



Authorization For Expenditure

Company Entity	Date Prepared
CIMAREX ENERGY CO	03/06/2016

Region	Well Name	Prospect or Field Name	Property Number	Drilling AFE No.
Anadarko	KNIGHT 1H-0904X	CANA CORE PROSPECT (CANA 2)	350116-034.01	2216042

Location	County	State	Type Well
Sec's 9 & 4-14N-8W, Canadian County, OK	Canadian	OK	Oil Gas Expl Prod X

Estimate Type	Est. Start Date	Est. Comp Date	Formation	Ttl Measured Depth
Original Estimate	X			19,680'
Revised Estimate				Ttl Vertical Depth
Supplemental Estimate	03/01/2016	07/11/2016	Meramec	9,730'

Project Description
Drill and complete a horizontal test. Drill to 1500', set surface casing. Drill to 9204' (KOP). Drill curve at 11 DLS build rate to +/- 9730' TVD and a +/- 9600' 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	\$2,434,000		\$2,434,000
Completion Costs		\$5,133,700	\$5,133,700
Total Intangible Costs	\$2,434,000	\$5,133,700	\$7,567,700

Tangibles			
Well Equipment	\$59,000	\$526,000	\$585,000
Lease Equipment		\$330,775	\$330,775
Total Tangible Well Cost	\$59,000	\$856,775	\$915,775

Plug and Abandon Cost	\$0	\$0	\$0
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Total Well Cost	\$2,493,000	\$5,990,475	\$8,483,475
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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



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Project Cost Estimate

Lease Name:

	BCP - Drilling		ACP - Drilling		Completion /	
	(Dry Hole Cost)				Stimulation	
Intangibles	Codes		Codes		Codes	
Roads & Location Preparation / Restoration	DIDC.100	\$190,000			STIM.100	\$30,000
Damages	DIDC.105	\$28,000				
Mud / Fluids Disposal Charges	DIDC.255	\$90,000			STIM.255	\$130,000
Day Rate 26,500.00 DH Days 22.00 ACP Days @ \$5.00 Per Day	DIDC.115	\$583,000	DICC.120	\$104,000		
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)	DIDC.120	\$26,000				
Bits	DIDC.125	\$125,000	DICC.125	\$0	STIM.125	\$0
Fuel \$1.30 Per Gallon 1,800.00 Gallons Per Day	DIDC.135	\$51,000	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	\$348,000				
Surface Rentals	DIDC.150	\$50,000	DICC.140	\$0	STIM.140	\$160,000
Downhole Rentals	DIDC.155	\$27,000			STIM.145	\$0
Formation Evaluation (DST, Coring including evaluation, G&G Services)	DIDC.160	\$0			STIM.150	\$0
Mud Logging 20.00 Days @ \$1,000.00 Per Day	DIDC.170	\$20,000				
Open Hole Logging	DIDC.180	\$0				
Cementing & Float Equipment	DIDC.185	\$13,000	DICC.155	\$95,000		
Tubular Inspections	DIDC.190	\$7,000	DICC.160	\$10,000	STIM.160	\$4,000
Casing Crews	DIDC.195	\$4,000	DICC.165	\$15,000	STIM.165	\$0
Extra Labor, Welding, Etc.	DIDC.200	\$10,000	DICC.170	\$5,000	STIM.170	\$0
Land Transportation (Trucking for tangibles)	DIDC.205	\$7,000	DICC.175	\$13,000	STIM.175	\$5,000
Supervision \$3,800.00 Per Day	DIDC.210	\$103,000	DICC.180	\$15,000	STIM.180	\$115,000
Trailer House / Camp / Catering	DIDC.280	\$24,000	DICC.255	\$4,000	STIM.280	\$8,000
Other Misc Expenses	DIDC.220	\$2,000	DICC.190	\$0	STIM.190	\$20,000
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	\$280,000				
Crane for Construction						
Solids Control	DIDC.260	\$25,000				
Well Control Equip (Snubbing Svcs.)	DIDC.265	\$25,000	DICC.240	\$6,000	STIM.240	\$15,000
Fishing & Sidetrack Operations	DIDC.270	\$0	DICC.245	\$0	STIM.245	\$0
Completion Rig					STIM.115	\$15,000
Coil Tubing					STIM.260	\$280,000
Completion Logging, Perforating, WL Units, WL Surveys					STIM.200	\$159,000
Composite Plugs					STIM.390	\$74,000
Stimulation Pumping Charges, Chemicals, Additives, Sand					STIM.210	\$2,807,000
Stimulation Water / Water Transfer / Water Storage					STIM.395	\$301,000
Cimarex Owned Frac / Rental Equipment					STIM.305	\$50,000
Legal / Regulatory / Curative	DIDC.300	\$20,000				
Well Control Insurance \$1.00 Per Foot	DIDC.285	\$20,000				
Contingency 0.0 % of Drilling Intangibles	DIDC.435	\$116,000	DICC.220	\$13,000	STIM.220	\$209,000
Construction For Flow Lines						
Construction For Sales P/L						
Total Intangible Cost		\$2,434,000		\$286,000		\$4,382,000

