

**STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION**

**APPLICATION OF BLACK MOUNTAIN OPERATING
LLC FOR A NON-STANDARD OIL SPACING AND
PRORATION UNIT AND COMPULSORY POOLING,
LEA COUNTY, NEW MEXICO**

CASE NOS. 15655, 15656

**APPLICATION OF GMT EXPLORATION
FOR A NON-STANDARD OIL SPACING AND
PRORATION UNIT AND COMPULSORY POOLING,
LEA COUNTY, NEW MEXICO.**

CASE NOS. 15659, 15660

MARATHON'S CLOSING STATEMENT

Marathon Oil Permian, LLC submits this closing statement following the July 20, 2017
Examiner hearing in the above consolidated matters.

Background

Initially, Black Mountain Operating LLC, and now Marathon Oil Permian LLC seek an order (1) approving two 240-acre non-standard oil spacing and proration unit in the Bone Spring formation comprised of the W/2SW/4 of Section 35, Township 21 South, Range 34 East, NMPM, Lea County, New Mexico, and the W/2W/2 of Section 2, Township 22 South, Range 34 East, NMPM, E/2SW/4 of Section 35, Township 21 South, Range 34 East, NMPM, Lea County, New Mexico, (Grama Ridge State Com 1H), and the E/2W/2 of Section 2, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico (Grama Ridge State Com 3H); (2) pooling all mineral interests in the Bone Spring formation underlying the non-standard units, and approving unorthodox well locations. Black Mountain/Marathon are targeting the 3rd Bone Spring interval. Marathon's proposed well laterals will be approximately 7,400' feet in length and will include

developed 660' segments in those areas across the boundaries of Sections 2 and 35 that would otherwise be undeveloped setbacks for shorter laterals.

GMT Exploration Company seeks an order (1) approving two 160-acre non-standard oil spacing and proration unit in the Bone Spring formation comprised of the W/2W/2 of Section 2, Township 22 South, Range 34 East, NMPM, (Pucker Rapid State Com. No. 1H), and the E/2W/2 of Section 2, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico, (Squeeze State Com No. 1H) and (2) pooling all mineral interests in the Bone Spring formation underlying the non-standard units, and approving unorthodox well locations. GMT is targeting the 2nd Bone Spring interval. GMT's proposed well laterals will be approximately 4,600' in length.

Points and Authorities

Both Black Mountain and GMT submitted their respective well proposals with modern form AAPL 610 Joint Operating Agreements with horizontal well amendments. BTA appeared at the previous Division Examiner hearing on May 15, 2017 and presented evidence of the existence of a 1956 form AAPL 610 Joint Operating Agreement dated August 15, 1977. The contract area under the old JOA at one time covered all of Sections 35 T21S R34E and 2 T22SR34E, but the evidence at the July 20, 2017 hearing established that the lease for SW/4 of Section 2 expired and that acreage fell out of the contract area. (It was for this reason that Black Mountain sought to include the SW/4 of Section 2 in its project areas in order to avoid leaving that non-contract area acreage stranded.) It also appeared that portions of Section 35 had been subdivided out of the contract area. Black Mountain (and now Marathon) succeeded Getty Oil Company as operator of certain wells under the 1977 Operating Agreement, including a Bone Spring Well in Unit K of Section 35, but BTA also operates a well in Unit E of Section 35. No party was able to document whether the parties to the old JOA ever selected a successor operator. BTA's land witness asserted

that subsequent wells could only be proposed under the 1977 JOA, a position that neither GMT nor Black Mountain/Marathon agree with.

The evidence establishes that Black Mountain was the first to develop this prospect, first to develop the geology, first to propose a well and initially sought to obtain voluntary agreement from other interest owners, acted with diligence and was timely. In addition, Marathon presented evidence to fully develop the 2nd and 3rd Bone Spring sands throughout Sections 35 and 2. GMT's subsequent well proposals on the other hand, were reactionary. Its plans for further development were not made clear. These can be controlling factors when the Division is considering competing compulsory pooling applications. Order No. R-10922 (November 24, 1997), Case No.11830; *Application of Mewbourne Oil Company for Compulsory Pooling, Eddy County, New Mexico*, consolidated with Case No. 11833; *Application of Devon Energy Production Company for Compulsory Pooling, Eddy County, New Mexico*.

