



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

May 27, 2014

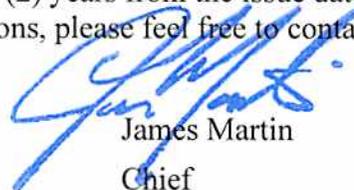
WELL WORK PERMIT
Horizontal 6A Well

This permit, API Well Number: 47-5101726, issued to CHEVRON APPALACHIA, LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: BERGER 7H
Farm Name: BERGER, GARY & LINDA
API Well Number: 47-5101726
Permit Type: Horizontal 6A Well
Date Issued: 05/27/2014

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street, SE Charleston, WV 25304
(304)926-0499, Ext 1656

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

May 22, 2014

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-01726

COMPANY: Chevron Appalachia, LLC

FARM: Berger #7H

COUNTY Marshall DISTRICT: Clay QUAD: Powhatan

The application for the above company is **approved to drill to Utica/Point Pleasant Shale formation.**
Exception location hearing Docket 226-118

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners; yes
2. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; *see below
3. Provided a plat showing that the proposed location is a distance of 500 feet from the nearest lease line or **unit boundary** and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Cindy Raines
Executive Assistant

*47-051-01725 drilled from same pad (Berger 7H)
47-051-01599 – 2,500'

WW - 6B
(3/13)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Chevron Appalachia, LLC 49449935 51 Clay Glou Easton, WV 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: 7H Well Pad Name: Berger

3 Elevation, current ground: 1292' Elevation, proposed post-construction: 1292'

4) Well Type: (a) Gas Oil Underground Storage
Other _____
(b) If Gas: Shallow _____ Deep
Horizontal *Rn 1/22/14*

5) Existing Pad? Yes or No: YES

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Utica Shale/Point Pleasant, 10,807-11,012', 205' anticipated thickness, *Marcellus 4249 psi, Utica 9760 psi*

7) Proposed Total Vertical Depth: 10,967'

8) Formation at Total Vertical Depth: Point Pleasant

9) Proposed Total Measured Depth: 17,718

10) Approximate Fresh Water Strata Depths: 165'

11) Method to Determine Fresh Water Depth: Local stream base, offset well data

12) Approximate Saltwater Depths: 2565'

13) Approximate Coal Seam Depths: 825'

14) Approximate Depth to Possible Void (coal mine, karst, other): Not Anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: Ireland, 825'

16) Describe proposed well work: Drill 26" hole to 300' then run and cement 20" casing to surface covering the fresh water. Drill 17 1/2" hole to 2,665' then run and cement. Drill 17 1/2" hole to 2,665' then run and cement to surface 13 3/8" casing, covering the Berca. Drill 12 1/4" to 8,650' then run and cement to surface 9 5/8" casing, covering the Lockport Limestone. Then drill 7-7/8" hole to kick off point. Drill 7-7/8" hole for the curve and lateral to 17,718' MD and 10,967' TVD. Then run and cement 6 1/2" production casing to surface. If a void is encountered (see attachment)

17) Describe fracturing/stimulating methods in detail:
Complete, the 2 Utica wells utilizing 300,000#s of 40/80 Hydro Prop each and frac'd at 100 bpm.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 23.4 ac.

19) Area to be disturbed for well pad only, less access road (acres): 2.2 ac.

WW - 6B
(3/13)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	30"	New	Line		40'	40'	CTS
Fresh Water	20"	New	J-55	94#	300'	300'	CTS
Intermediate 1	13-3/8"	New	H-40	72#	2,665'	2,665'	CTS
Intermediate 2	9-5/8"	New	P-110	53.5#	8,650'	8,650'	CTS
Production	5-1/2"	New	P-110	23#	17,718'	17,718'	CTS
Tubing							
Liners							

*M 1/20/14
HOK 1/22/14*

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	30"	36"	0.375"			
Fresh Water	20"	26"	0.438"	2,110	Class A	1.18
Intermediate 1	13-3/8"	17-1/2"	0.514"	5,380	Class A	1.18
Intermediate 2	9-5/8"	12-1/4"	0.545"	10,980	Class G	1.18
Production	5-1/2"	7-7/8"	0.545"	13,580	Class G	2.2
Tubing						
Liners						

PACKERS

Kind:	None			
Sizes:				
Depths Set:				

Cement Additives Berger Unit 1, 2, 4, 5, 6, 8, 9, 10

For the Water String the blend will contain class A cement, 3% CaCl₂, and flake.

The intermediate will contain class A cement, 10% CaCl₂, Salt, and flake.

The Production cement will have a lead, middle, and tail cement.

The lead will contain class A cement, KCl, dispersant, suspension agent, and retarder.

The middle will contain class A cement, KCl, dispersant, Aluminum Silicate, suspension agent, and retarder.

