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west virginia department of environmental protection

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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

## PERMIT MODIFICATION APPROVAL

August 06, 2014

CHEVRON APPALACHIA, LLC  
POST OFFICE BOX 611  
MOON TOWNSH, PA 15108

Re: Permit Modification Approval for API Number 5101720 , Well #: FRANCIS 13H  
**Partial plug and sidetrack**

Oil and Gas Operator:

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

Gene Smith  
Assistant Chief of Permitting  
Office of Oil and Gas



**Kristen Brooks**  
Permit Coordinator

**Appalachian/Michigan  
Strategic Business Unit**  
Chevron North America  
Exploration and Production  
A Division of Chevron U.S.A. Inc.  
800 Mountain View Drive  
Smithfield, PA 15478  
Tel 724-564-3700  
Fax 724-564-2365  
kristenbrooks@chevron.com

July 21, 2014

West Virginia D.E.P.  
Office of Oil & Gas  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304-2345

RE: Francis 13H – API: 47-5101720

Dear Mr. Smith,

Enclosed please find the required information for a partial plugging modification to the Francis 13H well, due to a kick-off and side track around a stuck assembly. If you have any questions or problems, please contact me at (724) 564-3781 or kristenbrooks@chevron.com. Thank you.

Sincerely,

A handwritten signature in blue ink that reads "Kristen Brooks".

Kristen Brooks  
Permit Coordinator  
Chevron Appalachia, LLC

Enclosures

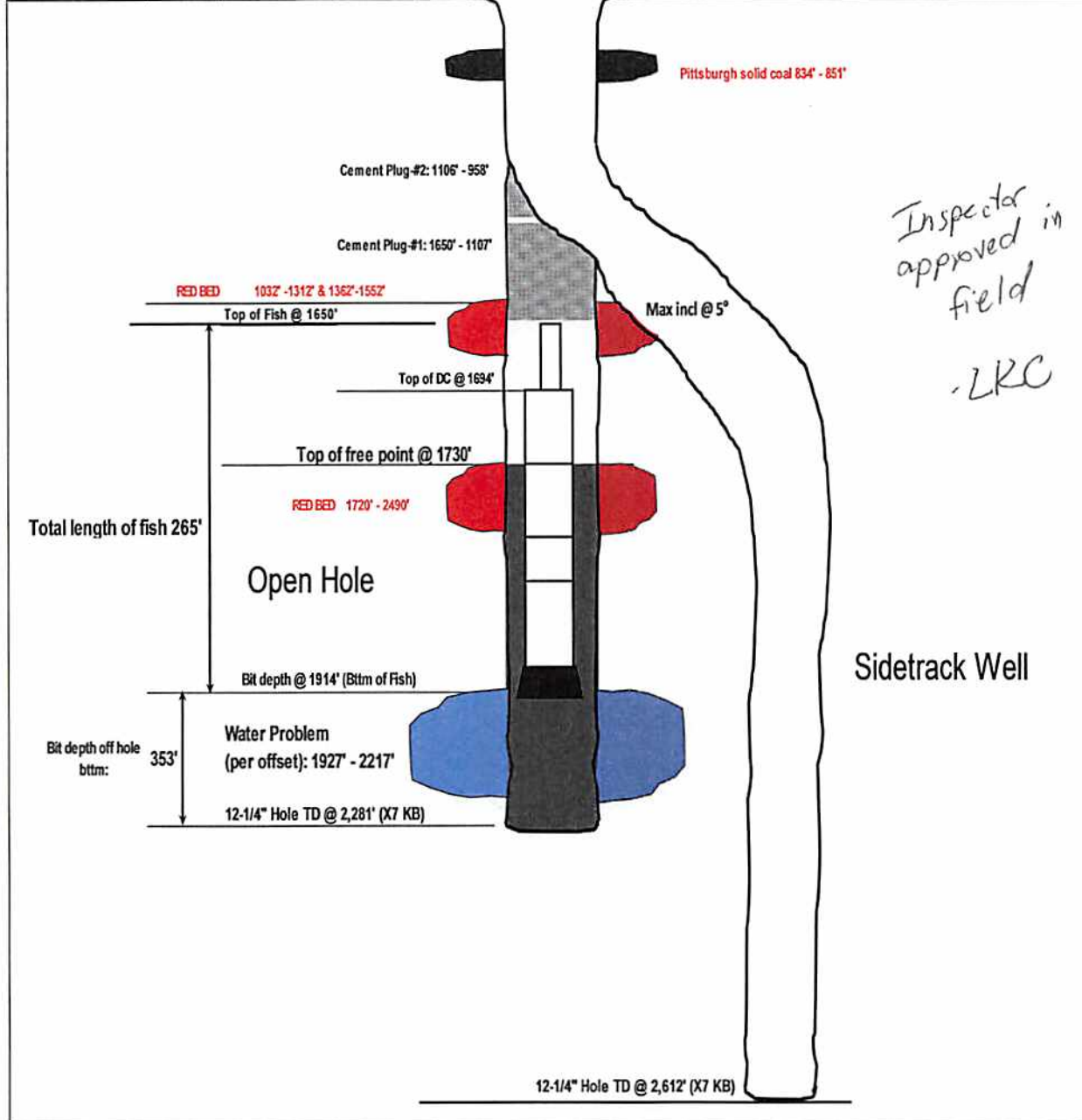
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Office of Oil and Gas  
JUL 24 2014  
WV Department of  
Environmental Protection