It appears to be BTA's position that the acreage remaining subject to the 1977 Joint Operating Agreement is already the subject of a voluntary agreement under which it is operator and that its contract interests cannot be force pooled. GMT's position on this issue is not clear, but it does seek to replace the 1977 JOA with a modern form with horizontal well provisions and establish itself as operator. It is undisputed, however, that the units proposed by Black Mountain/Marathon include some of the remaining contract area lands under the 1977 JOA, as well as other lands not subject to that JOA. As such, there is an absence of agreement among the parties as to how production from the proposed horizontal well is to be divided between the lands within and without the remaining contract area and therefore the parties interests are not pooled. In such circumstances, in the case of horizontal well units, the Division has recently made clear that proposed well units that include lands subject to an existing JOA combined with other non-

contract area lands can be force pooled. Order No. R-14140 (March 30, 2016), Case No. 15433; *Application of Matador Production Company for A Non-Standard Spacing and Proration Unit and Compulsory Pooling, Lea County, New Mexico.*

In an earlier case involving competing compulsory pooling applications, the Division has said that geologic evidence can be the most important consideration. Order No. R-10731-B (February 28, 1997), Case Nos. 11666 and 11667; *Applications of KCS Medallion Resources, Inc. and Yates Petroleum Corporation for Compulsory Pooling, Eddy County, New Mexico.* At the hearing in these matters, GMT's geologist testified that the company would seek to develop only that reservoir acreage where well logs evidenced that density porosity was >8%, and further suggesting that including reservoir with density porosity of anything less than <8% would result in inadequate EURs and an "uneconomic well". Marathon's geologic witness refuted such a contention and established that the use of a single decision-making criterion to the exclusion of other relevant geologic information departs from industry best practices. Marathon's geologist provided further countervailing testimony that GMT's isopach mapping contours (GMT Exhibits A and B) are influenced by subjective "interpretation", disregards other data and should not be conclusive. It was also established at the hearing that even if GMT's isopach contours are to be honored, they are so situated so that only approximately 20% of the reservoir thickness in the SW/4 of Section 35 is mapped at <8% density porosity. If even at 7 1/2%, that limited acreage combined with the far larger areas within the two 240-acre well units mapped with thickness exceeding >8% is sufficient to justify development with longer laterals.

Given more weight than the geologic evidence, the most compelling issue for the Division's consideration in these matters is the avoidance of *waste*. Black Mountain, supported by Marathon, provided extensive technical testimony that drilling this prospect with 7,400' laterals

will result in greater economic and engineering efficiencies and higher EURs. In addition, uncontroverted testimony was offered that developing Sections 2 and 35 with shorter 4,600' laterals will leave otherwise recoverable reserves in the ground between the section setbacks where there is no argument about the sufficiency of density porosity and reservoir thickness. TR: Pg. 76, L23 – Pg. 78, L12. This is the very definition of *waste*.

The [Division] is a creature of statute, expressly defined, limited and empowered by the laws creating it. The [Division] has jurisdiction over matters related to the conservation of oil and gas in New Mexico, but the basis of its powers is founded on the duty to prevent waste and to protect correlative rights. The prevention of waste is the *paramount power*, inasmuch as this term is an integral part of the definition of correlative rights. *Continental Oil Co. v. Oil Conservation Commission*, 70 N.M. 310, 318, 373 P.2d 809, 814 (1962). See also NMSA 1978 § 70-2-11. The avoidance of waste should be determinative for the Division here.

Supplemental Matters

At the July 20, 2017 hearing, Marathon addressed the surface use conflicts between the well locations originally planned by Black Mountain and possible use of undescribed acreage in the vicinity for a gas plant or compressor station. Marathon introduced evidence documenting that the gas plant developer's plans do not appear to be moving forward. Marathon's land witness testified that it would work with the gas plant operator to accommodate the surface operations of both companies. The land witness also stated Marathon's preference to move the surface locations to Section 35 to obviate the surface use issue altogether. Marathon was requested to provide the

footage locations for the new surface and bottom hole locations for its wells, along with its AFEs.