The tail will contain class A cement, Calcium Carbonate, KCl, dispersant, de-foamer, suspension agent, and friction reducer.

Cement Additives Berger Unit 3, 7

The Water String the blend will contain class A cement, 3% CaCl₂, and flake.

The 1st intermediate will contain class A cement, 10% CaCl₂, Salt, and flake.

The 2nd intermediate will have lead and tail cement. The lead will contain class G cement, Poz Mix, Latex, Friction reducer, defoamer, suspension agent, and 1% CaCl₂. The Tail will contain class G cement and 1/2% CaCl₂

The production will have a lead and tail cement. The lead will contain Class A cement, KCl, Fluid loss additive, suspension agent, and retarder. The tail will contain Class G cement, Calcium Carbonate, KCl, Fluid loss additive, Suspension Agent, and Retarder.

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Office of Oil and Gas
OCT 31 2013
WV Department of
Environmental Protection

confidential

R

SEALS COMPLETED
12-23-77

476.2

477.4

478.7

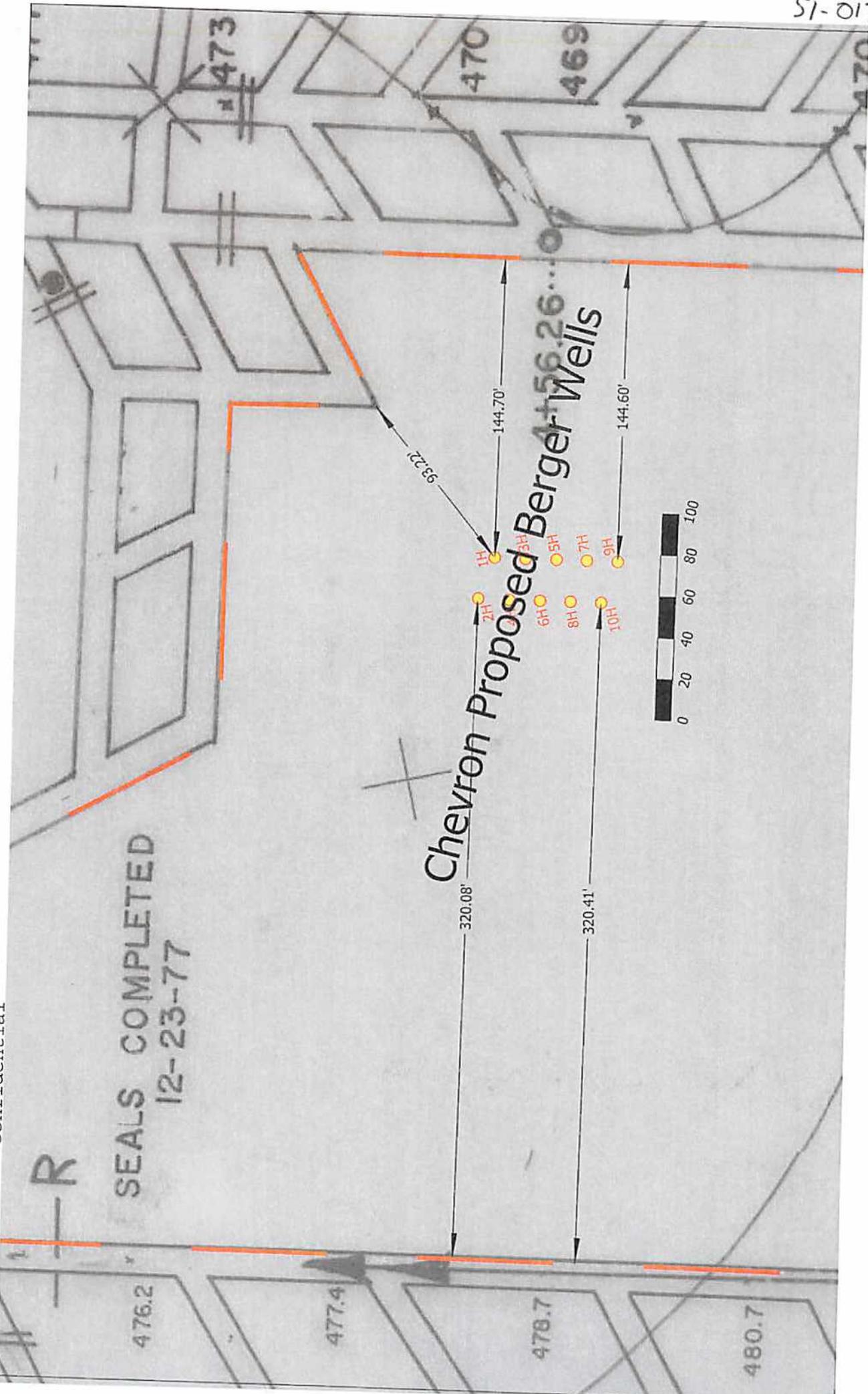
480.7

473

470

469

Chevron Proposed Berger Wells



93.22'

