



## Authorization For Expenditure

Company Entity  
CIMAREX ENERGY CODate Prepared  
12/27/2016

Region	Well Name	Prospect or Field Name	Property Number	Drilling AFE No.
Anadarko	TEMPLE BIA 1H-1102X	CANA NORTHWEST PROSPECT	350012-466.01	2216113

Location	County	State	Type Well
Sec. 11-16N-12W, Blaine, OK	Blaine	OK	Oil Gas X Prod

Estimate Type		Est. Start Date	Est. Comp Date	Formation	TU Measured Depth
Original Estimate	X	03/01/2017	06/01/2017	Meramec	20,380'
Revised Estimate					TU Vertical Depth
Supplemental Estimate					10,600'

## Project Description

Drill and complete a horizontal test. Drill to 1500', set surface casing. Drill to 9030' set intermediate casing. Drill to 10081' (KOP). Drill curve at 11 DLS build rate to +/- 10600' TVD and a +/- 9440' long lateral in the Meramec formation. Run and cement production casing. Frac +/- 41 stages. Drill out plugs and run production tubing. Flow to sales through new facility.

Intangibles	Dry Hole Cost	After Casing Point	Completed Well Cost
Drilling Costs	\$3,342,000		\$3,342,000
Completion Costs		\$5,938,217	\$5,938,217
Total Intangible Costs	\$3,342,000	\$5,938,217	\$9,280,217

## Tangibles

Tangibles			
Well Equipment	\$322,000	\$386,302	\$708,302
Lease Equipment		\$349,831	\$349,831
Total Tangible Well Cost	\$322,000	\$736,133	\$1,058,133

Plug and Abandon Cost			
	\$0	\$0	\$0
Total Well Cost	\$3,664,000	\$6,674,350	\$10,338,350

## Comments on Well Costs

1. All tubulars, well or lease equipment is priced by COPAS and CEPIS 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

CND 16-5169T

1/4/2017 1:08 PM



2/21/17





# Project Cost Estimate

Lease Name:

