



Authorization For Expenditure

Company Entity	Date Prepared
CIMAREX ENERGY CO	November 4, 2015

Region	Well Name	Prospect or Field Name	Property Number	Drilling AFE No.
Anadarko	ROYAL 1-21H	CANA NORTHWEST PROSPECT	350012-389.01	2215147

Location	County	State	Type Well
21-15N-10W, Blaine Co., OK	Blaine	OK	Oil Gas X Expl Prod

Estimate Type	Est. Start Date	Est. Comp Date	Formation	Ttl Measured Depth
Original Estimate	X			15,600'
Revised Estimate				Ttl Vertical Depth
Supplemental Estimate	09/21/2015	12/01/2015	Mississippi	10,880'

Project Description

Drill and complete a horizontal test. Drill to 1500', set surface casing. Drill to 9560', set intermediate casing. Drill to 10405' (KOP). Drill curve at 12 DLS build rate to +/- 10880' TVD and a +/- 4380' long lateral in the Meramec formation. Run and cement production casing. Stage frac in 20 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	\$2,784,000		\$2,784,000
Completion Costs		\$2,728,200	\$2,728,200
Total Intangible Costs	\$2,784,000	\$2,728,200	\$5,512,200

Tangibles			
Well Equipment	\$474,000	\$504,800	\$978,800
Lease Equipment		\$355,800	\$355,800
Total Tangible Well Cost	\$474,000	\$860,600	\$1,334,600

Plug and Abandon Cost	\$0	\$0	\$0
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Total Well Cost	\$3,258,000	\$3,588,800	\$6,846,800
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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



11-9-15



Project Cost Estimate

Lease Name:

Intangibles	BCP - Drilling		ACP - Drilling		Completion /	
	Codes	(Dry Hole Cost)	Codes		Codes	Stimulation
Roads & Location Preparation / Restoration	DIDC.100	\$190,000			STIM.100	\$23,000
Damages	DIDC.105	\$23,000				
Mud / Fluids Disposal Charges	DIDC.255	\$115,000			STIM.255	\$60,000
Day Rate	##### DH Days	28.00	ACP Days @	\$3.00	Per Day	
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)	DIDC.115	\$754,000	DICC.120	\$78,000		
Bits	DIDC.120	\$31,000				
Fuel	\$1.80 Per Gallon		DICC.125	\$0	STIM.125	\$0
Water for Drilling Rig / Completion Fluids (Not Frac Water)	DIDC.135	\$107,000	DICC.130	\$0		
Mud & Additives	DIDC.140	\$10,000	DICC.135	\$1,000	STIM.135	\$0
Surface Rentals	DIDC.145	\$285,000				
Downhole Rentals	DIDC.150	\$75,000	DICC.140	\$0	STIM.140	\$120,000
Formation Evaluation (DST, Coring including evaluation, G&G Services)	DIDC.155	\$40,000			STIM.145	\$0
Mud Logging	DIDC.160	\$0			STIM.150	\$0
Open Hole Logging	DIDC.170	\$0				
Cementing & Float Equipment	DIDC.180	\$0				
Tubular Inspections	DIDC.185	\$54,000	DICC.155	\$59,000		
Casing Crews	DIDC.190	\$15,000	DICC.160	\$8,000	STIM.160	\$0
Extra Labor, Welding, Etc.	DIDC.195	\$27,000	DICC.165	\$24,000	STIM.165	\$0
Land Transportation (Trucking for tangibles)	DIDC.200	\$16,000	DICC.170	\$8,000	STIM.170	\$5,000
Supervision	DIDC.205	\$20,000	DICC.175	\$9,000	STIM.175	\$0
Trailer House / Camp / Catering	DIDC.210	\$114,000	DICC.180	\$15,000	STIM.180	\$60,000
Other Misc Expenses	DIDC.280	\$35,000	DICC.255	\$5,000	STIM.280	\$13,000
Overhead	DIDC.220	\$1,000	DICC.190	\$0	STIM.190	\$20,000
Remedial Cementing	DIDC.225	\$12,000	DICC.195	\$5,000		
MOB/DEMOB	DIDC.231	\$0			STIM.215	\$0
Directional Drilling Services	DIDC.240	\$190,000				
Crane for Construction	DIDC.245	\$249,000				
Solids Control	DIDC.260	\$45,000				
Well Control Equip (Snubbing Svcs.)	DIDC.265	\$55,000	DICC.240	\$7,000	STIM.240	\$20,000
Fishing & Sidetrack Operations	DIDC.270	\$0	DICC.245	\$0	STIM.245	\$0
Completion Rig					STIM.115	\$0
Coil Tubing					STIM.260	\$160,000
Completion Logging, Perforating, WL Units, WL Surveys					STIM.200	\$114,000
Composite Plugs					STIM.390	\$60,000
Stimulation Pumping Charges, Chemicals, Additives, Sand					STIM.210	\$1,145,000
Stimulation Water / Water Transfer / Water Storage					STIM.395	\$123,000
Cimarex Owned Frac / Rental Equipment					STIM.305	\$35,000
Legal / Regulatory / Curative	DIDC.300	\$7,000				
Well Control Insurance	DIDC.285	\$16,000				
Contingency	DIDC.435	\$133,000	DICC.220	\$11,000	STIM.220	\$98,000
Construction For Flow Lines						
Construction For Sales P/L						
Total Intangible Cost		\$2,784,000		\$230,000		\$2,056,000