144.70'

144.60'

320.08'

320.41'

WW-6B Attachment- Berger Unit 3H & 7H

If a void is encountered the contingency will be the following:

- Once unexpected mine void is encountered drill 19" hole to 100' below bottom of mine void.
- Run 16", 75 lb/ft, J-55 casing with cement basket 20' above mine void.
- Cement casing using displacement method to bottom of mine void using 100 percent excess.
- Grout from surface to cement basket using whatever volume of cement is necessary to get cement to surface.
- Drill 15" hole to 2665'.
- Run 11-3/4", 60 lb/ft, N-80 casing.
- Cement casing to surface using the displacement method with 30% excess.
- Drill 10-5/8" hole to 8650'.
- Run 9-5/8", Flush Joint, 53.5 lb/ft, P-110 casing.
- Cement casing to surface using the displacement method with 15% excess.
- Drill 7-7/8" hole to TD.
- Run 5-1/2" 23 lb/ft, P-110 casing to TD.
- Cement to surface using displacement method with 10% excess.

WW-9
(9/13)

API Number 47 - 51 - 01726
Operator's Well No. Berger 7H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Chevron Appalachia, LLC OP Code 4944935

Watershed (HUC 10) Middle Grave Creek- Grave Creek Quadrangle Powhatan, OH-WV 7.5'

Elevation 1287.44' County Marshall District Clay

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: N/A

Will a synthetic liner be used in the pit? Yes No If so, what ml.?

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number)
- Reuse (at API Number)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain)

Will closed loop system be used? If so, describe: N/A

A combination of air, freshwater, KCl brine base foam, and highly refined mineral oil based mud.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.

-If oil based, what type? Synthetic, petroleum, etc. Highly refined mineral oil based mud

Additives to be used in drilling medium? emulsifiers, wetting agents, organophillic clays, barite, calcium chloride (for internal phase of invert) gilsonite

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Removed offsite

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Arden Landfill- permit #- PA DEP 100172

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Jeremy Hirtz*

Company Official (Typed Name) Jeremy Hirtz

Company Official Title Permitting Team Lead

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Office of Oil and Gas
OCT 31 2013
West Virginia Department of Environmental Protection

Subscribed and sworn before me this 27th day of September, 2013

Rodney Lee Frazee

My commission expires January 12, 2016

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Notary Public Rodney Lee Frazee, Notary Public
Henry Clay Twp., Fayette County
My Commission Expires Jan. 12, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Form WW-9

Operator's Well No. Berger 7H

Chevron Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 21.2 Prevegetation pH 7

Lime 1 Tons/acre or to correct to pH 6.5-7

Fertilizer type 10-20-20

Fertilizer amount 1000 lbs/acre

Mulch 3 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre
Annual Ryegrass Mixture 48.4 lbs/acre

Seed Type lbs/acre
Perennial Ryegrass Mixture 435.6 lbs/acre

Creeping Red Fescue or Chewings Fescue

Kentucky Bluegrass Mixture

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature] [Signature]