08/08/2014

# Francis 13H Sidetrack

Marshall Co PA  
 July 17, 2014  
 Ground Level Elevation: 1260  
 Depths are measured from KB above GL of 32

AZM	Casing Formation	DEPTH		Inclination	CASING SPECS
		MD	TVD		
	30.0" Conductor	55'			Conductor Minimum 40 ft from GL or at least 10 ft into bedrock
	20" Dummy Hanger Installed				#1 Water String 13-3/8" 54.5# J-55 BTC 0.453" wall Capacity = 508 bbl/ft Annulus = 237 bbl/ft (+6 bbl for shoe track) Burst = 2730 psi
	13 3/8" Casing	702'		Hole displaced to 9.8ppg SBM	Min 50 ft, Max 150ft past deepest known fresh water



**WW-6B Attachment Francis Unit 2H, 3H, 4H, 6H, 7H, 8H, 9H, 10H, 11H, 12H, 13H**

- If a void is encountered the contingency will be the following:
  - Once unexpected void is encountered drill 12-1/4" hole to 100' below bottom of mine void.
  - Run 9-5/8", 36 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 8-3/4" hole to 2580'.
  - Run 7", 23 lb/ft, N-80 casing.
  - Cement casing to surface using the displacement method with 30% excess.
  - Drill 6-1/4" hole to TD.
  - Run 4-1/2" 13.5 lb/ft, P-110 casing to TD.
  - Cement to surface using displacement method with 10% excess
  
- If the drill string/BHA gets stuck during drilling operation:
  - Make all necessary effort and attempt to free the drill string/BHA.
  - If all effort and attempts proves unsuccessful, will notify WV DEP Inspector of situation and obtain verbal and/or email approval to plug hole back with cement plug(s) and sidetrack well
  - Cement plug(s) will be set as needed to the desired depth adequate for successful sidetrack of well without compromising anti-collision with the original hole and ghost well(s)/adjacent wells on the same pad
  - Cement plug(s) additives will contain Class H cement, KCl, Dispersant, Anti-Foam, and Retarder.
  - Trip in hole with Drilling Bottom Hole Assembly
  - Dress/drill cement to proposed kick off point
  - Kick off and sidetrack well and directionally drill sidetrack well to original casing point