The new locations are approximately as follow:

Grama Ridge State Com 1H
SHL: 2557' FSL and 505' FWL
Section 35 T21S R34E
BHL: 330' FSL and 330' FWL
Section 2 T22S R34E


Grama Ridge State Com 3H
SHL: 2307' FSL and 2146' FWL
Section 35 T21S R34E
BHL: 330' FSL and 2310' FWL
Section 2 T22S R34E

The surface and bottom hole locations and estimated well costs are reflected on the AFEs for the 1H and 3H wells, Exhibits 1 and 2, attached.

Respectfully submitted,

MONTGOMERY & ANDREWS, P. A.

By:

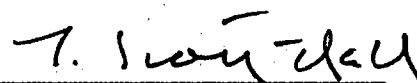

J. Scott Hall, Esq.
Post Office Box 2307
Santa Fe, New Mexico 87504-2307
(505) 982-3873
(505) 982-4289 fax
shall@montand.com

Attorneys for Black Mountain Operating LLC

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served on counsel of record by electronic mail on July 31, 2017:

James Bruce
Post Office Box 1056
Santa Fe, NM 87504
jamesbruc@aol.com

A handwritten signature in black ink, appearing to read "J. Scott Hall", written over a horizontal line.

J. Scott Hall



AUTHORITY FOR EXPENDITURE
EXPLORATION & PRODUCTION

Drilling Project #	Drilling Project #
Pad Project #	Pad Project #
DATE:	7/25/2017

Permian Asset Team	
Field	GRAMA RIDGE, BONE SPRING, NE
Lease / Facility	GRAMA RIDGE STATE COM 3H
Operator	MARATHON OIL PERMIAN LLC

Location Sec 35, 21S, 34E Rig 0
State NEW MEXICO
County/Parish LEA
Estimated Start Date _____
Estimated Completion Date _____

Estimated Gross Cost This AFE: \$8,220,965

Project Description & Reason for Expenditure:	Drill, Complete, & Equip a 3rd Bone Spring Horizontal Well
---	--

Marathon Oil Permian LLC proposes the drilling of the Gramma Ridge State Com 3H well, Lea County, New Mexico, to test the 3rd Bone Spring formation. The estimated cost of drilling, testing, completing, and equipping the well is \$8,220,965 as detailed in the provided authority for expenditure document.

E2SW4 of Section 35-21S-34E &
E2W2 of Section 2 22S-34E
Formation: 3rd Bone Spring Sand
Estimated TVD: 11248'
Estimated MD: 18800'
Approximate SHL: 2307FSL, 2146' FWL (measured from SW corner of 35-21S-34E)
Approximate BHL: 330' FSL, 2310' FWL (measured from SW corner of 2-22S-34E)

Prepared By 0

Final Approval

Title: Regional Vice President Permian Asset Team Date: _____

Participant's Approval

Name of Company: _____

Signature: _____

Title: _____ Date: _____

EXHIBIT 1

MARATHON OIL PERMIAN LLC
 AUTHORITY FOR EXPENDITURE
 DETAIL OF ESTIMATED WELL COSTS

DATE 7/25/2017
 DRILLING & LOCATION PREPARED BY JACOB BEATY
 COMPLETION PREPARED BY JOSH SHANNON
 FACILITIES & ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team	PERMIAN			
Field	GRAMA RIDGE, BONE 1	FORMATION: 3RD BONE SPRINGS	WILDCAT	EXPLORATION
Lease/Facility	GRAMA RIDGE STATE COM 3H		DEVELOPMENT	RECOMPLETION
Location	LEA COUNTY		X EXPLOITATION	WORKOVER
Prospect	RANGER			