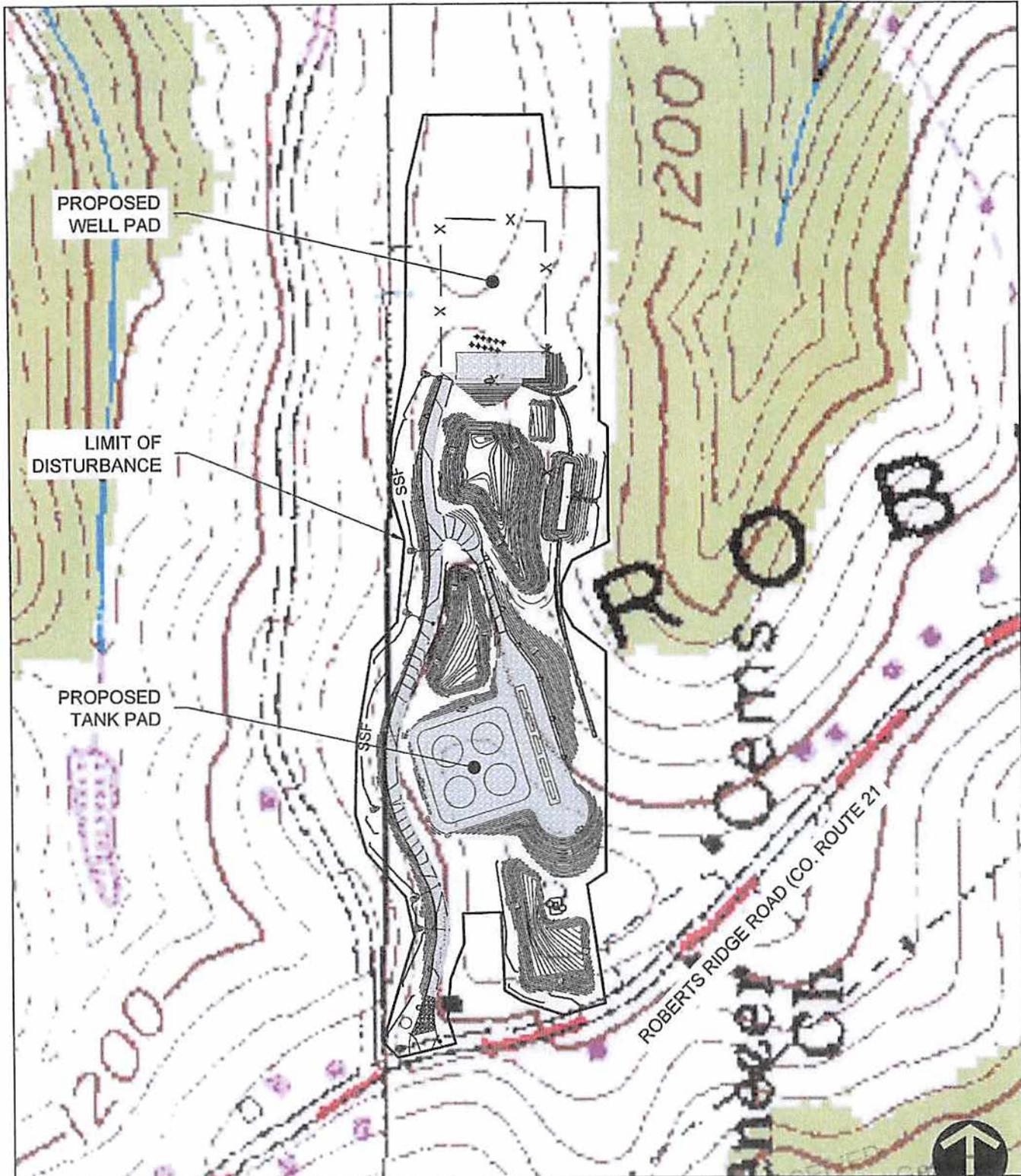
Comments: _____

Title: OIL + Gas Inspector

Date: 10/2/2013

Field Reviewed? () Yes () No

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WV Department of
Environmental Protection



SITE USGS LOCATION MAP
 POWHATAN POINT AND BUSINESSBURG USGS QUADS
 SCALE: 1" = 300'



USGS SITE LOCATION MAP
 Project Number: 011544-0000
 Drawing Scale: 1"=300'
 Date Issued: 08/21/2013
 Volume Number: 0001 of 01
 Drawn By: JCS
 Checked By: JCS
 Project Manager: JCS

BERGER WELLS AND TANK PAD
 ROBERTS RIDGE ROAD (CO. ROUTE 21), CLAY DISTRICT
 MARSHALL COUNTY, WEST VIRGINIA
 PREPARED FOR:
CHEVRON APPALACHIA, LLC
 800 MOUNTAIN VIEW DRIVE
 SMITHFIELD, PA 15478

