



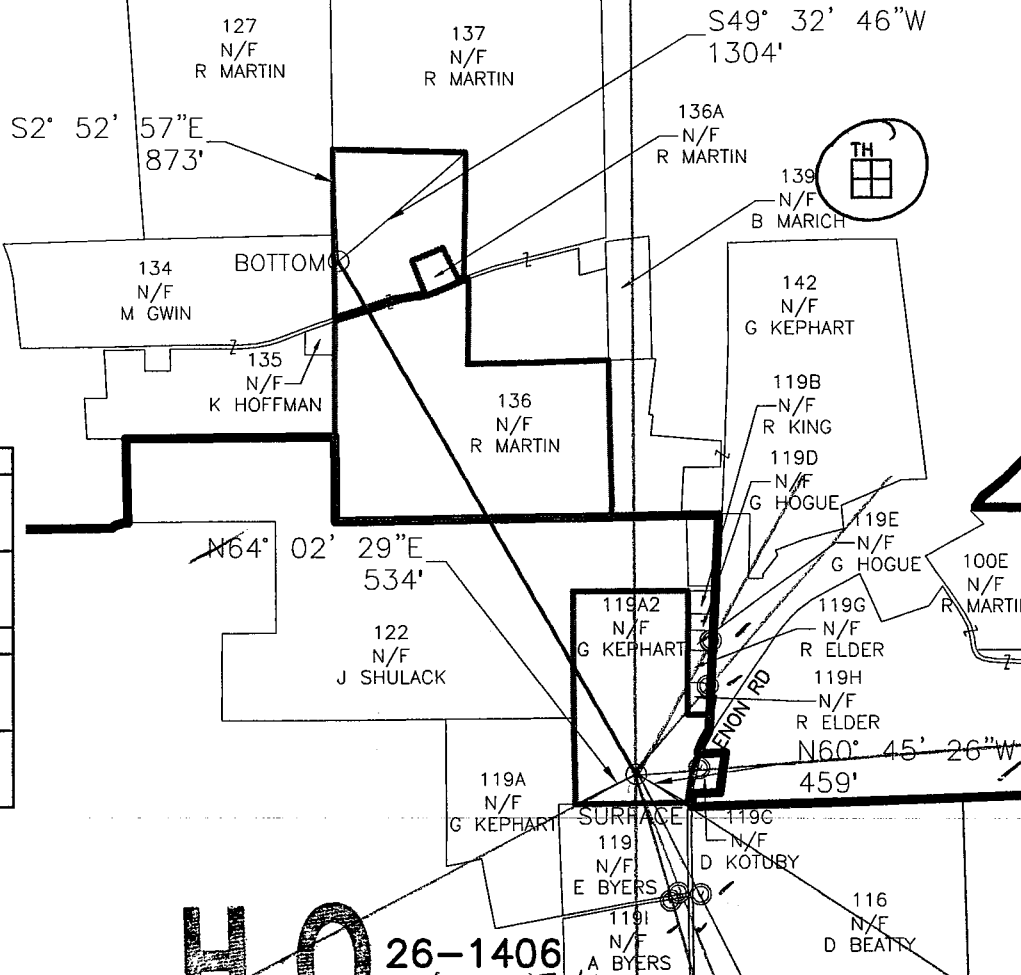
pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP Application Tracking #:	12/14/11
Permit #:	073-20351
Project #:	C:

Top Hole Well is located on topo map 4541 feet south of latitude 40° 57' 30"
Bottom Hole Well is located on topo map 597 feet south of latitude 40° 57' 30"
parcel lines taken from tax map information

26-1407



Surface Hole Coordinates:

True Latitude: NORTH
40° 56' 45.13"

True Longitude: WEST
80° 28' 18.87"

Bottom Hole Coordinates:

True Latitude: NORTH
40° 57' 24.10"

True Longitude: WEST
80° 28' 50.70"

Ⓢ denotes water supply

TH
Denotes Top Hole

BH
Denotes Bottom Hole



D Michael Canada

Surveyor or D. Michael Canada Phone #:
Engineer: Pa. Lic. # SU029272 E (716) 379-7918

Dwg. #: 20110927 FRANK 2019 Date: OCT 31, 2011

Scale: 1" = 1500' Tract Acreage: 69.68

Lat. & Long Metadata Method: RTK GPS Accuracy: ± 5 ft. Datum: NAD 83		Elevation Metadata Method: GPS Accuracy: ± 5 ft. Datum: NAD 83		Survey Date: AUGUST 29, 2011	
Applicant / Well Operator Name: SWEPI LP		DEP ID#: 284309		Well(Farm) Name: KEPHART, G	
Address: 190 Thorn Hill Road, Warrendale, PA 15086		County - Code: LAWRENCE		Municipality: NORTH BEAVER	
Surface Landowner / Lessor: KEPHART, GREGORY T.		USGS 71/2 Quadrangle Map Name: BESSEMER		Map Section: 4	
Target Formation(s): Marcellus Shale		Angle & Course of Deviation (Drilling): N29° 57' 55"W 4639'		Anticipated Total Depth: TVD: 4500' TMD: 8781'	
Surface Owner or Water Provider with a Water Supply		Approximate Course and Distance to Water Supply		Owner, Lessor, or Operator	
HOGUE, GREGORY & AMY		N29° 24' 38"E 1200'		NONE	
ELDER, ROBERT K. JR. & MARILYN M		N39° 12' 06"E 892'			
KOTUBY, DANIEL M.		N84° 29' 07"E 496'			
BEATTY, DOUGLAS S. & KAREN R.		S28° 02' 40"E 1064'			
BYERS, EDWARD G. & CAROL A.		S19° 17' 51"E 983'			
BYERS, ANNA		S15° 03' 35"E 1022'			

Top Hole Well is located on topo map 3749 feet west of longitude 80° 27' 30"
Bottom Hole Well is located on topo map 6191 feet west of longitude 80° 27' 30"



WELL DETAILS: KEPHART 2019-2HM

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.0	0.0	295716.50	1216678.60	40° 56' 45.128 N	80° 28' 18.870 W

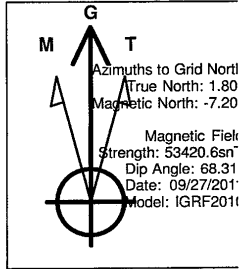


DESIGN TARGET DETAILS

TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP 2HM 4450.0	620.4	-357.8	296336.93	1216320.82	40° 56' 51.145 N	80° 28' 23.785 W
TD 2HM 4450.0	4018.7	-2317.0	299735.20	1214361.60	40° 57' 24.096 N	80° 28' 50.700 W

ANNOTATIONS

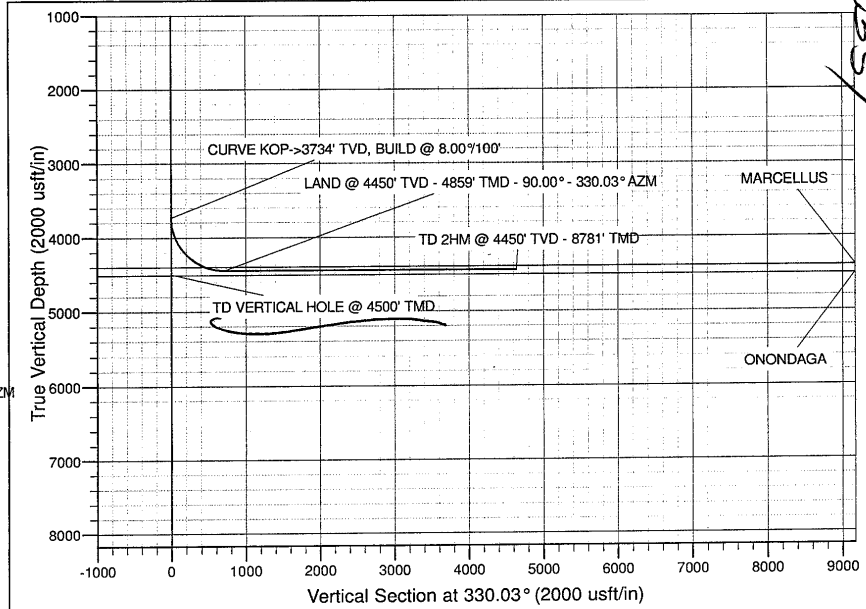
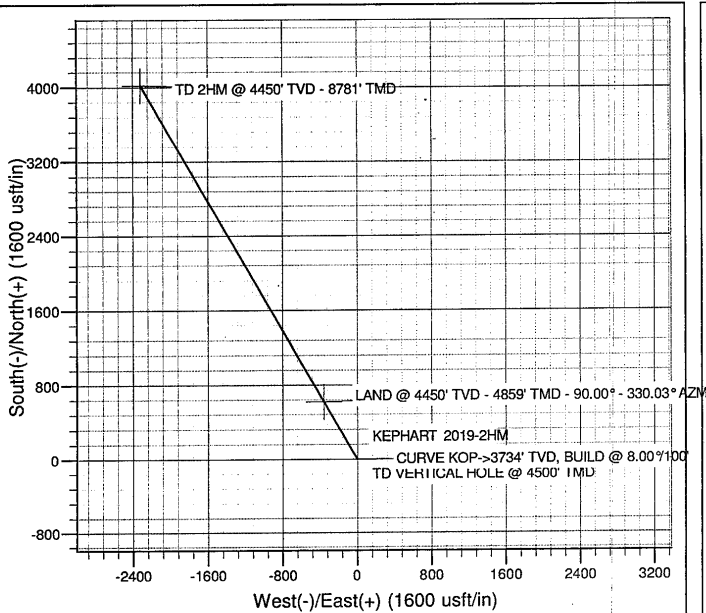
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
3733.8	3733.8	0.00	0.00	0.0	0.0	0.0	0.0	CURVE KOP->3734' TVD, BUILD @ 8.00°/100'
4450.0	4858.8	90.00	330.03	620.5	-357.7	716.2	716.2	LAND @ 4450' TVD - 4859° TMD - 90.00° - 330.03° AZM
4450.0	8781.4	90.00	330.03	4018.7	-2317.0	4638.8	4638.8	TD 2HM @ 4450' TVD - 8781' TMD



Project: KEPHART 2019
Site: KEPHART 2019-2HM
Well: KEPHART 2019-2HM
Wellbore: KEPHART 2019-2HM
Design: KEPHART 2019-2HM REVISION 9/29/11

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
3733.8	0.00	0.00	3733.8	0.0	0.0	0.00	0.00	0.0	
4858.8	90.00	330.03	4450.0	620.5	-357.7	8.00	330.03	716.2	LP 2HM
8781.4	90.00	330.03	4450.0	4018.7	-2317.0	0.00	0.00	4638.8	TD 2HM



013-20351



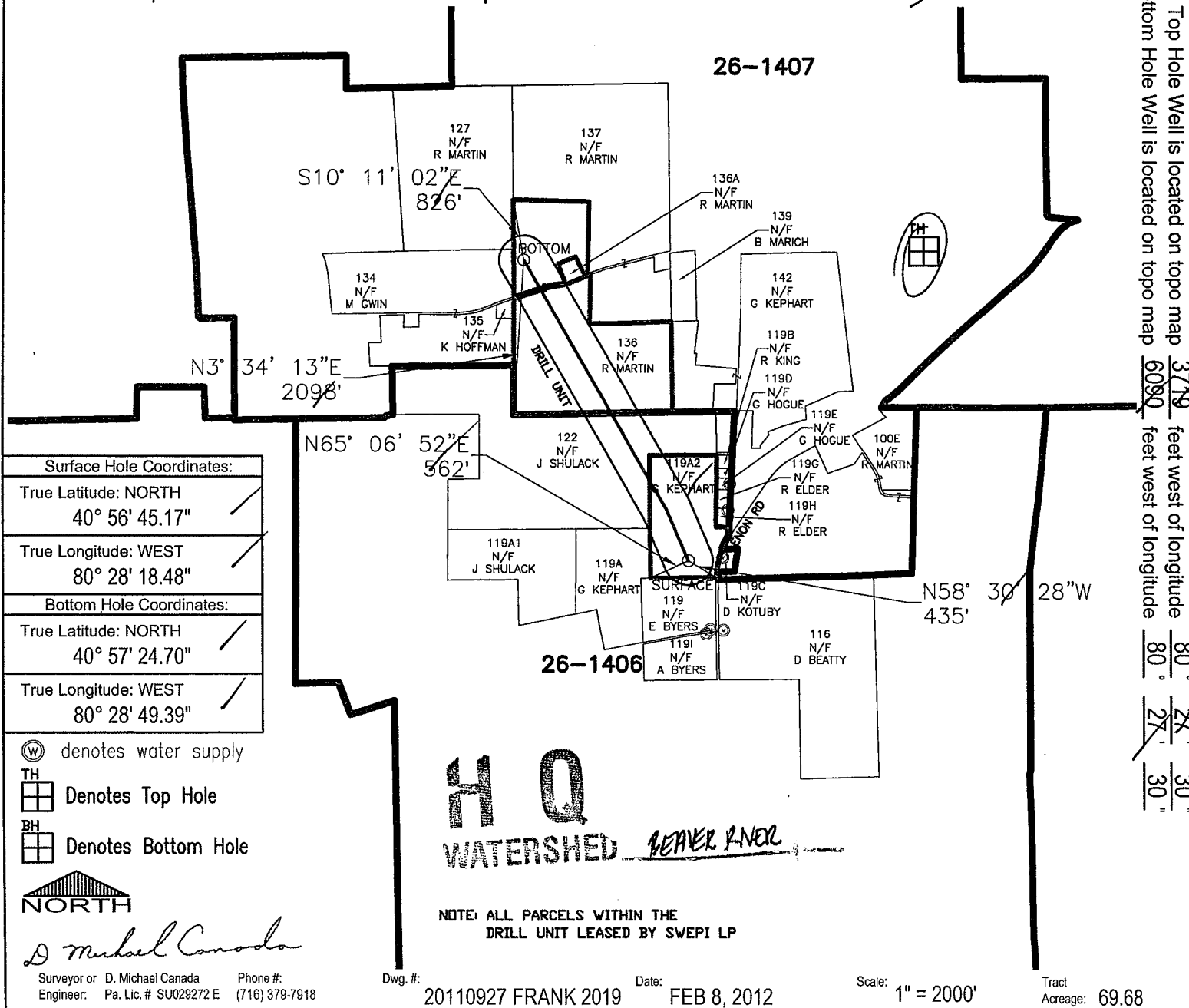
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP Application Tracking #:	G: <i>4/2/12</i>
Permit #:	C:
Project #:	