	BCP - Drilling		ACP - Drilling		Completion /	
	(Dry Hole Cost)				Stimulation	
Intangibles	Codes		Codes		Codes	
Roads & Location Preparation / Restoration	DIDC 100	\$148,000			STIM 100	\$11,000
Damages	DIDC 105	\$25,000				
Mud / Fluids Disposal Charges	DIDC 255	\$82,000			STIM 255	\$60,000
Day Rate	50.00	DH Days	5.00	ACP Days @	\$17,000.00	Per Day
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)	DIDC 115	\$850,000	DICC 120	\$85,000		
Bits	DIDC 120	\$26,000				
Fuel	DIDC 125	\$205,000	DICC 125	\$0	STIM 125	\$0
Water for Drilling Rig / Completion Fluids (Not Frac Water)	DIDC 135	\$162,000	DICC 130	\$0		
Mud & Additives	DIDC 140	\$16,000	DICC 135	\$1,000	STIM 135	\$35,000
Surface Rentals	DIDC 145	\$484,000				
Downhole Rentals	DIDC 150	\$50,000	DICC 140	\$0	STIM 140	\$200,000
Formation Evaluation (DST, Coring including evaluation, G&G Services)	DIDC 155	\$40,000			STIM 145	\$98,000
Mud Logging	DIDC 160	\$0			STIM 150	\$0
Open Hole Logging	DIDC 170	\$48,000				
Cementing & Float Equipment	DIDC 180	\$0				
Tubular Inspections	DIDC 185	\$44,000	DICC 155	\$80,000		
Casing Crews	DIDC 190	\$7,000	DICC 160	\$10,000	STIM 160	\$4,000
Extra Labor, Welding, Etc.	DIDC 195	\$11,000	DICC 165	\$15,000	STIM 165	\$0
Land Transportation (Trucking for tangibles)	DIDC 200	\$5,000	DICC 170	\$5,000	STIM 170	\$0
Supervision	DIDC 205	\$10,000	DICC 175	\$13,000	STIM 175	\$5,000
Trailer House / Camp / Catering	DIDC 210	\$210,000	DICC 180	\$18,000	STIM 180	\$95,000
Other Misc Expenses	DIDC 280	\$18,000	DICC 255	\$4,000	STIM 280	\$8,000
Overhead	DIDC 220	\$1,000	DICC 190	\$0	STIM 190	\$8,000
Remedial Cementing	DIDC 215	\$20,000	DICC 195	\$5,000		
MOB/DEMOB	DIDC 231	\$0			STIM 215	\$0
Directional Drilling Services	DIDC 240	\$160,000				
Crane for Construction	DIDC 245	\$421,000				
Solids Control	DIDC 260	\$35,000				
Well Control Equip (Snubbing Svcs.)	DIDC 265	\$75,000	DICC 240	\$6,000	STIM 240	\$17,000
Fishing & Sidetrack Operations	DIDC 270	\$0	DICC 245	\$0	STIM 245	\$0
Completion Rig					STIM 115	\$0
Coil Tubing					STIM 260	\$186,000
Completion Logging, Perforating, WL Units, WL Surveys					STIM 200	\$128,000
Composite Plugs					STIM 390	\$52,000
Stimulation Pumping Charges, Chemicals, Additives, Sand					STIM 210	\$3,248,000
Stimulation Water / Water Transfer / Water Storage					STIM 395	\$340,000
Cimarex Owned Frac / Rental Equipment					STIM 305	\$45,000
Legal / Regulatory / Curative	DICC 300	\$20,000				
Well Control Insurance	\$0.50	Per Foot	DIDC 285	\$10,000		
Contingency	5.0	% of Drilling Intangibles	DIDC 435	\$159,000	DICC 220	\$13,000
Construction For Flow Lines					STIM 220	\$227,000
Construction For Sales P/L						
Total Intangible Cost			\$3,342,000	\$255,000		\$4,767,000
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	9030.00	\$27.00	DWEB 145	\$244,000	
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	20380.00	\$14.00		DWFA 100	\$285,000
Production Tie-Back	0	0.00	\$0.00		DWEA 165	\$0
Tubing	2.875	0.00	\$0.00			STIMT 101
Wellhead, Tree, Chokes				DWEB 115	\$25,000	DWEA 120
Liner Hanger, Isolation Packer				DWEB 100	\$0	DWEA 125
Packer, Nipples						STIMT 400
Pumping Unit, Engine						STIMT 405
Downhole Lift Equipment (BHP, Rods, Anchors, ESP, GVLs, PC Pump)						STIMT 410
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				\$322,000	\$310,000	\$25,000
P&A Costs	DIDC 295	\$0	DICC 275	\$0		
Total Cost			\$3,664,000	\$565,000		\$4,792,000