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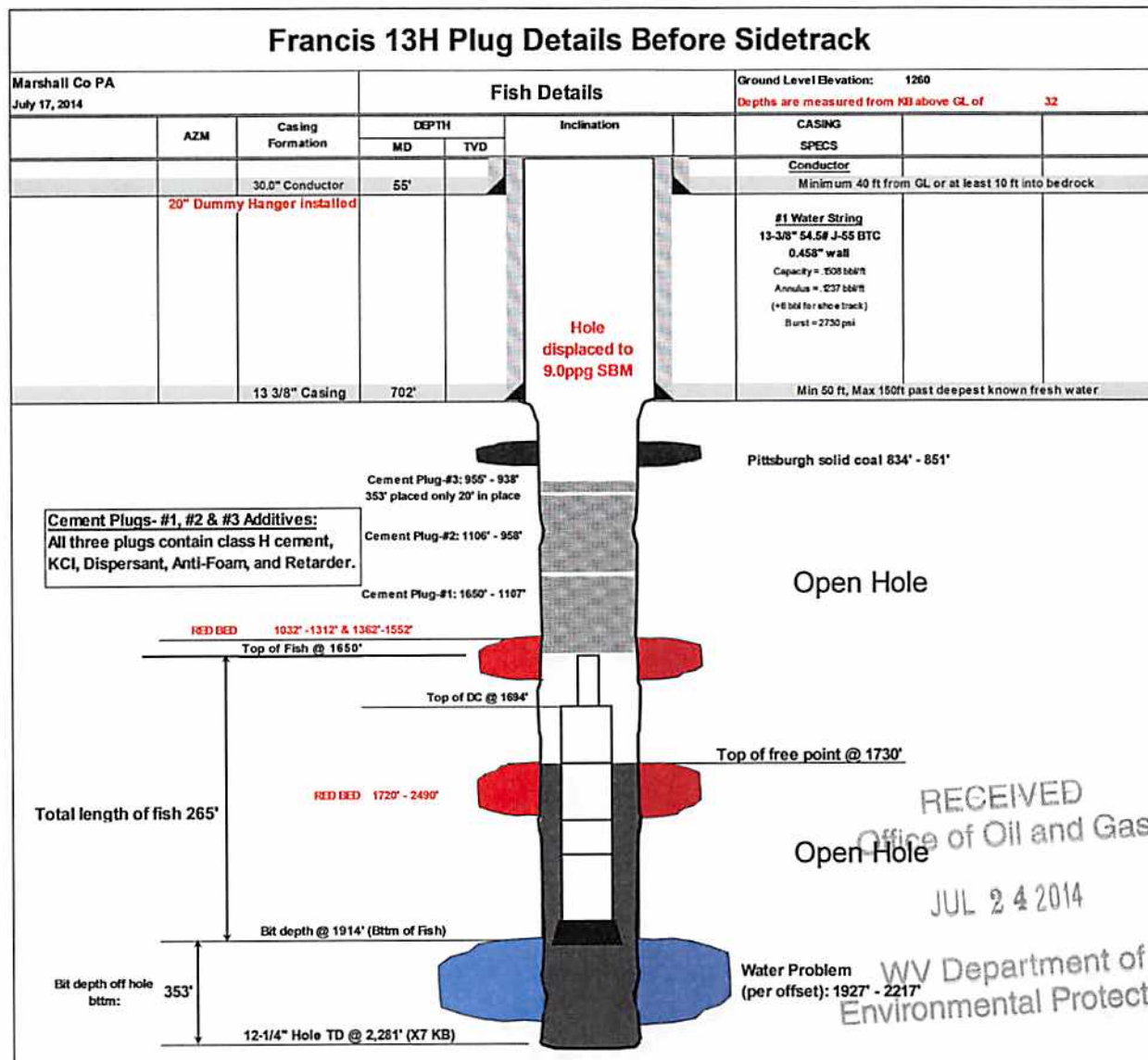
JUL 24 2014