Top Hole Well is located on topo map 4536 feet south of latitude
Bottom Hole Well is located on topo map 536 feet south of latitude
parcel lines taken from tax map information

BH $\frac{40^\circ}{40^\circ} \frac{57'}{57'} \frac{30''}{30''}$



Top Hole Well is located on topo map 3719 feet west of longitude
Bottom Hole Well is located on topo map 6090 feet west of longitude

H Q
WATERSHED BEAVER RUN

NOTE: ALL PARCELS WITHIN THE
DRILL UNIT LEASED BY SWEPI LP

Surveyor or Engineer: D. Michael Canada
Pa. Lic. # SU029272 E Phone #: (716) 379-7918

Dwg. #: 20110927 FRANK 2019 Date: FEB 8, 2012

Scale: 1" = 2000' Tract Acreage: 69.68

Lat. & Long Metadata Method: RTK GPS Accuracy: ± 5 ft. Datum: NAD 83		Elevation Metadata Method: GPS Accuracy: ± 5 ft. Datum: NAD 83		Survey Date: AUGUST 29, 2011	
Applicant / Well Operator Name: SWEPI LP		DEP ID#: 284309		Well(Farm) Name: KEPHART, G	
Address: 190 Thorn Hill Road, Warrendale, PA 15086		County - Code: LAWRENCE		Municipality: NORTH BEAVER	
Surface Landowner / Lessor: KEPHART, GREGORY T. &		USGS 71/2 Quadrangle Map Name: BESSEMER 1102		Map Section: 4	
Target Formation(s): Utica Shale		Angle & Course of Deviation (Drilling): N28° 51' 09"W 4651'		Anticipated Total Depth TVD: 9011' TMD: 13,199'	
Surface Owner or Water Purveyor with a Water Supply within 1,000 ft.		Approximate Course and Distance to Water Supply		Owner, Lessee, or Operator of Workable Coal Seam	
HOGUE, GREGORY & AMY		N28° 13' 04"E 1183'		NONE	
ELDER, ROBERT K. JR. & MARILYN M.		N37° 47' 49"E 871'			
KOTUBY, DANIEL M.		N84° 28' 47"E 466'			
BEATTY, DOUGLAS S. & KAREN R.		S26° 32' 13"E 1053'			
BYERS, EDWARD G. & CAROL A.		S17° 35' 18"E 977'			
BYERS, ANNA		S13° 22' 38"E 1017'			

RECEIVED
MAR 27 2012
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-2HD
Wellbore: KEPHART #2019-2HD
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8134.80	0.00	0.00	8134.80	0.00	0.00	0.00	0.00	0.00	Start Build
9259.80	90.00	337.05	8851.00	659.51	-279.27	8.00	337.05	710.78	Start Turn
9347.96	90.00	330.00	8851.00	738.37	-318.54	8.00	-90.00	798.72	End Turn
13199.74	90.00	330.00	8851.00	4074.02	-2244.59	0.00	0.00	4650.50	TD

Surface Location:

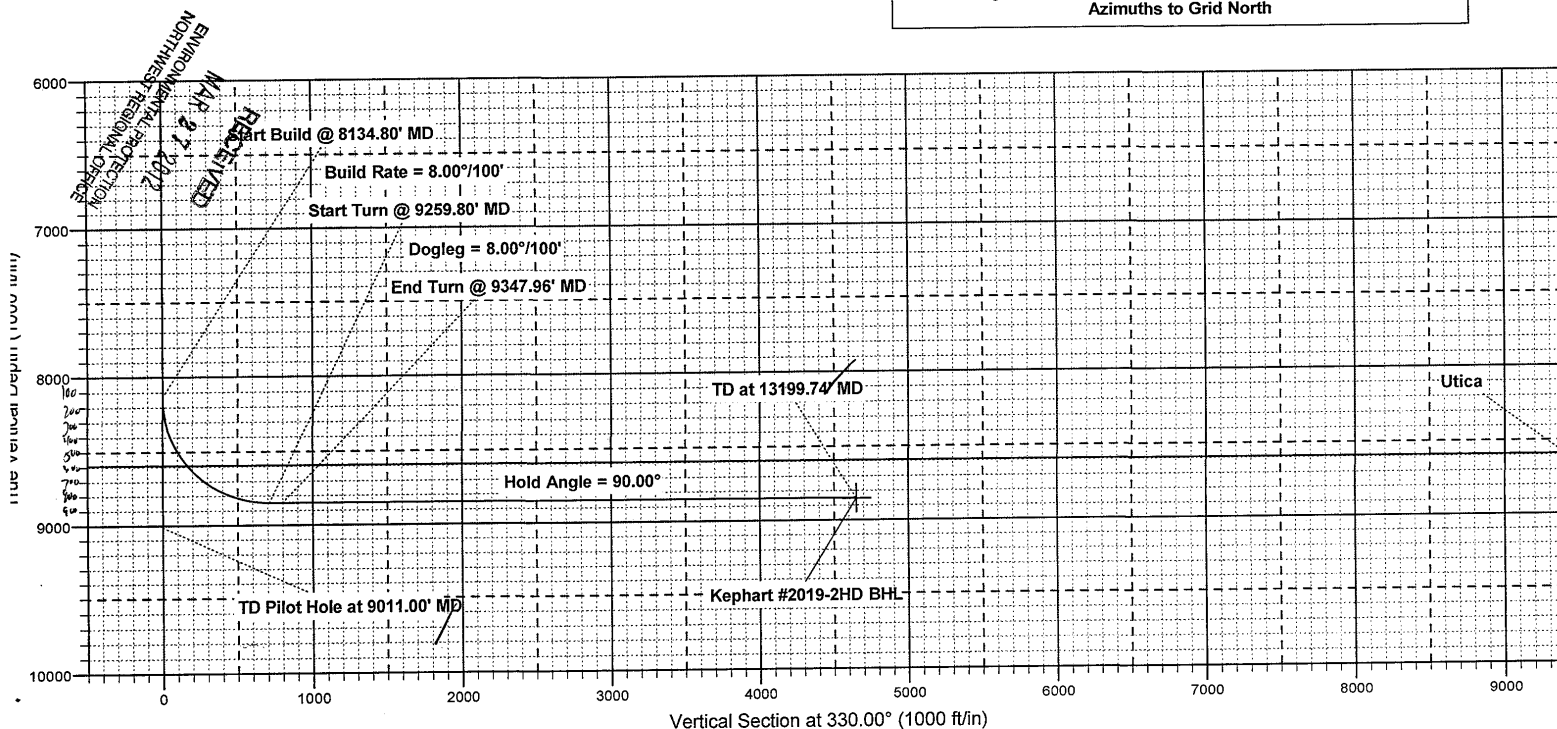
EPW NAD83
 NAD83 / Pennsylvania North [1188, 2271]
 Elevation: GL 1217' + KB 22' @ 1239.00ft (TBD)
 Northing: 295719.38 Easting: 1216708.50 Latitude: 40° 56' 45.166 N Longitude: 80° 28' 18.482 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-2HD BHL	8851.00	4074.02	-2244.59	299793.39	1214463.91	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.22°

Magnetic Model: BGGM2011 Date: 07-Dec-11
 Azimuths to Grid North



UA_APPALACHIA



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-2HD
Wellbore: KEPHART #2019-2HD
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83

NAD83 / Pennsylvania North [1188, 2271]
Elevation: GL 1217' + KB 22' @ 1239.00ft (TBD)

Northing	Easting	Latitude	Longitude
295719.38	1216708.50	40° 56' 45.166 N	80° 28' 18.482 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.22°

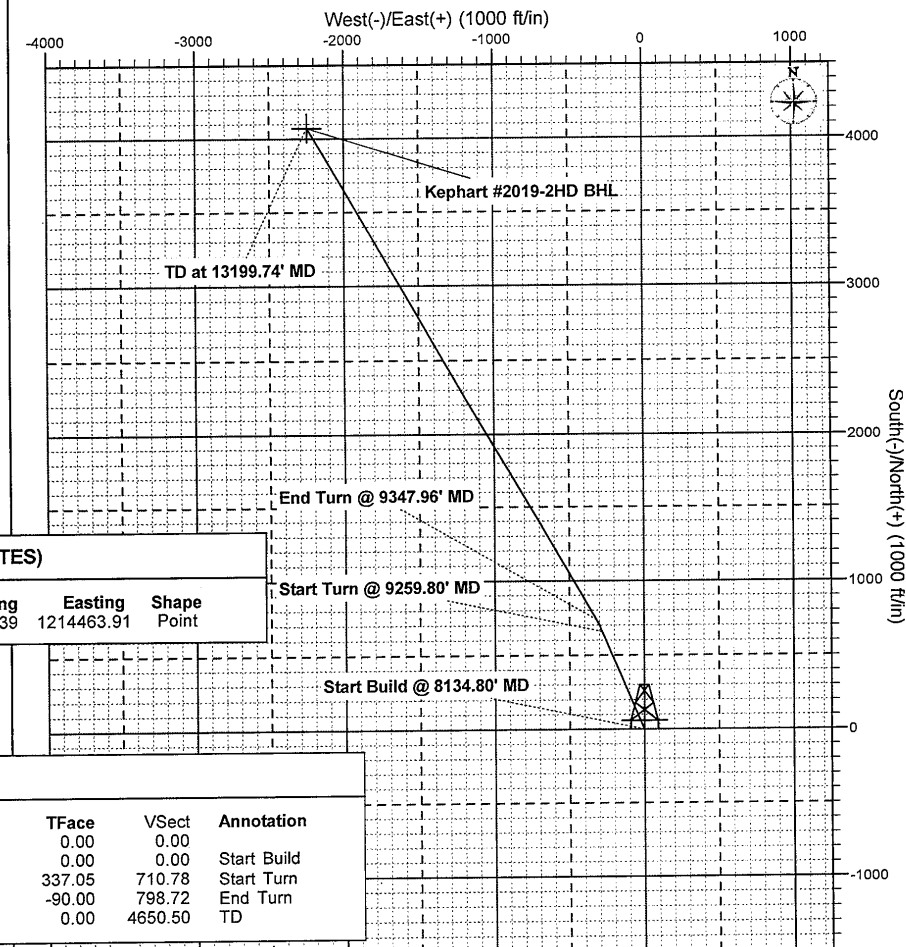
Magnetic Model: BGGM2011 Date: 07-Dec-11
Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Kephart #2019-2HD BHL	8851.00	4074.02	-2244.59	299793.39	1214463.91	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build
8134.80	0.00	0.00	8134.80	0.00	0.00	0.00	0.00	0.00	Start Turn
9259.80	90.00	337.05	8851.00	659.51	-279.27	8.00	337.05	710.78	End Turn
9347.96	90.00	330.00	8851.00	738.37	-318.54	8.00	-90.00	798.72	TD
13199.74	90.00	330.00	8851.00	4074.02	-2244.59	0.00	0.00	4650.50	



Created By: Matt Weber Date: 13:34, January 06 2012



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

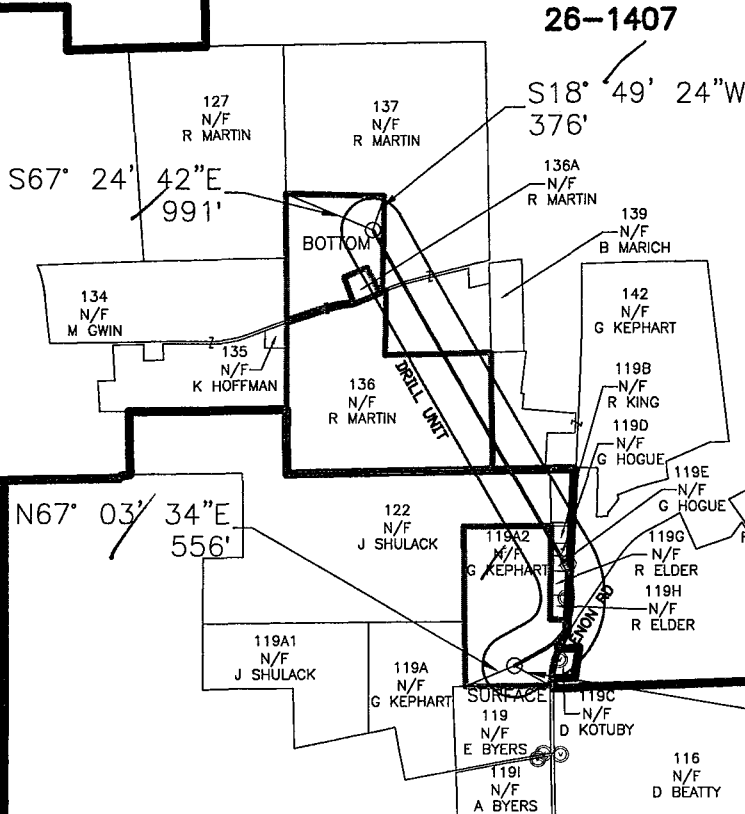
DEP Application Tracking #:	G: <u>23</u> 4/12/2012
Permit #:	C: <u>073-20374</u>
Project #:	

