

OPERATOR'S COPYForm 3160-3
(August 2007)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**APPLICATION FOR PERMIT TO DRILL OR REENTER**FORM APPROVED
OMB No. 1004-0137
Expires July 31, 20105. Lease Serial No.
SHL: LS# NM NM 98807 BHL: STATE(VO-5557)6. If Indian, Allottee or Tribe Name
N/A7. If Unit or CA Agreement, Name and No.
N/A8. Lease Name and Well No.
CARBON VALLEY 25 FED COM #8H

9. API Well No.

30-015-37395

10. Field and Pool, or Exploratory
DOG CANYON; WOLFCAMP

11. Sec., T. R. M. or Blk. and Survey or Area

SECTION 25, T16S, R27E

1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2. Name of Operator

Murchison Oil & Gas, Inc.

3a. Address 1100 Mira Vista Blvd.
Plano, TX. 75093-46983b. Phone No. (include area code)
(972) 931-0700

4. Location of Well (Report location clearly and in accordance with any State requirements*)

At surface 990' FSL & 200' FEL, UNIT P

At proposed prod. zone 660' FSL & 330' FWL, UNIT M

UNORTHODOX

14. Distance in miles and direction from nearest town or post office*

Approximately 11 miles NE of Artesia, New Mexico

LOCATION

12. County or Parish

EDDY

13. State

NM

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drg. unit line, if any)200' at surface
490' at Top Wolfcamp

16. No. of acres in lease

120

17. Spacing Unit dedicated to this well

160

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.690' at
Penetration Point

19. Proposed Depth

10867' MD 6332' TVD
Pilot 6600' TVD

20. BLM/BIA Bond No. on file

NM2163

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

3502' GL

22. Approximate date work will start*

11/15/2009

23. Estimated duration

30-35 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

1. Well plat certified by a registered surveyor.

2. A Drilling Plan.

3. A Surface Use Plan (if the location is on National Forest System Lands, the
SUPO must be filed with the appropriate Forest Service Office).4. Bond to cover the operations unless covered by an existing bond on file (see
Item 20 above).

5. Operator certification.

6. Such other site specific information and/or plans as may be required by the
BLM.

25. Signature

Name (Printed/Typed)

A. Arnold Nall

Date

10/06/2009

Title

VP Operations

Approved by (Signature)

Name (Printed/Typed)

Date

11/24/09

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to
conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARSTitle 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United
States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2) well becomes orthodox @ 6225 MD + 6189 VD

*(Instructions on page 2)

- Subject to like approval by state,
due to potential downhole commingling
behind pipe.Approval Subject to General Requirements
& Special Stipulations Attached

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Form 3160-5
(August 2007)

Operator Copy

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No 1004-0157
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other FRESH WATER FRAC PIT		5. Lease Serial No. NM NM 98857
2. Name of Operator MURCHISON OIL & GAS, INC.		6. If Indian, Allottee or Tribe Name
3a. Address 1100 MIRA VISTA BLVD. PLANO, TX. 75083-4666	3b. Phone No. (includes area code) 972-931-0700	7. If Unit of CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) SEC. 25, T16S, R27E - SE/4		8. Well Name and No. CARBON VALLEY FRAC PIT
		9. API Well No.
		10. Field and Pool or Exploratory Area
		11. Country or Parish, State EDDY CO., NM.

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Fresh Water Frac Pit
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No., on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Murchison Oil & Gas, Inc. hereby request permission to construct a fresh water frac pit 220 x 220 base, with 11 ft. walls, 98,000 bbl. capacity in the SE/4 of Sec. 25, T16S, R27E at the location described on the attached survey plat. The frac pit will be fenced and secured and utilized to frac Murchison's currently drilled wells, as well as any future planned new drill wells, located in Sec. 25, T16S, R27E. The frac pit may also be used for the benefit of other nearby wells.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Tommy Folsom	Title Operations Manager
Signature 	Date 10/27/2009

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by 	Title FIELD MANAGER	Date 11/24/09
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office CARLSBAD FIELD OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

DISTRICT I
1626 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-016-37395	Pool Code 17970	Pool Name DOG CANYON; WOLFCAMP ✓
Property Code 37485	Property Name CARBON VALLEY "25" FEDERAL COM	Well Number 6H
OGRID No. 015363	Operator Name MURCHISON OIL & GAS, INC.	Elevation 3502'

Surface Location

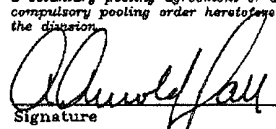
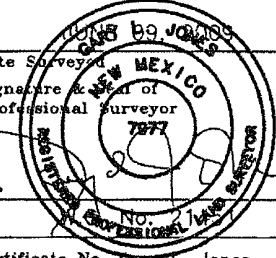
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	25	16 S	27 E		990	SOUTH	200	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	25	16 S	27 E		660	SOUTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<p>BOTTOM HOLE LOCATION Lat - N 32°53'15.71" Long - W 104°14'23.89" NMSPCE - N 686690.472 E 569996.733 (NAD-83)</p>		<p>PROP PENETRATION POINT (PROVIDED BY PATHFINDER) Lat - N 32°53'17.04" Long - W 104°13'31.73" NMSPCE - N 686829.65 E 574443.91 (NAD-83)</p>	<p>SURFACE LOCATION Lat - N 32°53'17.13" Long - W 104°13'28.33" NMSPCE - N 686838.728 E 574734.485 (NAD-83)</p>	<p>OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  Signature 10/6/2009 Date A. Arnold Nall Printed Name</p>
<p>SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.</p>		<p>Date Surveyed Signature & Seal of Professional Surveyor  Certificate No. Gary L. Jones 7977 BASIN SURVEYS</p>		

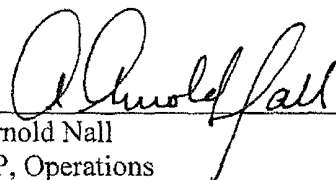
STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

Murchison Oil & Gas Inc.
1100 Mira Vista Boulevard
Plano, Texas 75093-4698

The undersigned accepts all applicable terms, conditions, stipulations and restrictions covering operations conducted on the leased land or portion thereof, as described below:

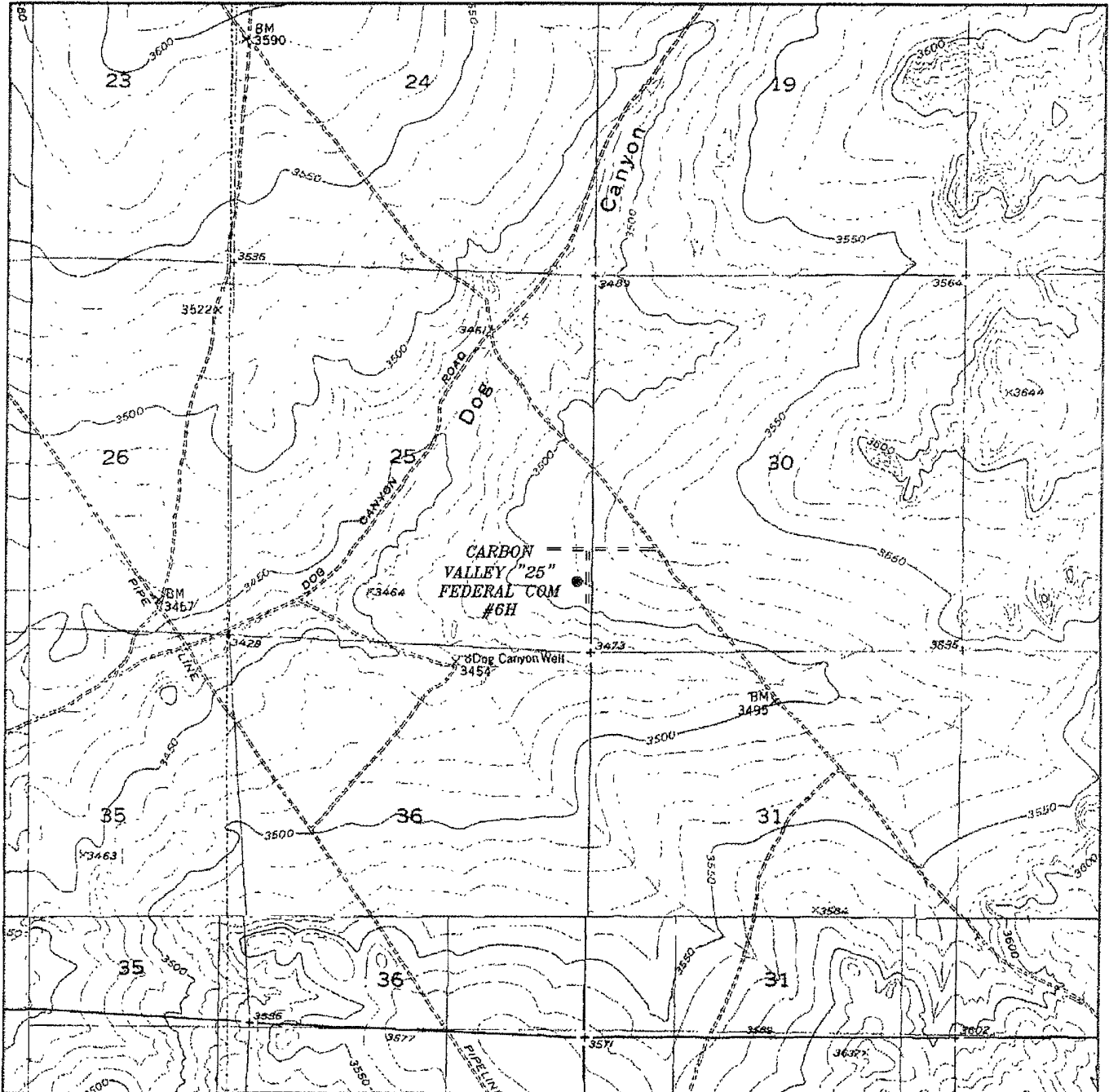
Lease No:	SHL: LS # NMNM 98807 BHL: STATE (LS #VO-5557)
Well Name:	Carbon Valley 25 Fed Com #6-H
Legal Description of Land:	SL: 990' FSL & 200' FEL, Unit P BHL: 660' FSL & 330' FWL, Unit M Sec 25, T16S, R27E Eddy County, New Mexico
Formation(s) (if applicable):	Wolfcamp
Bond Coverage:	\$25,000 statewide bond of Murchison Oil & Gas, Inc.
BLM Bond File No:	Personal Statewide Bond NM 2163

October 6, 2009
Date



Arnold Nall
VP, Operations
Murchison Oil & Gas Inc.

EXHIBIT D



CARBON VALLEY "25" FEDERAL COM #6H

Located 990' FSL and 200' FEL

Section 25, Township 16 South, Range 27 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 21451

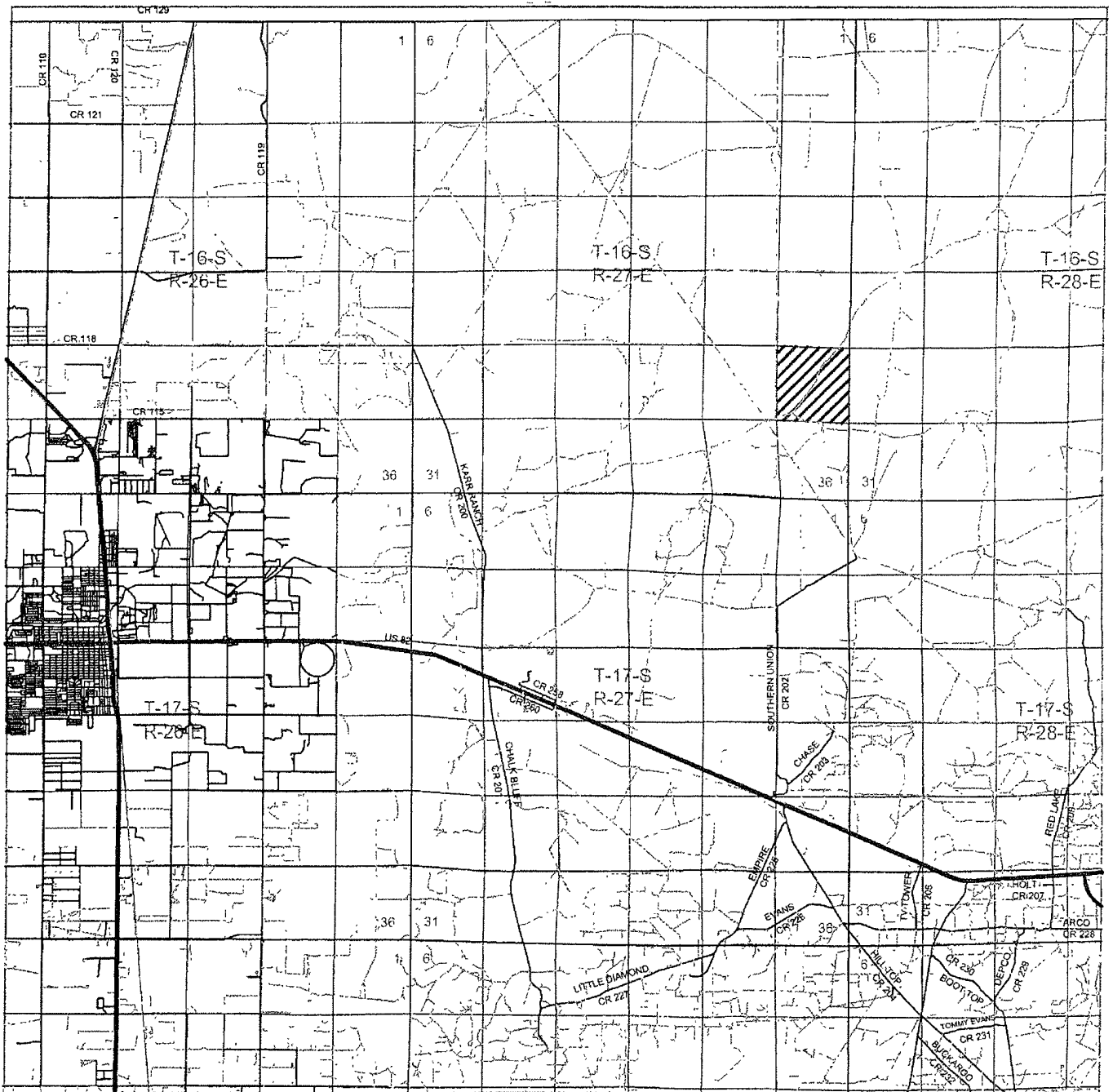
Survey Date: 06-09-2009

Scale: 1" = 2000'

Date: 06-10-2009

**MURCHISON OIL
& GAS, INC.**

EXHIBIT B



CARBON VALLEY "25" FEDERAL COM #6H
Located 990' FSL and 200' FEL
Section 25, Township 16 South, Range 27 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 21451

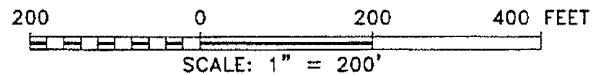
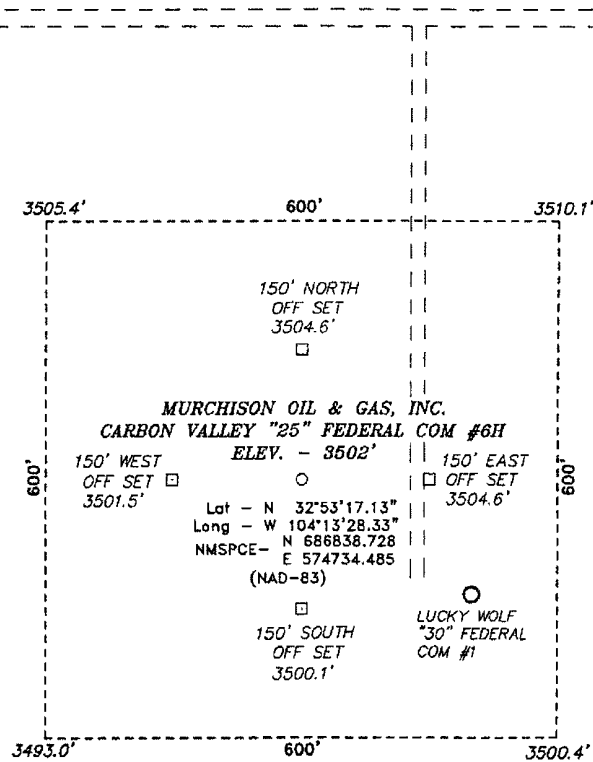
Survey Date: 06-09-2009

Scale 1" = 2 Miles

Date: 05-10-2009

MURCHISON OIL
& GAS, INC.

SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF HWY 82 AND SOUTHERN UNION, GO NORTH WINDING EAST 4.0 MILES TO LEASE ROAD, GO NORTH 0.1 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTHEAST WINDING NORTH 1.0 MILES TO A "T", GO NORTH 0.6 MILES THEN WEST THENCE IMMEDIATELY NORTH 0.3 MILES TO LEASE ROAD, ON LEASE ROAD GO WEST 0.4 MILES TO LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21451

Drawn By: J. SMALL

Date: 06-10-2009

Disk: JMS 21451

MURCHISON OIL & GAS, INC.

REF: CARBON VALLEY "25" FEDERAL COM #6H / WELL PAD TOPO

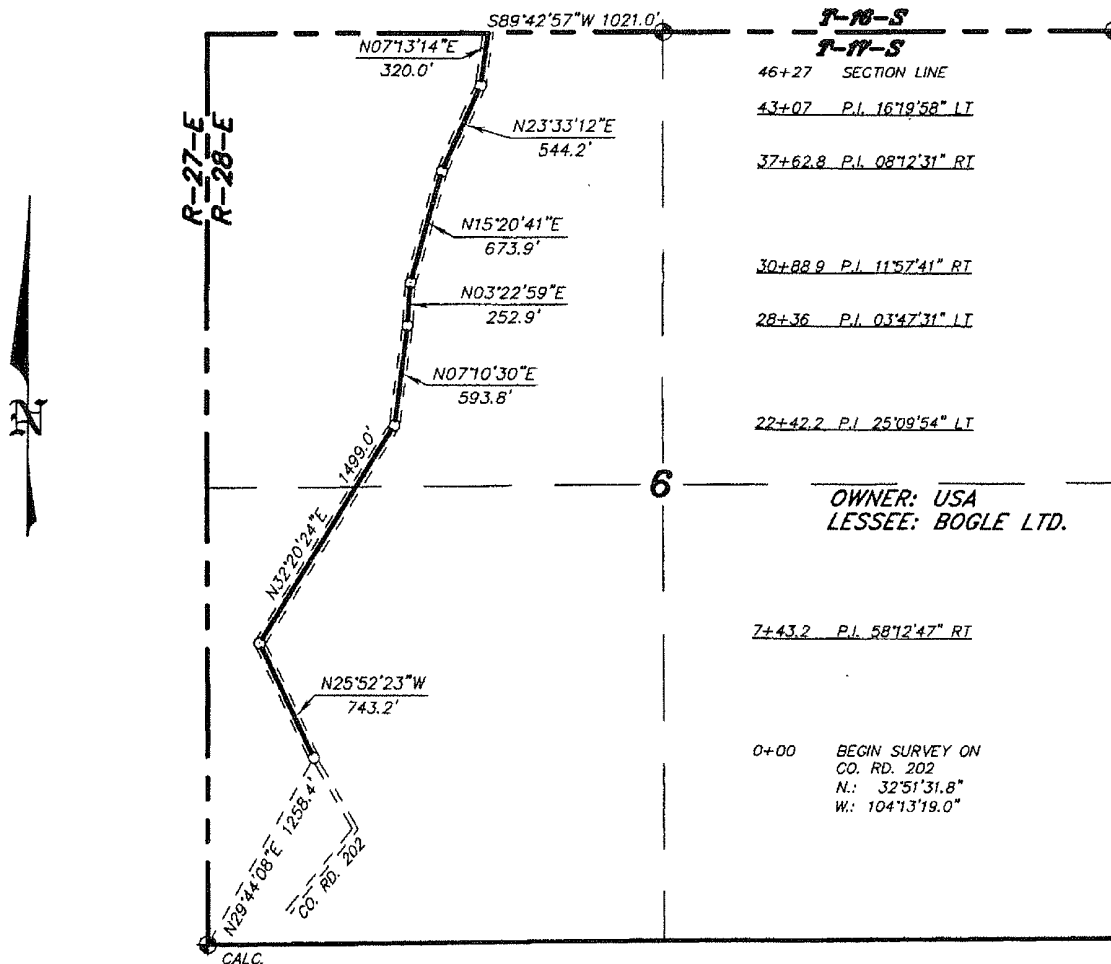
THE CARBON VALLEY "25" FEDERAL COM #6H LOCATED 990'
FROM THE SOUTH LINE AND 200' FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 06-09-2009

Sheet 1 of 1 Sheets

EXHIBIT E-2

SECTION 6, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 6, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

SECTION 6 = 4627.0 FEET = 280.42 RODS = 0.88 MILES = 3.18 ACRES

I HEREBY CERTIFY THAT THIS MAP WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THE STATE.

GARY L. JONES

No. 7977
No. 5074

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 21463

Drawn By. J. M. SMALL

Date: 06-16-2009

Disk: JMS 21463

1000 0 1000 2000 FEET

MURCHISON OIL & GAS, INC

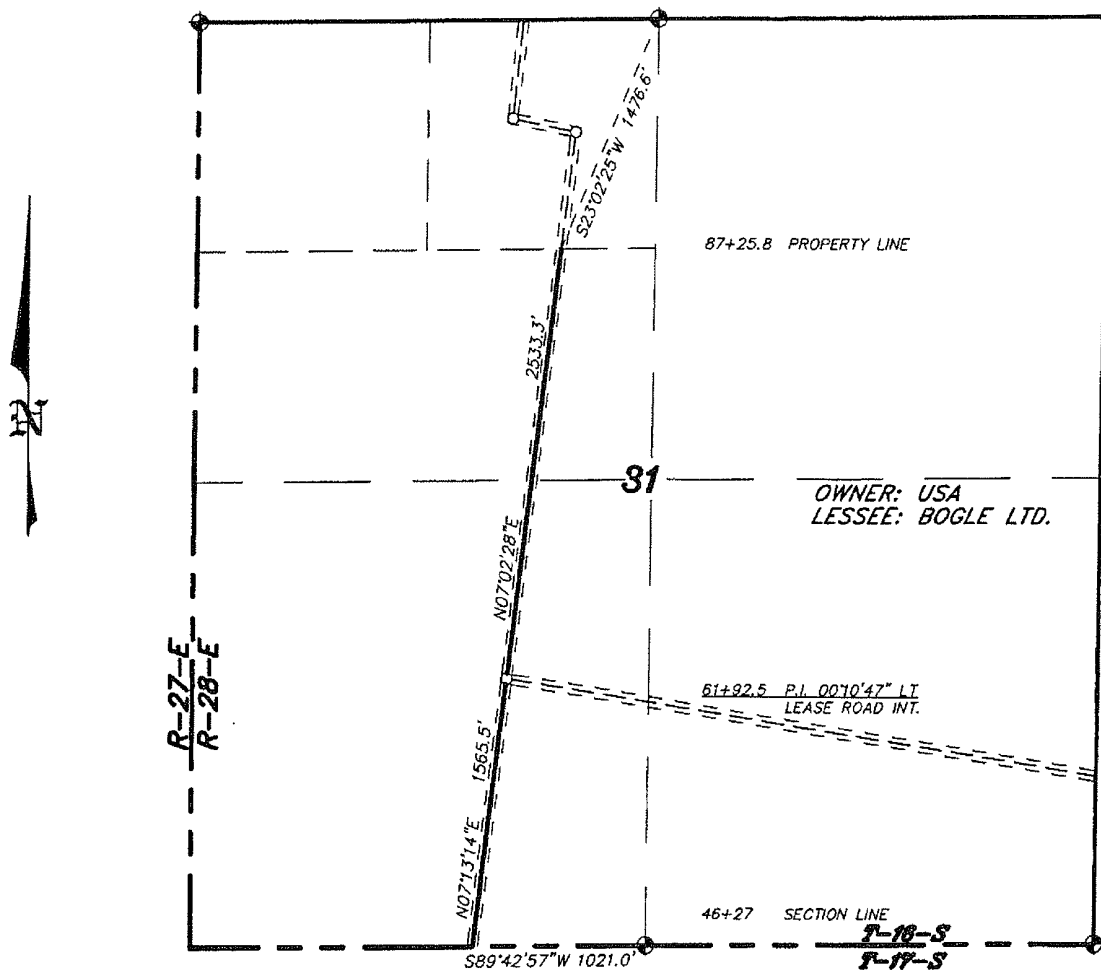
REF: PROPOSED LEASE ROAD THE CARBON VALLEY WELLS

A ROAD CROSSING USA LAND IN
SECTION 6, TOWNSHIP 17 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 06-15-2009

Sheet 1 of 4 Sheets

SECTION 31, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 31, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

SECTION 31 = 4098.8 FEET = 248.41 RODS = 0.78 MILES = 2.82 ACRES

I HEREBY CERTIFY THAT THIS MAP WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES

N.M. P.S.

No. 7977

No. 5074

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21463

Drawn By: J. M. SMALL

Date: 06-16-2009

Disk: JMS 21463

1000 0 1000 2000 FEET

MURCHISON OIL & GAS, INC

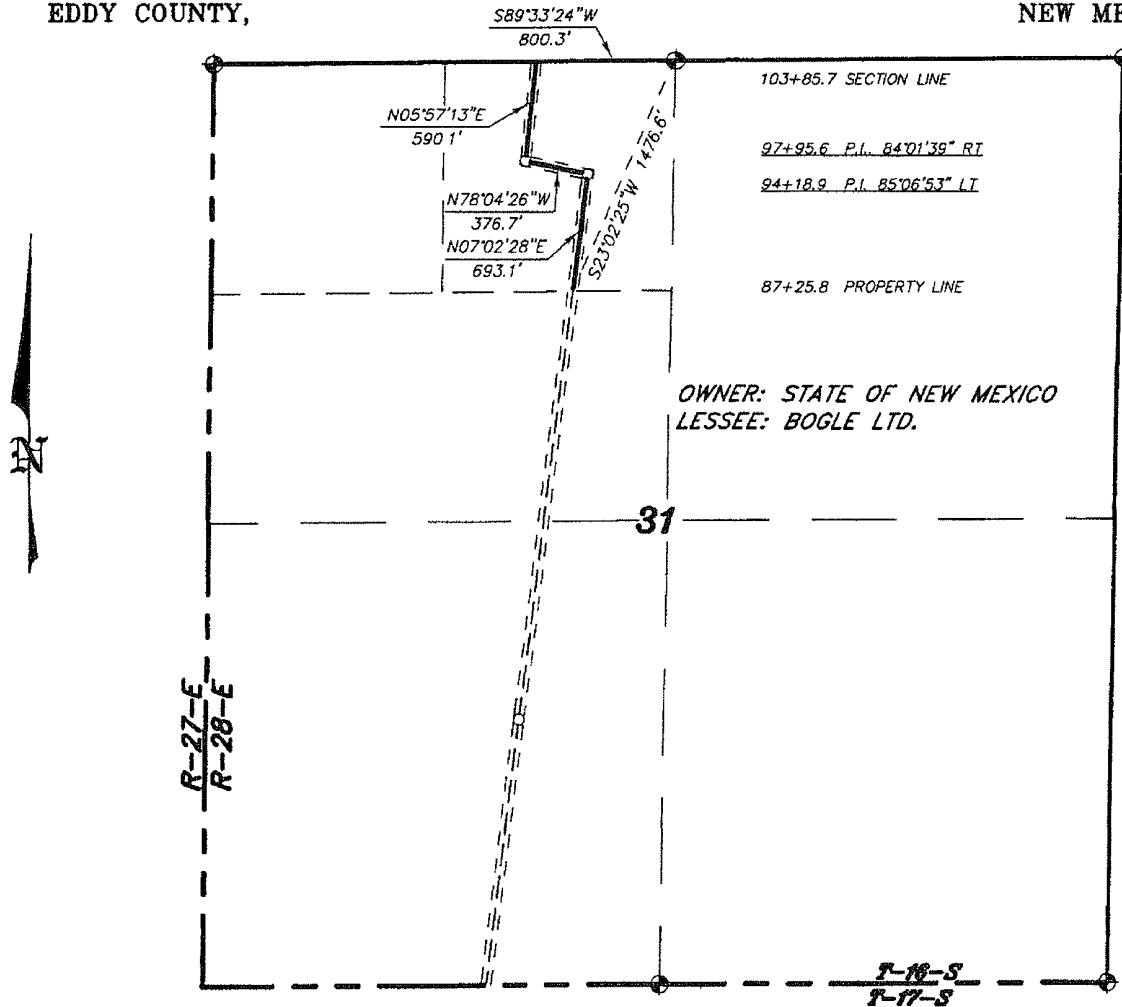
REF: PROPOSED LEASE ROAD THE CARBON VALLEY WELLS

A ROAD CROSSING USA LAND IN
SECTION 31, TOWNSHIP 16 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 06-15-2009

Sheet 2 of 4 Sheets

SECTION 31, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 31, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY. BEGINNING AT A POINT WHICH LIES S.23°02'25"W., 1476.6 FEET FROM THE NORTH QUARTER CORNER OF SAID SECTION 31; THENCE N.07°02'28"E., 693.1 FEET, THENCE N.78°04'26"W., 376.7 FEET, THENCE N.05°57'13"E., 590.1 FEET TO THE END OF THIS LINE WHICH LIES S.89°33'24"W., 800.3 FEET FROM THE NORTH QUARTER CORNER OF SAID SECTION 31. SAID STRIP OF LAND BEING 1659.9 FEET OR 100.60 RODS IN LENGTH, AND CONTAINING 1.14 ACRES, MORE OR LESS, AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4 = 100.60 RODS = 1.14 ACRES

I HEREBY CERTIFY THAT THIS MAP WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THE STATE.