Est Total Depth 18,800 Est Onlifting Days 27 Est Completion Days 8

LOCATION COST - INTANGIBLE

GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	150,000
7001250	Land Broker Fees and Services	60,000
TOTAL LOCATION COST - INTANGIBLE		210,000

DRILLING COST - TANGIBLE

7012050	Conductor Pipe	23,750
7012050	Surface Casing	59,113
7012050	Intermediate Casing 1	142,310
7012050	Intermediate Casing 2	258,450
7012050	Production Casing	83,915
7012050	Drig Liner Hanger, Tieback Eq & Csg Accessories	80,000
7012530	Drilling Wellhead Equipment	55,000
7012040	Casing & Tubing Access	15,000
7012270	Miscellaneous MRO Materials	15,000
TOTAL DRILLING - TANGIBLE		730,537

DRILLING COST - INTANGIBLE

7019200	Drilling Rig Mob/Demob	140,000
7019220	Drilling Rig - day work/footage	460,000
7019040	Directional Drilling Services	181,000
7019020	Cement and Cementing Service Surface	30,000
7019020	Cement and Cementing Service Intermediate 1	30,000
7019020	Cement and Cementing Service Intermediate 2	50,000
7019020	Cement and Cementing Service Production	40,000
7019140	Mud Fluids & Services	80,000
7012310	Solids Control equipment	59,950
7012020	Bits	70,500
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	85,000
7019140	Fuel (Mud)	20,000
7001460	Water (non potable)	-
7019000	Well Logging Services	-
7019150	Mud Logging/geosteering	17,000
7019150	Stabilizers, Hole Openers, Underreamers (DH rentals)	15,000
7019110	Casing inspection/cleaning	18,000
7019110	Drill pipe/collar inspection services	15,000
7016180	Freight - truck	40,000
7001460	Water hauling and disposal (includes soil farming)	80,000
7001440	Vacuum Trucks	-
7000030	Contract Labor - general	30,000
7018150	Rental Tools and Equipment (surface rentals)	94,100
7018150	Rig Equipment and Misc.	-
7001110	Telecommunications Services	-
7001120	Consulting Services	143,100
7001400	Safety and Environmental	10,000
7018120	Rental Buildings (trailers)	-
7019310	Coring (sidewalls & analysis)	-
7011010	8% Contingency & Taxes	197,569
TOTAL DRILLING - INTANGIBLE		\$1,936,619

TOTAL DRILLING COST

\$2,667,176

COMPLETION - TANGIBLE

7012580	Tubing	82,750
7012040	Tubing Accessories (nipple, wireline entry)	15,000
7012550	Wellhead Equip	20,000
7012560	Packers - Completion Equipment	38,850
TOTAL COMPLETION - TANGIBLE		\$156,600

MARATHON OIL PERMIAN LLC
AUTHORITY FOR EXPENDITURE
DETAIL OF ESTIMATED WELL COSTS

DATE 7/25/2017

Asset Team: PERMIAN
Field: GRAMA RIDGE, BONE! FORMATION: 3RD BONE SPRINGS
Lease/Facility: GRAMA RIDGE STATE COM 3H

COMPLETION - INTANGIBLE

GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (drives location after rig move, set anchors)	10,000
7019220	Drilling Rig During Completion	21,600
7019140	Mud Fluids & Services	-
7019030	Coiled Tubing Services (3 runs)	90,000
7019240	Snubbing Services	20,000
7019270	Pulling/Swab Units	15,360
7016350	Fuel (from drilg)	-
7019010	Casing Crew and Services	-
7019020	Cement and Cementing Services	-
7019080	Well Testing Services (flow hand & equip)	80,500
7019320	Fracturing Services	2,760,000
7019330	Perforating	161,000
7019360	Wireline Services	-
7001460	Water Hauling & Disposal (frac fluids)	675,000
7016180	Freight - Truck (haul pipe: drilg & compl)	25,000
7018150	BDP Rental & Tasting	-
7018150	Rental Tools and Equipment (incl drilg: lightplant,hydra-walk)	-
7018150	CT Downhole Rental Equipment (ie. Bt. BHA)	45,000
7000010	Contract Labor - general	15,000
7001110	Telecommunications Services	15,000
7001400	Safety and Environmental	-
7001120	Consulting Services	24,200
7018150	Zipper Manifold	57,600
7019100	Frack Stack Rentals	30,000
7016190	Freight (Transportation Services)	-
7018150	Equipment Rental w/o operator, frac tanks, lightplants)	80,000
7018120	Rental Buildings (trailers)	40,000
7000030	Contract Labor - Pumping (pump-down pumps)	46,000
7011010	8% Contingency & Taxes	349,429
TOTAL COMPLETION - INTANGIBLE		\$4,560,689