WV Department of  
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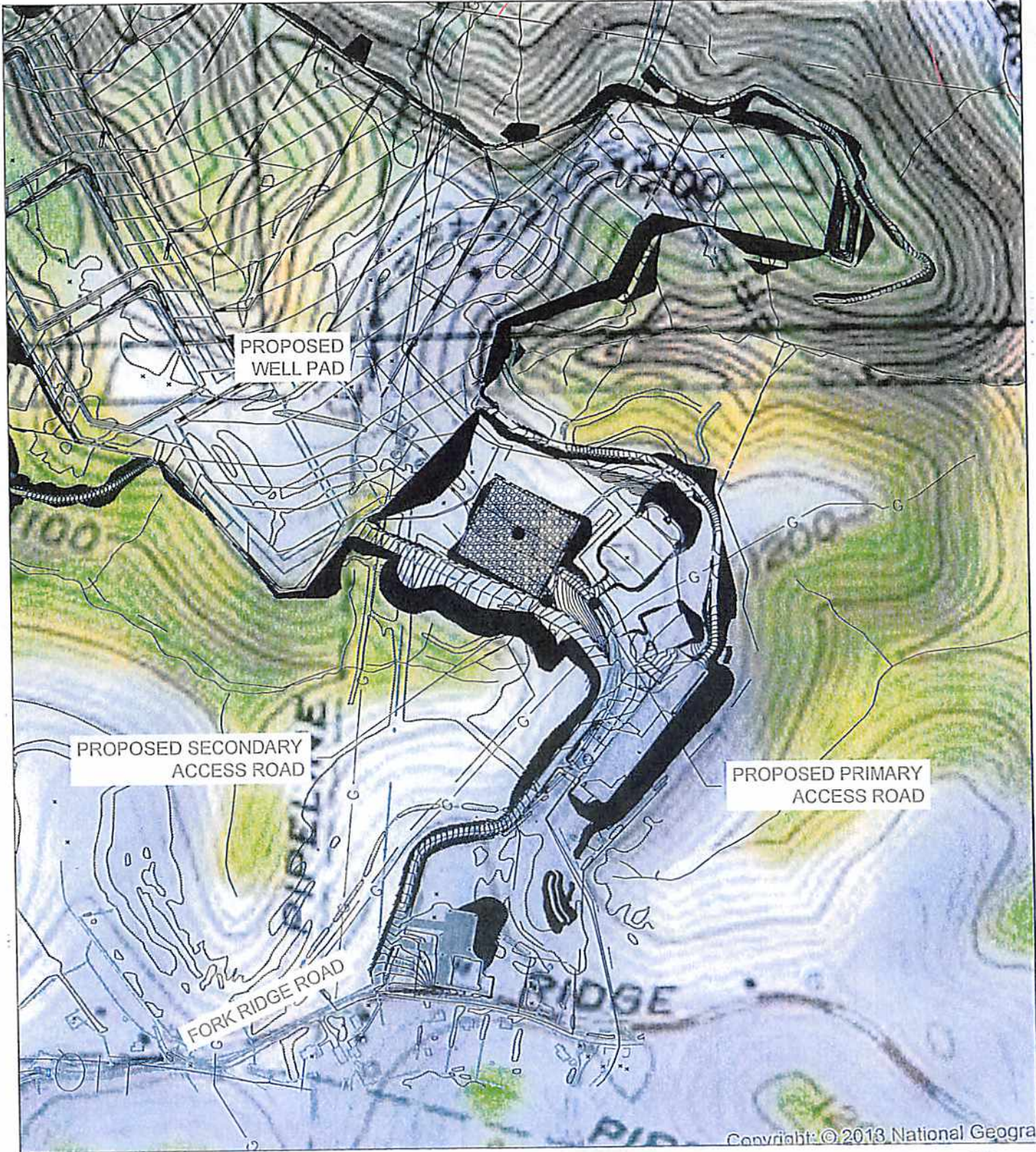
Fish component:

#	Description	Length (ft)	Cumm Length (ft)	OD"	ID"	Btm Conn	Top Conn
1	12-1/4" Numa bit	1.0	5.37	12.25	N/A	N/A	NC 56 (P)
2	12-1/4' Numa Hammer	5.37	6.37	10.75	2.75	NC 56 (P)	NC 56 (P)
3	Bit sub	3.0	9.37	8.0	4.375	NC 56 (P)	NC 56 (P)
4	X-over sub	2.66	12.03	8.125	3.250	NC 56 (P)	4 1/2" IF (B)
5	Shock Tool	8.48	20.51	8.0	2.0	4 1/2" IF (P)	4 1/2" IF (B)
6	8" NM Pony Collar	9.86	30.37	8.0	3.0	4 1/2" XH (P)	4 1/2" XH (B)
7	SRC	14.70	45.07	8.375	3.25	4 1/2" XH (P)	4 1/2" XH (B)
8	SRC	14.71	59.78	8.0	3.25	4 1/2" XH (P)	4 1/2" XH (B)
9	EM Gap Sub	6.0	65.78	8.0	3.25	4 1/2" XH (P)	4 1/2" XH (B)
10	EM Support Sub	2.39	68.17	7.8125	3.25	4 1/2" XH (P)	4 1/2" XH (B)
11	NM Drill Collar	30.64	98.81	8.125	3.25	4 1/2" XH (P)	4 1/2" XH (B)
12	Shock Tool	9.30	108.11	8.0	2.0	4 1/2" XH (P)	4 1/2" XH (B)
13	UBHO sub	2.61	110.72	8.0	1.75	4 1/2" XH (P)	4 1/2" XH (B)
14	Drill Collar (4 nos)	120.61	231.33	6.5	2.375	4 1/2" XH (P)	4 1/2" XH (B)
15	X-over sub	2.33	233.66	6.5	2.375	NC 56 (P)	4 1/2" XH (B)
16	1 jt Drill Pipe	31.25	264.91	4	2.5	4 1/2" XH (P)	4 1/2" XH (B)