Tangible - Well Equipment							
	Size	Feet	\$ / Foot				
Casing							
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	9.625	1500.00	\$31.00	DWEB.140	\$47,000		
Intermediate Casing 1	0	0.00	\$0.00	DWEB.145	\$0		
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	19680.00	\$19.50		DWEA.100	\$384,000	
Production Tie-Back	0	0.00	\$0.00		DWEA.165	\$0	
Tubing	2.375	9300.00	\$5.00			STIMT.101	\$0
Wellhead, Tree, Chokes				DWEB.115	\$12,000	DWEA.120	\$12,000
Liner Hanger, Isolation Packer				DWEB.100	\$0	DWEA.125	\$0
Packer, Nipples						STIMT.400	\$16,000
Pumping Unit, Engine						STIMT.405	\$0
Downhole Lift Equipment (BHP, Rods, Anchors, ESP, GVLs, PC Pump)						STIMT.410	\$19,000
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				\$59,000	\$396,000		\$130,000

P&A Costs	DIDC.295	\$0	DICC.275	\$0		
Total Cost		\$2,493,000		\$682,000		\$4,512,000



Project Cost Estimate

Lease Name:

	Production	Post	Total Well
	Equipment /	Completion	Cost
	Codes	Codes	
Intangibles			
Roads & Location Preparation / Restoration	CON.100 \$2,500	PCOM.100 \$1,000	\$223,500
Damages	CON.105 \$0		\$28,000
Mud / Fluids Disposal Charges		PCOM.255 \$108,000	\$328,000
Day Rate 26,500.00 DH Days 22.00 ACP Days @ \$5.00 Per Day			\$687,000
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)			\$26,000
Bits		PCOM.125 \$0	\$125,000
Fuel \$1.30 Per Gallon 1,800.00 Gallons Per Day		PCOM.130 \$0	\$51,000
Water for Drilling Rig / Completion Fluids (Not Frac Water)		PCOM.135 \$1,000	\$32,000
Mud & Additives			\$348,000
Surface Rentals	CON.140 \$3,000	PCOM.140 \$237,000	\$450,000
Downhole Rentals		PCOM.145 \$0	\$27,000
Formation Evaluation (DST, Coring including evaluation, G&G Services)			\$0
Mud Logging 20.00 Days @ \$1,000.00 Per Day			\$20,000
Open Hole Logging			\$0
Cementing & Float Equipment			\$108,000
Tubular Inspections		PCOM.160 \$0	\$21,000
Casing Crews			\$19,000
Extra Labor, Welding, Etc.	CON.170 \$52,000	PCOM.170 \$0	\$67,000
Land Transportation (Trucking for tangibles)	CON.175 \$6,500	PCOM.175 \$6,800	\$38,300
Supervision \$3,800.00 Per Day	CON.180 \$5,100	PCOM.180 \$9,000	\$247,100
Trailer House / Camp / Catering			\$36,000
Other Misc Expenses	CON.190 \$3,900	PCOM.190 \$0	\$25,900
Overhead			\$20,000
Remedial Cementing		PCOM.215 \$0	\$0
MOB/DEMOB			\$195,000
Directional Drilling Services			\$280,000
Crane for Construction	CON.230 \$4,000		\$4,000