TOTAL COMPLETION COST

\$4,717,289

SURFACE EQUIPMENT - TANGIBLE

7013350	Misc. Piping, Fittings & Valves	77,300
9005027	Company Labor & Burden	-
7000010	Contract Labor - General	67,500
7001110	Telecommunication equip (Telemetry)	-
7012410	Line Pipe & Accessories	31,000
7012270	Miscellaneous Materials (containment system)	-
7008060	SCADA	62,500
7016180	Freight - truck	-
7001190	Contract Engineering	-
7012280	Metering and Instrumentation	15,000
7012290	I&E Materials	-
7012200	Gas Treating	-
7012200	Dehydration	-
7012010	Compressor	5,500
7012350	Power	-
7012610	Vapor Recovery Unit	2,500
7012640	Separator & other pressure vessels	65,000
7012500	Tanks	112,500
7012100	Heater Treater	11,000
7012640	Flare & Accessories	15,000
7000010	Electrical Labor	17,500
7000010	Mechanical Labor	-
7012480	Rod Pumping unit & Pad	-
7012180	Pumping Unit Engine	-
7012350	Electrical Power (electrical cooperative construction costs)	45,000
TOTAL SURFACE EQUIPMENT - TANGIBLE		\$547,500

TOTAL SURFACE EQUIPMENT COST

\$ 547,500

ARTIFICIAL LIFT

7012180	Company Labor	2,500
7012480	Gas Lift Equipment	38,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	-
7019350	Well Services-Well/Wellhead Services	20,000
7012270	Materials & Supplies-Tangible	13,000
7012550	Surface Wellhead Equipment	5,500
7012390	Pig Launchers/Receivers & Rel Equip	-
7011010	10% Contingency & Taxes	-
TOTAL ARTIFICIAL LIFT		79,000

TOTAL ARTIFICIAL LIFT COST

\$ 79,000

SUMMARY OF ESTIMATED DRILLING WELL COSTS

TOTAL LOCATION COST	\$ 210,000
TOTAL DRILLING COST	\$ 2,667,176
TOTAL COMPLETION COST	\$ 4,717,289
TOTAL SURFACE EQUIPMENT COST	\$ 547,500
TOTAL ARTIFICIAL LIFT COST	\$ 79,000
GRAND TOTAL COST	\$8,220,965



Drilling Project # Drilling Project #
Pad Project # Pad Project #
DATE: 7/25/2017

Permian Asset Team
Field GRAMA RIDGE, BONE SPRING, NE Location Sec 35, 21S, 34E Rig 0
Lease / Facility GRAMA RIDGE STATE COM 1H State NEW MEXICO
Operator MARATHON OIL PERMIAN LLC County/Parish LEA
Estimated Start Date _____
Estimated Completion Date _____

Estimated Gross Cost This AFE: \$8,220,965

Project Description & Reason for Expenditure: Drill, Complete, & Equip a 3rd Bone Spring Horizontal Well

Marathon Oil Permian LLC proposes the drilling of the Gramma Ridge State Com 1H well, Lea County, New Mexico, to test the 3rd Bone Spring formation. The estimated cost of drilling, testing, completing, and equipping the well is \$8,220,965 as detailed in the provided authority for expenditure document.
W2SW4 of Section 35-21S-34E &
W2W2 of Section 2-22S-34E
Formation: 3rd Bone Spring Sand
Estimated TVD: 11253'
Estimated MD: 18811'
Approximate SHL: 2557' FSL, 505' FWL (measured from SW corner of 35-21S-34E)
Approximate BHL: 330' FSL, 330' FWL (measured from SW corner of 2-22S-34E)