Date	No.	REVISION RECORD
-	01	
-	02	
-	03	
-	04	
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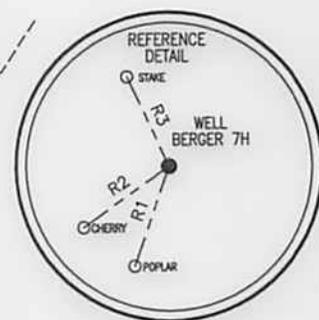
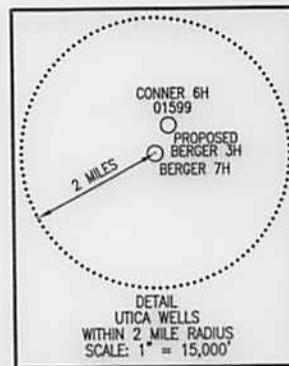
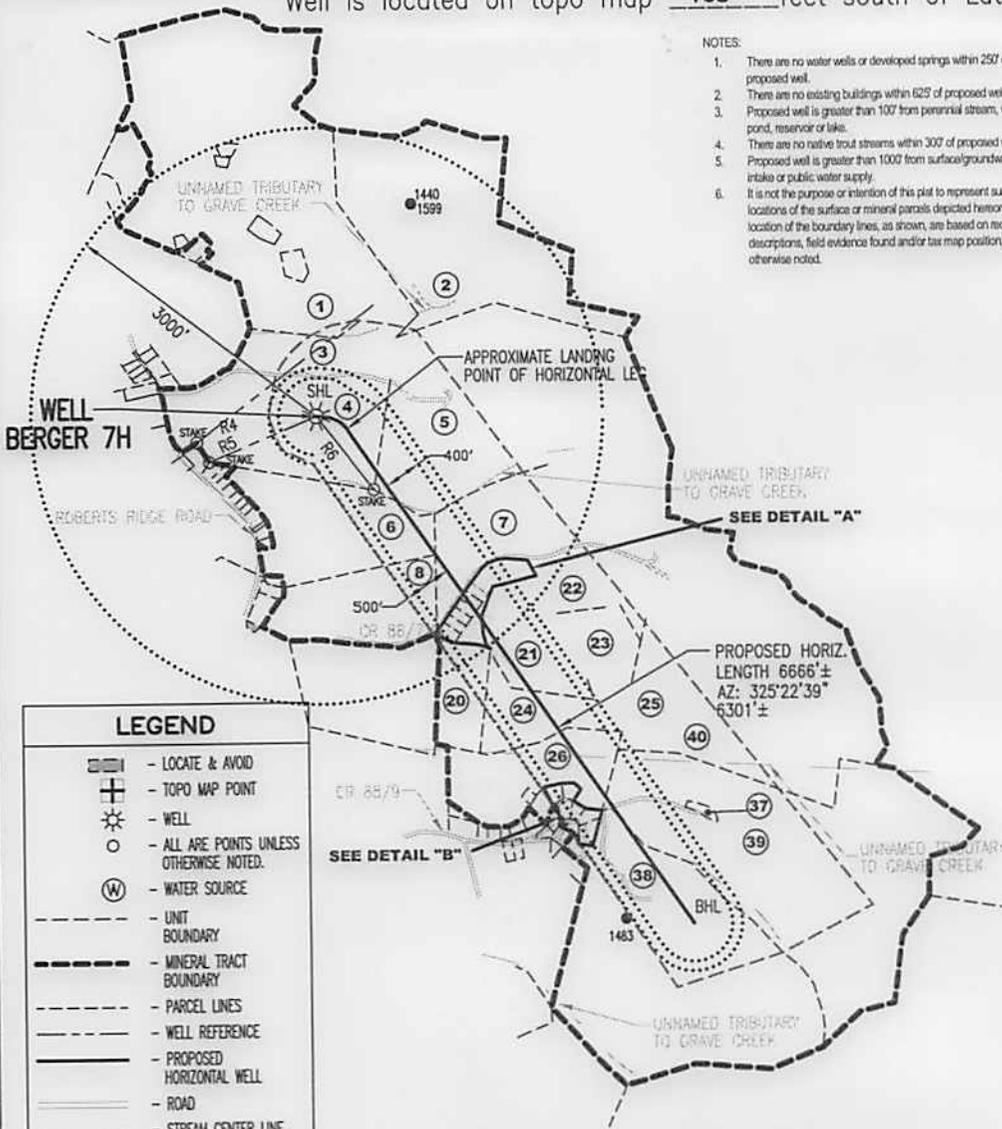
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 OCT 21 2013

GATEWAY
 Consulting Engineers & Surveyors
 400 Holiday Drive, Suite 300 Pittsburgh, PA 15220
 Phone (412) 921-4030 - Fax (412) 921-9990
 Allentown, PA 026 287-1055 • Washington, PA (724) 225-2102
 http://www.gatewayinc.com

Well is located on topo map 168' feet south of Latitude: 39° 52' 30"

Well is located on topo map 1271' feet west of Longitude: 80° 45' 00"

- NOTES:
1. There are no water wells or developed springs within 250' of proposed well.
 2. There are no existing buildings within 625' of proposed well.
 3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 4. There are no native trout streams within 300' of proposed well.
 5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
 6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.



LEGEND

- LOCATE & AVOID
- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- WATER SOURCE
- UNIT BOUNDARY
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE

WELLS WITHIN 3000'

- EXISTING WELLS
- PLUGGED WELLS

SEE PAGE 2 & 3 FOR SURFACE/OIL & GAS OWNERS

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83 N:4413858.71 E:520989.08	UTM 17-NAD83 N:4413818.70 E:521087.76	UTM 17-NAD83 N:4412257.19 E:522204.87
NAD83, WV NORTH N:503102.30 E:1616405.99	NAD83, WV NORTH N:502965.56 E:1616727.62	NAD83, WV NORTH N:497780.22 E:1620307.88

LINE	BEARING	DISTANCE
R1	S 19°56'09" W	219.30'
R2	S 55°14'48" W	219.90'
R3	N 25°02'26" W	205.76'
R4	S 78°28'18" W	1283.41'
R5	S 67°40'10" W	1216.99'
R6	S 37°56'47" E	971.70'