Top Hole Well is located on topo map 4557 feet south of latitude
Bottom Hole Well is located on topo map 79 feet south of latitude
parcel lines taken from tax map information

40° 57' 30"
40° 57' 30"

Top Hole Well is located on topo map 3417 feet west of longitude
Bottom Hole Well is located on topo map 5385 feet west of longitude

80° 27' 30"
80° 27' 30"



Surface Hole Coordinates:

True Latitude: NORTH
40° 56' 44.97"

True Longitude: WEST
80° 28' 18.45"

Bottom Hole Coordinates:

True Latitude: NORTH
40° 57' 29.21"

True Longitude: WEST
80° 28' 39.55"

Ⓢ denotes water supply

TH Denotes Top Hole

BH Denotes Bottom Hole



D. Michael Canada

Surveyor or Engineer: D. Michael Canada
Pa. Lic. # SU029272 E Phone #: (716) 379-7918

Dwg. #:

20110927 FRANK 2019

Date:

FEB 9, 2012

Scale:

1" = 2000'

Tract

Acreage: 69.68

Lat. & Long Metadata

Method: RTK GPS Accuracy: ± 5 ft. Datum: NAD 83

Elevation Metadata

Method: GPS Accuracy: ± 5 ft. Datum: NAD 83

Survey Date:

AUGUST 29, 2011

Applicant / Well Operator Name:

SWEPI LP

DEP ID#:

284309

Well(Farm) Name:

KEPHART, G

Well #:

2019-3HD

Serial #:

Address:

190 Thorn Hill Road, Warrendale, PA 15086

County - Code:

LAWRENCE

Municipality:

NORTH BEAVER

Well Type:

Horizontal

Surface Landowner / Lessor:

KEPHART, GREGORY T. &

USGS 71/2 Quadrangle Map Name:

BESSEMER

Map Section:

4

Surface Elevation:

1229

Target Formation(s):

Utica Shale

Angle & Course of Deviation (Drilling):

N18° 04' 31"W 4762'

Anticipated Total Depth

TVD:

9016'

TMD:

13,697'

Surface Owner of Water/Purveyor
with Water Supply within 1000 ft.

Approximate Course and
Distance to Water Supply

Owner, Lessee, or Operator of
Workable Coal Seam

Name of Coal Seam
Owned, Leased, or Operated

HOGUE, GREGORY & AMY

N27° 41' 19"E 1200'

NONE

885'

ELDER, ROBERT K. JR. & MARILYN M

N36° 54' 39"E 886'

KOTUBY, DANIEL M.

N82° 01' 27"E 467'

BEATTY, DOUGLAS S. & KAREN R.

S26° 56' 10"E 1034'

BYERS, EDWARD G. & CAROL A.

S17° 50' 26"E 957'

RYERS, ANNA

S13° 33' 11"E 998'

RECEIVED
MAR 27 2012
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-3HD
Wellbore: KEPHART #2019-3HD
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7869.70	0.00	0.00	7869.70	0.00	0.00	0.00	0.00	0.00	Start Build
8619.32	60.00	60.64	8489.62	175.47	311.96	8.00	60.64	-4.02	Start Build/Turn
9750.67	90.00	330.00	8851.00	1108.32	496.16	8.00	-90.32	711.76	End Build/Turn
13697.67	90.00	330.00	8851.00	4526.52	-1477.34	0.00	0.00	4658.76	TD

Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188, 2271]
 Elevation: GL 1217' + KB 22' @ 1239.00ft (TBD)

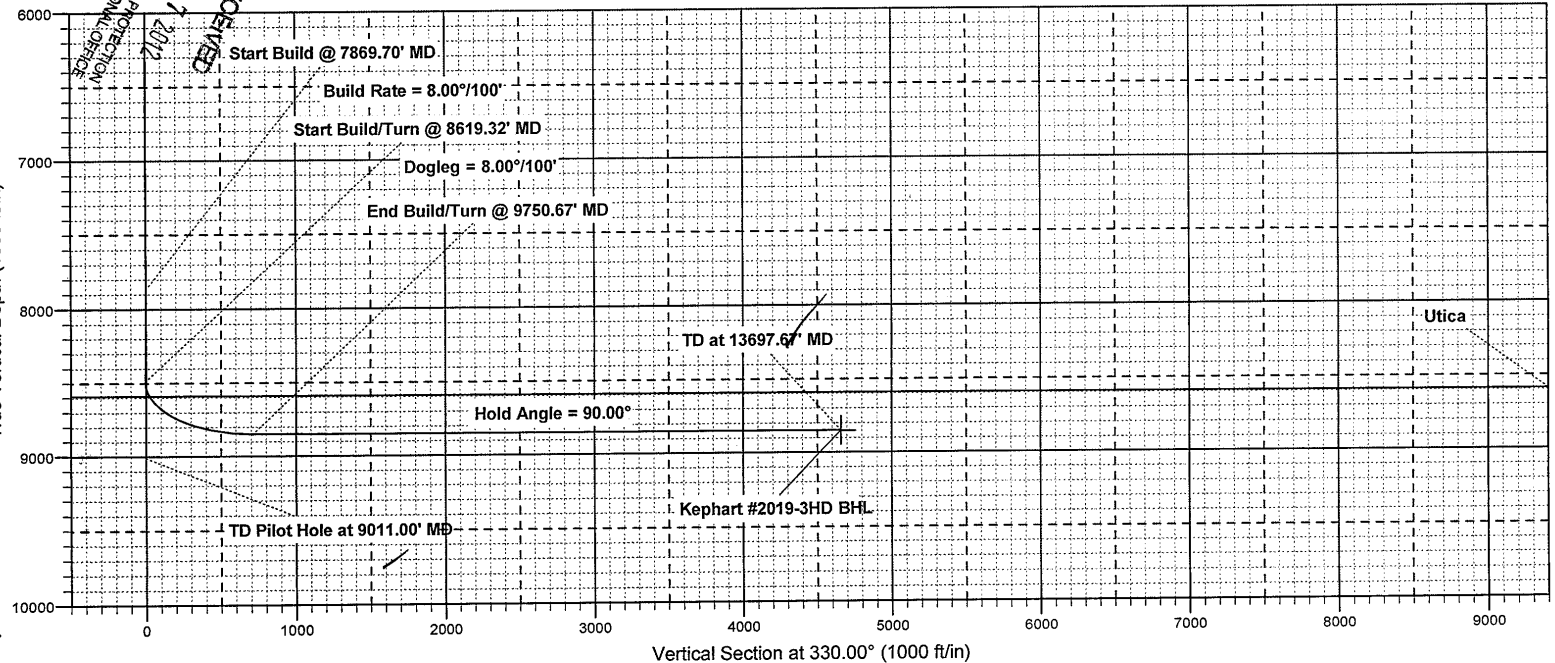
Northing 295699.47
 Easting 6710.39
 Latitude 40° 56' 44.970 N
 Longitude 80° 28' 18.449 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-3HD BHL	8851.00	4526.52	-1477.34	300225.99	1215233.05	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.22°

Magnetic Model: BGGM2011
 Date: 07-Dec-11
 Azimuths to Grid North





Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-3HD
Wellbore: KEPHART #2019-3HD
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83

NAD83 / Pennsylvania North [1188, 2271]
Elevation: GL 1217' + KB 22' @ 1239.00ft (TBD)

Northing	Easting	Latitude	Longitude
295699.47	1216710.39	40° 56' 44.970 N	80° 28' 18.449 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.22°

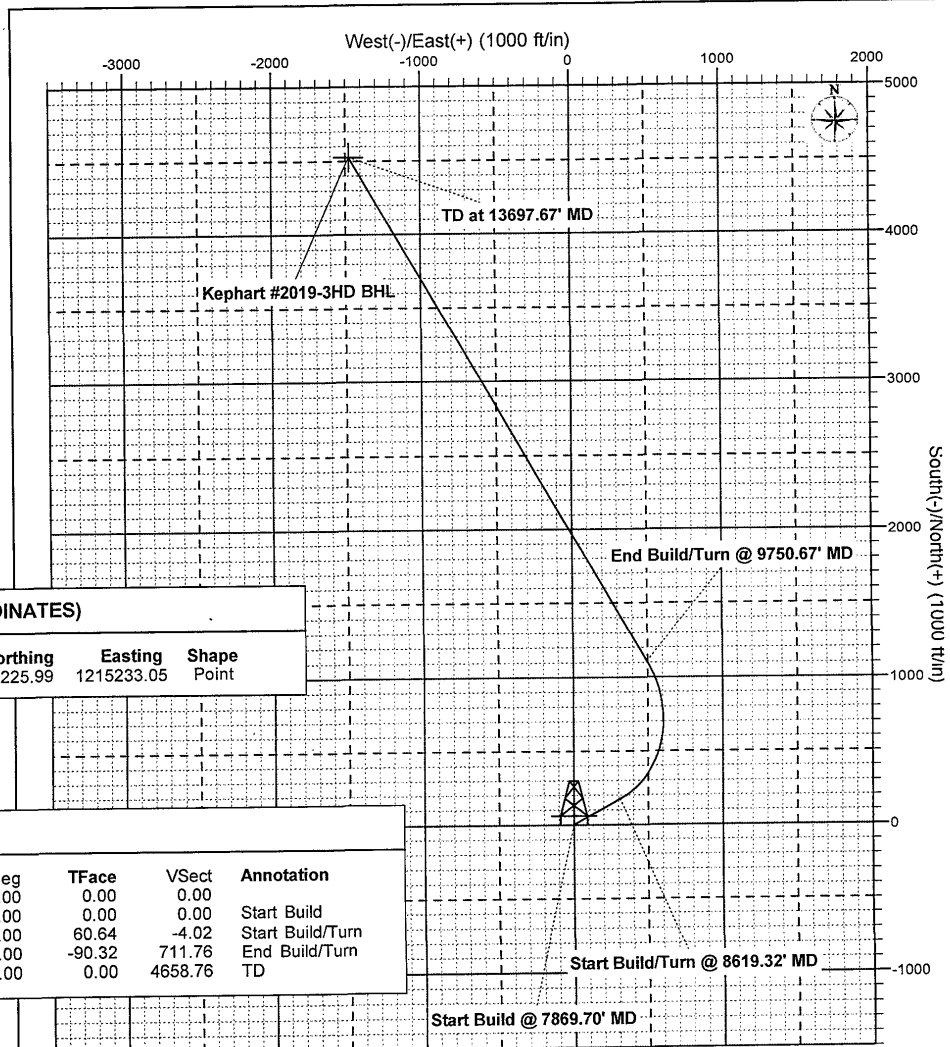
Magnetic Model: BGGM2011 Date: 07-Dec-11
Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-3HD BHL	8851.00	4526.52	-1477.34	300225.99	1215233.05	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build
7869.70	0.00	0.00	7869.70	0.00	0.00	0.00	0.00	0.00	Start Build
8619.32	60.00	60.64	8489.62	175.47	311.96	8.00	60.64	-4.02	Start Build/Turn
9750.67	90.00	330.00	8851.00	1108.32	496.16	8.00	-90.32	711.76	End Build/Turn
13697.67	90.00	330.00	8851.00	4526.52	-1477.34	0.00	0.00	4658.76	TD



Created By: Matt Weber Date: 14:00, January 06 2012



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

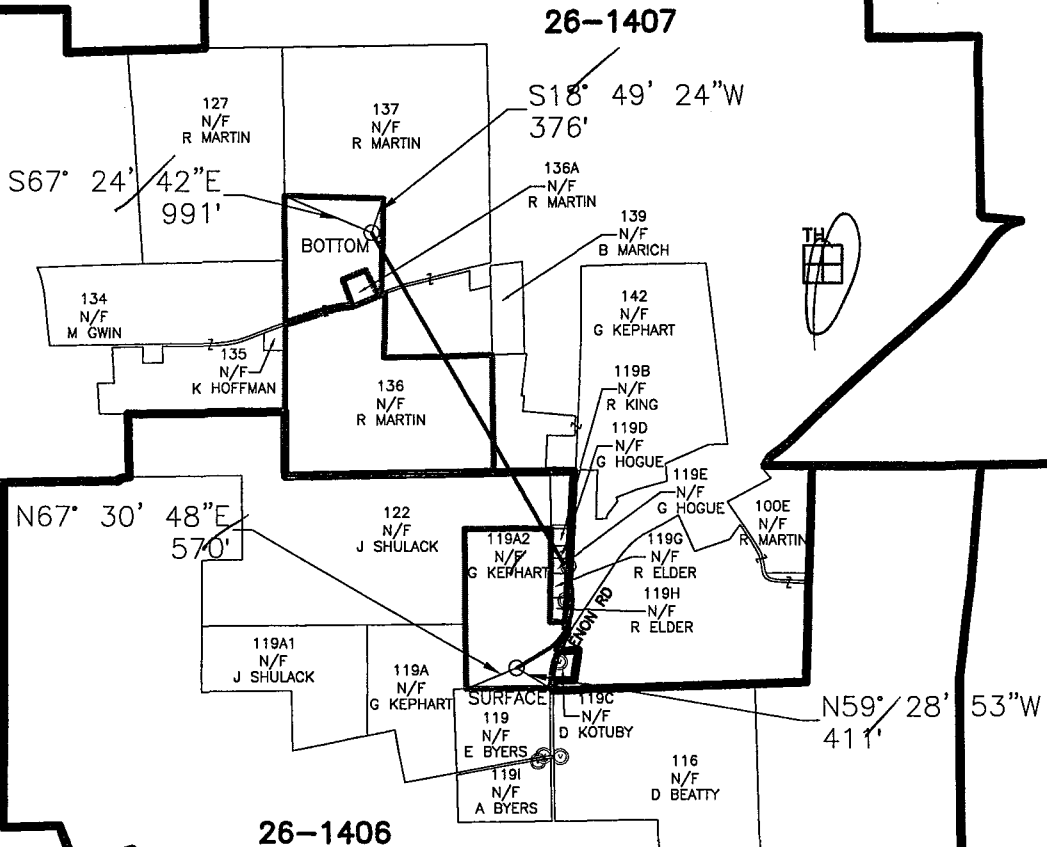
DEP Application Tracking #:	G: 4/2/2012
Permit #:	C: 073-20375
Project #:	