Prepared By 0

Final Approval

Title: Regional Vice President Permian Asset Team Date: _____

Participant's Approval

Name of
Company: _____

Signature: _____

Title: _____ Date: _____

EXHIBIT 2

MARATHON OIL PERMIAN LLC
AUTHORITY FOR EXPENDITURE
DETAIL OF ESTIMATED WELL COSTS

DATE 7/25/2017
DRILLING & LOCATION PREPARED BY JACOB BEATY
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES & ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team PERMIAN
Field GRAMA RIDGE, BONE FORMATION: 3RD BONE SPRINGS WILDCAT EXPLORATION
Lease/Facility GRAMA RIDGE STATE COM 3H DEVELOPMENT RECOMPLETION
Location LEA COUNTY ☒ EXPLOITATION WORKOVER
Prospect RANGER

Est Total Depth 18,800 Est Drilling Days 27 Est Completion Days 8

LOCATION COST - INTANGIBLE

GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	150,000
7001250	Land Broker Fees and Services	60,000
TOTAL LOCATION COST - INTANGIBLE		210,000

DRILLING COST - TANGIBLE

7012050	Conductor Pipe	28,750
7012050	Surface Casing	59,133
7012050	Intermediate Casing 1	142,310
7012050	Intermediate Casing 2	256,450
7012050	Production Casing	83,915
7012050	Drig Uner Hanger, Tieback Eq & Csg Accessories	80,000
7012550	Drilling Wellhead Equipment	55,000
7012040	Casing & Tubing Access	15,000
7012270	Miscellaneous MRO Materials	15,000
TOTAL DRILLING - TANGIBLE		710,557

DRILLING COST - INTANGIBLE

7019200	Drilling Rig Mob/Demob	140,000
7019220	Drilling Rig - day work/footage	460,000
7019040	Directional Drilling Services	181,000
7019020	Cement and Cementing Service Surface	30,000
7019020	Cement and Cementing Service Intermediate 1	30,000
7019020	Cement and Cementing Service Intermediate 2	50,000
7019020	Cement and Cementing Service Production	40,000
7019140	Mud Fluids & Services	80,000
7012310	Solids Control equipment	51,950
7012020	Bds	70,500
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	85,000
7019140	Fuel (Mud)	20,000
7001450	Water (non potable)	-
7019000	Well Logging Services	-
7019150	Mud Logging/geoengineering	17,000
7019250	Stabilizers, Hole Openers, Underreamers (OH rentals)	15,000
7019110	Casing Inspection/cleaning	18,000
7019110	Drill pipe/collar inspection services	15,000
7016180	Freight - truck	40,000
7001460	Water hauling and disposal (includes soil farming)	80,000
7001440	Vacuum Trucks	-
7000030	Contract Labor - general	30,000
7018150	Rental Tools and Equipment (surface rentals)	94,500
7018150	Rig Equipment and Misc.	-
7001110	Telecommunications Services	-
7001120	Consulting Services	143,100
7001400	Safety and Environmental	10,000
7018120	Rental Buildings (trailers)	-
7019310	Coring (sidewalls & analysis)	-
7011010	8% Contingency & Taxes	197,569
TOTAL DRILLING - INTANGIBLE		\$1,936,519

TOTAL DRILLING COST

\$2,667,176

COMPLETION - TANGIBLE

7012580	Tubing	82,750
7012040	Tubing Accessories (nipple, wireline entry)	15,000
7012550	Wellhead Equipo	20,000
7012560	Packers - Completion Equipment	38,850
TOTAL COMPLETION - TANGIBLE		\$156,600

MARATHON OIL PERMIAN LLC
AUTHORITY FOR EXPENDITURE
DETAIL OF ESTIMATED WELL COSTS

DATE 7/25/2017

Asset Team PERMIAN
Field GRAMA RIDGE, BONE 1 FORMATION: 3RD BONE SPRINGS
Lease/Facility GRAMA RIDGE STATE COM 1H