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	\$44.00	DWEB.140	\$66,000		
Intermediate Casing 1	9.625	9560.00	\$39.00	DWEB.145	\$373,000		
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	15600.00	\$23.00		DWEA.100	\$359,000	
Production Tie-Back	0	0.00	\$0.00				
Tubing	2.375	10510.00	\$5.10		DWEA.165	\$0	STIMT.101
Wellhead, Tree, Chokes							\$0
Liner Hanger, Isolation Packer				DWEB.115	\$35,000	DWEA.120	\$45,000
Packer, Nipples				DWEB.100	\$0	DWEA.125	\$0
Pumping Unit, Engine							STIMT.400
Downhole Lift Equipment (BHP, Rods, Anchors, ESP, GVLs, PC Pump)							\$5,000
							STIMT.405
							\$0
							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					\$474,000	\$404,000	\$45,000
P&A Costs				DIDC.295	\$0	DICC.275	\$0
Total Cost					\$3,258,000	\$634,000	\$2,101,000

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Project Cost Estimate

Lease Name: *

Intangibles	Production		Post		Total Well
	Codes	Equipment / Construction	Codes	Completion	
Roads & Location Preparation / Restoration	CON.100	\$2,500	PCOM.100	\$1,000	\$216,500
Damages	CON.105	\$0			\$23,000
Mud / Fluids Disposal Charges			PCOM.255	\$64,800	\$239,800
Day Rate ##### DH Days 28.00 ACP Days @ \$3.00 Per Day					\$832,000
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)					\$31,000
Bits			PCOM.125	\$0	\$165,000
Fuel \$1.80 Per Gallon ##### Gallons Per Day			PCOM.130	\$0	\$107,000
Water for Drilling Rig / Completion Fluids (Not Frac Water)			PCOM.135	\$1,000	\$12,000
Mud & Additives					\$285,000
Surface Rentals	CON.140	\$3,000	PCOM.140	\$232,000	\$430,000
Downhole Rentals			PCOM.145	\$0	\$40,000
Formation Evaluation (DST, Coring including evaluation, G&G Services)					\$0
Mud Logging 0.00 Days @ \$0.00 Per Day					\$0
Open Hole Logging					\$0
Cementing & Float Equipment					\$113,000
Tubular Inspections			PCOM.160	\$3,700	\$26,700
Casing Crews					\$51,000
Extra Labor, Welding, Etc.	CON.170	\$23,000	PCOM.170	\$0	\$52,000
Land Transportation (Trucking for tangibles)	CON.175	\$3,500	PCOM.175	\$6,800	\$39,300
Supervision \$3,800.00 Per Day	CON.180	\$5,100	PCOM.180	\$9,000	\$203,100
Trailer House / Camp / Catering					\$53,000
Other Misc Expenses	CON.190	\$3,000	PCOM.190	\$0	\$24,000
Overhead					\$17,000
Remedial Cementing			PCOM.215	\$0	\$0
MOB/DEMOB					\$190,000
Directional Drilling Services					\$249,000
Crane for Construction	CON.230	\$4,000			\$4,000
Solids Control					\$45,000
Well Control Equip (Snubbing Svcs.)			PCOM.240	\$22,000	\$104,000
Fishing & Sidetrack Operations			PCOM.245	\$0	\$0
Completion Rig			PCOM.115	\$14,000	\$14,000
Coil Tubing			PCOM.260	\$0	\$160,000
Completion Logging, Perforating, WL Units, WL Surveys			PCOM.200	\$0	\$114,000
Composite Plugs			PCOM.390	\$0	\$60,000
Stimulation Pumping Charges, Chemicals, Additives, Sand			PCOM.210	\$0	\$1,145,000
Stimulation Water / Water Transfer / Water Storage					\$123,000
Cimarex Owned Frac / Rental Equipment					\$35,000
Legal / Regulatory / Curative	CON.300	\$0			\$7,000
Well Control Insurance \$1.00 Per Foot					\$16,000
Contingency 5.0 % of Drilling Intangibles	CON.220	\$4,800	PCOM.220	\$35,500	\$282,300
Construction For Flow Lines	CON.310	\$3,500			\$3,500
Construction For Sales P/L	CON.265	\$0			\$0
Total Intangible Cost		\$52,400		\$389,800	\$5,512,200

Tangible - Well Equipment						
Casing	Size	Feet	\$ / Foot			
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	13.375	1500.00	\$44.00			\$66,000
Intermediate Casing 1	9.625	9560.00	\$39.00			\$373,000
Intermediate Casing 2	0	0.00	\$0.00			\$0
Drilling Liner	0	0.00	\$0.00			\$0
Production Casing or Liner	5.5	15600.00	\$23.00			\$359,000
Production Tie-Back	0	0.00	\$0.00			\$0
Tubing	2.375	10510.00	\$5.10	PCOMT.105	\$54,000	\$54,000
Wellhead, Tree, Chokes						\$120,000
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						
N/C Lease Equipment						
Tanks, Tanks Steps, Stairs	CONT.400	\$65,000				\$65,000
Battery (Heater Treater, Separator, Gas Treating Equipment)	CONT.405	\$71,500				\$71,500
Secondary Containments	CONT.410	\$115,700				\$115,700
Overhead Power Distribution (electric line to facility)	CONT.415	\$14,000				\$14,000
Facility Electrical & Automation	CONT.420	\$3,000				\$3,000
SWD Connection	CONT.425	\$31,200				\$31,200
Flow Lines (Line Pipe from wellhead to central facility)	CONT.430	\$0				\$0
Pipeline to Sales	CONT.435	\$23,200				\$23,200
Meters and Metering Equipment	CONT.440	\$0				\$0
	CONT.445	\$32,200				\$32,200
Total Tangibles		\$355,800		\$55,800		\$1,334,600

P&A Costs			\$0
Total Cost	\$408,200	\$445,600	\$6,846,800

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