Top Hole Well is located on topo map 4555 feet south of latitude
Bottom Hole Well is located on topo map 79 feet south of latitude
parcel lines taken from tax map information

40° 57' 30"
40° 57' 30"

Top Hole Well is located on topo map 3703 feet west of longitude
Bottom Hole Well is located on topo map 5335 feet west of longitude

80° 27' 30"
80° 27' 30"



Surface Hole Coordinates:	
True Latitude: NORTH	40° 56' 44.99"
True Longitude: WEST	80° 28' 18.26"
Bottom Hole Coordinates:	
True Latitude: NORTH	40° 57' 29.21"
True Longitude: WEST	80° 28' 39.55"

Ⓢ denotes water supply

TH Denotes Top Hole

BH Denotes Bottom Hole



D Michael Canada

Surveyor or Engineer: D. Michael Canada
Pa. Lic. # SU029272 E Phone #: (716) 379-7918

Dwg. #:

20110927 FRANK 2019

Date:

FEB 9, 2012

Scale:

1" = 2000'

Tract

Acreage: 69.68

H Q
WATERSHED

BEAVER RIVER

Lat. & Long Metadata Method: RTK GPS Accuracy: ± 5 ft. Datum: NAD 83		Elevation Metadata Method: GPS Accuracy: ± 5 ft. Datum: NAD 83		Survey Date: AUGUST 29, 2011	
Applicant / Well Operator Name: SWEPI LP		Well (Farm) Name: KEPHART, G		Well #:	Serial #:
Address: 190 Thorn Hill Road, Warrendale, PA 15086		County - Code: LAWRENCE		Municipality: NORTH BEAVER	Well Type: Horizontal
Surface Landowner / Lessor: KEPHART, GREGORY T. &		USGS 71/2 Quadrangle Map Name: BESSEMER 1102		Map Section: 4	Surface Elevation: 1229 ft.
Target Formation(s): Genesee Shale		Angle & Course of Deviation (Drilling): N18° 15' 05" W 4765'		Anticipated Total Depth TVD: 9412	TMD: 9247
Surface Owner or Water Purveyor within Water Supply within 1000 ft:		Approximate Course and Distance to Water Supply:		Owner, Lessee or Operator of Marketable Coal Seam:	
HOGUE, GREGORY & AMY		N27° 05' 04" E 1191'		NONE	
ELDER, ROBERT K. JR. & MARILYN M.		N36° 11' 07" E 876'			
KOTUBY, DANIEL M.		N81° 56' 22" E 452'			
BEATTY, DOUGLAS S. & KAREN R.		S26° 09' 32" E 1029'			
BYERS, EDWARD G. & CAROL A.		S16° 57' 39" E 954'			
BYERS ANNA		S12° 41' 54" E 996'			

RECEIVED
MAR 27 2012
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

UA_APPALACHIA



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-3HS
Wellbore: KEPHART #2019-3HS
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3438.50	0.00	0.00	3438.50	0.00	0.00	0.00	0.00	0.00	Start Build
4188.22	60.00	59.18	4058.50	183.43	307.41	8.00	59.18	5.15	Start Build/Turn
5303.84	90.00	330.00	4412.00	1109.50	479.72	8.00	-89.59	721.00	End Build/Turn
9247.84	90.00	330.00	4412.00	4525.11	-1492.28	0.00	0.00	4665.00	TD

Surface Location:

EPW NAD83
NAD83 / Pennsylvania North [1188, 2271]
Elevation: GL 1217' + KB 22' @ 1239.00ft (TBD)

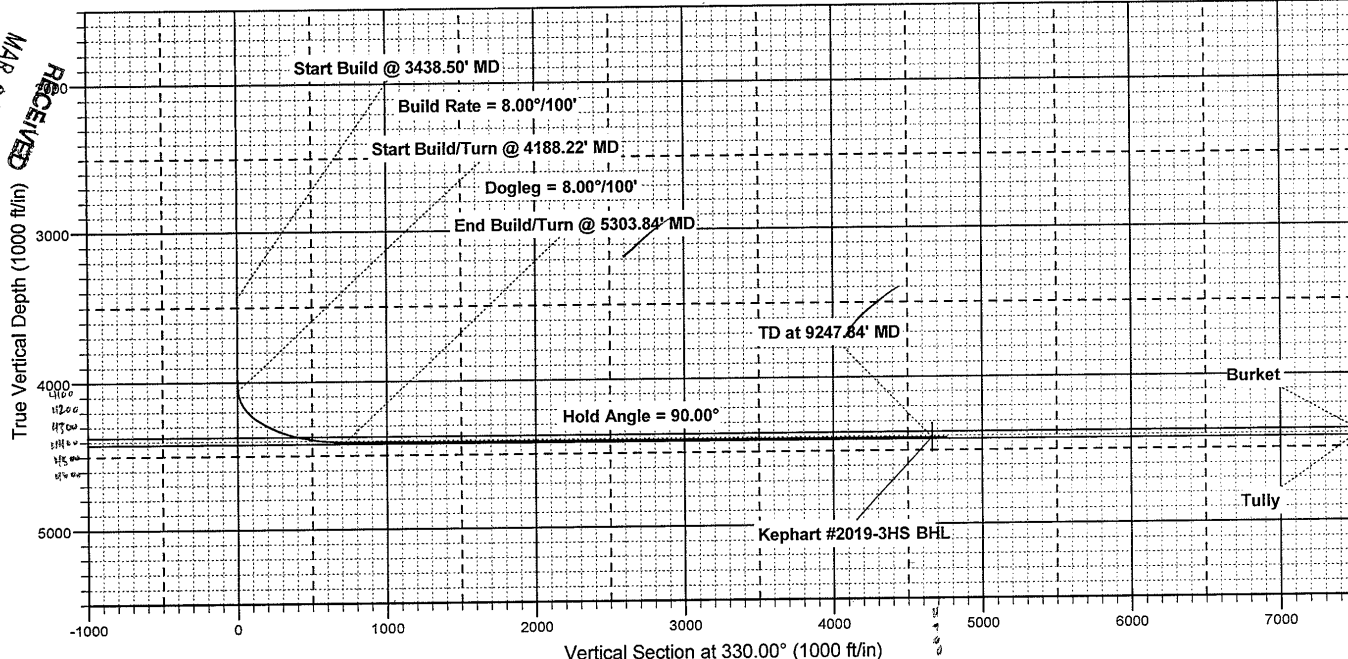
Northing: 295700.89
 Easting: 1216725.32
 Latitude: 40° 56' 44.989" N
 Longitude: 80° 28' 18.255" W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-3HS BHL	4412.00	4525.11	-1492.28	300225.99	1215233.05	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.22°

Magnetic Model: BGGM2011 Date: 07-Dec-11
Azimuths to Grid North



Created By: Matt Weber Date: 14:58, January 06 2012

RECEIVED
MAR 27 2012
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-3HS
Wellbore: KEPHART #2019-3HS
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83
NAD83 / Pennsylvania North [1188_2271]
Elevation: GL 1217' + KB 22' @ 1239.00ft (TBD)
Northing 295700.89 Easting 1216725.32 Latitude 40° 56' 44.989 N Longitude 80° 28' 18.265 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.22°

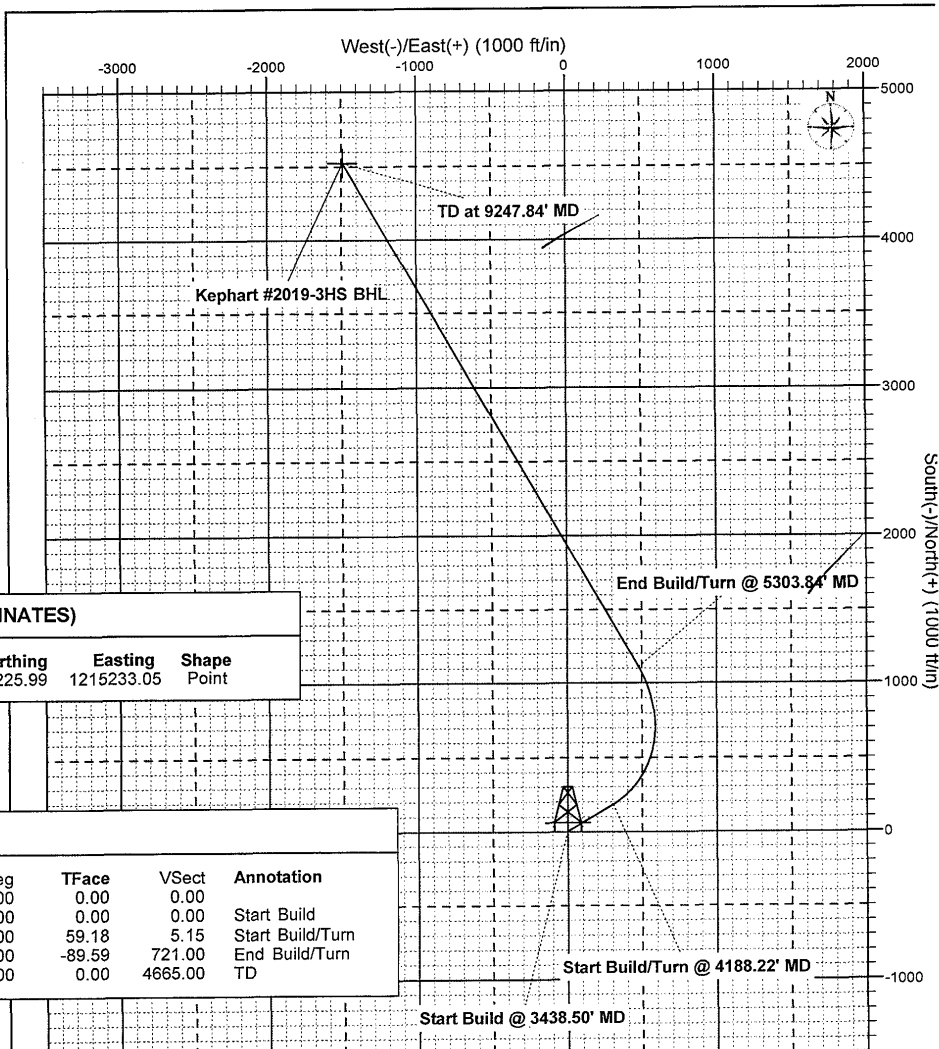
Magnetic Model: BGGM2011 Date: 07-Dec-11
Magnetic Declination: 7.22° East
Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Kephart #2019-3HS BHL	4412.00	4525.11	-1492.28	300225.99	1215233.05	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3438.50	0.00	0.00	3438.50	0.00	0.00	0.00	0.00	0.00	Start Build
4188.22	60.00	59.18	4058.50	183.43	307.41	8.00	59.18	5.15	Start Build/Turn
5303.84	90.00	330.00	4412.00	1109.50	479.72	8.00	-89.59	721.00	End Build/Turn
9247.84	90.00	330.00	4412.00	4525.11	-1492.28	0.00	0.00	4665.00	TD



WELL LOCATION PLAT

Page 2 Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: KEPHART	Well #: 2019-4HMA
Surface Landowner: KEPHART GREGORY T & ANNE D CLARK	Angle & Course of Deviation (Drilling): N23° 27' 11"W 4713'	Anticipated True Vertical Depth Feet (TVD): 4231.89	Anticipated Total Measured Depth Feet (TMD): 8745.66
Target Formation(s): Marcellus Shale	Deepest Formation to be penetrated: Marcellus Shale	Number of Laterals: 1	Total footage to be drilled - all laterals: 8745.66

Surface Owner or Water Purveyor
with a Water Supply within 3,000 ft.