GARY L. JONES
No. 7977
No. 5074

1000 0 1000 2000 FEET

MURCHISON OIL & GAS, INC

REF: PROPOSED LEASE ROAD THE CARBON VALLEY WELLS

A ROAD CROSSING STATE LAND IN
SECTION 31, TOWNSHIP 16 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21463

Drawn By: J. M. SMALL

Date: 06-16-2009

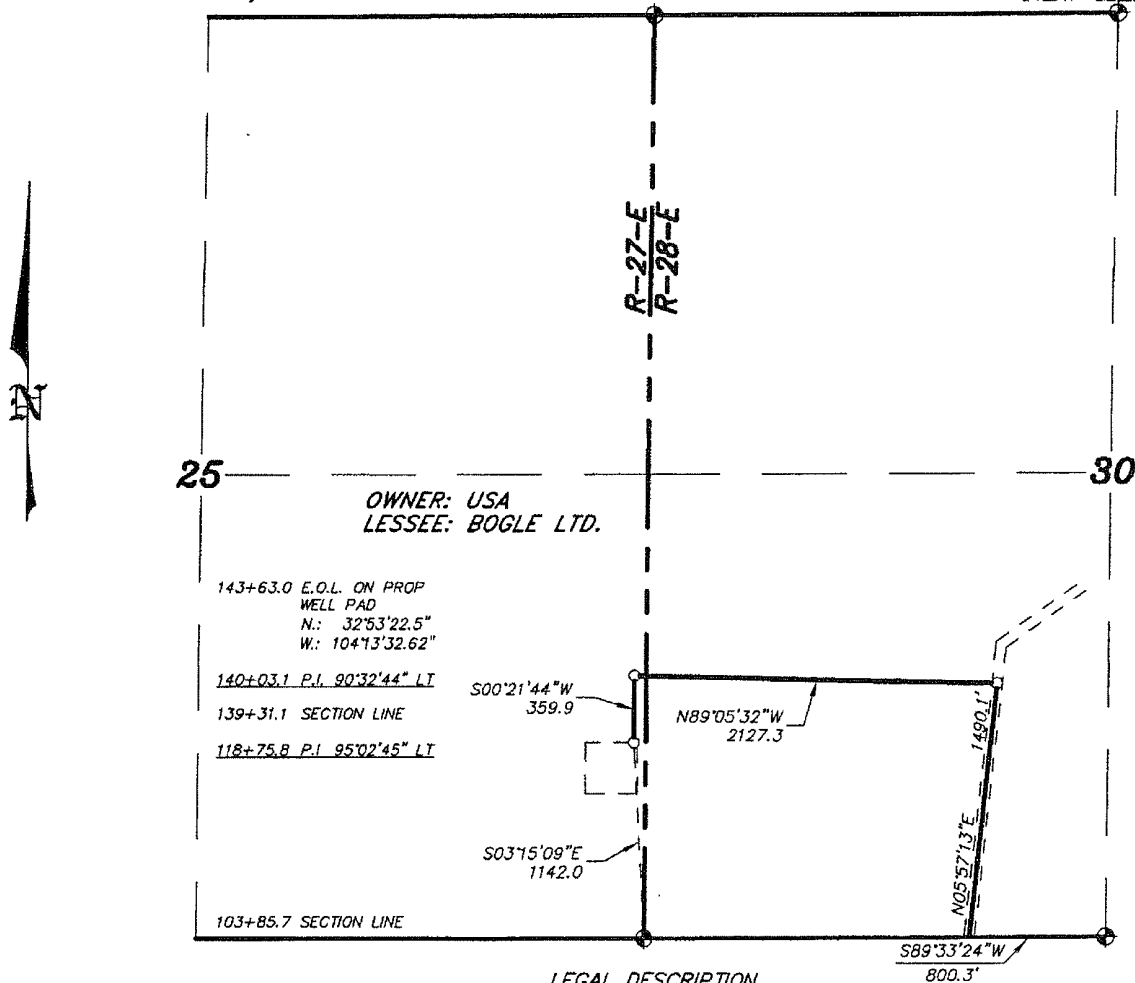
Disk: JMS 21463

Survey Date: 06-15-2009

Sheet 3 of 4 Sheets

EXHIBIT E-5

SECTION 30, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,
SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 30, TOWNSHIP 16 SOUTH, RANGE 28 EAST, AND SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY.

SECTION 30 = 3545.4 FEET = 214.87 RODS = 0.68 MILES = 2.44 ACRES
SECTION 25 = 431.9 FEET = 26.18 RODS = 0.07 MILES = 0.30 ACRES
TOTAL = 3977.3 FEET = 241.05 RODS = 0.75 MILES = 2.74 ACRES

I HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THE STATE.

GARY L. JONES

No. 7977
No. 5074

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21463

Drawn By: J. M. SMALL

Date: 06-16-2009

Disk: JMS 21463

Survey Date: 06-15-2009

Sheet 4 of 4 Sheets

1000 0 1000 2000 FEET

MURCHISON OIL & GAS, INC

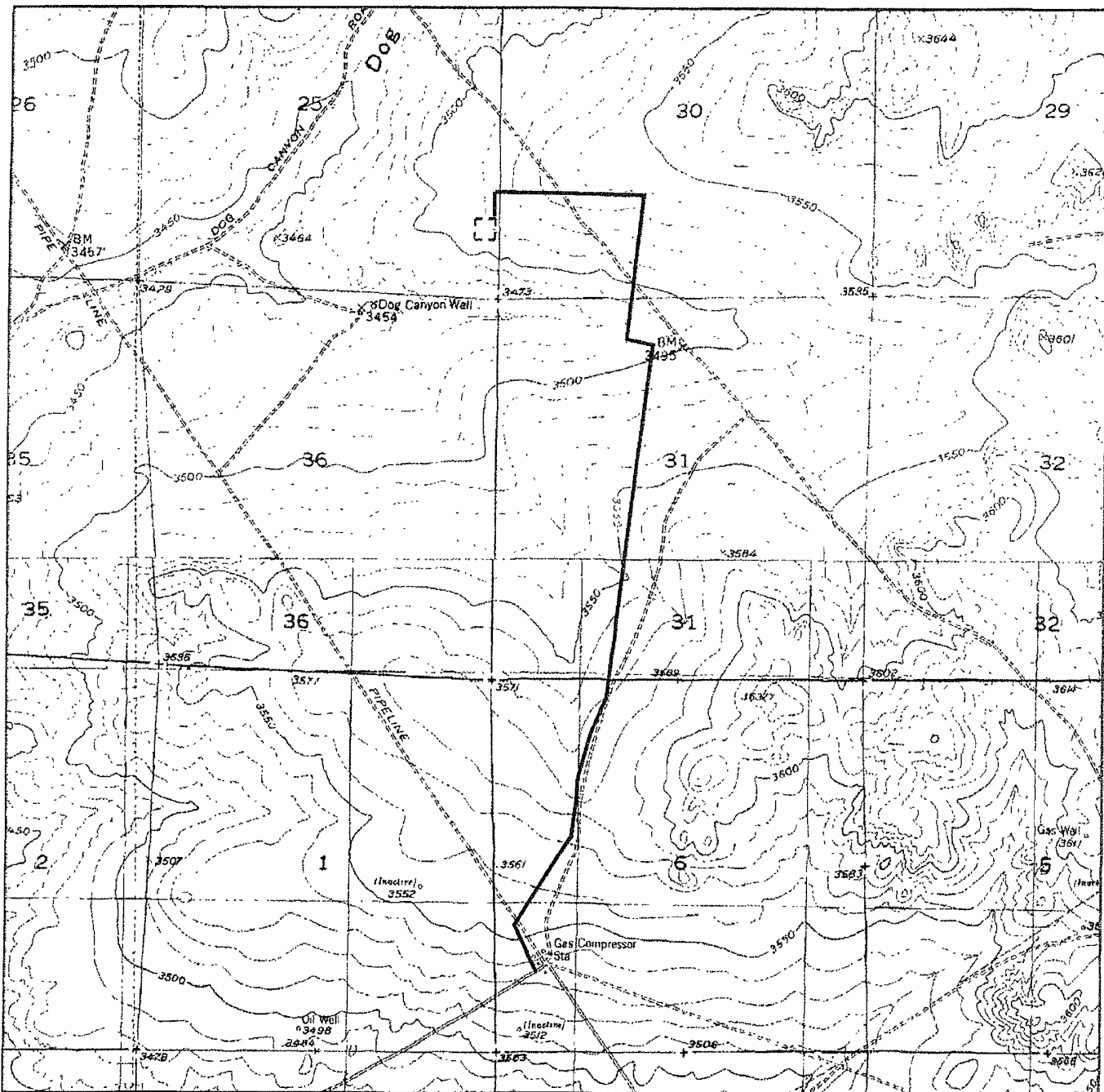
REF: PROPOSED LEASE ROAD THE CARBON VALLEY WELLS

A ROAD CROSSING USA LAND IN

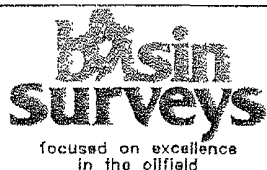
SECTION 30, TOWNSHIP 16 SOUTH, RANGE 28 EAST,
SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

EXHIBIT E-6



PROPOSED LEASE ROAD THE CARBON VALLEY WELLS
 Section 6, Township 17 South, Range 28 East,
 Sections 30&31, Township 16 South, Range 28 East,
 Section 25, Township 16 South, Range 27 East,
 N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
 basinsurveys.com

W.G. Number: JMS 21463

Survey Date: 06-15-2009

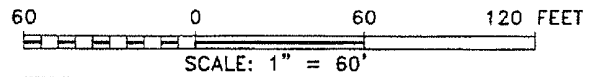
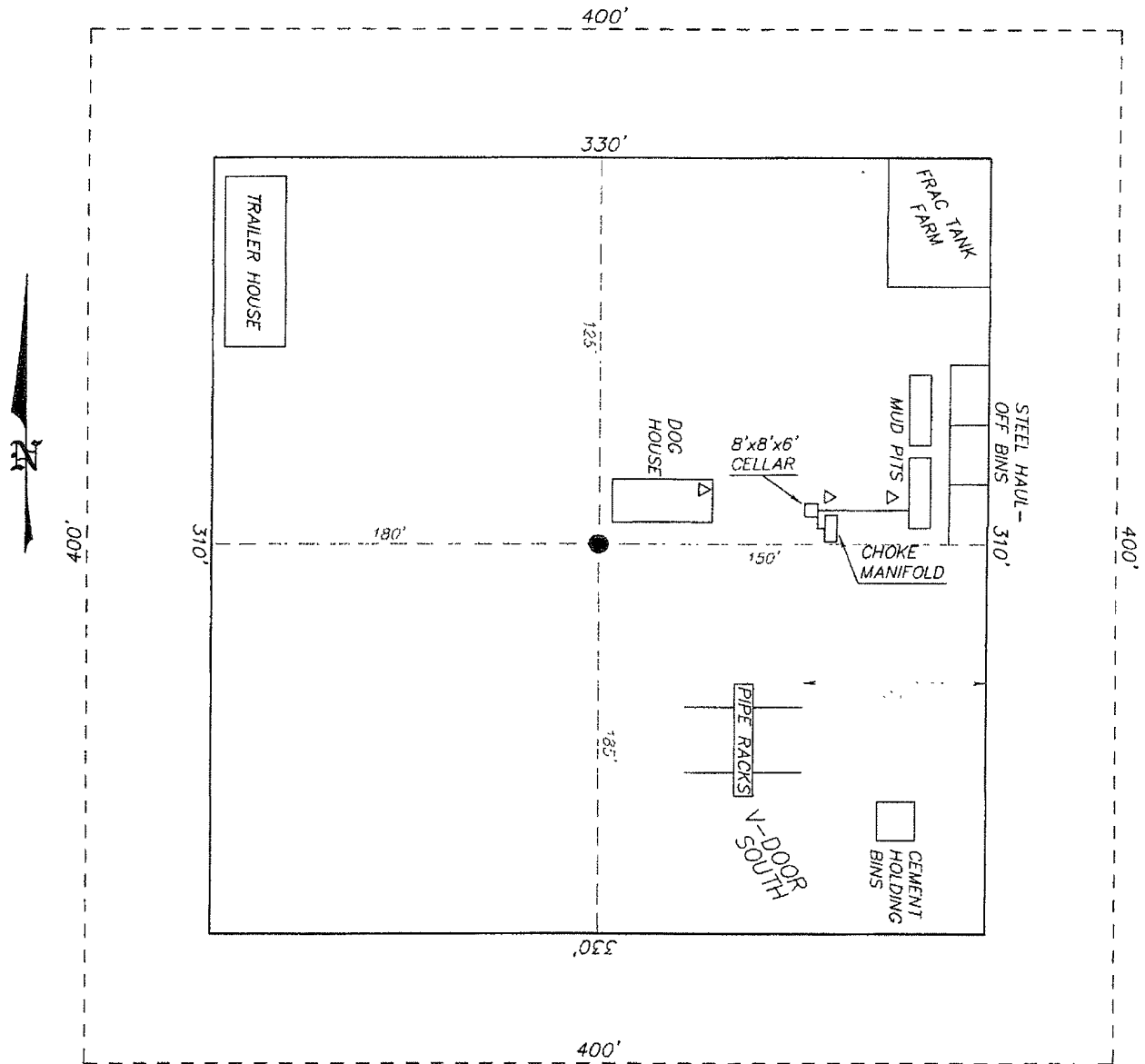
Scale: 1" = 2000'

Date: 06-16-2009

**MURCHISON OIL
 & GAS, INC.**

EXHIBIT F

SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



MURCHISON OIL & GAS, INC.
CARBON VALLEY "25" FEDERAL COM #6H
ELEV. - 3502'

Lat - N 32°53'17.13"
Long - W 104°13'28.33"
NMSPCE- N 686838.728
E 574734.485
(NAD-83)