Note: No Radioactive material left in hole



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*MAK*  
*10/2/2013*

*JR*  
*10/2/13*

SITE USGS LOCATION MAP

SCALE: 1" = 500'

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Office of Oil and   
NORTH

USGS SITE  
LOCATION MAP  
Project Name: 11111111  
Drawing Date: 10/2/13  
Data Year: 2011-2013  
Data Source: USGS  
Checked By: [Signature]  
Prepared By: [Signature]

FRANCIS WELL SITE  
FORK RIDGE ROAD, MARSHALL COUNTY  
MOUNDSVILLE, WEST VIRGINIA  
PREPARED FOR:  
**CHEVRON APPALACHIA, LLC**  
800 MOUNTAIN VIEW DRIVE  
SMITHFIELD, PA 15478

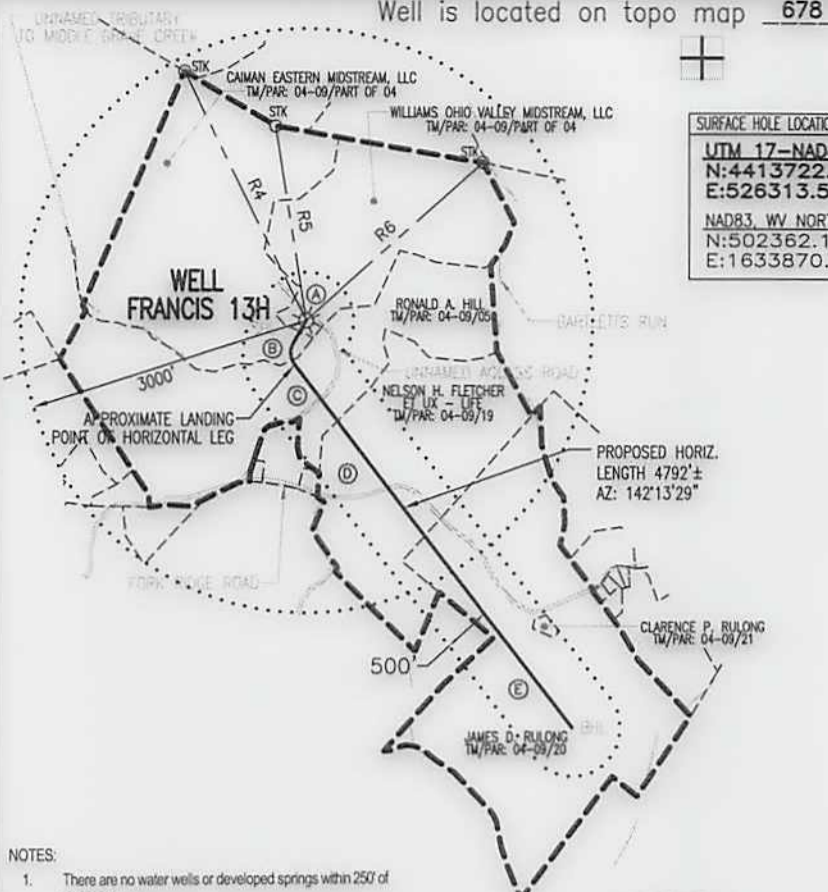
Date	No.	REVISION RECORD
-	01	
-	02	
-	03	
-	04	
-	05	
-	06	
-	07	
-	08	