Solids Control			\$25,000
Well Control Equip (Snubbing Svcs.)		PCOM.240 \$0	\$46,000
Fishing & Sidetrack Operations		PCOM.245 \$0	\$0
Completion Rig		PCOM.115 \$0	\$15,000
Coil Tubing		PCOM.260 \$0	\$280,000
Completion Logging, Perforating, WL Units, WL Surveys		PCOM.200 \$0	\$159,000
Composite Plugs		PCOM.390 \$0	\$74,000
Stimulation Pumping Charges, Chemicals, Additives, Sand		PCOM.210 \$0	\$2,807,000
Stimulation Water / Water Transfer / Water Storage			\$301,000
Cimarex Owned Frac / Rental Equipment			\$50,000
Legal / Regulatory / Curative	CON.300 \$0		\$20,000
Well Control Insurance \$1.00 Per Foot			\$20,000
Contingency 0.0 % of Drilling Intangibles	CON.220 \$0	PCOM.220 \$22,400	\$360,400
Construction For Flow Lines	CON.310 \$3,500		\$3,500
Construction For Sales P/L	CON.265 \$0		\$0
Total Intangible Cost	\$80,500	\$385,200	\$7,567,700

Tangible - Well Equipment							
	Size	Feet	\$ / Foot				
Casing							
Drive Pipe	0	0.00	\$0.00				\$0
Conductor Pipe	0	0.00	\$0.00				\$0
Water String	0	0.00	\$0.00				\$0
Surface Casing	9.625	1500.00	\$31.00				\$47,000
Intermediate Casing 1	0	0.00	\$0.00				\$0
Intermediate Casing 2	0	0.00	\$0.00				\$0
Drilling Liner	0	0.00	\$0.00				\$0
Production Casing or Liner	5.5	19680.00	\$19.50				\$384,000
Production Tie-Back	0	0.00	\$0.00				\$0
Tubing	2.375	9300.00	\$5.00		PCOMT.105	\$0	\$50,000
Wellhead, Tree, Chokes							\$69,000
Liner Hanger, Isolation Packer							\$0
Packer, Nipples					PCOMT.400	\$0	\$16,000
Pumping Unit, Engine					PCOMT.405	\$0	\$0
Downhole Lift Equipment (BHP, Rods, Anchors, ESP, GVLs, PC Pump)					PCOMT.410	\$0	\$19,000
Tangible - Lease Equipment							
N/C Lease Equipment				CONT.400	\$50,800		\$50,800
Tanks, Tanks Steps, Stairs				CONT.405	\$58,300		\$58,300
Battery (Heater Treater, Separator, Gas Treating Equipment)				CONT.410	\$95,275		\$95,275
Secondary Containments				CONT.415	\$10,200		\$10,200
Overhead Power Distribution (electric line to facility)				CONT.420	\$3,000		\$3,000
Facility Electrical & Automation				CONT.425	\$57,200		\$57,200
SWD Connection				CONT.430	\$0		\$0
Flow Lines (Line Pipe from wellhead to central facility)				CONT.435	\$23,200		\$23,200
Pipeline to Sales				CONT.440	\$0		\$0
Meters and Metering Equipment				CONT.445	\$32,800		\$32,800
Total Tangibles				\$330,775		\$0	\$915,775

P&A Costs							\$0
Total Cost				\$411,275		\$385,200	\$8,483,475