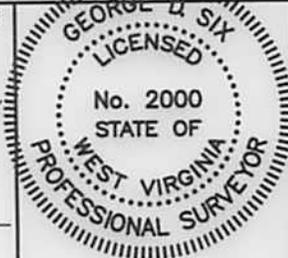
Blue Mountain Inc.
11023 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

FILE #: BERGER 7H
DRAWING #: BERGER 7H
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/2500
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *George D. Six*

R.P.E.: _____ L.L.S.: P.S. No. 2000



PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304



DATE: FEBRUARY 12, 2014
OPERATOR'S WELL #: BERGER 7H
API WELL #: 47 51 01726 H6A
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: MIDDLE GRAVE CREEK - GRAVE CREEK ELEVATION: 1287.44'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN, OH-WV 7.5'

SURFACE OWNER: GARY & LINDA BERGER ACREAGE: 5.01±

OIL & GAS ROYALTY OWNER: GARY & LINDA BERGER ACREAGE: 999.829±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): WV

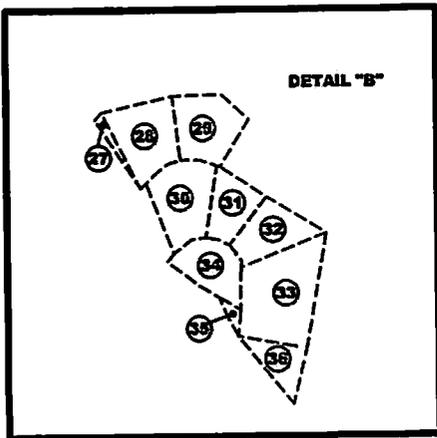
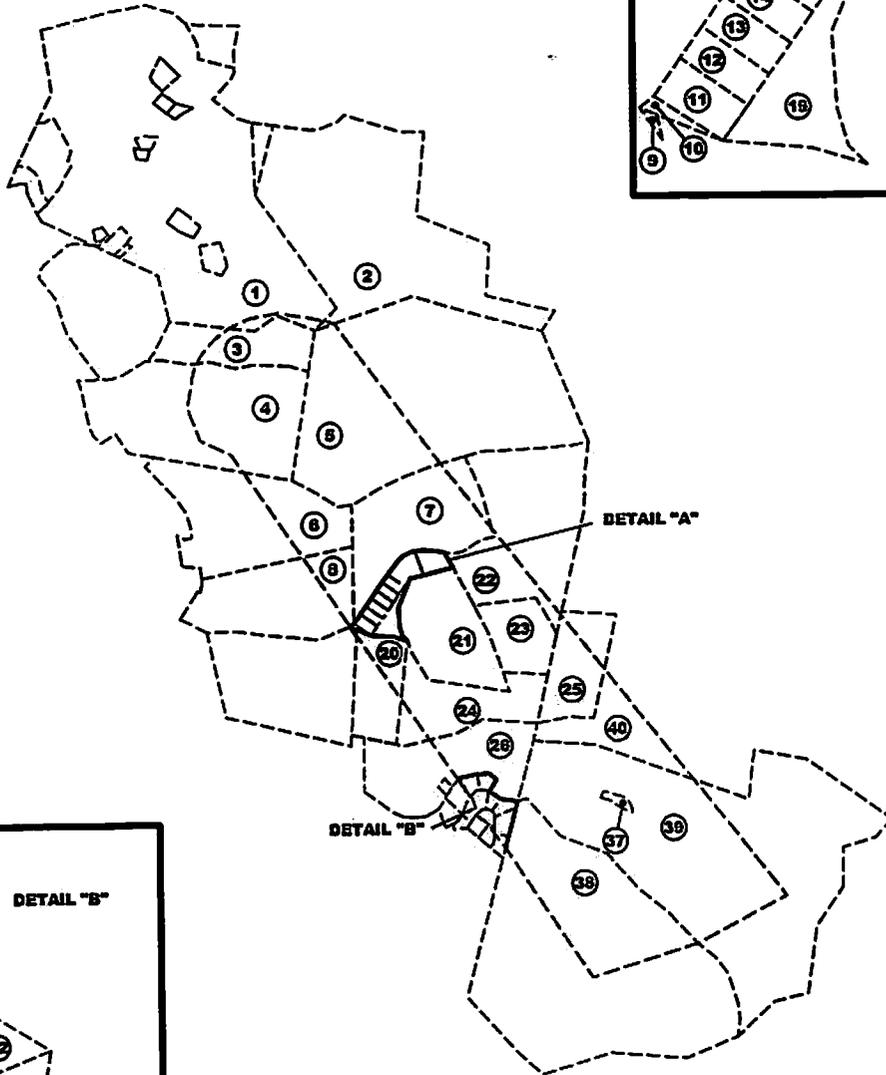
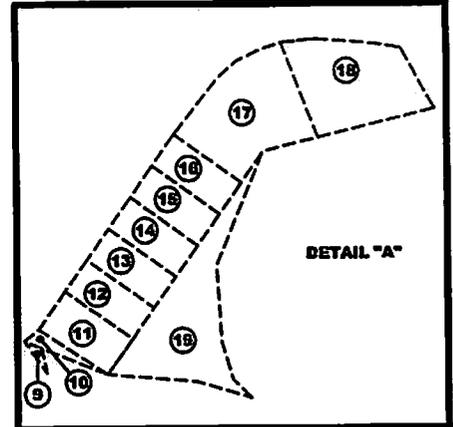
TARGET FORMATION: UTICA ESTIMATED DEPTH: 40,967'± TMD: 17,718'±