2013  
**GATEWAY**  
Consulting Engineers & Scientists  
100 Barclay Street, Suite 500 Pittsburgh, PA 15222  
Phone: (412) 621-4030 - Fax: (412) 621-8300  
• Sales: PA (724) 224-1000  
• Pittsburgh: PA (412) 224-1000  
• Erie: PA (814) 224-1000

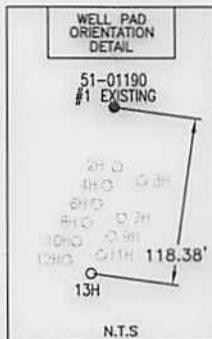
08/08/2014

Well is located on topo map 678 feet south of Latitude: 39° 52' 30"

Well is located on topo map 7,195 feet west of Longitude: 80° 40' 00"



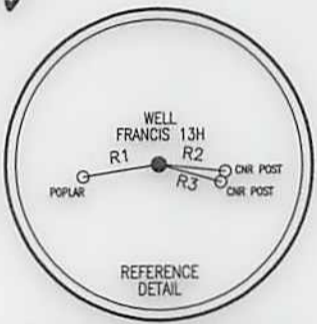
SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION (BHL)
<b>UTM 17-NAD83</b> N:4413722.148 E:526313.552 NAD83, WV NORTH N:502362.102 E:1633870.213	<b>UTM 17-NAD83</b> N:4413582.08 E:526278.87 NAD83, WV NORTH N:501904.38 E:1633748.72	<b>UTM 17-NAD83</b> N:4412458.29 E:527180.26 NAD83, WV NORTH N:498167.21 E:1636644.98



PARCEL	LESSOR
A	BARBARA P. FRANCIS
B	BARBARA P. FRANCIS
C	RONALD A. HILL & MARTIN DEAN HILL
D	H. NELSON & MAXINE E. FLETCHER ET AL
E	CLARENCE RULONG

**NOTES:**

- There are no water wells or developed springs within 250' of proposed well.
- There are no existing buildings within 625' of proposed well.
- Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
- There are no native trout streams within 300' of proposed well.
- Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
- It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted herein. 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.



LINE	BEARING	DISTANCE
R1	S 80°54'10" W	161.11'
R2	S 83°47'39" E	139.31'
R3	S 74°00'20" E	134.32'
R4	N 26°31'52" W	2861.90'
R5	N 09°05'05" W	2024.99'
R6	N 48°39'07" E	2470.39'

**LEGEND**

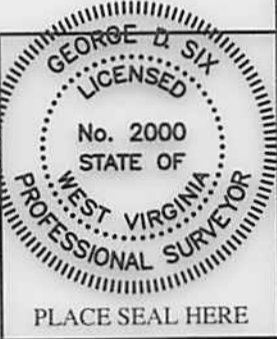
- ⊕ - TOPO MAP POINT
- ☼ - WELL
- - ALL ARE POINTS UNLESS OTHERWISE NOTED.
- Ⓜ - WATER SOURCE
- - - MINERAL TRACT BOUNDARY
- - - PARCEL LINES
- - - WELL REFERENCE
- - - PROPOSED HORIZONTAL WELL
- - - ROAD
- - - STREAM CENTER LINE
- WELLS WITHIN 3000'
- - EXISTING WELLS
- ⦿ - PLUGGED WELLS

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

FILE #: FRANCIS 13H  
DRAWING #: FRANCIS 13H  
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: [Signature]  
R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2000



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



DATE: APRIL 9, 2014  
OPERATOR'S WELL #: FRANCIS 13H  
API WELL #: 47 51  
STATE COUNTY PERMIT

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

WATERSHED: MIDDLE GRAVE CREEK ELEVATION: 1260.40'  
COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: GLEN EASTON, WV 7.5'  
SURFACE OWNER: WILLIAMS OHIO VALLEY MIDSTREAM, LLC ACREAGE: 70.41±  
OIL & GAS ROYALTY OWNER: BARBARA P. FRANCIS ACREAGE: 535.852±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,512'± TMD: 11,764'±  
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

**MOD**  
**01720 H6A**  
**08/08/2014**