Latitude/Longitude of Water Supply

PIN	OWNER	LAT	LONG
26-1407-142X	RAFACZ JAMES H & MELISSA ANN	40D 57' 14.11"	80D 28' 14.05"
26-1407-142W	STRAWHECKER MARC E & CHANTELL M	40D 57' 11.77"	80D 28' 11.51"
26-1407-142B	MOTTER MATHEW D & MISTY L	40D 57' 07.40"	80D 28' 11.48"
26-1407-142A	WESTFIELD PRESBYTERIAN CHRUCH	40D 57' 05.98"	80D 28' 13.12"
26-1406-122A	MIONI DOMINICK G JR & KATHLEEN R	40D 57' 03.38"	80D 28' 11.55"
26-1407-142G	MERLINO ROY GENE & NONA S	40D 57' 03.87"	80D 28' 10.64"
26-1407-142Q	MCCURLEY JEFFREY D & MARY L	40D 57' 00.48"	80D 28' 10.88"
26-1407-142Q	MCCURLEY JEFFREY D & MARY L	40D 57' 02.22"	80D 28' 10.76"
26-1406-119B	KING ROBERT LEE & JODI D	40D 56' 58.72"	80D 28' 11.61"
26-1407-142E	MCKEE CHARLES L JR & TAMMY L	40D 56' 59.60"	80D 28' 09.73"
26-1406-119E	HOGUE GREGORY & AMY	40D 56' 55.63"	80D 28' 11.62"
26-1406-119G	ELDER ROBERT K JR & MARILYN M	40D 56' 52.44"	80D 28' 13.01"
26-1407-142P	SHIDERLY KENNETH W & MARGARET	40D 57' 00.86"	80D 28' 03.04"
26-1406-119H	ELDER ROBERT K JR & MARILYN M	40D 56' 52.13"	80D 28' 11.81"
26-1407-142T	SHIDERLY KENNETH JR & MELINDA	40D 56' 57.87"	80D 28' 04.24"
26-1407-142K	SHIDERLY KENNETH W & MARGARET	40D 57' 00.30"	80D 28' 00.23"
26-1407-100E	MARTIN RICHARD A MARTIN RONALD E ETAL	40D 56' 57.39"	80D 28' 03.35"
26-1407-100	CUNNINGHAM TERRY A	40D 57' 01.93"	80D 27' 54.37"
26-1407-102	WESTFIELD PRESBYTERIAN CHURCH	40D 57' 04.74"	80D 27' 50.06"
26-1407-101	HAZELTON, BENJAMIN L & AMANDA J	40D 57' 03.73"	80D 27' 50.57"
26-1406-119C	KOTUBY DANIEL M	40D 56' 45.75"	80D 28' 12.45"
26-1406-119A2	KEPHART GREGORY T & ANNE D CLARK	40D 56' 43.15"	80D 28' 14.12"
26-1406-116	BEATTY DOUGLAS S & KAREN R	40D 56' 36.01"	80D 28' 11.97"
26-1406-119	BYERS EDWARD G & CAROL A	40D 56' 36.06"	80D 28' 14.26"
26-1406-119I	BYERS ANNA	40D 56' 35.47"	80D 28' 15.01"
26-1406-124A	LARSEN EYVIND A & BARBARA L	40D 56' 20.54"	80D 28' 10.08"
26-1406-131	BEATTY PAMELA J	40D 56' 17.29"	80D 28' 09.80"
26-1406-124B	BYERS EDWARD G & CAROL A	40D 56' 27.65"	80D 28' 33.45"
26-1406-119F	MURBERGER DESSIE L & MADRID, PAUL E II	40D 56' 32.32"	80D 28' 38.67"
26-1406-120A	PONZIANI ROBERT N & CASI L	40D 56' 30.30"	80D 28' 47.34"
26-1406-122	SHULACK JOHN JR & CAROL A	40D 56' 59.82"	80D 28' 11.90"

Municipality: where the well will be drilled,
adjacent to the well, or within 3000 feet

DRILLED IN -	NORTH BEAVER TWP-LAWRENCE CO
ADJACENT TO -	BESSEMER BORO-LAWRENCE CO
	S.N.P.J.BORO-LAWRENCE CO
	MAHONING TWP-LAWRENCE CO
	UNION TWP-LAWRENCE CO
	CITY OF NEW CASTLE-LAWRENCE CO
	TAYLOR TWP-LAWRENCE CO
	NEW BEAVER BORO-LAWRENCE CO
	LITTLE BEAVER TWP-LAWRENCE CO
	SPRINGFIELD TWP-MAHONING CO
	POLAND TWP-MAHONING CO

Coal related parties

NONE

WELL LOCATION PLAT

Page 2A Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: KEPHART	Well #: 2019-4HMA

BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
W1	N8° 58' 33.52"E	3018'
W2	N13° 30' 59.55"E	2816'
W3	N15° 44' 05.44"E	2386'
W4	N16° 12' 56.97"E	2285'
W5	N18° 23' 32.37"E	1992'
W6	N19° 52' 10.50"E	2059'
W7	N21° 09' 52.16"E	1899'
W8	N22° 48' 27.10"E	1730'
W9	N23° 15' 09.95"E	1544'
W10	N26° 42' 00.81"E	1683'
W11	N28° 24' 36.29"E	1258'
W12	N31° 30' 15.89"E	923'
W13	N38° 15' 58.61"E	2057'
W14	N37° 17' 38.92"E	946'
W15	N41° 43' 21.34"E	1761'
W16	N43° 47' 57.02"E	2148'

BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
W17	N44° 24' 42.41"E	1769'
W18	N48° 46' 25.80"E	2582'
W19	N49° 06' 29.07"E	3018'
W20	N50° 03' 31.68"E	2920'
W21	N77° 47' 48.83"E	515'
W22	S67° 44' 03.54"E	397'
W23	S30° 07' 46.25"E	1015'
W24	S21° 04' 57.78"E	929'
W25	S16° 31' 59.40"E	966'
W26	S13° 53' 20.00"E	2521'
W27	S12° 30' 48.67"E	2844'
W28	S34° 51' 59.46"W	2037'
W29	S52° 34' 20.64"W	1952'
W30	S58° 19' 43.45"W	2610'
W31	N55° 15' 17.09"W	2566'

Surface Hole Coordinates

True Latitude: NORTH
40° 56' 44.52" *
True Longitude: WEST
80° 28' 18.97"
Kick-off Point (KOP)
True Latitude: NORTH
40° 56' 44.52"
True Longitude: WEST
80° 28' 18.97"
Landing Point
True Latitude: NORTH
40° 56' 53.66"
True Longitude: WEST
80° 28' 18.20"
Bottom Hole Coordinates
True Latitude: NORTH
40° 57' 26.63"
True Longitude: WEST
80° 28' 45.17"

WELL PAD W/ TOP HOLE LOCATIONS

2019-2HSA
2019-4HMA
2019-2HD (FRACKED)
2019-2HS (PERMITTED)
2019-1HD(4HM)
2019-1HS (FRACKED)

26-1407

127 N/F R MARTIN
137 N/F R MARTIN
134 N/F M GWIN
135 N/F K HOFFMAN
136 N/F R MARTIN
136A N/F R MARTIN
142X N/F J RAFACZ
142W N/F M STRAWHECKER
142G N/F R MERLINO
142Q N/F MCCURLEY
142K N/F K SHIDERLY
101 N/F B HAZELTON
102 N/F WESTFIELD CHURCH
100 N/F T CUNNINGHAM
100B N/F WESTFIELD CHURCH
100E N/F R MARTIN
142E N/F C MCKEE
142R N/F K SHIDERLY
142S N/F R HENNON
142U N/F G HOGUE
119C N/F D KOTUBY
119E N/F E BYERS
119I N/F BYERS ANNA
124 N/F E BYERS
124A N/F E LARSEN
131 N/F P BEATTY
142B N/F M MOTTER
142A & L N/F WESTFIELD CHURCH
122A N/F D MIONI
122B N/F J SHULACK
119B N/F R KING
119D & E N/F G HOGUE
119G & H N/F R ELDER
119A2 N/F G KEPHART
119A N/F G KEPHART
119A1 N/F J SHULACK
121 N/F D HARBISON
120 N/F E BYERS
124B N/F E BYERS
120A N/F R PONZIANI
122 N/F J SHULACK
142 N/F G KEPHART
142T N/F K SHIDERLY
142P N/F K SHIDERLY
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WELL LOCATION PLAT
Page 4 Cross Section

Applicant / Well Operator Name: <u>SWEPI LP</u>	DEP ID#: <u>284309</u>	Well (Farm) Name: <u>KEPHART</u>	Well #: <u>2019-4HMA</u>
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DEP Use Only	Permit #
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WELL PLAN

Operator Name: SWEPI LPWell / Farm Name: KEPHART

			Latitude:	Longitude:
KOP:	TVD: <u>3312.2</u>	TMD: <u>3312.2</u>	<u>40° 56' 44.52"</u>	<u>80° 28' 18.97"</u>
Landing Point:	TVD: <u>4231.89</u>	TMD: <u>4818.66</u>	<u>40° 56' 53.66"</u>	<u>80° 28' 18.20"</u>

*FOR CLARITY PURPOSES, SEE THE
FOLLOWING ATTACHED WELL PLAN AND
SECTION VIEWS

UA_APPALACHIA



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-4HMA
Wellbore: KEPHART #2019-4HMA
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3312.20	0.00	0.00	3312.20	0.00	0.00	0.00	0.00	0.00	Start Build
3812.09	40.00	44.56	3772.47	119.35	117.54	8.00	44.56	44.59	Start Build/Turn
4818.66	90.50	330.00	4231.89	922.48	87.84	8.00	-77.74	754.97	End Build/Turn
8745.66	90.50	330.00	4197.62	4323.23	-1875.59	0.00	0.00	4681.82	TD

Surface Location:

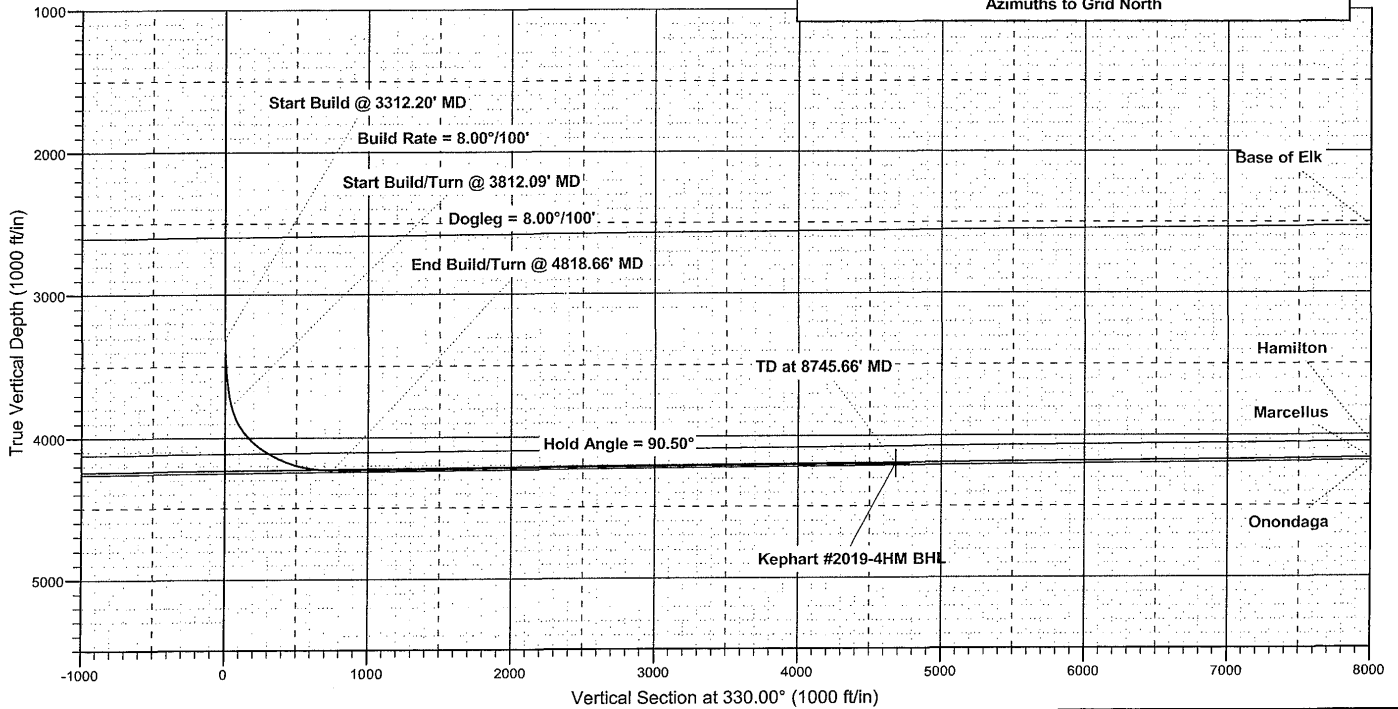
EPW NAD83
 NAD83 / Pennsylvania North [1188_2271]
 Elevation: DFE @ 1228.00ft (TBD)
 Northing 295655.39 Easting 1216669.37 Latitude 40° 56' 44.522 N Longitude 80° 28' 18.966 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-4HM BHL	4197.62	4323.23	-1875.59	299978.62	1214793.79	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.20°

Magnetic Model: BGGM2012 Date: 07-Dec-11
 Azimuths to Grid North



Created By: Matt Weber Date: 12:17, January 18 2013

UA_APPALACHIA



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-4HMA
Wellbore: KEPHART #2019-4HMA
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188, 2271]
 Elevation: DFE @ 1228.00ft (TBD)

Northing	Easting	Latitude	Longitude
295655.39	1216669.37	40° 56' 44.522 N	80° 28' 18.966 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.20°