WELL OPERATOR: CHEVRON APPALACHIA, LLC DESIGNATED AGENT: KENNETH E. TAWNEY
Address: 800 MOUNTAIN VIEW DRIVE Address: 500 LEE STREET, EAST SUITE 1600
City: SMITHFIELD State: PA Zip Code: 15478 City: CHARLESTON State: WV Zip Code: 25301-3202

UNIT CONSOLIDATION MAP

BERGER 7H UNIT

PAGE 2 OF 3

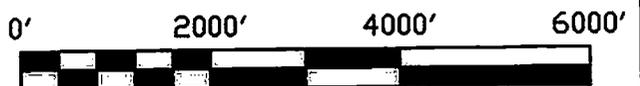


LEGEND	
	- LOCATE & AVOID
	- UNIT BOUNDARY
	- PARCEL LINES

NOTE:

It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted. The location of the unit boundary lines, as shown, are based on a .pdf file image referenced into the drawing, unless otherwise noted.

FEBRUARY 12, 2014



UNIT CONSOLIDATION MAP

BERGER 7H UNIT

PAGE 3 OF 3

	SURFACE OWNER	OIL & GAS OWNER	DIST-TM/PAR	AC. IN UNIT
2	SARAH J. KNABENSHUE ET AL	HOWARD BONAR CONNER ETAL	4-5/85	0.158
3	TERRY L. PATTERSON	TERRY L. PATTERSON	4-7/5.2	10.539
4	GARY K. & LINDA K. BERGER	GARY K. & LINDA K. BERGER	4-7/7.2	28.022
5	STANLEY L. & SHIRLEY L. PATTERSON	STANLEY L. & SHIRLEY L. PATTERSON	4-8/1	35.181
6	GEORGE E. & REBECCA VUCELICK	GEORGE E. & REBECCA VUCELICK	4-7/23	41.552
7	GEORGE E. & REBECCA VUCELICK	GEORGE E. & REBECCA VUCELICK	4-8/2	
8	GEORGE E. & REBECCA VUCELICK	GEORGE E. & REBECCA VUCELICK	4-7/24	
9	CHARLES A. & CINDY K. SEBROSKI	CHARLES A. & CINDY K. SEBROSKI	4-7/24.1	0.370
14	MILTON L. HUFF JR.	MILTON L. & COLISIA A. HUFF	4-8/4	0.250
15	WILLIAM L. LOY & NAOMI LOY	WILLIAM E. LOY	4-8/3.1	0.250
17	ESTHER & JAMES NEMURAS	JAMES D. & ESTHER L. NEMURAS	4-8/3	0.828
18	AMY JO HELMS	AMY JO HELMS	4-8/3.8	0.710
19	EDGAR E. HAMMOND III	EDGAR E. HAMMOND III	4-8/3.7	0.965
20	ANDREW S. HAMMOND	ANDREW S. & TINA HAMMOND	4-8/3.5	2.950
21	ROGER HAMMOND	ROGER W. & CINDY A. HAMMOND	4-8/3.6	8.285
22	BONAR FAMILY IRREVOCABLE TR	BONAR FAMILY IRREVOCABLE TR	4-8/9	15.2595
23	BONAR FAMILY IRREVOCABLE TR	BONAR FAMILY IRREVOCABLE TR	4-8/8	8.2998
24	HUNTER W. & ROGER W. HAMMOND	CLARA E. HAMMOND	4-8/3.3	
25	JOHN ROBERT BONAR	JOHN ROBERT BONAR	4-8/10.1	10.039
26	HEATH & CHRISTY TAYLOR	HEATH & CHRISTY TAYLOR	4-12/2	12.931
27	WOODROW J. YOHO	WOODROW J. & PATTY L. YOHO	4-12/2.28	1.096
28	ROBERT D. LEWIS	ROBERT D LEWIS ET UX	4-12/2.27	0.823
29	RYAN E. BLACK	RYAN E BLACK	4-12/2.28	0.825
30	KIMBERLY SUE HILL	KIMBERLY SUE HILL	4-12/2.23	0.525
31	KATHLEEN C. TEREK	KATHLEEN C. TEREK	4-12/2.16	0.453
32	LAWRENCE K. ALTMAYER ET UX	LAWRENCE K. ALTMAYER ET UX	4-12/2.12	0.542
33	BRIAN P. CAREY ET UX	BRIAN P. CAREY ET UX	4-12/2.14	0.988
34	JAMES C. BOYD	JAMES C BOYD	4-12/2.8	0.554
35	STEPHEN M. HENRY	STEPHEN M. HENRY	4-12/2.11	0.808
36	ROBERT J. CAURSO	ROBERT J. & DELORES M. CARUSO	4-12/2.7	0.618
40	GRACE L. BONAR ETAL	GRACE L. BONAR ETAL	4-8/10	12.549