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21451 Drawn By: J. SMALL

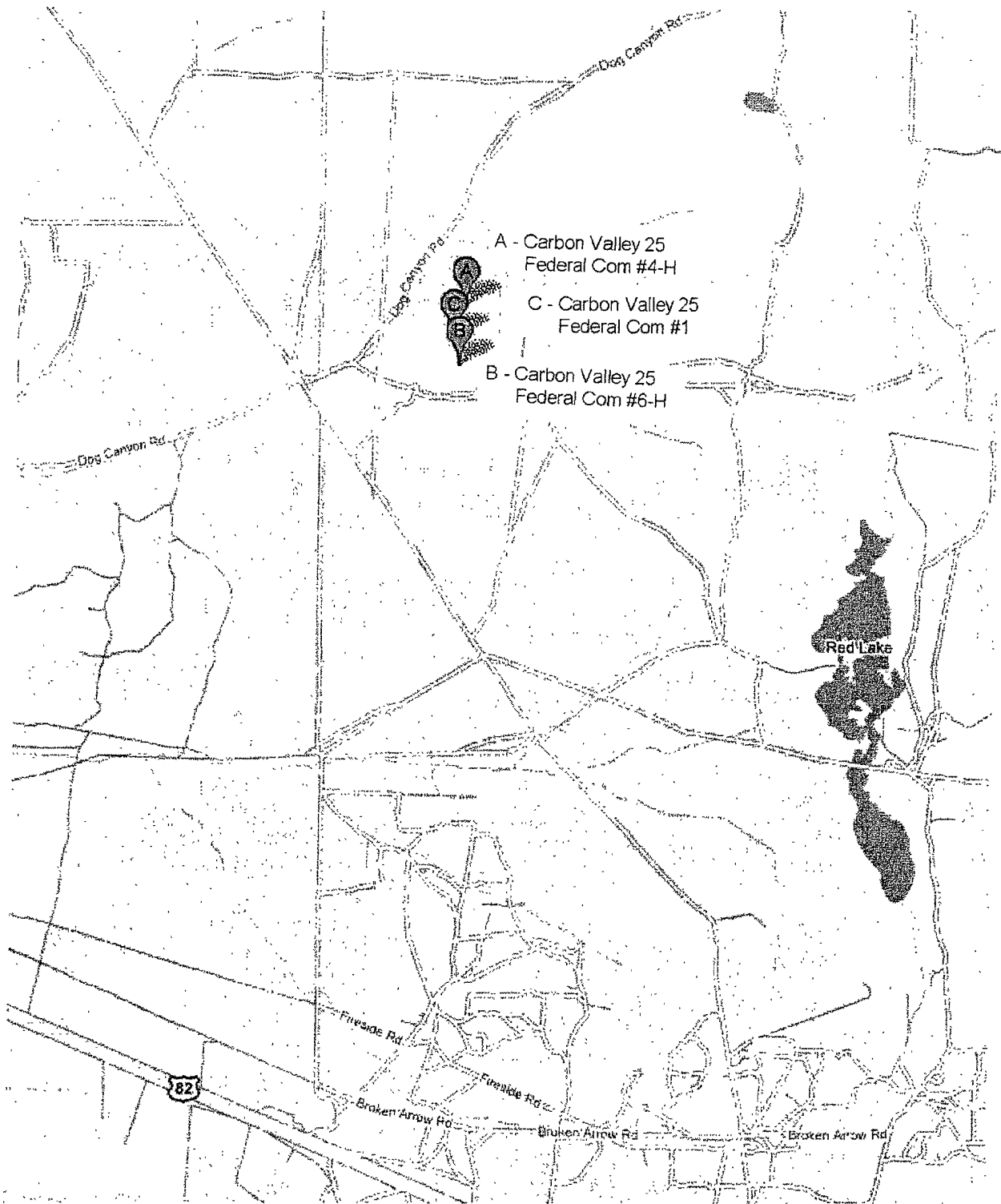
Date: 10-06-2009 Disk: JMS 21451

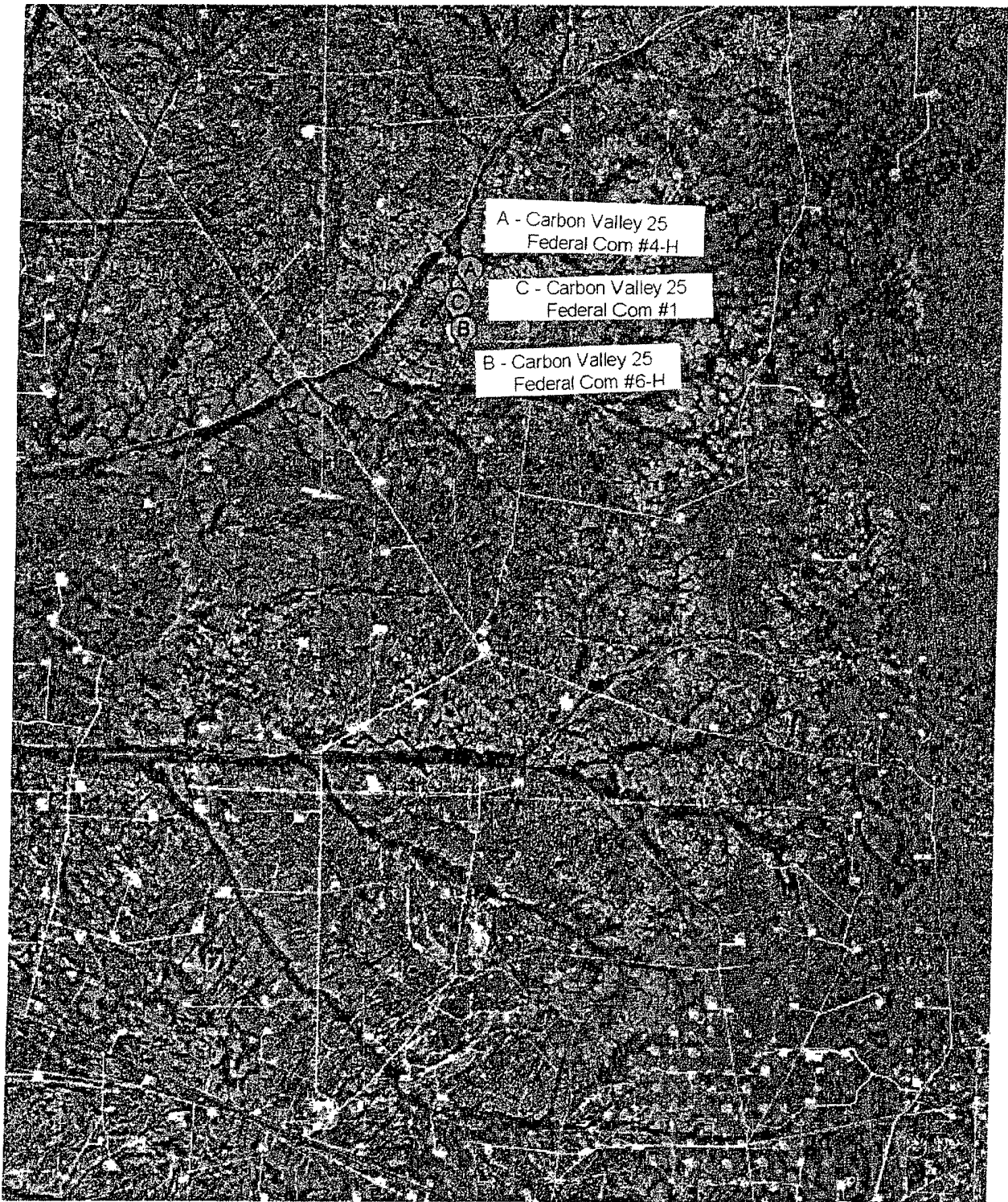
MURCHISON OIL & GAS, INC.

REF: CARBON VALLEY "25" FEDERAL COM #6H / WELL PAD TOPO

THE CARBON VALLEY "25" FEDERAL COM #6H LOCATED 990'
FROM THE SOUTH LINE AND 200' FROM THE EAST LINE OF
SECTION 25, TOWNSHIP 16 SOUTH, RANGE 27 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 06-10-2009 Sheet 1 of 1 Sheets





ATTACHMENT TO FORM 3160-3
Murchison Oil & Gas, Inc.
Carbon Valley 25 Fed Com #6-H
SL: 990' FSL & 200' FEL, UNIT P
BHL: 660' FSL & 330' FWL, UNIT M
Sec 25, T16S, R27E
Eddy County, New Mexico

1. Proration Unit Spacing: 160 acres
2. Ground Elevation: 3502' Est. RKB 3520'

3. ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS

	<u>DEPTH (RKB)</u>	<u>SUBSURFACE</u>
Yates	150'	+3370'
Queen	850'	+2670'
Premier	1488'	+2032'
San Andres	1668'	+1852'
Glorietta	3108'	+412'
Yeso	3202'	+318'
Tubb	4416'	-896'
Abo	5136'	-1616'
Basal Abo "A" pay zone	6290'	-2770'
Basal Abo "B" pay zone	6333'	-2813'
Basal Abo "C" pay zone	6363'	-2843'
Basal Abo "D" pay zone	6385'	-2865'
*Pilot Hole – True Vertical Depth	6600'	-3080'

*Includes 100' of "rat hole" below base of "D" zone

PROPOSED DEPTHS: TVD 6332' and MD 10867'

4. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL, OR GAS

Fresh Water	100' – 120'	Dewey Lake
Fresh Water	190' – 215'	Yates Sandstone
Fresh Water	340' – 360'	Seven Rivers Carbonate
Fresh Water	515' – 525'	Bowers Sand (Seven Rivers)
Oil/Gas	1668'	San Andres
Oil/Gas	3108'	Glorietta
Oil/Gas	4416'	Tubb
Oil/Gas	5136'	Abo
Oil/Gas	6290'	Wolfcamp

5. CASING AND CEMENTING PROGRAM

Casing Size	Hole Size	From To	Weight	Grade	Joint	Conditions
9-5/8"	12-1/4"	0' - 1100'	36.0#	J-55	LT&C	New
7"	8-3/4"	0' – 5700'	26.0#	P-110	LT&C	New
4-1/2"	6-1/8"	5600' – 10867'	11.6#	HCP-110	BT&C	New

Casing Size	Burst Rating, psi	Safety Factor	Collapse Rating, psi	Safety Factor	Tension Rating, 1000 lbs.	Safety Factor
9-5/8"	3520	1.25	2020	3.90	453	11.40
7"	9950	3.10	6230	2.08	693	4.70
4-1/2"	10690	3.20	8650	2.60	385	30+

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability.

**Attachment to Form 3160-3
Murchison Oil & Gas, Inc.
Carbon Valley 25 Fed Com #6-H
Page 2 of 3**

6. CASING DEPTH AND CEMENTING PROGRAM:

9.625" Surface Casing - Cementing Program

Cement lead with 150 sacks of Interfill Class C + additives with yield = 2.45 cu.ft./sack, tail with 175 sacks Premium Plus + additives with yield = 1.34 cu.ft./sack; sufficient volume of cement will be pumped to ensure cement is circulated to surface.

7" Intermediate Casing and Fiberglass Tubing - Cementing Program

Cement lead with 300 sacks of Interfill Class H + additives with yield = 2.77 cu.ft./sack, tail with 300 sacks Super Class H + additives with yield = 1.61 cu.ft./sack; sufficient volume of cement will be pumped to ensure cement is circulated to surface. Will cement below 7" casing via 2-7/8" fiberglass tubing stinger to adequately plug back vertical pilot hole after logging and prior to drilling curve/horizontal section of well. May perform a 2-stage job utilizing DV tool if determined to be necessary to circulate cement to surface.

4.5" Production Casing - Cementing Program

Plan to utilize 4-1/2" 11.6# HCP-110 BTC Peak completion liner system from RSB packer @ 5600' to TD of 10867' MD. No cement required.

1100' – 10867' 11" 3000# ram type preventers with one set blind rams and one set pipe rams and a 3000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 5500'. See attached Sketch of BOP Equipment.

A Kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

After setting the 9 5/8" casing, the blowout preventers and related control equipment shall be pressure tested to 3000 psi and 1500 psi respectively. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test will be recorded in the Driller's Log.

The BOP's will be maintained ready for use until drilling operations are completed. Pipe and blind rams shall be activated each trip. Annular preventer shall be functionally operated at least weekly.

BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties.

Accumulator shall maintain a pressure capacity reserve at all times to provide for the close-open-close sequence of the blind and pipe rams of the hydraulic preventers.

7. MUD PROGRAM

- | | |
|----------------|---|
| 0 – 1100' | Fresh water / native mud. Wt. 8.4 to 8.6 ppg, vis 28-34 sec, Lime for pH control. Paper for seepage. Lost circulation may be encountered. |
| 1100' – 6200' | Cut brine. Wt. 8.4 – 8.8 ppg, vis 28-29 sec, No control water loss, lime for pH control. |
| 6200' – 10867' | Mud up with XCD Polymer mud system. Wt. 9.0 – 9.5 ppg, Vis 32-40 sec, WL 8-10 cc. |

**Attachment to Form 3160-3
Murchison Oil & Gas, Inc.
Carbon Valley 25 Fed Com #6-H
Page 3 of 3**

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run open-hole logs and casing, the viscosity and water loss may have to be adjusted to meet these needs.

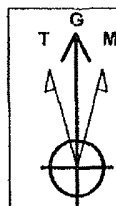
Mud system monitoring equipment with derrick floor indicators and visual / audio alarms shall be installed and operative prior to drilling into the Wolfcamp formation. This equipment will remain in use until the production casing is run and cemented. Monitoring equipment shall consist of the following:

- A recording pit level indicator.
- A pit volume totalizer.
- A flowline sensor.

9. TESTING, LOGGING AND CORING PROGRAM

- A. Testing program: None planned.
 - B. Mud logging program. Two man unit from 1100' to TD.
 - C. Electric logging program: CNL/LDT/CAL/GR, MSFL/HALS/GR.
 - D. Coring program: None planned.
10. No abnormal temperatures or pressures are anticipated. Low levels of H₂S have been monitored in producing wells in the area, so H₂S may be present while drilling the well. An H₂S Plan is attached to the Drilling Program. Anticipated Bottom Hole Pressure is 2700 PSI (maximum), and anticipated static Bottom Hole Temperature is 125 degrees Fahrenheit.
11. Anticipated starting date is November 15, 2009. It should take approximately 30–35 days to drill the well and another 10-15 days to complete.
12. A statement accepting responsibility for operations is attached.
13. The Multi-Point Surface Use & Operation Plan is attached.
14. If the Bureau of Land Management needs additional information to evaluate this application, please advise.

Murchison Oil & Gas



Azimuths to Grid North
True North: -0.06°
Magnetic North: 8.09°

Magnetic Field
Strength: 49158.5snT
Dip Angle: 60.75°
Date: 07/31/2009
Model: IGRF200510

PATHFINDER

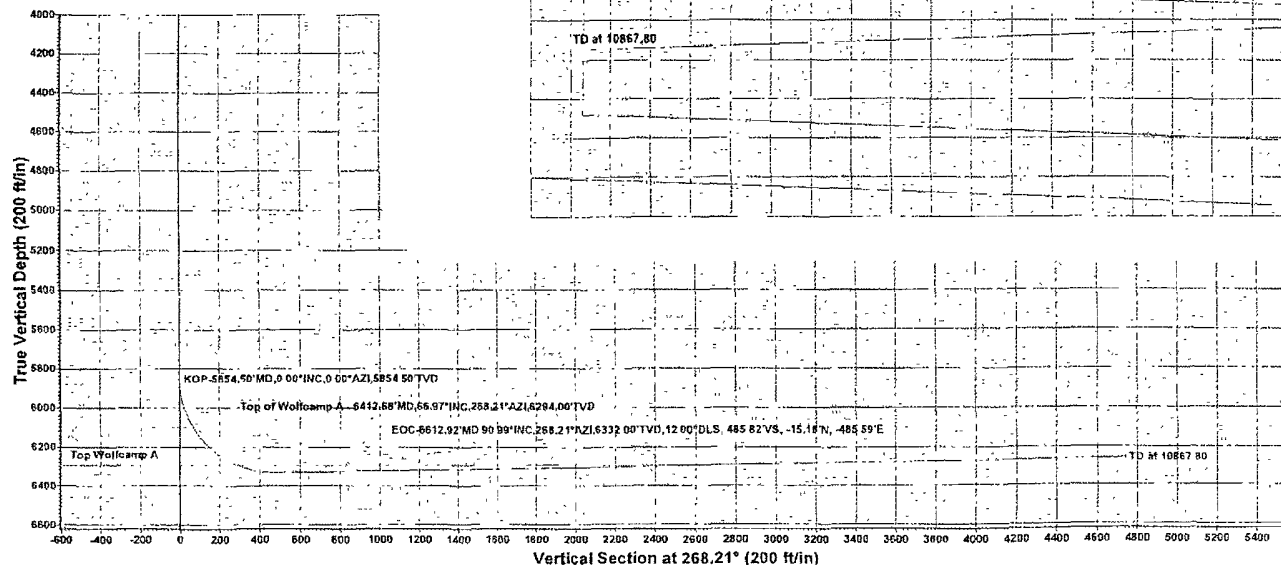
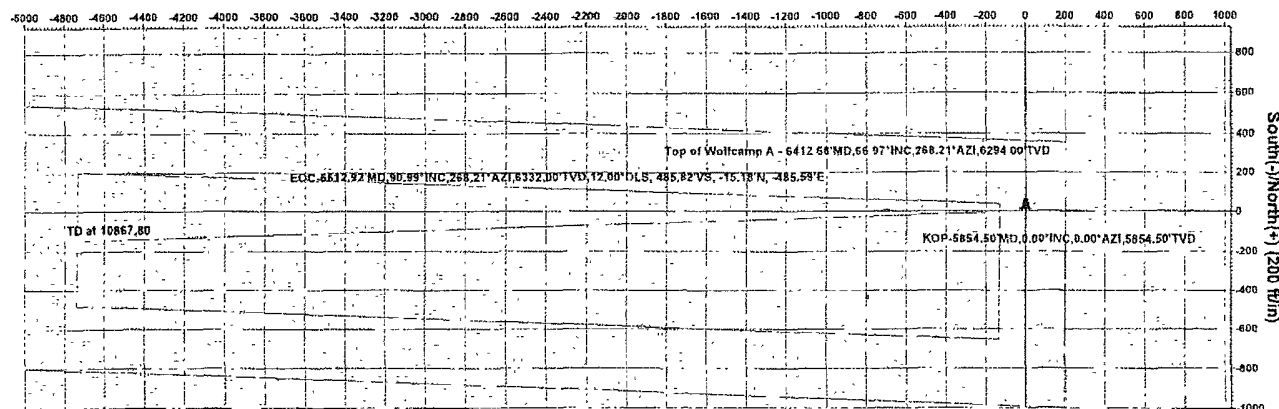
WELL DETAILS: #6H						
Ground Elevation: 3502.00						
RKB Elevation: WELL 1 @ 3520.00m (18" KB Correction)						
Rig Name: 18" KB Correction						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	68638.720	574734.885	32° 52' 17.128 N	104° 13' 28.327 W	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	IFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6854.50	0.00	0.00	6854.50	0.00	0.00	0.00	0.00	0.00	
3	6812.92	90.99	268.21	6332.00	-18.18	-485.92	12.00	268.21	485.92	
4	10867.80	90.99	268.21	6332.00	-148.26	-4737.75	0.00	0.00	4740.07	PBHL(#2Y-H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)					
Name	TVD	+N-S	+E-W	Northing	Easting
PBHL(#2Y-H)	6258.48	-148.26	-4737.75	68690.472	569996.733
					Point

Project: Eddy County
Site: Carbon Valley '25' Fed Com
Well: #6H
Wellbore: OH
Plan: Plan #1 (#6H/OH)

West(-)/East(+) (200 ft/in)



PROJECT DETAILS: Eddy County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

Plan: Plan #1 (#6H/OH)
Created By: State Rhythms Date: 15/17, October 01 2009
Checked: _____ Date: _____

Murchison Oil & Gas

Eddy County

Carbon Valley '25' Fed Com

#6H

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

01 October, 2009

The logo for Pathfinder, featuring the word "PATHFINDER" in a bold, sans-serif font. A thick, black, curved line sweeps under the word from the left, starting under the 'P' and ending under the 'R'.

Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company: Murchison Oil & Gas
Project: Eddy County
Site: Carbon Valley '25' Fed Com
Well: #6H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #6H
TVD Reference: WELL1 @ 3520.00ft (18' KB Correction)
MD Reference: WELL1 @ 3520.00ft (18' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Project	Eddy County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Carbon Valley '25' Fed Com

Site Position:		Northing:	688,624.502 ft	Latitude:	32° 53' 34.798 N
From:	Map	Easting:	574,796.208 ft	Longitude:	104° 13' 27.581 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.06 °

Well	#6H				
Well Position	+N/-S	0.00 ft	Northing:	686,838.728 ft	Latitude:
	+E/-W	0.00 ft	Easting:	574,734.485 ft	Longitude:
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:
					3,502.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	07/31/2009	8.15	60.75	49,159

Design Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	268.21

Survey Tool Program Date 10/01/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	10,867.80	Plan #1 (OH)	MWD	MWD - Standard

Pathfinder Energy Services
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Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,520.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
100.00	0.00	0.00	100.00	-3,420.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
200.00	0.00	0.00	200.00	-3,320.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
300.00	0.00	0.00	300.00	-3,220.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
400.00	0.00	0.00	400.00	-3,120.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
500.00	0.00	0.00	500.00	-3,020.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
600.00	0.00	0.00	600.00	-2,920.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
700.00	0.00	0.00	700.00	-2,820.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
800.00	0.00	0.00	800.00	-2,720.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
900.00	0.00	0.00	900.00	-2,620.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,000.00	0.00	0.00	1,000.00	-2,520.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,100.00	0.00	0.00	1,100.00	-2,420.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,200.00	0.00	0.00	1,200.00	-2,320.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,300.00	0.00	0.00	1,300.00	-2,220.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,400.00	0.00	0.00	1,400.00	-2,120.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,500.00	0.00	0.00	1,500.00	-2,020.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,600.00	0.00	0.00	1,600.00	-1,920.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,700.00	0.00	0.00	1,700.00	-1,820.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,800.00	0.00	0.00	1,800.00	-1,720.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
1,900.00	0.00	0.00	1,900.00	-1,620.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,000.00	0.00	0.00	2,000.00	-1,520.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,100.00	0.00	0.00	2,100.00	-1,420.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,200.00	0.00	0.00	2,200.00	-1,320.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,300.00	0.00	0.00	2,300.00	-1,220.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,400.00	0.00	0.00	2,400.00	-1,120.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,500.00	0.00	0.00	2,500.00	-1,020.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,600.00	0.00	0.00	2,600.00	-920.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49

Pathfinder Energy Services
Pathfinder X & Y Planning Report



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2,700.00	0.00	0.00	2,700.00	-820.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,800.00	0.00	0.00	2,800.00	-720.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
2,900.00	0.00	0.00	2,900.00	-620.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,000.00	0.00	0.00	3,000.00	-520.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,100.00	0.00	0.00	3,100.00	-420.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,200.00	0.00	0.00	3,200.00	-320.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,300.00	0.00	0.00	3,300.00	-220.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,400.00	0.00	0.00	3,400.00	-120.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,500.00	0.00	0.00	3,500.00	-20.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,600.00	0.00	0.00	3,600.00	80.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,700.00	0.00	0.00	3,700.00	180.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,800.00	0.00	0.00	3,800.00	280.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
3,900.00	0.00	0.00	3,900.00	380.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,000.00	0.00	0.00	4,000.00	480.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,100.00	0.00	0.00	4,100.00	580.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,200.00	0.00	0.00	4,200.00	680.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,300.00	0.00	0.00	4,300.00	780.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,400.00	0.00	0.00	4,400.00	880.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,500.00	0.00	0.00	4,500.00	980.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,600.00	0.00	0.00	4,600.00	1,080.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,700.00	0.00	0.00	4,700.00	1,180.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,800.00	0.00	0.00	4,800.00	1,280.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
4,900.00	0.00	0.00	4,900.00	1,380.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,000.00	0.00	0.00	5,000.00	1,480.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,100.00	0.00	0.00	5,100.00	1,580.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,200.00	0.00	0.00	5,200.00	1,680.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,300.00	0.00	0.00	5,300.00	1,780.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49

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Pathfinder X & Y Planning Report



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5,400.00	0.00	0.00	5,400.00	1,880.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,500.00	0.00	0.00	5,500.00	1,980.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,600.00	0.00	0.00	5,600.00	2,080.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,700.00	0.00	0.00	5,700.00	2,180.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,800.00	0.00	0.00	5,800.00	2,280.00	0.00	0.00	0.00	0.00	686,838.73	574,734.49
5,854.50	0.00	0.00	5,854.50	2,334.50	0.00	0.00	0.00	0.00	686,838.73	574,734.49
KOP-5854.50'MD,0.00°INC,0.00°AZI,5854.50'TVD										
5,875.00	2.46	268.21	5,874.99	2,354.99	-0.01	-0.44	0.44	12.00	686,838.71	574,734.05
5,900.00	5.46	268.21	5,899.93	2,379.93	-0.07	-2.16	2.17	12.00	686,838.66	574,732.32
5,925.00	8.46	268.21	5,924.74	2,404.74	-0.16	-5.19	5.19	12.00	686,838.57	574,729.29
5,950.00	11.46	268.21	5,949.36	2,429.36	-0.30	-9.51	9.52	12.00	686,838.43	574,724.97
5,975.00	14.46	268.21	5,973.73	2,453.73	-0.47	-15.11	15.12	12.00	686,838.26	574,719.37
6,000.00	17.46	268.21	5,997.76	2,477.76	-0.69	-21.98	21.99	12.00	686,838.04	574,712.50
6,025.00	20.46	268.21	6,021.40	2,501.40	-0.94	-30.10	30.11	12.00	686,837.79	574,704.39
6,050.00	23.45	268.21	6,044.59	2,524.59	-1.23	-39.44	39.46	12.00	686,837.50	574,695.04
6,075.00	26.45	268.21	6,067.25	2,547.25	-1.56	-49.98	50.01	12.00	686,837.17	574,684.50
6,100.00	29.45	268.21	6,089.33	2,569.33	-1.93	-61.69	61.72	12.00	686,836.80	574,672.79
6,125.00	32.45	268.21	6,110.77	2,590.77	-2.33	-74.54	74.58	12.00	686,836.40	574,659.94
6,150.00	35.45	268.21	6,131.50	2,611.50	-2.77	-88.50	88.54	12.00	686,835.96	574,645.99
6,175.00	38.45	268.21	6,151.48	2,631.48	-3.24	-103.52	103.57	12.00	686,835.49	574,630.97
6,200.00	41.45	268.21	6,170.64	2,650.64	-3.74	-119.56	119.62	12.00	686,834.99	574,614.92
6,225.00	44.45	268.21	6,188.94	2,668.94	-4.27	-136.59	136.65	12.00	686,834.46	574,597.90
6,250.00	47.45	268.21	6,206.32	2,686.32	-4.83	-154.54	154.62	12.00	686,833.90	574,579.94
6,275.00	50.45	268.21	6,222.73	2,702.73	-5.42	-173.38	173.47	12.00	686,833.31	574,561.10
6,300.00	53.45	268.21	6,238.14	2,718.14	-6.03	-193.06	193.15	12.00	686,832.69	574,541.43
6,325.00	56.45	268.21	6,252.50	2,732.50	-6.67	-213.51	213.62	12.00	686,832.06	574,520.97
6,350.00	59.45	268.21	6,265.76	2,745.76	-7.33	-234.69	234.80	12.00	686,831.39	574,499.80

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MD Reference: WELL1 @ 3520.00ft (18' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,375.00	62.45	268.21	6,277.90	2,757.90	-8.02	-256.53	256.65	12.00	686,830.71	574,477.96
6,400.00	65.45	268.21	6,288.88	2,768.88	-8.72	-278.98	279.11	12.00	686,830.01	574,455.51
6,412.68	66.97	268.21	6,294.00	2,774.00	-9.08	-290.57	290.71	12.00	686,829.65	574,443.91
Top of Wolfcamp A - 6412.68'MD,66.97°INC,268.21°AZI,6294.00'TVD										
6,425.00	68.44	268.21	6,298.67	2,778.67	-9.44	-301.96	302.11	12.00	686,829.29	574,432.52
6,450.00	71.44	268.21	6,307.24	2,787.24	-10.17	-325.43	325.59	12.00	686,828.56	574,409.05
6,475.00	74.44	268.21	6,314.58	2,794.58	-10.92	-349.32	349.49	12.00	686,827.81	574,385.16
6,500.00	77.44	268.21	6,320.65	2,800.65	-11.67	-373.56	373.74	12.00	686,827.05	574,360.93
6,525.00	80.44	268.21	6,325.44	2,805.44	-12.44	-398.08	398.27	12.00	686,826.29	574,336.41
6,550.00	83.44	268.21	6,328.95	2,808.95	-13.21	-422.82	423.02	12.00	686,825.51	574,311.67
6,575.00	86.44	268.21	6,331.15	2,811.15	-13.99	-447.70	447.92	12.00	686,824.74	574,286.78
6,600.00	89.44	268.21	6,332.05	2,812.05	-14.77	-472.67	472.90	12.00	686,823.96	574,261.81
6,612.92	90.99	268.21	6,332.00	2,812.00	-15.18	-485.59	485.82	12.00	686,823.55	574,248.90
EOC-6612.92'MD,90.99°INC,268.21°AZI,6332.00'TVD,12.00°DLS, 485.82°VS, -15.18°N, -485.59°E										
6,700.00	90.99	268.21	6,330.50	2,810.50	-17.89	-572.61	572.89	0.00	686,820.83	574,161.87
6,800.00	90.99	268.21	6,328.77	2,808.77	-21.02	-672.55	672.88	0.00	686,817.71	574,061.94
6,900.00	90.99	268.21	6,327.04	2,807.04	-24.14	-772.48	772.86	0.00	686,814.59	573,962.00
7,000.00	90.99	268.21	6,325.31	2,805.31	-27.26	-872.42	872.85	0.00	686,811.46	573,862.07
7,100.00	90.99	268.21	6,323.58	2,803.58	-30.39	-972.36	972.83	0.00	686,808.34	573,762.13
7,200.00	90.99	268.21	6,321.86	2,801.86	-33.51	-1,072.29	1,072.82	0.00	686,805.22	573,662.19
7,300.00	90.99	268.21	6,320.13	2,800.13	-36.63	-1,172.23	1,172.80	0.00	686,802.09	573,562.26
7,400.00	90.99	268.21	6,318.40	2,798.40	-39.76	-1,272.17	1,272.79	0.00	686,798.97	573,462.32
7,500.00	90.99	268.21	6,316.67	2,796.67	-42.88	-1,372.10	1,372.77	0.00	686,795.85	573,362.38
7,600.00	90.99	268.21	6,314.95	2,794.95	-46.00	-1,472.04	1,472.76	0.00	686,792.72	573,262.45
7,700.00	90.99	268.21	6,313.22	2,793.22	-49.13	-1,571.97	1,572.74	0.00	686,789.60	573,162.51
7,800.00	90.99	268.21	6,311.49	2,791.49	-52.25	-1,671.91	1,672.73	0.00	686,786.48	573,062.57
7,900.00	90.99	268.21	6,309.76	2,789.76	-55.37	-1,771.85	1,772.71	0.00	686,783.36	572,962.64

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Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,000.00	90.99	268.21	6,308.03	2,788.03	-58.50	-1,871.78	1,872.70	0.00	686,780.23	572,862.70
8,100.00	90.99	268.21	6,306.31	2,786.31	-61.62	-1,971.72	1,972.68	0.00	686,777.11	572,762.77
8,200.00	90.99	268.21	6,304.58	2,784.58	-64.74	-2,071.66	2,072.67	0.00	686,773.99	572,662.83
8,300.00	90.99	268.21	6,302.85	2,782.85	-67.87	-2,171.59	2,172.65	0.00	686,770.86	572,562.89
8,400.00	90.99	268.21	6,301.12	2,781.12	-70.99	-2,271.53	2,272.64	0.00	686,767.74	572,462.96
8,500.00	90.99	268.21	6,299.40	2,779.40	-74.11	-2,371.46	2,372.62	0.00	686,764.62	572,363.02
8,600.00	90.99	268.21	6,297.67	2,777.67	-77.24	-2,471.40	2,472.61	0.00	686,761.49	572,263.08
8,700.00	90.99	268.21	6,295.94	2,775.94	-80.36	-2,571.34	2,572.59	0.00	686,758.37	572,163.15
8,800.00	90.99	268.21	6,294.21	2,774.21	-83.48	-2,671.27	2,672.58	0.00	686,755.25	572,063.21
8,900.00	90.99	268.21	6,292.48	2,772.48	-86.60	-2,771.21	2,772.56	0.00	686,752.12	571,963.28
9,000.00	90.99	268.21	6,290.76	2,770.76	-89.73	-2,871.15	2,872.55	0.00	686,749.00	571,863.34
9,100.00	90.99	268.21	6,289.03	2,769.03	-92.85	-2,971.08	2,972.53	0.00	686,745.88	571,763.40
9,200.00	90.99	268.21	6,287.30	2,767.30	-95.97	-3,071.02	3,072.52	0.00	686,742.75	571,663.47
9,300.00	90.99	268.21	6,285.57	2,765.57	-99.10	-3,170.95	3,172.50	0.00	686,739.63	571,563.53
9,400.00	90.99	268.21	6,283.85	2,763.85	-102.22	-3,270.89	3,272.49	0.00	686,736.51	571,463.59
9,500.00	90.99	268.21	6,282.12	2,762.12	-105.34	-3,370.83	3,372.47	0.00	686,733.38	571,363.66
9,600.00	90.99	268.21	6,280.39	2,760.39	-108.47	-3,470.76	3,472.46	0.00	686,730.26	571,263.72
9,700.00	90.99	268.21	6,278.66	2,758.66	-111.59	-3,570.70	3,572.44	0.00	686,727.14	571,163.79
9,800.00	90.99	268.21	6,276.93	2,756.93	-114.71	-3,670.64	3,672.43	0.00	686,724.01	571,063.85
9,900.00	90.99	268.21	6,275.21	2,755.21	-117.84	-3,770.57	3,772.41	0.00	686,720.89	570,963.91
10,000.00	90.99	268.21	6,273.48	2,753.48	-120.96	-3,870.51	3,872.40	0.00	686,717.77	570,863.98
10,100.00	90.99	268.21	6,271.75	2,751.75	-124.08	-3,970.44	3,972.38	0.00	686,714.65	570,764.04
10,200.00	90.99	268.21	6,270.02	2,750.02	-127.21	-4,070.38	4,072.37	0.00	686,711.52	570,664.10
10,300.00	90.99	268.21	6,268.29	2,748.29	-130.33	-4,170.32	4,172.35	0.00	686,708.40	570,564.17
10,400.00	90.99	268.21	6,266.57	2,746.57	-133.45	-4,270.25	4,272.34	0.00	686,705.28	570,464.23
10,500.00	90.99	268.21	6,264.84	2,744.84	-136.58	-4,370.19	4,372.32	0.00	686,702.15	570,364.30
10,600.00	90.99	268.21	6,263.11	2,743.11	-139.70	-4,470.13	4,472.31	0.00	686,699.03	570,264.36

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10,700.00	90.99	268.21	6,261.38	2,741.38	-142.82	-4,570.06	4,572.29	0.00	686,695.91	570,164.42
10,800.00	90.99	268.21	6,259.66	2,739.66	-145.94	-4,670.00	4,672.28	0.00	686,692.78	570,064.49
10,867.80	90.99	268.21	6,258.48	2,738.48	-148.06	-4,737.76	4,740.07	0.00	686,690.67	569,996.73

TD at 10867.80 - PBHL(#2Y-H)

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(#2Y-H) - plan hits target - Point	0.00	0.00	6,258.48	-148.26	-4,737.75	686,690.472	569,996.733	32° 53' 15.706 N	104° 14' 23.892 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,412.68	6,294.00	Top Wolfcamp A		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,854.50	5,854.50	0.00	0.00	KOP-5854.50'MD,0.00°INC,0.00°AZI,5854.50'TVD
6,412.68	6,294.00	-9.08	-290.57	Top of Wolfcamp A - 6412.68'MD,66.97°INC,268.21°AZI,6294.00'TVD
6,612.92	6,332.00	-15.18	-485.59	EOC-6612.92'MD,90.99°INC,268.21°AZI,6332.00'TVD,12.00°DLS, 485
10,867.80	6,258.48	-148.06	-4,737.76	TD at 10867.80

Checked By: _____	Approved By: _____	Date: _____
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Murchison Oil & Gas, Inc.