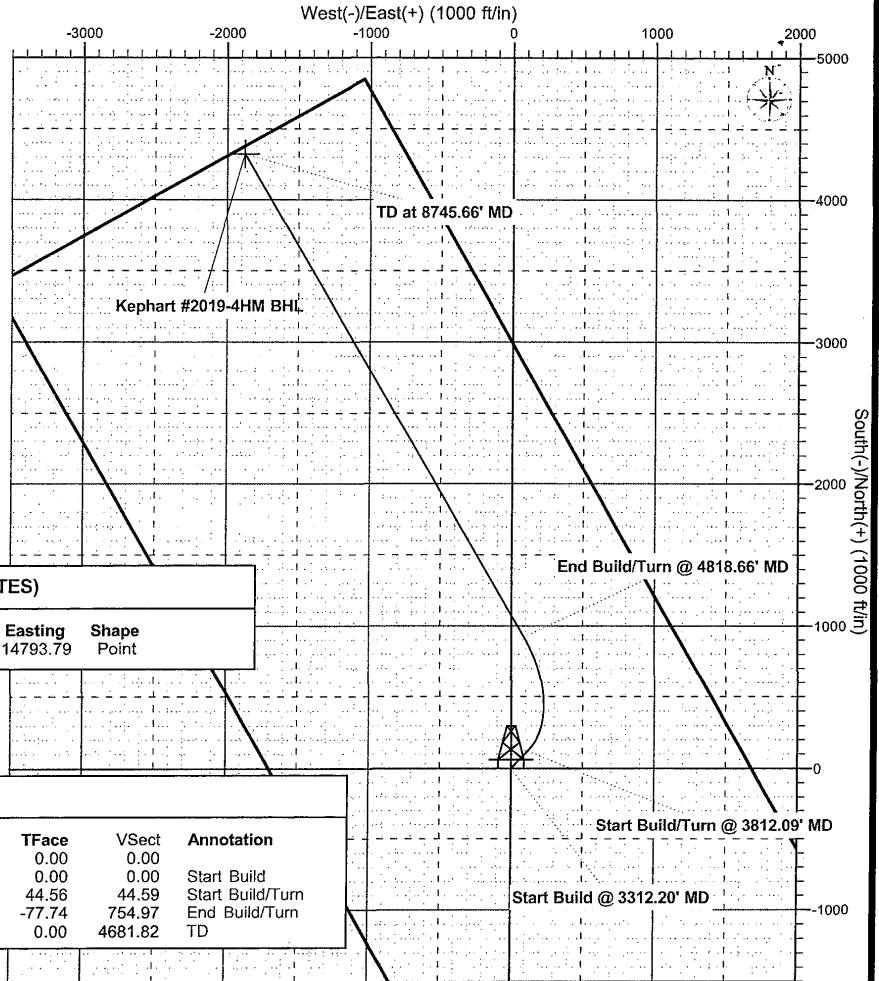
Magnetic Model: BGGM2012 Date: 07-Dec-11
 Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-4HM BHL	4197.62	4323.23	-1875.59	299978.62	1214793.79	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3312.20	0.00	0.00	3312.20	0.00	0.00	0.00	0.00	0.00	Start Build
3812.09	40.00	44.56	3772.47	119.35	117.54	8.00	44.56	44.59	Start Build/Turn
4818.66	90.50	330.00	4231.89	922.48	87.84	8.00	-77.74	754.97	End Build/Turn
8745.66	90.50	330.00	4197.62	4323.23	-1875.59	0.00	0.00	4681.82	TD



Created By: Matt Weber Date: 12:15, January 18 2013

Top Hole Well is located on topo map 4604 feet south of latitude 41° 57' 30" parcel lines taken from
Bottom Hole Well is located on topo map 597 feet south of latitude 41° 57' 30" tax map information

Surface Hole Coordinates
True Latitude: NORTH
40° 56' 44.50"
True Longitude: WEST
80° 28' 19.16"
Bottom Hole Coordinates
True Latitude: NORTH
40° 57' 24.10"
True Longitude: WEST
80° 28' 50.70"

TH Top Hole
BH Bottom Hole
W Water Supply

HQ WATERSHED BEAVER RIVER

R3000 WATER, MUNICIPALITY & GAS STORAGE BUFFER

142 N/F G KEPHART

142X N/F J RAFACZ

142B N/F M MOTTER

142A & L N/F WESTFIELD CHURCH

122A N/F D MIONI

122B N/F J SHULACK

119B N/F R KING

119D & E N/F G HOGUE

119G & H N/F R ELDER

119A2 N/F G KEPHART

119 N/F E BYERS

119I N/F BYERS ANNA

124B N/F E BYERS

124 N/F E BYERS

120A N/F R PONZIANI

120 N/F E BYERS

121 N/F D HARBISON

119A1 N/F J SHULACK

119A N/F G KEPHART

119C N/F D KOTUBY

119E N/F E BYERS

119F N/F D MURBERGER

120 N/F E BYERS

124A N/F E LARSEN

131 N/F P BEATTY

142U N/F G HOGUE

142S N/F R HENNON

142R N/F K SHIDERLY

142E N/F C MCKEE

142N N/F K SHIDERLY

142P N/F K SHIDERLY

142M N/E M STRAWHECKER

142G N/F R MERLINO

142Q N/F MCCURLEY

142K N/F K SHIDERLY

142J N/F T CUNNINGHAM

142I N/F K SHIDERLY

142H N/F K SHIDERLY

142F N/F K SHIDERLY

142D N/F K SHIDERLY

142C N/F K SHIDERLY

142B N/F M MOTTER

142A N/F WESTFIELD CHURCH

142X N/F J RAFACZ

142Y N/F J RAFACZ

142Z N/F J RAFACZ

142AA N/F J RAFACZ

142AB N/F J RAFACZ

142AC N/F J RAFACZ

142AD N/F J RAFACZ

142AE N/F J RAFACZ

142AF N/F J RAFACZ

142AG N/F J RAFACZ

142AH N/F J RAFACZ

142AI N/F J RAFACZ

142AJ N/F J RAFACZ

142AK N/F J RAFACZ

142AL N/F J RAFACZ

142AM N/F J RAFACZ

142AN N/F J RAFACZ

142AO N/F J RAFACZ

142AP N/F J RAFACZ

142AQ N/F J RAFACZ

142AR N/F J RAFACZ

142AS N/F J RAFACZ

142AT N/F J RAFACZ

142AU N/F J RAFACZ

142AV N/F J RAFACZ

142AW N/F J RAFACZ

142AX N/F J RAFACZ

142AY N/F J RAFACZ

142AZ N/F J RAFACZ

142BA N/F J RAFACZ

142BB N/F J RAFACZ

142BC N/F J RAFACZ

142BD N/F J RAFACZ

142BE N/F J RAFACZ

142BF N/F J RAFACZ

142BG N/F J RAFACZ

142BH N/F J RAFACZ

142BI N/F J RAFACZ

142BJ N/F J RAFACZ

142BK N/F J RAFACZ

142BL N/F J RAFACZ

142BM N/F J RAFACZ

142BN N/F J RAFACZ

142BO N/F J RAFACZ

142BP N/F J RAFACZ

142BQ N/F J RAFACZ

142BR N/F J RAFACZ

142BS N/F J RAFACZ

142BT N/F J RAFACZ

142BU N/F J RAFACZ

142BV N/F J RAFACZ

142BW N/F J RAFACZ

142BX N/F J RAFACZ

142BY N/F J RAFACZ

142BZ N/F J RAFACZ

142CA N/F J RAFACZ

142CB N/F J RAFACZ

142CC N/F J RAFACZ

142CD N/F J RAFACZ

142CE N/F J RAFACZ

142CF N/F J RAFACZ

142CG N/F J RAFACZ

142CH N/F J RAFACZ

142CI N/F J RAFACZ

142CJ N/F J RAFACZ

142CK N/F J RAFACZ

142CL N/F J RAFACZ

142CM N/F J RAFACZ

142CN N/F J RAFACZ

142CO N/F J RAFACZ

142CP N/F J RAFACZ

142CQ N/F J RAFACZ

142CR N/F J RAFACZ

142CS N/F J RAFACZ

142CT N/F J RAFACZ

142CU N/F J RAFACZ

142CV N/F J RAFACZ

142CW N/F J RAFACZ

142CX N/F J RAFACZ

142CY N/F J RAFACZ

142CZ N/F J RAFACZ

142DA N/F J RAFACZ

142DB N/F J RAFACZ

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142DI N/F J RAFACZ

142DJ N/F J RAFACZ

142DK N/F J RAFACZ

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142DN N/F J RAFACZ

142DO N/F J RAFACZ

142DP N/F J RAFACZ

142DQ N/F J RAFACZ

142DR N/F J RAFACZ

142DS N/F J RAFACZ

142DT N/F J RAFACZ

142DU N/F J RAFACZ

142DV N/F J RAFACZ

142DW N/F J RAFACZ

142DX N/F J RAFACZ

142DY N/F J RAFACZ

142DZ N/F J RAFACZ

142EA N/F J RAFACZ

142EB N/F J RAFACZ

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142FJ N/F J RAFACZ

142FK N/F J RAFACZ

142FL N/F J RAFACZ

142FM N/F J RAFACZ

142FN N/F J RAFACZ

142FO N/F J RAFACZ

142FP N/F J RAFACZ

142FQ N/F J RAFACZ

142FR N/F J RAFACZ

142FS N/F J RAFACZ

142FT N/F J RAFACZ

142FU N/F J RAFACZ

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142HK N/F J RAFACZ

142HL N/F J RAFACZ

142HM N/F J RAFACZ

142HN N/F J RAFACZ

142HO N/F J RAFACZ

142HP N/F J RAFACZ

142HQ N/F J RAFACZ

142HR N/F J RAFACZ

142HS N/F J RAFACZ

142HT N/F J RAFACZ

142HU N/F J RAFACZ

142HV N/F J RAFACZ

142HW N/F J RAFACZ

142HX N/F J RAFACZ

142HY N/F J RAFACZ

WELL LOCATION PLAT

Page 2A Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: KEPHART	Well #: 2019-2HSA

BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
/ W1	N9° 15' 05.13"E	3022'
/ W2	N13° 48' 16.91"E	2821'
/ W3	N16° 04' 12.00"E	2391'
/ W4	N16° 33' 52.36"E	2291'
/ W5	N18° 47' 09.02"E	1998'
/ W6	N20° 14' 44.65"E	2066'
/ W7	N21° 34' 04.18"E	1905'
/ W8	N23° 14' 36.29"E	1737'
/ W9	N23° 44' 19.93"E	1551'
/ W10	N27° 07' 50.48"E	1691'
/ W11	N28° 58' 26.03"E	1266'
/ W12	N32° 14' 30.58"E	932'
/ W13	N38° 34' 00.94"E	2067'
/ W14	N37° 57' 17.25"E	956'
/ W15	N42° 03' 08.67"E	1772'
/ W16	N44° 03' 32.73"E	2159'

BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
/ W17	N44° 43' 22.95"E	1781'
/ W18	N48° 58' 03.57"E	2594'
/ W19	N49° 16' 21.48"E	3030'
/ W20	N50° 13' 29.62"E	2932'
/ W21	N77° 59' 17.97"E	530'
/ W22	S68° 42' 31.35"E	410'
/ W23	S30° 53' 38.72"E	1021'
/ W24	S21° 58' 09.99"E	933'
/ W25	S17° 24' 13.85"E	969'
/ W26	S14° 13' 32.99"E	2523'
/ W27	S12° 48' 47.44"E	2846'
/ W28	S34° 32' 35.45"W	2027'
/ W29	S52° 20' 15.33"W	1940'
/ W30	S58° 10' 56.59"W	2597'
/ W31	N55° 02' 15.80"W	2555'

WELL LOCATION PLAT

Page 2 Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: KEPHART	Well #: 2019-2HSA
Surface Landowner: KEPHART GREGORY T & ANNE D CLARK	Angle & Course of Deviation (Drilling): N29° 19' 35"W 4681'	Anticipated True Vertical Depth Feet (TVD): 4089.67	Anticipated Total Measured Depth Feet (TMD): 8463.72
Target Formation(s): Burket Shale	Deepest Formation to be penetrated: Burket Shale	Number of Laterals: 1	Total footage to be drilled - all laterals: 8463.72

Surface Owner or Water Purveyor
with a Water Supply within 3,000 ft.

Latitude/Longitude of Water Supply

PIN	OWNER	LAT	LONG
26-1407-142X	RAFACZ JAMES H & MELISSA ANN	40D 57' 14.11"	80D 28' 14.05"
26-1407-142W	STRAWHECKER MARC E & CHANTELL M	40D 57' 11.77"	80D 28' 11.51"
26-1407-142B	MOTTER MATHEW D & MISTY L	40D 57' 07.40"	80D 28' 11.48"
26-1407-142A	WESTFIELD PRESBYTERIAN CHRUCH	40D 57' 05.98"	80D 28' 13.12"
26-1406-122A	MIONI DOMINICK G JR & KATHLEEN R	40D 57' 03.38"	80D 28' 11.55"
26-1407-142G	MERLINO ROY GENE & NONA S	40D 57' 03.87"	80D 28' 10.64"
26-1407-142Q	MCCURLEY JEFFREY D & MARY L	40D 57' 00.48"	80D 28' 10.88"
26-1407-142Q	MCCURLEY JEFFREY D & MARY L	40D 57' 02.22"	80D 28' 10.76"
26-1406-119B	KING ROBERT LEE & JODI D	40D 56' 58.72"	80D 28' 11.61"
26-1407-142E	MCKEE CHARLES L JR & TAMMY L	40D 56' 59.60"	80D 28' 09.73"
26-1406-119E	HOGUE GREGORY & AMY	40D 56' 55.63"	80D 28' 11.62"
26-1406-119G	ELDER ROBERT K JR & MARILYN M	40D 56' 52.44"	80D 28' 13.01"
26-1407-142P	SHIDERLY KENNETH W & MARGARET	40D 57' 00.86"	80D 28' 03.04"
26-1406-119H	ELDER ROBERT K JR & MARILYN M	40D 56' 52.13"	80D 28' 11.81"
26-1407-142T	SHIDERLY KENNETH JR & MELINDA	40D 56' 57.87"	80D 28' 04.24"
26-1407-142K	SHIDERLY KENNETH W & MARGARET	40D 57' 00.30"	80D 28' 00.23"
26-1407-100E	MARTIN RICHARD A MARTIN RONALD E ETAL	40D 56' 57.39"	80D 28' 03.35"
26-1407-100	CUNNINGHAM TERRY A	40D 57' 01.93"	80D 27' 54.37"
26-1407-102	WESTFIELD PRESBYTERIAN CHURCH	40D 57' 04.74"	80D 27' 50.06"
26-1407-101	HAZELTON, BENJAMIN L & AMANDA J	40D 57' 03.73"	80D 27' 50.57"
26-1406-119C	KOTUBY DANIEL M	40D 56' 45.75"	80D 28' 12.45"
26-1406-119A2	KEPHART GREGORY T & ANNE D CLARK	40D 56' 43.15"	80D 28' 14.12"
26-1406-116	BEATTY DOUGLAS S & KAREN R	40D 56' 36.01"	80D 28' 11.97"
26-1406-119	BYERS EDWARD G & CAROL A	40D 56' 36.06"	80D 28' 14.26"
26-1406-119I	BYERS ANNA	40D 56' 35.47"	80D 28' 15.01"
26-1406-124A	LARSEN EYVIND A & BARBARA L	40D 56' 20.54"	80D 28' 10.08"
26-1406-131	BEATTY PAMELA J	40D 56' 17.29"	80D 28' 09.80"
26-1406-124B	BYERS EDWARD G & CAROL A	40D 56' 27.65"	80D 28' 33.45"
26-1406-119F	MURBERGER DESSIE L & MADRID, PAUL E II	40D 56' 32.32"	80D 28' 38.67"
26-1406-120A	PONZIANI ROBERT N & CASI L	40D 56' 30.30"	80D 28' 47.34"
26-1406-122	SHULACK JOHN JR & CAROL A	40D 56' 59.82"	80D 28' 11.90"

