit, Engine						STIMT.405 \$0
Downhole Lift Equipment (BHP, Rods, Anchors, ESP, GVLs, PC Pump)						STIMT.410 \$0
Tangible - Lease Equipment						
N/C Lease Equipment						
Tanks, Tanks Steps, Stairs						
Battery (Heater Treater, Separator, Gas Treating Equipment)						
Secondary Containments						
Overhead Power Distribution (electric line to facility)						
Facility Electrical & Automation						
SWD Connection						
Flow Lines (Line Pipe from wellhead to central facility)						
Pipeline to Sales						
Meters and Metering Equipment						
Total Tangibles				\$384,000	\$479,000	\$45,000
P&A Costs	DIDC.295	\$0		DICC.275	\$0	
Total Cost				\$3,783,000	\$815,000	\$4,569,000



Project Cost Estimate

Lease Name:

	Production	Post	Total Well
	Equipment /	Completion	Cost
	Codes	Codes	
Intangibles			
Roads & Location Preparation / Restoration	CON.100 \$1,000	PCOM.100 \$700	\$201,700
Damages	CON.105 \$900		\$28,900
Mud / Fluids Disposal Charges		PCOM.255 \$40,000	\$270,000
Day Rate ##### DH Days 40.00 ACP Days @ \$5.00 Per Day			\$1,154,000
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)			\$26,000
Bits		PCOM.125 \$0	\$187,000
Fuel \$1.80 Per Gallon ##### Gallons Per Day		PCOM.130 \$0	\$130,000
Water for Drilling Rig / Completion Fluids (Not Frac Water)		PCOM.135 \$3,000	\$34,000
Mud & Additives			\$364,000
Surface Rentals	CON.140 \$46,600	PCOM.140 \$231,500	\$511,100
Downhole Rentals		PCOM.145 \$0	\$30,000
Formation Evaluation (DST, Coring including evaluation, G&G Services)			\$0
Mud Logging 38.00 Days @ \$1,000.00 Per Day			\$38,000
Open Hole Logging			\$0
Cementing & Float Equipment		PCOM.160 \$3,700	\$167,000
Tubular Inspections			\$30,700
Casing Crews			\$46,000
Extra Labor, Welding, Etc.	CON.170 \$24,000	PCOM.170 \$2,600	\$53,600
Land Transportation (Trucking for tangibles)	CON.175 \$6,400	PCOM.175 \$6,200	\$45,600
Supervision \$4,000.00 Per Day	CON.180 \$2,300	PCOM.180 \$9,000	\$308,300
Trailer House / Camp / Catering			\$64,000
Other Misc Expenses	CON.190 \$2,100	PCOM.190 \$500	\$29,600
Overhead			\$20,000
Remedial Cementing		PCOM.215 \$0	\$0
MOB/DEMOB			\$195,000
Directional Drilling Services			\$300,000
Crane for Construction	CON.230 \$1,300		\$1,300
Solids Control			\$45,000
Well Control Equip (Snubbing Svcs.)		PCOM.240 \$16,000	\$91,000
Fishing & Sidetrack Operations		PCOM.245 \$0	\$0
Completion Rig		PCOM.115 \$12,100	\$12,100
Coil Tubing		PCOM.260 \$0	\$280,000
Completion Logging, Perforating, WL Units, WL Surveys		PCOM.200 \$0	\$213,000
Composite Plugs		PCOM.390 \$0	\$113,000
Stimulation Pumping Charges, Chemicals, Additives, Sand		PCOM.210 \$0	\$2,843,000
Stimulation Water / Water Transfer / Water Storage			\$304,000
Cimarex Owned Frac / Rental Equipment			\$100,000
Legal / Regulatory / Curative	CON.300 \$300		\$20,300
Well Control Insurance \$1.00 Per Foot			\$22,000
Contingency 0.1 % of Drilling Intangibles	CON.220 \$4,300	PCOM.220 \$32,600	\$426,900
Construction For Flow Lines	CON.310 \$800		\$800
Construction For Sales P/L	CON.265 \$0		\$0
Total Intangible Cost	\$90,000	\$357,900	\$8,706,900

Tangible - Well Equipment

	Size	Feet	\$ / Foot		
Casing	0	0.00	\$0.00		\$0
Drive Pipe	0	0.00	\$0.00		\$0
Conductor Pipe	0	0.00	\$0.00		\$0
Water String	0	0.00	\$0.00		\$53,000
Surface Casing	13.375	1500.00	\$35.00		\$306,000
Intermediate Casing 1	9.625	9866.00	\$31.00		\$0
Intermediate Casing 2	0	0.00	\$0.00		\$0
Drilling Liner	0	0.00	\$0.00		\$425,000
Production Casing or Liner	5.5	21800.00	\$19.50		\$0
Production Tie-Back	0	0.00	\$0.00		\$0
Tubing	2.375	11420.00	\$5.00	PCOMT.105 \$64,000	\$64,000
Wellhead, Tree, Chokes					\$119,000
Liner Hanger, Isolation Packer					\$0
Packer, Nipples				PCOMT.400 \$1,800	\$6,800
Pumping Unit, Engine				PCOMT.405 \$0	\$0
Downhole Lift Equipment (BHP, Rods, Anchors, ESP, GVLs, PC Pump)				PCOMT.410 \$0	\$0
Tangible - Lease Equipment					\$54,300
N/C Lease Equipment	CON.400	\$54,300			\$80,200
Tanks, Tanks Steps, Stairs	CON.405	\$80,200			\$189,500
Battery (Heater Treater, Separator, Gas Treating Equipment)	CON.410	\$189,500			\$17,600
Secondary Containments	CON.415	\$17,600			\$2,000
Overhead Power Distribution (electric line to facility)	CON.420	\$2,000			\$28,400
Facility Electrical & Automation	CON.425	\$28,400			\$0
SWD Connection	CON.430	\$0			\$20,800
Flow Lines (Line Pipe from wellhead to central facility)	CON.435	\$20,800			\$0
Pipeline to Sales	CON.440	\$0			\$53,200
Meters and Metering Equipment	CON.445	\$53,200			\$446,000
Total Tangibles				\$65,800	\$1,419,800

P&A Costs

	\$536,000	\$423,700	\$10,126,700
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Total Cost

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