Closed Loop Equipment Diagram

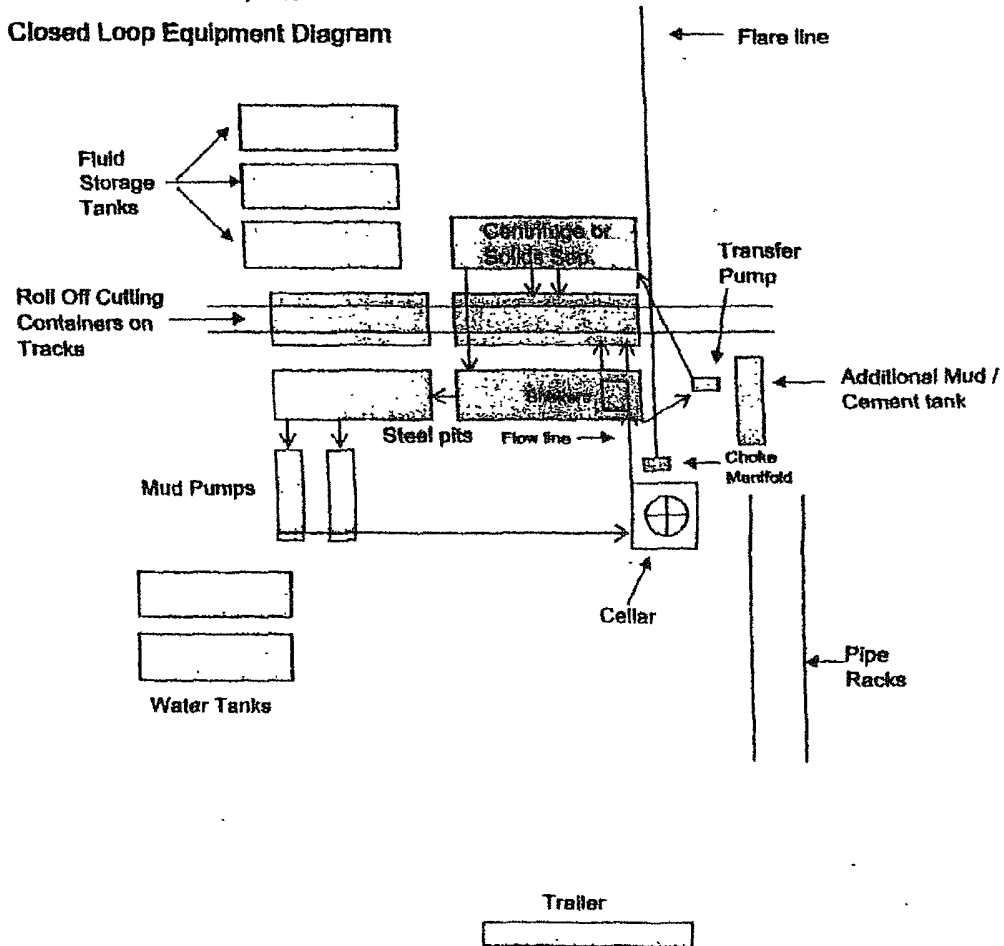


EXHIBIT G

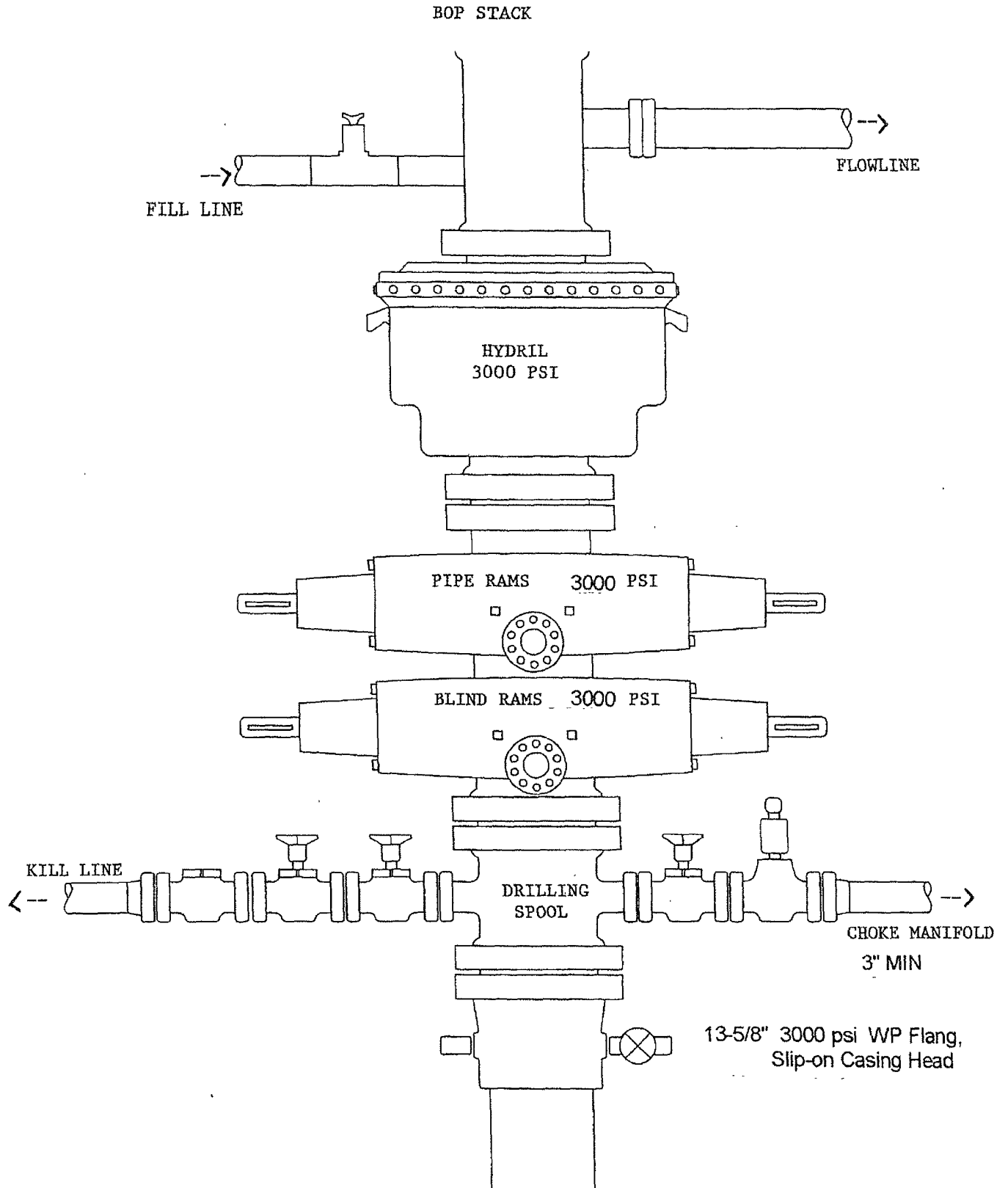
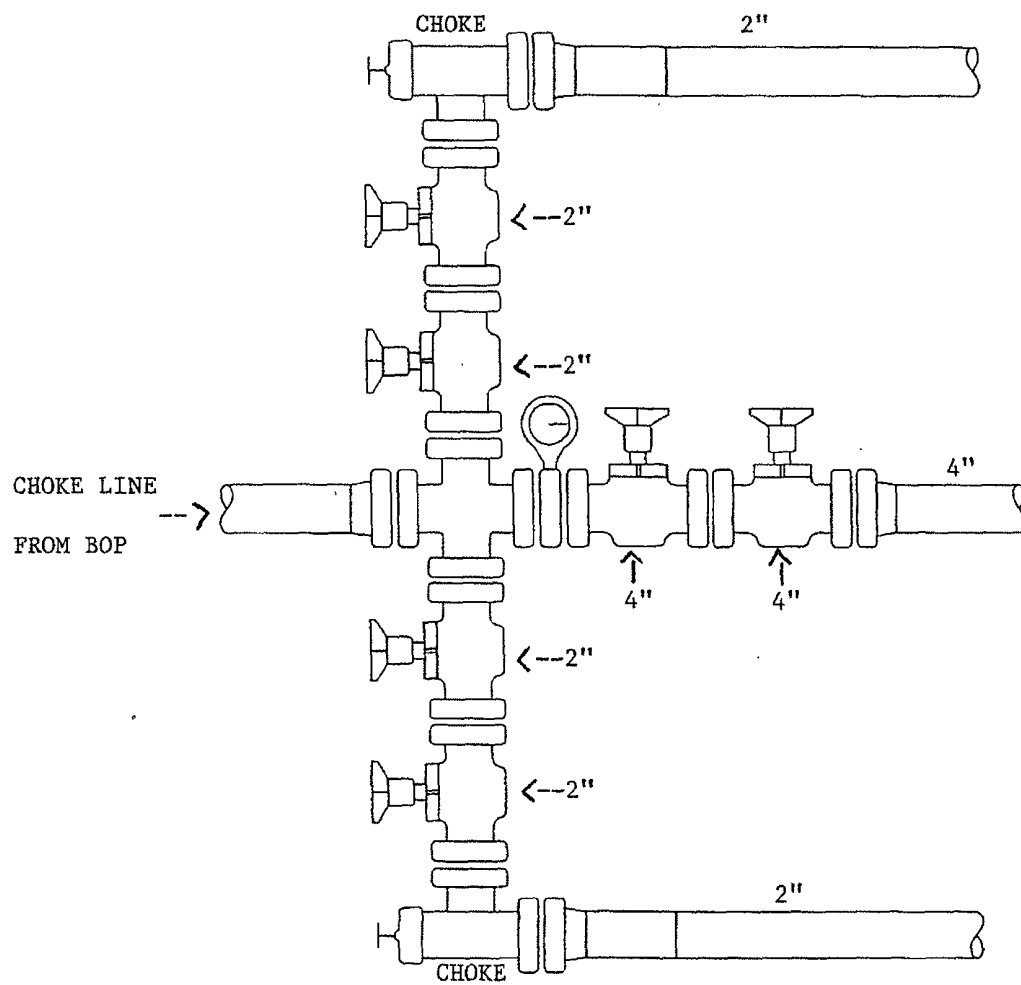


EXHIBIT H

CHOKE MANIFOLD



MURCHISON OIL & GAS, INC.

HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN FOR DRILLING/COMPLETING/WORKOVER/FACILITY WITH THE EXCEPTION OF H₂S IN EXCESS OF 100 PPM

**MURCHISON OIL & GAS, INC.
NEW DRILL WELL
CARBON VALLEY 25 FED COM #6-H
SL: 990' FSL & 200' FEL, UNIT P
BHL: 660' FSL & 330' FWL, UNIT M
SEC 25, T16S, R27E
EDDY COUNTY, NEW MEXICO**

This well/facility is not expected to have H₂S, but the following is submitted as requested.

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I.	General Emergency Plan	Page 3
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III.	Emergency Call List	Page 3
IV.	Emergency Response Numbers	Page 4
V.	Protection of the General (ROE) Radius of Exposure	Page 4
VI.	Public Evacuation Plan	Page 5
VII.	Procedure for Igniting an Uncontrollable Condition	Page 5
VIII.	Required Emergency Equipment	Page 6
IX.	Using Self-Contained Breathing Air Equipment (SCBA)	Page 7
X.	Rescue & First Aid for Victims of H ₂ S Poisoning	Page 7
XI.	H ₂ S Toxic Effects	Pages 8
XII.	H ₂ S Physical Properties	Pages 9
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GENERAL H2S EMERGENCY ACTIONS

In the event of any evidence of H2S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an upwind and if possible uphill "safe area".
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (self-contained breathing apparatus).
3. Always use the "buddy system."
4. Isolate the well/problem if possible.
5. Account for all personnel.
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the company representative as soon as possible if not at the location (use the enclosed call list as instructed).

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self-contained breathing apparatus.
2. Remove all personnel to the "safe area": (always use the "buddy system").
3. Contact company representative if not on location.
4. Set in motion the steps to protect and/or remove the general public to any upwind "safe area." Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:
City Police - City streets
State Police - State Roads
County Sheriff - County Roads
7. Call the NMOCD.

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in harm's way, he will immediately notify public safety personnel.

EMERGENCY CALL LIST

	<u>Office</u>	<u>Cell</u>	<u>Home</u>
Arnold Nall	972-931-0700	214-415-3010	972-596-8504
Tommy Folsom	575-628-3932	575-706-0667	575-885-3474
Randy Ford	432-682-0440	432-599-2222	432-684-4334

EMERGENCY RESPONSE NUMBERS

Eddy County, New Mexico

State Police	888-442-6677
Eddy County Sheriff - Carlsbad	575-396-3611
Eddy County Emergency Management - Carlsbad	575-887-7551
State Emergency Response Center (SERC)	575-476-9620
Artesia Police / Fire / Ambulance Department	575-746-5000
New Mexico Oil Conservation Division - Artesia	575-748-1283
Callaway Safety Equipment, Inc.	575-392-2973

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppm H₂S is present, the ROE calculations will be done to determine if the following conditions exist and whether the Plan must be activated:

- * 100 ppm at any public area (any place not associated with this site)
- * 500 ppm at any public road (any road which the general public may travel).
- * 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H₂S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE: (H₂S concentrations in decimal form)

$$\text{ROE} = [(1.589)(\text{H}_2\text{S concentration})(Q)] (^{0.6258}) \quad \begin{array}{l} 10,000 \text{ ppm} + = .01 \\ 1,000 \text{ ppm} + = .001 \end{array}$$

Calculation for the 500 ppm ROE: $\begin{array}{l} 100 \text{ ppm} + = .0001 \\ 10 \text{ ppm} + = .00001 \end{array}$

$$\text{ROE} = [(0.4546)(\text{H}_2\text{S concentration})(Q)] (^{0.6258})$$

EXAMPLE: If a well/facility has been determined to have 650 ppm H₂S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFD then:

$$\begin{array}{ll} \text{ROE for 100 ppm} & \text{ROE} = [(1.589)(.00065)(200,000)] (^{0.6258}) \\ & \text{ROE} = 28.1' \\ \text{ROE for 500 ppm} & \text{ROE} = [(0.4546)(.00065)(200,000)] (^{0.6258}) \\ & \text{ROE} = 12.8' \end{array}$$

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

PUBLIC EVACUATION PLAN

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
2. A trained person in H₂S safety shall monitor with detection equipment the H₂S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. All monitoring equipment shall be UL approved for use in Class I Groups A, B, C & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H₂S, oxygen, and flammable values.
3. Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
4. The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the affected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

The decision to ignite a well should be a last resort with one, if not both, of the following conditions:

1. Human life and/or property are endangered.
2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

Instructions for Igniting the Well:

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
2. One of the people will be a qualified safety person who will test the atmosphere for H₂S, oxygen and LFL. The other person will be the designated company representative.
3. Ignite upwind from a distance no closer than necessary. Make sure that the ignition site has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.
4. Before igniting, check for the presence of combustible gases.
5. After igniting, continue emergency actions and procedures as before.