## 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	\$162,500
Damages	CON.105	\$0			\$25,000
Mud / Fluids Disposal Charges			PCOM.255	\$341,766	\$483,766
Day Rate 50.00 DH Days 5.00 ACP Days @ \$17,000.00 Per Day					\$935,000
Misc Preparation Cost (mouse hole, rat hole, pads, pile clusters, misc.)					\$26,000
Bits			PCOM.125	\$0	\$205,000
Fuel \$1.80 Per Gallon ##### Gallons Per Day			PCOM.130	\$0	\$162,000
Water for Drilling Rig / Completion Fluids (Not Frac Water)			PCOM.135	\$1,000	\$53,000
Mud & Additives					\$484,000
Surface Rentals	CON.140	\$9,650	PCOM.140	\$372,771	\$632,421
Downhole Rentals			PCOM.145	\$0	\$138,000
Formation Evaluation (FST, Coring including evaluation, G&G Services)					\$0
Mud Logging 48.00 Days @ \$1,000.00 Per Day					\$48,000
Open Hole Logging					\$0
Cementing & Float Equipment					\$124,000
Tubular Inspections			PCOM.160	\$3,700	\$24,700
Casing Crews					\$26,000
Extra Labor, Welding, Etc.	CON.170	\$74,550	PCOM.170	\$0	\$84,550
Land Transportation (Trucking for tangibles)	CON.175	\$7,200	PCOM.175	\$6,800	\$42,000
Supervision \$3,500.00 Per Day	CON.180	\$5,950	PCOM.180	\$2,550	\$331,500
Trailer House / Camp / Catering					\$30,000
Other Misc Expenses	CON.190	\$4,000	PCOM.190	\$0	\$13,000
Overhead					\$25,000
Remedial Cementing			PCOM.215	\$0	\$0
MOB/DEMOR					\$160,000
Directional Drilling Services					\$421,000
Crane for Construction	CON.230	\$0			\$0
Solids Control					\$35,000
Well Control Equip (Snubbing Svcs.)			PCOM.240	\$25,350	\$123,350
Fishing & Sidetrack Operations			PCOM.245	\$0	\$0
Completion Rig			PCOM.315	\$13,800	\$13,800
Coil Tubing			PCOM.260	\$0	\$186,000
Completion Logging, Perforating, WL Units, WL Surveys			PCOM.200	\$0	\$128,000
Composite Plugs			PCOM.390	\$0	\$52,000
Stimulation Pumping Charges, Chemicals, Additives, Sand			PCOM.210	\$0	\$3,248,000
Stimulation Water / Water Transfer / Water Storage					\$340,000
Cimarex Owned Frac / Rental Equipment					\$45,000
Legal / Regulatory / Curative	CON.300	\$0			\$20,000
Well Control Insurance \$0.50 Per Foot					\$10,000
Contingency 5.0 % of Drilling Intangibles	CON.220	\$5,193	PCOM.220	\$38,437	\$442,630
Construction For Flow Lines	CON.310	\$0			\$0
Construction For Sales P/L	CON.265	\$0			\$0
<b>Total Intangible Cost</b>		<b>\$109,043</b>		<b>\$807,174</b>	<b>\$9,280,217</b>

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	\$35.00	\$53,000
Intermediate Casing 1	9.625	9030.00	\$27.00	\$244,000
Intermediate Casing 2	0	0.00	\$0.00	\$0
Drilling Liner	0	0.00	\$0.00	\$0
Production Casing or Liner	5.5	20380.00	\$14.00	\$285,000
Production Tie-Back	0	0.00	\$0.00	\$0
Tubing	2.875	0.00	\$0.00	\$0
Wellhead, Tree, Chokes				PCOMT.305 \$49,502 \$49,502
Liner Hanger, Isolation Packer				\$75,000
Packer, Nipples				PCOMT.400 \$1,800 \$1,800
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	CONT.400	\$69,387		\$69,387
Tanks, Tanks Steps, Stairs	CONT.405	\$61,047		\$61,047
Battery (Heater Treater, Separator, Gas Treating Equipment)	CONT.410	\$125,205		\$125,205
Secondary Containments	CONT.415	\$8,500		\$8,500
Overhead Power Distribution (electric line to facility)	CONT.420	\$0		\$0
Facility Electrical & Automation	CONT.425	\$55,488		\$55,488
SWD Connection	CONT.430	\$0		\$0
Flow Lines (Line Pipe from wellhead to central facility)	CONT.435	\$0		\$0
Pipeline to Sales	CONT.440	\$0		\$0
Meters and Metering Equipment	CONT.445	\$30,204		\$30,204
<b>Total Tangibles</b>		<b>\$349,831</b>	<b>\$51,302</b>	<b>\$1,058,133</b>

P&A Costs				\$0
<b>Total Cost</b>		<b>\$458,874</b>	<b>\$858,476</b>	<b>\$10,338,350</b>