Municipality: where the well will be drilled,
adjacent to the well, or within 3000 feet

DRILLED IN -	NORTH BEAVER TWP-LAWRENCE CO
ADJACENT TO -	BESSEMER BORO-LAWRENCE CO
	S.N.P.J.BORO-LAWRENCE CO
	MAHONING TWP-LAWRENCE CO
	UNION TWP-LAWRENCE CO
	CITY OF NEW CASTLE-LAWRENCE CO
	TAYLOR TWP-LAWRENCE CO
	NEW BEAVER BORO-LAWRENCE CO
	LITTLE BEAVER TWP-LAWRENCE CO
	SPRINGFIELD TWP-MAHONING CO
	POLAND TWP-MAHONING CO

Coal related parties

NONE

[illegible]

WELL LOCATION PLAT
Page 4 Cross Section

Applicant / Well Operator Name:

SWEPI LP

DEP ID#:

284309

Well (Farm) Name:

KEPHART

Well #:

2019-1HD(4HM)

DEP
Use
Only

Permit #

WELL PLAN

Operator Name: SWEPI LPWell / Farm Name: KEPHART

			Latitude:	Longitude:
KOP:	TVD: <u>3373.5</u>	TMD: <u>3373.5</u>	<u>40° 56' 44.50"</u>	<u>80° 28' 19.16"</u>
Landing Point:	TVD: <u>4089.58</u>	TMD: <u>4514.72</u>	<u>40° 56' 50.65"</u>	<u>80° 28' 24.19"</u>

*FOR CLARITY PURPOSES, SEE THE
FOLLOWING ATTACHED WELL PLAN AND
SECTION VIEWS

UA_APPALACHIA



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-2HSA
Wellbore: KEPHART #2019-2HSA
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3373.50	0.00	0.00	3373.50	0.00	0.00	0.00	0.00	0.00	Start Build
4504.75	90.50	330.00	4089.67	625.66	-361.22	8.00	330.00	722.45	Start Turn
4514.72	90.50	330.80	4089.58	634.33	-366.15	8.00	90.03	732.42	End Turn
8463.72	90.50	330.80	4055.15	4081.28	-2292.77	0.00	0.00	4680.88	TD

Surface Location:

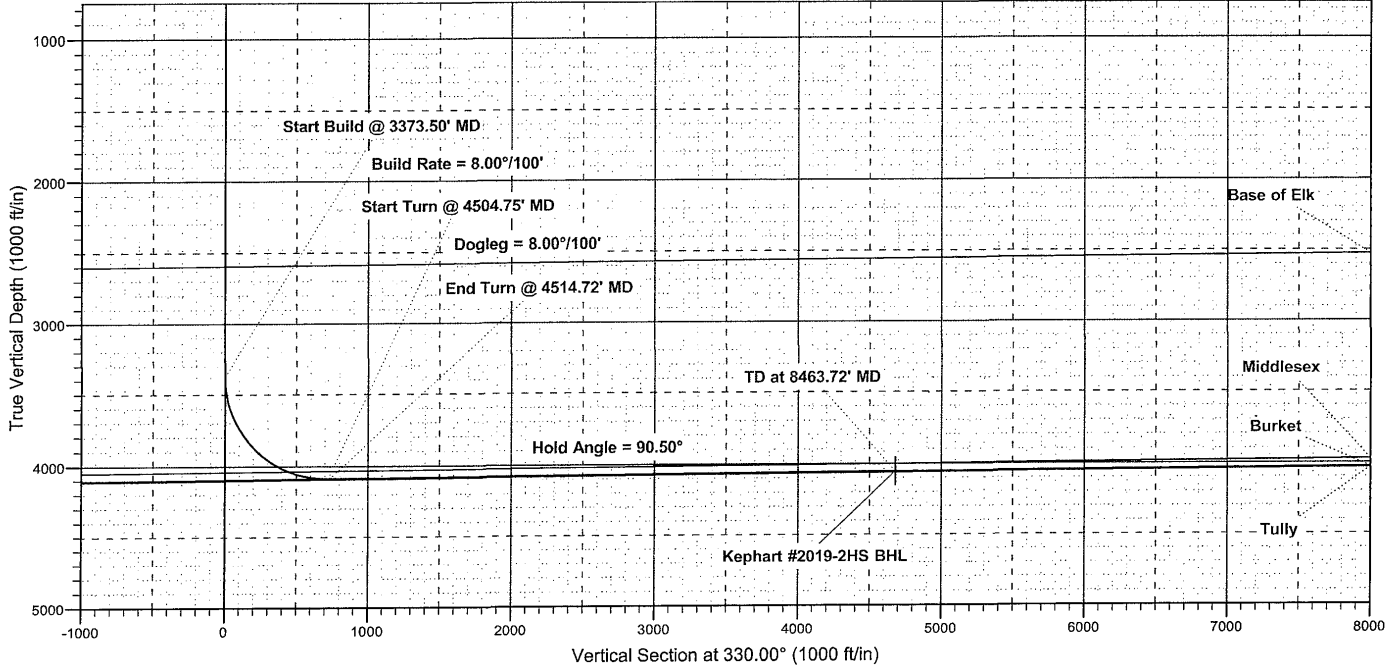
EPW NAD83
 NAD83 / Pennsylvania North [1188 2271]
 Elevation: DFE @ 1228.00ft (TBD)
Northing 295653.98
Easting 1216654.44
Latitude 40° 56' 44.503 N
Longitude 80° 28' 19.159 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Kephart #2019-2HS BHL	4055.15	4081.28	-2292.77	299735.25	1214361.68	

To convert a Magnetic Direction to a Grid Direction, Subtract 7.20°

Magnetic Model: BGGM2012 Date: 07-Dec-11
 Azimuths to Grid North



Created By: Matt Weber Date: 12:24, January 18 2013

UA_APPALACHIA



Project: SLIPPERY ROCK
Site: KEPHART #2019
Well: KEPHART #2019-2HSA
Wellbore: KEPHART #2019-2HSA
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188_2271]
 Elevation: DFE @ 1228.00ft (TBD)

Northing	Easting	Latitude	Longitude
295653.98	1216654.44	40° 56' 44.503 N	80° 28' 19.159 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.20°

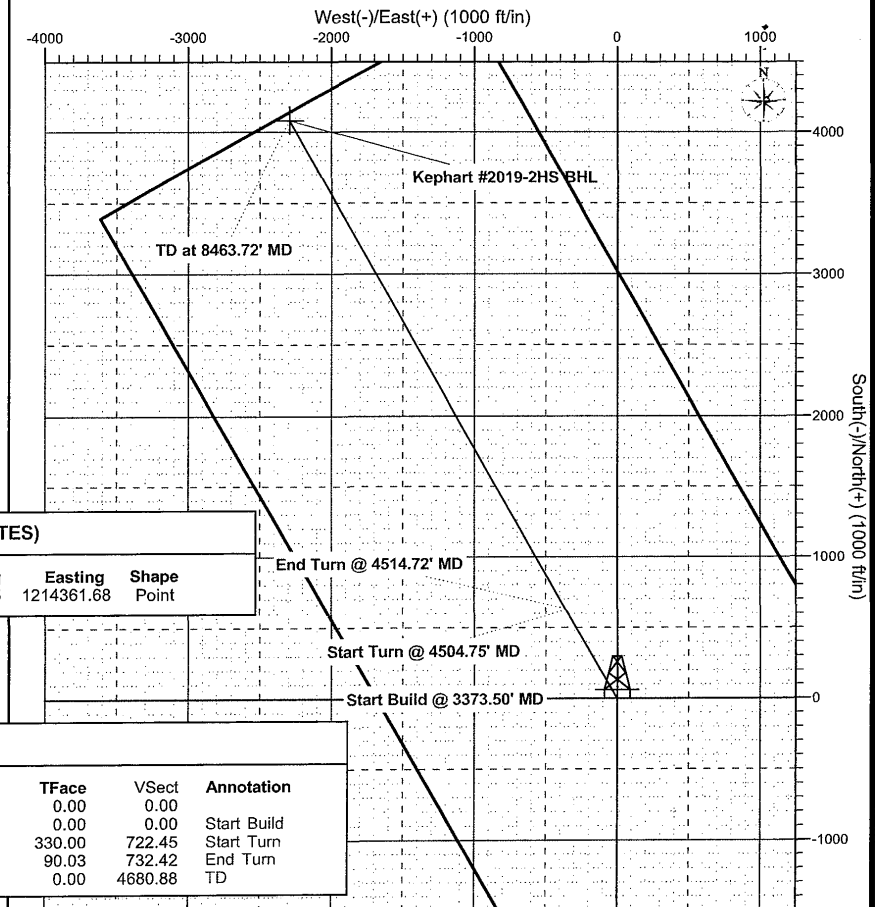
Magnetic Model: BGGM2012 Date: 07-Dec-11
 Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Kephart #2019-2HS BHL	4055.15	4081.28	-2292.77	299735.25	1214361.68	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3373.50	0.00	0.00	3373.50	0.00	0.00	0.00	0.00	0.00	Start Build
4504.75	90.50	330.00	4089.67	625.66	-361.22	8.00	330.00	722.45	Start Turn
4514.72	90.50	330.80	4089.58	634.33	-366.15	8.00	90.03	732.42	End Turn
8463.72	90.50	330.80	4055.15	4081.28	-2292.77	0.00	0.00	4680.88	TD



Created By: Matt Weber Date: 12:23, January 18 2013

Top Hole Well is located on topo map **8607** feet south of latitude **40° 55' 00"**
Bottom Hole Well is located on topo map **11882** feet south of latitude **40° 55' 00"**
parcel lines taken from tax map information

NORTH BEAVER TOWNSHIP

LITTLE BEAVER TOWNSHIP

NEW BEAVER TOWNSHIP

RECEIVED

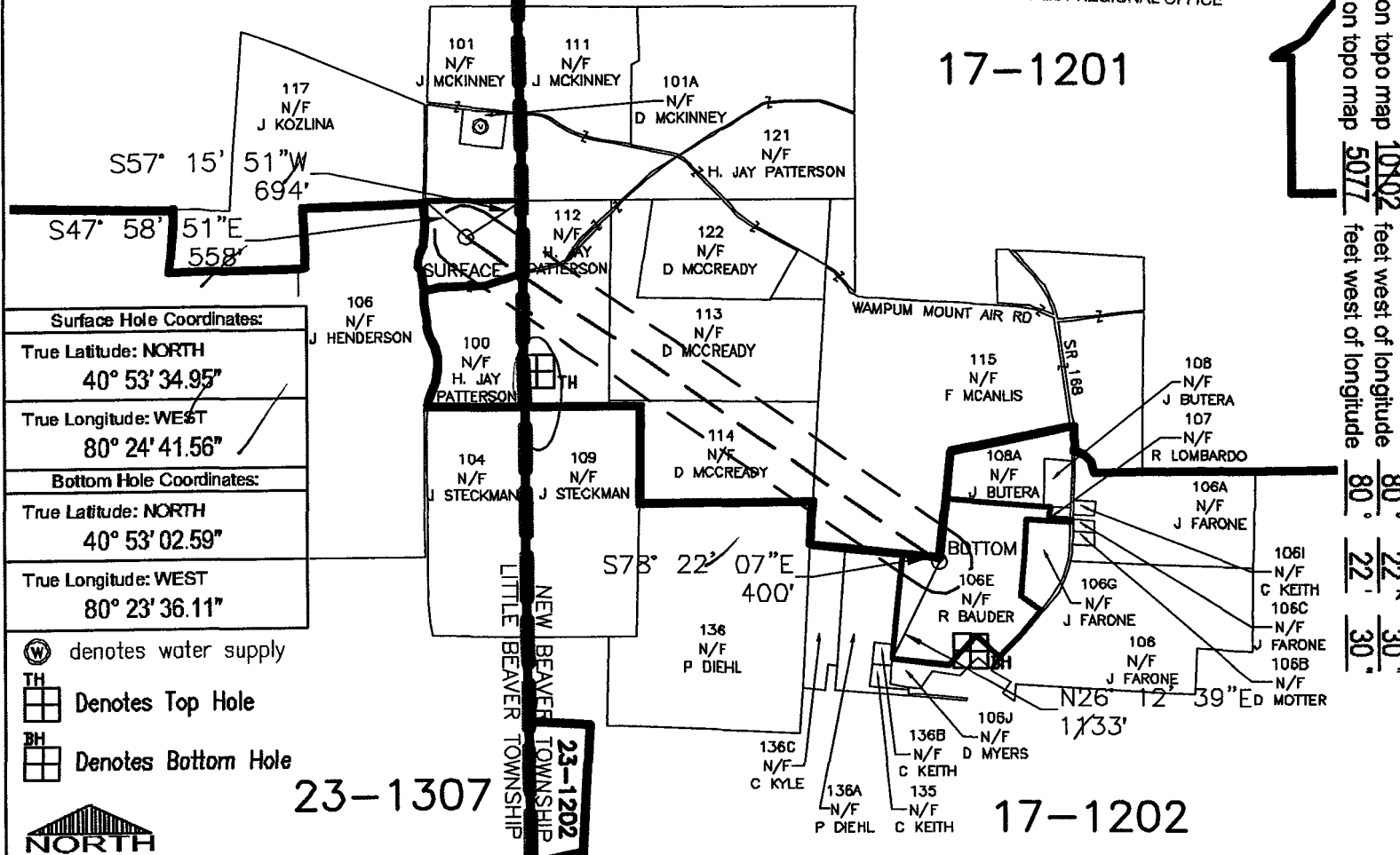
JAN 03 2011

ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

23-1306

17-1201

Top Hole Well is located on topo map **10102** feet west of longitude **80° 22' 30"**
Bottom Hole Well is located on topo map **5077** feet west of longitude **80° 22' 30"**