REQUIRED EMERGENCY EQUIPMENT

1. Breathing Apparatus

- Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- Work / Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

2. Signage and Flagging

- One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.
- A Colored Condition flag will be on display reflecting the condition at the site at that time.

3. Briefing Area

- Two perpendicular areas will be designated by signs and readily accessible.

4. Windsocks

- Two windsocks will be placed in strategic locations, visible from all angles.

5. H2S Detectors and Alarms

- The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer):
 - Rig Floor
 - Bell Nipple
 - End of flow line or where well bore fluid is being discharged

6. Auxiliary Rescue Equipment

- Stretcher
- Two OSHA full body harnesses
- 100' of 5/8" OSHA approved rope
- One 20 lb. Class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

1. SCBA should be worn when any of the following are performed:
 - Working near the top or on top of a tank
 - Disconnecting any line where H₂S can reasonably be expected.
 - Sampling air in the area to determine if toxic concentrations of H₂S exist.
 - Working in areas where over 10 ppm of H₂S has been detected.
 - At any time there is a doubt of the level of H₂S in the area.
2. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
3. Facial hair and standard eyeglasses are not allowed with SCBA.
4. Contact lenses are never allowed with SCBA.
5. When breaking out any line where H₂S can reasonably be expected.
6. After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
7. All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H₂S POISONING

- Do not panic.
- Remain calm and think.
- Put on the breathing apparatus.
- Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.
- Notify emergency response personnel.
- Provide artificial respiration and/or CPR as necessary.
- Remove all contaminated clothing to avoid further exposure.
- A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

TOXIC EFFECTS OF H₂S POISONING

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table 1. Toxicity table for H₂S and physical effects are shown in Table II.

Table 1
Permissible Exposure Limits of Various Gasses

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H ₂ S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO ₂	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO ₂	1.52	5000 ppm	30,000 ppm	
Methane	CH ₄	.55	4.7% LEL	14% UEL	

Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H₂S is 19 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H₂S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

TABLE II
Toxicity Table of H₂S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure
.0015	15	STEL for 15 minutes of exposure
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes.
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H₂S

The properties of all gases are usually described in the context of seven major categories:

COLOR
ODOR
VAPOR DENSITY
EXPLOSIVE LIMITS
FLAMMABILITY
SOLUBILITY (IN WATER)
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs." For this reason it earned its common name "sour gas." However, H₂S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H₂S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H₂S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO₂), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

**SURFACE USE AND OPERATIONS PLAN FOR
DRILLING, COMPLETION, AND PRODUCING**

Murchison Oil & Gas, Inc.
Carbon Valley 25 Fed Com #6-H
SL: 990' FSL & 200' FEL, UNIT P
BHL: 660' FSL & 330' FWL, UNIT M
Sec 25, T16S, R27E
Eddy County, New Mexico

LOCATED

Approximately 11 miles NE of Artesia, New Mexico.

OIL & GAS LEASE

SHL: LS# NM NM 98807
BHL: STATE (VO-5557)

BOND COVERAGE

NM 2163

POOL

Dog Canyon; Wolfcamp

OIL & GAS RECORD LESSEE

Lessee: Devon Energy Prod. Co., 20 North Broadway, Ste. 1500, Oklahoma City, OK 73102
Operating Rights: Devon Energy Prod. Co., 20 North Broadway, Ste. 1500, Oklahoma City, OK 73102. Murchison Oil & Gas, Inc., 1100 Mira Vista Blvd, Plano, Texas 75093 earned operating rights under Cross Assignment of Operating Rights dated May 1, 2009 filed in Eddy Co., NM.

SURFACE OWNER

Bureau of Land Management

MINERAL OWNER

Bureau of Land Management

GRAZING TENANT

Bogle Ltd Co. LLC, P.O. Box 460, Dexter, NM 88230 (575) 433-3500

EXHIBITS

- | | |
|-----------|---|
| A. | Well Location & Acreage Dedication Map |
| B. | Area Road Map |
| C-1 & C-2 | Vicinity Oil & Gas Map |
| D. | Topographic & Location Verification Map |
| E-1---E-7 | Proposed Lease Road and Pad Layout Map |
| F. | Drilling Rig Layout |
| G. | BOPE Schematic |
| H. | Choke Manifold Schematic |

This well will be drilled to a BHL of approximately 6332' TVD, and approximately 10867' MD.

EXISTING ROADS

Exhibit A is a portion of a section map showing the location of the proposed well as staked.

Exhibit B is a map showing existing roads in the vicinity of the proposed well site.

Directions to well location: From the junction of Hwy. 82 and Southern Union (CR 202), go North winding East 4.0 miles to proposed lease road, go North 0.1 miles to lease road, on lease road go Northeast winding North 1.0 miles to a "T". Go North 0.6 miles then west then immediately North 0.3 miles to lease road. Go West 0.4 miles to proposed lease road; turn right (North) and proceed 0.2 miles to location.

ACCESS ROADS

Length and Width

Proposed access road is approximately 14363' of existing road (approx. 3 miles) long and 30' wide (Exhibit E-1 thru E-6). Murchison Oil & Gas, Inc. has agreements with the surface owners for right-of-way up to proposed lease road and agreement with other operator for use of existing road to proposed well.

Surface Material

Six inches of caliche and water, compacted and graded.

Maximum Grade

Less than three percent

Turnouts

None needed

Drainage Design

N/A

Culverts

None needed

Gates and Cattle Guards

None required

LOCATION OF EXISTING WELLS

The locations of existing wells in Section 25 are shown on Exhibit C-1 and C-2.

LOCATION OF EXISTING AND/OR PROPOSED FACILITIES

Necessary production facilities for this well will be located on the well pad.

LOCATION AND TYPE OF WATER SUPPLY

It is planned to drill the proposed well with a cut-brine water system or with produced water. The water will be obtained from either a private water well owner or a commercial source and will either be piped to location from a nearby water well or will be hauled to location by truck over existing and proposed lease roads as shown on Exhibit E.

SOURCE OF CONSTRUCTION MATERIALS

Caliche required for the construction of the location pad and access road will be obtained from caliche on the location or from the nearest BLM-approved pit.

METHODS OF HANDLING WASTE DISPOSAL

All drilling fluid will be circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) will be circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid will be continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll-off containers will be lined and de-watered with fluids re-circulated into system.

Additional tank will be used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained by solids control personnel and/or rig crews on location.

Cuttings will be hauled to one of the following, depending on which rig is available to drill well:

CRI (permit number R9166)
or
GMI (permit number 711-019-001)

ANCILLARY FACILITIES

None required.

WELL SITE LAYOUT

Exhibit F shows the relative location and dimensions of the well pad, mud pits, reserve pit, and trash pit, and the location of major rig components. Operator requests V-door be positioned to the South, and the steel pits located to the East in order to accommodate existing road in East side of Section to minimize further surface disturbance.

The ground surface at the drilling location is essentially flat.

A Closed-Loop System will be used.

The pad area has been staked and flagged.

PLANS FOR RESTORATION OF THE SURFACE

After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleared of all trash and junk to leave the site in an as aesthetically pleasing condition as possible.

Any unguarded pits containing fluids will be fenced until they are filled.

If the proposed well is non productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management and the United States Geological Survey will be complied with and will be accomplished as expeditiously as possible.

OTHER INFORMATION

Topography

The land surface at the well site is small, rolling hills.

Soil

Loamy soil shallow to caliche and raw Gypsum.

Flora and Fauna

The vegetation consists of creosote, mesquite, yucca, prickly pear, Mormon tea, cane cholla, pencil cholla, horse crippler and various grasses. Faunal species include pronghorn antelope, mule deer, coyote, badger, rabbits, and various snakes, small mammals, birds and reptiles.

Ponds and Streams

There are no rivers, lakes, ponds, or streams in the area.

Residences and Other Structures

There are no residences within one mile of the proposed well site.

Archaeological, Historical, and Cultural sites

An Archaeological Survey has been sent to the BLM Office.

Land Use

Grazing

OPERATOR'S REPRESENTATIVES

Arnold Nall
1100 Mira Vista Blvd.
Plano, TX 75093-4698
Office Phone: (972) 931-0700
Cell Phone: (214) 415-3010

Randy Ford
415 W. Wall Street, Suite 1700
Midland, TX 79701
Office Phone: (432) 682-0440
Cell Phone: (432) 559-2222

**Murchison Oil & Gas, Inc.
Carbon Valley 25 Fed Com #6-H
SL: 990' FSL & 200' FEL, UNIT P
BHL: 660' FSL & 330' FWL, UNIT M
Sec 25, T16S, R27E
Eddy County, New Mexico**

CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Murchison Oil & Gas, Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

October 6, 2009
Date

Arnold Nall
Arnold Nall
VP, Operations
Murchison Oil & Gas, Inc.

NMCRI INVESTIGATION ABSTRACT FORM (NIAF)

WELL FILE
COPY

1. NMCRI Activity No.: 114,002	2a. Lead (Sponsoring) Agency: BLM-CFO	2b. Other Permitting Agency(ies): N/A	3. Lead Agency Report No.:
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4. Title of Report: Addendum to "A Cultural Resource Survey for the Carbon Valley "25" Federal Com No. 6H Well Pad and Access Road"	5. Type of Report <input checked="" type="checkbox"/> Negative <input type="checkbox"/> Positive
---	---

Author(s) Justin Rein

6. Investigation Type	
<input type="checkbox"/> Research Design	<input checked="" type="checkbox"/> Survey/Inventory
<input type="checkbox"/> Overview/Lit Review	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Test Excavation	<input type="checkbox"/> Ethnographic study
<input type="checkbox"/> Excavation	<input type="checkbox"/> Site specific visit
<input type="checkbox"/> Collections/Non-Field Study	<input type="checkbox"/> Other

7. Description of Undertaking (what does the project entail?): The proposed undertaking involves a pedestrian cultural resource survey for the proposed Murchison Oil and Gas, Inc. Carbon Valley "25" Federal Com No. 6H well location and associated access road. The well pad and access road were relocated at the request of Murchison Oil and Gas, Inc. for purposes unrelated to cultural resources. The previously staked location was abandoned. The area outside the original well and road survey was investigated to ensure a 600 ft by 600 ft block was covered around the well center and a 100 ft wide corridor was cleared along the access road centerline..	8. Dates of Investigation: June 9, 2009
	9. Report Date: June 12, 2009

10. Performing Agency/Consultant: Boone Archaeological Services, LLC 2030 North Canal Carlsbad, NM 88220 505-885-1352 Principal Investigator: Danny Boone Field Supervisor: Justin Rein Field Personnel Names: Justin Rein	11. Performing Agency/Consultant Report No.: BAS-05-09-24a
	12. Applicable Cultural Resource Permit No(s): BLM Permit No.: 190-2920-08-K

13. Client/Customer (project proponent): Murchison Oil & Gas, Inc. Contact: Vicki Johnston Address: 1100 Mira Vista Blvd. Plano, Texas 75093-4698 Phone: (281) 468-2448	14. Client/Customer Project No.: N/A
--	--------------------------------------

15. Land Ownership Status (Must be indicated on project map):

Land Owner	Acres Surveyed	Acres in APE
Bureau of Land Management - Carlsbad Field Office (BLM-CFO)	1.82	4.11
TOTALS	1.82	4.11

16. Records Search(es):

Date(s) of ARMS File Review: June 1, 2009	Name of Reviewer(s): Justin Rein	
Date(s) of NR/SR File Review: June 1, 2009	Name of Reviewer(s): Justin Rein	
Date(s) of Other Agency File Review: May 29, 2009	Name of Reviewer(s): Justin Rein	Agency BLM-CFO

No additional projects or undertakings have been performed in proximity to the project area since the original investigation. Four previously recorded sites (LA 82886 and LA 142362, LA 142398, and LA 142399) were found within 0.25 miles of the project area. LA 142362 is within 500 ft. The relocated well location places the well center closer to LA 142362, though the site remains well outside of the proposed undertaking. None of these sites will be affected by the proposed project.

17. Survey Data:

- a. Source Graphics ☒ NAD 27 ☐ NAD 83
☒ USGS 7.5' (1:24,000) topo map ☐ Other topo map, Scale:
☒ GPS Unit Accuracy ☐ <1.0m ☒ 1-10m ☐ 10-100m ☐ >100m

b. USGS 7.5' Topographic Map Name **USGS Quad Code**

Diamond Mound, New Mexico 1951	32104-H2

c. County(ies): Eddy County

17. Survey Data (continued):

d. Nearest City or Town: Artesia, New Mexico

e. Legal Description:

Township (N/S)	Range (E/W)	Section	1/4	1/4	1/4
16 South	27 East	25	SE1/4	NE1/4	SE1/4
		25	NE1/4	SE1/4	SE1/4

Projected legal description? Yes ☒ , No ☐ Unplatted ☒

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.): The proposed well location and access road were relocated 100 ft to the west at the request of Murchison Oil and Gas, Inc. The relocated surface location of the proposed Carbon Valley "25" Federal Com No. 6H well location is centered 990 feet from the south line and 200 feet from the east line of Section 25, Township 16 South, Range 27 East. As previously proposed, access will be afforded the well via a 382.5 ft long newly proposed road which joins the proposed well location with an existing bladed road. The road has simply been shifted 100 ft to the west. Section 25 is an irregular section. The template was anchored in the northeast and southeast corners for the above legal description.

18. Survey Field Methods:

Intensity: ☒ 100% coverage ☐ <100% coverage

Configuration: ☒ block survey units: 100 ft wide by 600 ft long

☒ linear survey units (l x w): 382.5 ft long by 50 ft wide ☐ other survey units (specify):

Scope: ☒ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)

Coverage Method: ☒ systematic pedestrian coverage ☐ other method (describe)

Survey Interval (m): 15m (50 ft) Crew Size: 1 Fieldwork Dates: June 1, 2009

Survey Person Hours: 2.5 Recording Person Hours: 0 Total Hours: 2.5

Additional Narrative: To ensure a 600 ft by 600 ft block was cleared around the staked well center, a 100 ft wide by 600 ft long block was surveyed west of the original block survey. Likewise, the area along the newly staked road, outside of the original road survey, was surveyed such that a 50 ft wide corridor was surveyed along the western edge of the road. The survey was conducted utilizing linear transect intervals spaced no more than 15 m (50 ft) apart. The new survey area encompassed a total of 1.82 acres on Federal property under the jurisdiction of the BLM-CFO.

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): The project area is located northeast of Dog Canyon Well, just over 10 miles east-northeast of Artesia, New Mexico. Elevation ranges from 3,495 ft to 3,525 ft above mean sea level. Overall, the terrain slopes gradually downhill to the south and west, towards Dog Canyon Draw, at a grade of roughly 1.5 percent. Local soils are of the Reeves-Gypsum land-Cottonwood association as defined by the Soil Conservation Service of the U.S. Department of Agriculture. Local vegetation is typical of Chihuahuan Desert scrub and includes various grasses, prickly pear cacti, mesquite, yucca, barrel cacti, Mormon tea, and various low forbs.

Meteorological data was obtained for the nearby City of Artesia, New Mexico from the Western Regional Climate Center (WRCC) online database. From 1914 to 2004, Artesia received an average annual precipitation of 11.87 inches. During the same time, Artesia had an average high temperature of 76.9 degrees Fahrenheit and an average low temperature of 43.8 degrees Fahrenheit. January was the coldest month averaging 56.8 degrees Fahrenheit, while July was the warmest on average at 94.8 degrees Fahrenheit.

20. a. Percent Ground Visibility: 85%

b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): Due to the vegetative ground cover, surface visibility averaged 85 percent at the time of survey. The proposed access road originates at an existing caliche-capped lease road north of the proposed well. The road serves an active well location to the northwest. Additional oil and gas exploration is visible in the surrounding area. The project area is otherwise undeveloped and susceptible to natural aeolian and alluvial activities and openly grazing cattle.