COMPLETION - INTANGIBLE

GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	10,000
7019220	Drilling Rig During Completion	21,600
7019140	Mud Fluids & Services	-
7019030	Coiled Tubing Services (3 runs)	90,000
7019240	Snubbing Services	20,000
7019270	Pulling/Swab Units	15,360
7016350	Fuel (from drlg)	-
7019010	Casing Crew and Services	-
7019020	Cement and Cementing Services	-
7019080	Well Testing Services (flow hand & equip)	80,500
7019120	Fracturing Services	2,760,000
7019330	Perforating	161,000
7019360	Wireline Services	-
7001460	Water Hauling & Disposal (frac fluids)	675,000
7016180	Freight - Truck (haul pipe; drlg & compl)	25,000
7018150	BOP Rental & Testing	-
7018150	Rental Tools and Equipment (incl drlg; lightplant,hydra-walk)	-
7018150	CT Downhole Rental Equipment (w. Bit, BHA)	45,000
7000030	Contract Labor - general	15,000
7001110	Telecommunications Services	15,000
7001400	Safety and Environmental	-
7001120	Consulting Services	24,200
7018150	Zipper Manifold	57,600
7019300	Frack Stack Rentals	10,000
7016190	Freight (Transportation Services)	-
7018150	Equipment Rental (w/o operator, frac tanks, lightplants)	80,000
7018120	Rental Buildings (trailers)	40,000
7000030	Contract Labor - Pumping (pump-down pumps)	46,000
7011010	8% Contingency & Taxes	349,429
TOTAL COMPLETION - INTANGIBLE		\$4,560,689

TOTAL COMPLETION COST

\$4,717,289

SURFACE EQUIPMENT - TANGIBLE

7012350	Misc. Piping, Fittings & Valves	77,500
9005027	Company Labor & Burden	-
7000030	Contract Labor - General	87,500
7001110	Telecommunication equip (Telemetry)	-
7012410	Line Pipe & Accessories	31,000
7012270	Miscellaneous Materials (containment system)	-
7008060	SCADA	62,500
7016180	Freight - truck	-
7001190	Contract Engineering	-
7012290	Metering and Instrumentation	15,000
7012290	I&E Materials	-
7012200	Gas Treating	-
7012200	Dehydration	-
7012010	Compressor	5,500
7012350	Power	-
7012610	Vapor Recovery Unit	2,500
7012440	Separator & other pressure vessels	65,000
7012500	Tanks	112,500
7012100	Heater Treater	11,000
7012640	Flare & Accessories	35,000
7000010	Electrical Labor	17,500
7000010	Mechanical Labor	-
7012480	Rod Pumping unit & Pad	-
7012180	Pumping Unit Engine	-
7012350	Electrical Power (electrical cooperative construction costs)	45,000
TOTAL SURFACE EQUIPMENT - TANGIBLE		\$547,500

TOTAL SURFACE EQUIPMENT COST

\$ 547,500

ARTIFICIAL LIFT

7012180	Company Labor	2,500
7012480	Gas Lift Equipment	38,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	-
7019150	Well Services-Well/Wellhead Services	20,000
7012270	Materials & Supplies-Tangible	13,000
7012550	Surface Wellhead Equipment	5,500
7012390	Pig Launchers/Receivers & Rel Equip	-
7011010	10% Contingency & Taxes	-
TOTAL ARTIFICIAL LIFT		79,000

TOTAL ARTIFICIAL LIFT COST

\$ 79,000

SUMMARY OF ESTIMATED DRILLING WELL COSTS

TOTAL COST

TOTAL LOCATION COST	\$ 210,000
TOTAL DRILLING COST	\$ 2,667,176
TOTAL COMPLETIONS COST	\$ 4,717,289
TOTAL SURFACE EQUIPMENT COST	\$547,500
TOTAL ARTIFICIAL LIFT COST	\$ 79,000

GRAND TOTAL COST

\$8,220,965