JOHN B. JEFFERSON HEIRS			TOTAL ACRES IN UNIT 31.158
	SURFACE OWNER	OIL & GAS OWNERS	AC. IN UNIT
10	MAURICE W. & DIANE N. WALTER	KENNETH BROW	SEE ABOVE
11	MAURICE W. & DIANE N. WALTER	PHILLIP & JOYCE CROUCH	SEE ABOVE
12	EVELYN MAXINE STANLEY	PAUL T. CUMMINGS	SEE ABOVE
13	RODNEY A. KERESKES	JOHN W. JEFFERSON	SEE ABOVE
14	MILTON L. HUFF JR.	JAMES K. JEFFERSON	SEE ABOVE
15	WILLIAM L. LOY & NAOMI LOY	SHARON E. BRAXTON	SEE ABOVE
16	JUNE HALL	THOMAS LEE JEFFERSON	SEE ABOVE
17	ESTHER & JAMES NEMURAS	LUCIDA K. LAVIANO	SEE ABOVE
18	AMY JO HELMS		SEE ABOVE
19	EDGAR E. HAMMOND III		SEE ABOVE
20	ANDREW S. HAMMOND		SEE ABOVE
21	ROGER HAMMOND		SEE ABOVE
23	BONAR FAMILY IRREVOCABLE TR		SEE ABOVE
24	HUNTER W. & ROGER W. HAMMOND		SEE ABOVE

KENNETH M. LEONA D. LOY HEIRS			TOTAL ACRES IN UNIT 1.050
	SURFACE OWNER	OIL & GAS OWNERS	AC. IN UNIT
10	MAURICE W. & DIANE N. WALTER	PATRICIA L. CROW	SEE ABOVE
11	MAURICE W. & DIANE N. WALTER	PHYLLIS J. CROW-HEWITT	SEE ABOVE
12	EVELYN MAXINE STANLEY	KENNETH D. LOY	SEE ABOVE
13	RODNEY A. KERESKES	RONALD L. LOY	SEE ABOVE
16	JUNE HALL		SEE ABOVE

FORMERLY MERLE CHAPLIN ET UX			TOTAL ACRES IN UNIT 81.938
	SURFACE OWNER	OIL & GAS OWNERS	AC. IN UNIT
37	MERLE R. & JEAN E. CHAPLIN	MARCELLUS TX MINERAL PARTNERS, LLC	SEE ABOVE
38	MERLE R. & JEAN E. CHAPLIN	PURPLEBURGH VENTURES, LLC	SEE ABOVE
39	MERLE R. & JEAN E. CHAPLIN	JMK IRREVOCABLE TRUST	SEE ABOVE

PERSINGER LEASES			TOTAL ACRES IN UNIT 1.705
	SURFACE OWNER	OIL & GAS OWNERS	AC. IN UNIT
1	JOHN L. FOX	JOHN L. FOX	SEE ABOVE
		KAREN M. FOX	SEE ABOVE
		CHRISTI F. PRESTON	SEE ABOVE
		JOHN L. FOX II	SEE ABOVE
		CYNTHIA S. HAMILTON	SEE ABOVE
		DOROTHY ANN ARGENTA	SEE ABOVE
		JOAN E. KRESS	SEE ABOVE
		WILLIAM P. ARGENTA	SEE ABOVE
		PAUL T. ARGENTA	SEE ABOVE
		MARY E. PERSINGER	SEE ABOVE
		JANET C. HUNNEL	SEE ABOVE
		MICHAEL PERSINGER	SEE ABOVE
		BETH BLAKE	SEE ABOVE
		KAREN FOX EVANS	SEE ABOVE
		WILLIAM B. FOX	SEE ABOVE
		LINDA S. SMITH	SEE ABOVE
		ANN MILLER	SEE ABOVE

TOTAL UNIT ACREAGE 309.575