21. CULTURAL RESOURCE FINDINGS ☐ Yes, See Page 3 ☒ No, Discuss Why: The project area is situated across on overall flat, exposed, plain which may have been less desirable for long term occupation. Short term inhabitants likely left little evidence of their stay or use.

22. Required Attachments (check all appropriate boxes):

- ☒ USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn
- ☒ Copy of NMCRIS Mapserver Map Check
- ☐ LA Site Forms - new sites (*with sketch map & topographic map*)
- ☐ LA Site Forms (update) - previously recorded & un-relocated sites (*first 2 pages minimum*)
- ☐ Historic Cultural Property Inventory Forms
- ☒ List and Description of Isolates, if applicable
- ☐ List and Description of Collections, if applicable

23. Other Attachments:

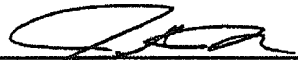
- ☐ Photographs and Log
- ☒ Other Attachments

(Describe): Plats/ drawings provided by Murchison Oil & Gas, Inc.

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist: Justin Rein

Signature



Date

6.12.09

Title (if not PI): Crew Chief

25. Reviewing Agency:

Reviewer's Name/Date

Accepted () Rejected ()

Tribal Consultation (if applicable): ☐ Yes ☐ No

26. SHPO

Reviewer's Name/Date:

HPD Log #:

SHPO File Location:

Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.:
114,002

2. Lead (Sponsoring) Agency:
BLM - CFO

3. Lead Agency Report No.:

SURVEY RESULTS:

Sites discovered and registered: 0

Sites discovered and NOT registered: 0

Previously recorded sites revisited (*site update form required*): 0

Previously recorded sites not relocated (*site update form required*): 0

TOTAL SITES VISITED: 0

Total isolates recorded: 1 Non-selective isolate recording? ☒

Total structures recorded (*new and previously recorded, including acequias*): 0

MANAGEMENT SUMMARY: No significant cultural materials were encountered during the survey for the relocated well location and access road. As such, archaeological clearance is recommended for the proposed Carbon Valley "25" Federal Corn No. 6H well location and associated access road as currently staked. If any additional cultural materials are encountered during any phase of construction, work at that location should cease and archaeologists with the BLM-CFO should be notified immediately.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG

Sites Discovered:

LA No. Field/Agency No. Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No. Field/Agency No. Eligible? (Y/N, applicable criteria)

MONITORING LA NUMBER LOG (*site form required*)

Sites Discovered (*site form required*):

Previously recorded sites (*Site update form required*):

LA No. Field/Agency No. LA No. Field/Agency No.

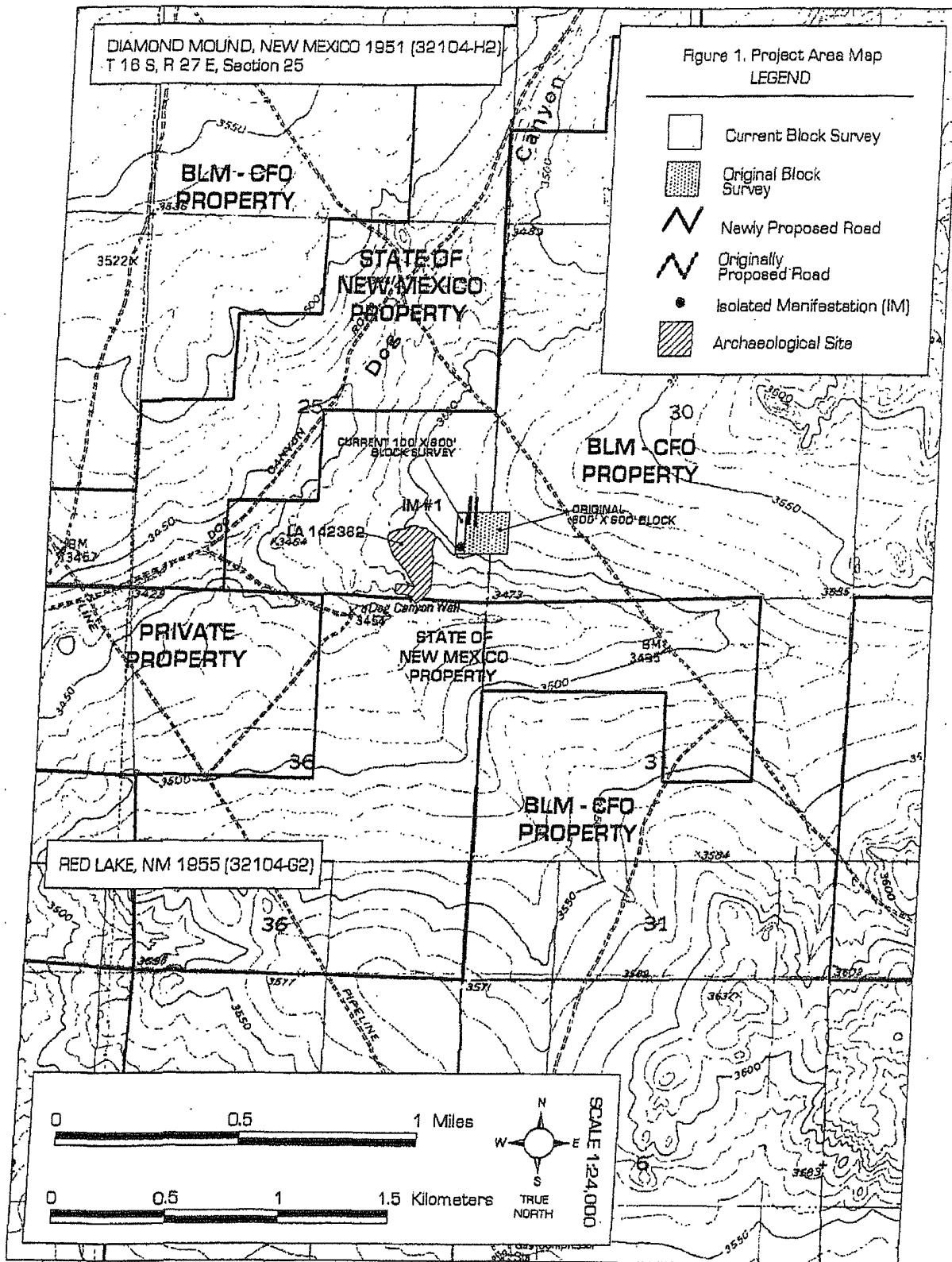
Areas outside known nearby site boundaries monitored? Yes ☐, No ☐ If no explain why:

TESTING & EXCAVATION LA NUMBER LOG (*site form required*)

Tested LA number(s)

Excavated LA number(s)

**A JENDUM TO "CARBON VALLEY "25"
FEDERAL COM No. 6H WELL PAD AND ACCESS ROAD"**



BAS-05-09-24a

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Murchison Oil & Gas
LEASE NO:	NM98807
WELL NAME & NO:	6H Carbon Valley 25 Fed Com
SURFACE HOLE FOOTAGE:	990' FSL & 200' FEL
BOTTOM HOLE FOOTAGE:	660' FSL & 330' FWL
LOCATION:	Section 25, T. 16 S., R. 27 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ General Provisions
- ☐ Permit Expiration
- ☐ Archaeology, Paleontology, and Historical Sites
- ☐ Noxious Weeds
- ☒ Special Requirements
 - Cave/Karst
 - Communitization Agreement
 - Down Hole Commingle Requirement
- ☒ Construction
 - Notification
 - Topsoli
 - Closed Loop System
 - Earthen Fresh Water Frac Pond
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ Road Section Diagram
- ☒ Drilling
 - High Cave/Karst
 - Logging Requirements
- ☐ Production (Post Drilling)
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ Reseeding Procedure/Interim Reclamation
- ☐ Final Abandonment/Reclamation

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. Operator to supply NMOC order, which details the vertical and horizontal extent of pool to verify that requested communitization is within an approved and established pool. NMOC form C-123 – pool designation request.

Down Hole Commingle Requirement

Subject to like approval by state, due to the potential down hole commingling behind pipe of the Abo and Wolfcamp formations.

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, siting valves and lines so they can be visually inspected, or installing

electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Although this is a closed loop system and no reserve pits will be utilized, the v-door will be on the east side of the location.

Tanks are required for drilling operations. No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. EARTHEN FRESH WATER FRAC POND

The frac pond shall be constructed and closed in accordance with the NMOCD rules.

The frac pond shall be constructed 200 ft. X 200 ft With 11 ft. walls, 195 ft. north of the Carbon Valley 25 Federal Com No. 6H well pad and west of the proposed access road.

The frac pond will be constructed entirely in cut material and lined with 6-mil plastic.

The frac pond shall be constructed, so that upon completion of drilling operations, the plastic lining will be removed.

The frac pond will only be used for fresh water. If at any time the water in the frac pond becomes polluted, use of the frac pond will cease and desist, and all liquids will be removed from the frac pond. Reclamation efforts will then commence. Otherwise, reclamation efforts will commence immediately after the frac pond is no longer needed for the purpose of completing the wells.

The frac pond shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pond. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pond be allowed to rise above ground level.

The frac pond shall be fenced on three (3) sides during drilling operations. The fourth (north) side shall be fenced immediately upon rig release.

E. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

F. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14'-wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

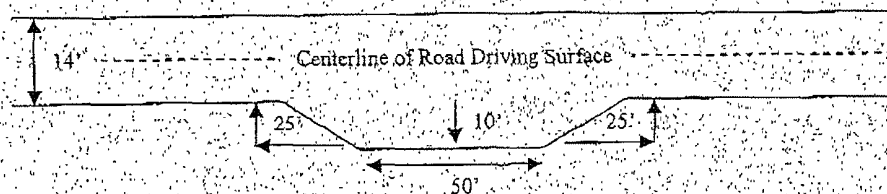
Ditching

Ditching shall be required on both sides of the road.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

Standard Turnout – Plan View

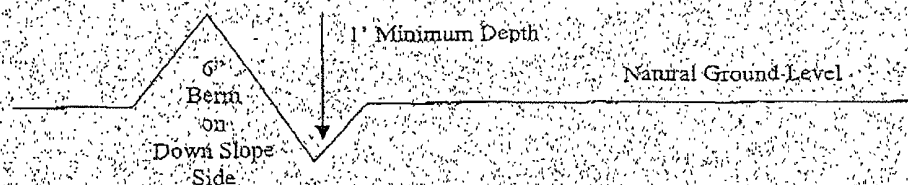


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %).

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

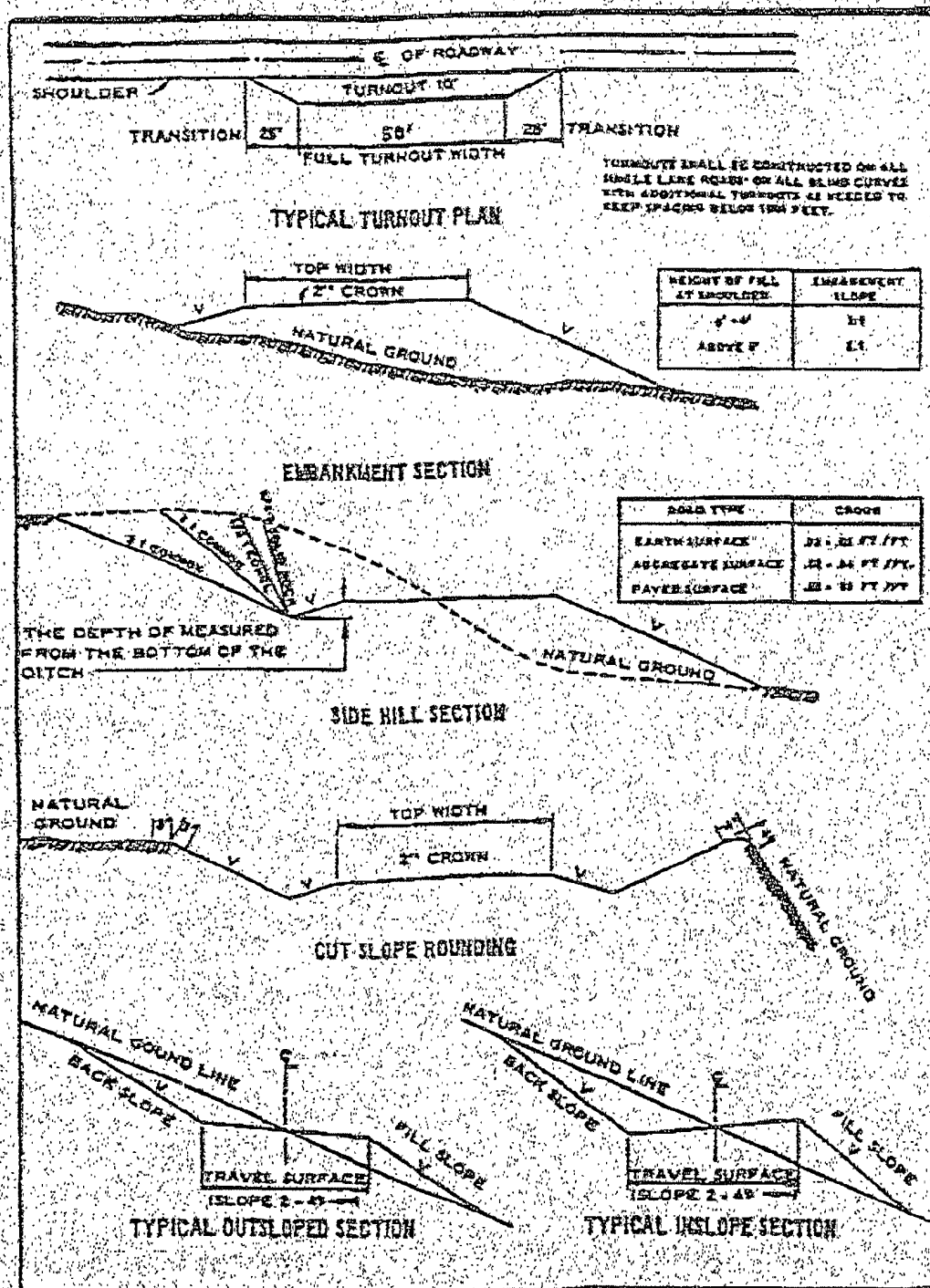
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 - Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
4. The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possible lost circulation in the Grayburg, Abo and San Andres formations.
Possible high pressure gas bursts in the Wolfcamp formation.

HIGH CAVE/KARST - IF LOST CIRCULATION OCCURS WHILE DRILLING THE SURFACE HOLE, THE BLM IS TO BE NOTIFIED PRIOR TO RUNNING THE SURFACE CASING. REVISED CEMENTING PROGRAM OR CONTINGENCY CASING MAY BE REQUIRED.

1. The 9-5/8 inch surface casing shall be set at approximately 1100 feet and cemented to the surface. Casing is to be set in a competent formation, which may be difficult in the Artesia group. Onshore Order II requires casing to be set across a competent bed.

a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

IF LOST CIRCULATION OCCURS WHILE DRILLING THE 8-3/4" HOLE, THE CEMENT PROGRAM FOR THE 7" CASING WILL NEED TO BE MODIFIED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED. A DV TOOL WILL BE REQUIRED.

2. The minimum required fill of cement behind the 7 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst. Additional cement may be required.

A two-stage job will require submitting a sundry and receiving approval prior to commencement of work.

Pilot hole will be plugged when the 7" casing is cemented.

3. The minimum required fill of cement behind the 4-1/2 inch production liner is:

- ☒ No cement required. Operator is using Peak Completion Liner.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
 - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

- e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

CRW 110509

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

IX. INTERIM RECLAMATION & RESEEDING PROCEDURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

B. RESEEDING PROCEDURE

Once the well has been drilled, all completion procedures have been accomplished, and all trash removed, reseed the location and all surrounding disturbed areas as follows:

Seed Mixture 4. for Gypsum Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Alkali Sacaton (<i>Sporobolus airoides</i>)	1.0
DWS Four-wing saltbush (<i>Atriplex canescens</i>)	5.0

DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.