Surface Hole Coordinates:

True Latitude: NORTH

40° 53' 34.95"

True Longitude: WEST

80° 24' 41.56"

Bottom Hole Coordinates:

True Latitude: NORTH

40° 53' 02.59"

True Longitude: WEST

80° 23' 36.11"

Ⓢ denotes water supply

TH Denotes Top Hole

BH Denotes Bottom Hole



D. Michael Canada

Surveyor or Engineer: D. Michael Canada
Pa Lic # 023272E Phone # (716) 379-7918

Dwg # 20101124 FRANK

Date: DECEMBER 9, 2010

Scale: 1" = 1800'

Tract Acreage: 53

Lat. & Long Metadata Method: RTK GPS Accuracy: ± 5ft Datum: NAD83		Elevation Metadata Method: GPS Accuracy: ± 5ft Datum: NAD83		Survey Date: NOV. 24, 2010	
Applicant / Well Operator Name: East Resources Management		DEP ID#: 28854		Well (Farm) Name: PATTERSON, H. J	
Address: 190 Thorn Hill Road, Warrendale, PA 15086		County - Code: LAWRENCE		Municipality: LITTLE BEAVER	
Surface Landowner / Lessor: PATTERSON, H. JAY & NANCY		USGS 7 1/2 Quadrangle Map Name: BESSEMER 1102		Well Type: Horizontal	
Target Formation(s): Utica Shale		Angle & Course of Deviation (Drilling): S55° 11' 49"E 6000'		Anticipated Total Depth: 1080 ft	
MCKINNEY, DAVID F. & CHRISTINE M.		N 07° 41' 08" E 1170'		NONE	

Project: Lawrence County, PA (NAD 83)
Site: Bessemer Quad
Well: Patterson 2013-1HU
Wellbore: Wellbore #1
Design: Plan #1
Rig: TBA

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7563.38	0.00	0.00	7563.38	0.00	0.00	0.00	0.00	0.00	Start Build
8563.38	90.00	124.84	8200.00	-363.68	522.51	9.00	124.84	636.62	End Build
13926.37	90.00	124.84	8200.00	-3427.42	4924.24	0.00	0.00	5999.61	TD

Surface Location:

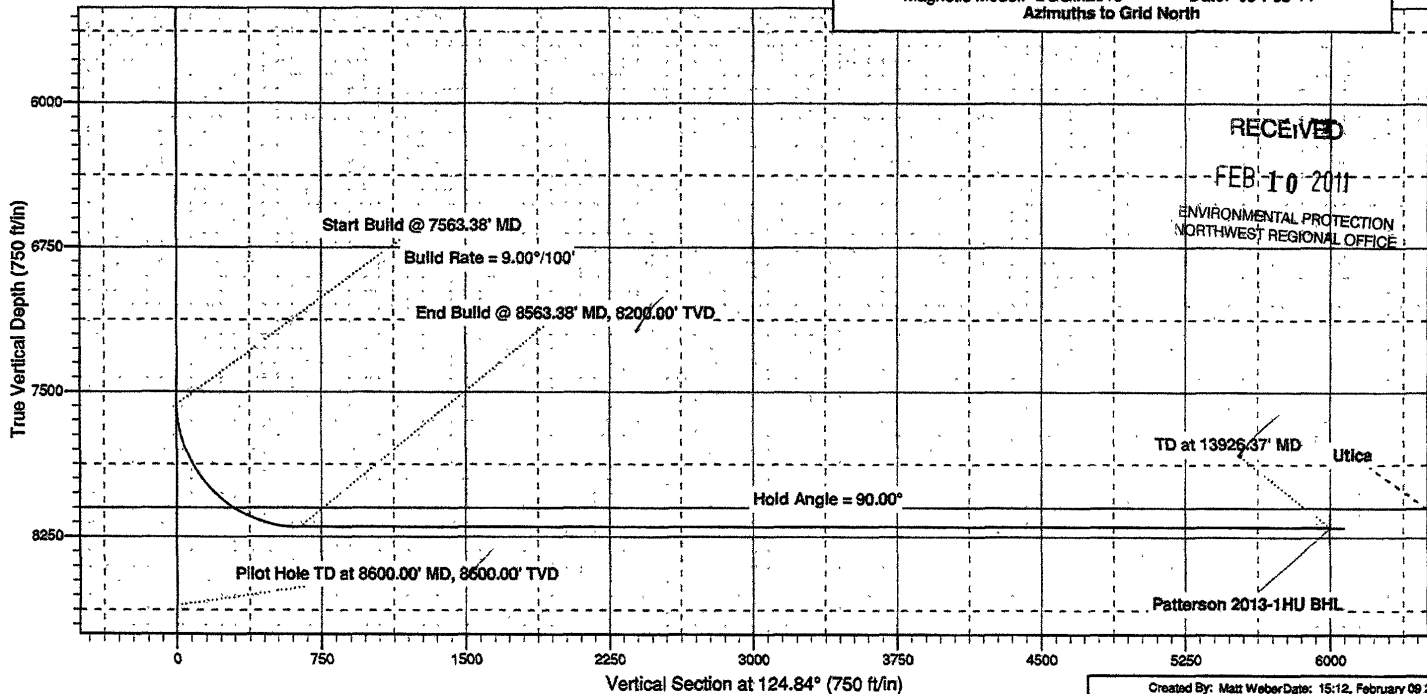
US State Plane 1983
 Pennsylvania Northern Zone
 Elevation: GL 1080' + KB 22' @ 1102.00ft (TBA)
 Northing: 275960.18 Easting: 1232755.12 Latitude: 40° 53' 34.950 N Longitude: 80° 24' 41.560 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape Point
Patterson 2013-1HU BHL	8200.00	-3427.42	4924.24	272532.76	1237679.36	

To convert a Magnetic Direction to a Grid Direction, Subtract 7.29°

Magnetic Model: BGGM2010 Date: 09-Feb-11
 Azimuths to Grid North





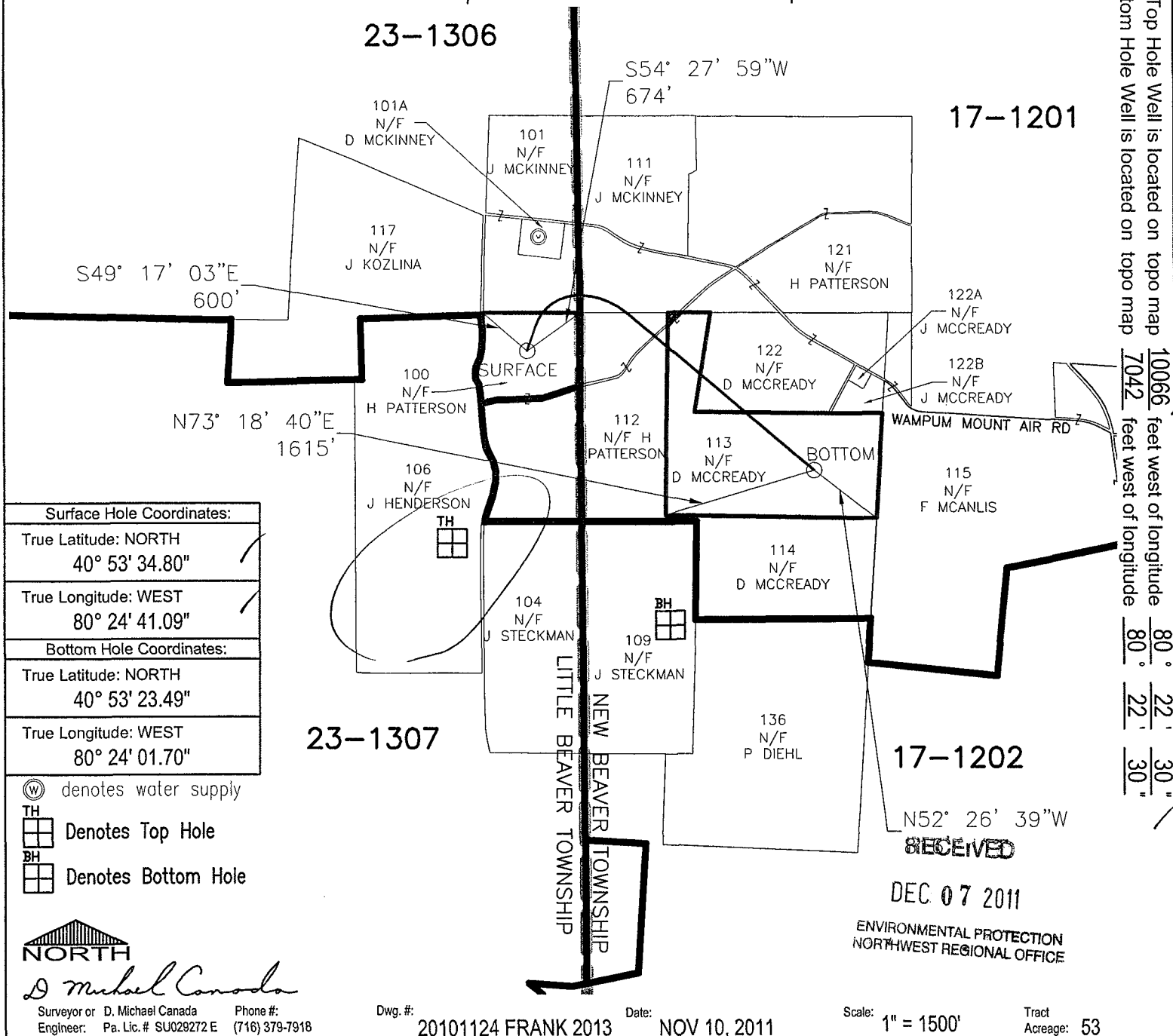
pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP USE ONLY	DEP Application Tracking #:	G: <i>12/28/11</i>
	Permit #: 073-20350	C:
	Project #:	

Top Hole Well is located on topo map 8622 feet south of latitude 40° 55' 00"
Bottom Hole Well is located on topo map 9767 feet south of latitude 40° 55' 00"

parcel lines taken from tax map information



Lat. & Long Metadata Method: RTK GPS Accuracy: ± 5 ft. Datum: NAD 83		Elevation Metadata Method: GPS Accuracy: ± 5 ft. Datum: NAD 83		Survey Date: DEC 3, 2010	
Applicant / Well Operator Name: SWEPI LP		DEP ID#: 284309		Well(Farm) Name: PATTERSON, H	
Address: 190 Thorn Hill Road, Warrendale, PA 15086		County - Code: LAWRENCE		Municipality: LITTLE BEAVER	
Surface Landowner / Lessor: PATTERSON, H. JAY & NANCY		USGS 71/2 Quadrangle Map Name: BESSEMER		Map Section: 9	
Target Formation(s): Utica Shale		Angle & Course of Deviation (Drilling): S67° 31' 08"E 3234'		Anticipated Total Depth TVD: 8700' TMD: 11,800'	
Surface Owner or Water Payer Within Water Supply within 1000 ft		Approximate Course and Distance to Water Supply		Owner, Lessee or Operator of Workable Coal Seam	
MCKINNEY, DAVID F. & CHRISTINE M.		N05° 54' 02.09"E 1183'		NONE	

Top Hole Well is located on topo map 10066 feet west of longitude 80° 22' 30"
Bottom Hole Well is located on topo map 7042 feet west of longitude 80° 22' 30"



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-5HD
Wellbore: PATTERSON #2013-5HD
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7365.00	0.00	0.00	7365.00	0.00	0.00	0.00	0.00	0.00	Start Build
8021.56	52.50	18.72	7933.46	265.52	89.98	8.00	18.72	-101.74	Start Build/Turn
9356.27	90.00	130.00	8520.00	370.19	1073.51	8.00	103.34	584.40	End Build/Turn
11856.27	90.00	130.00	8520.00	-1236.78	2988.62	0.00	0.00	3084.40	TD

Surface Location:

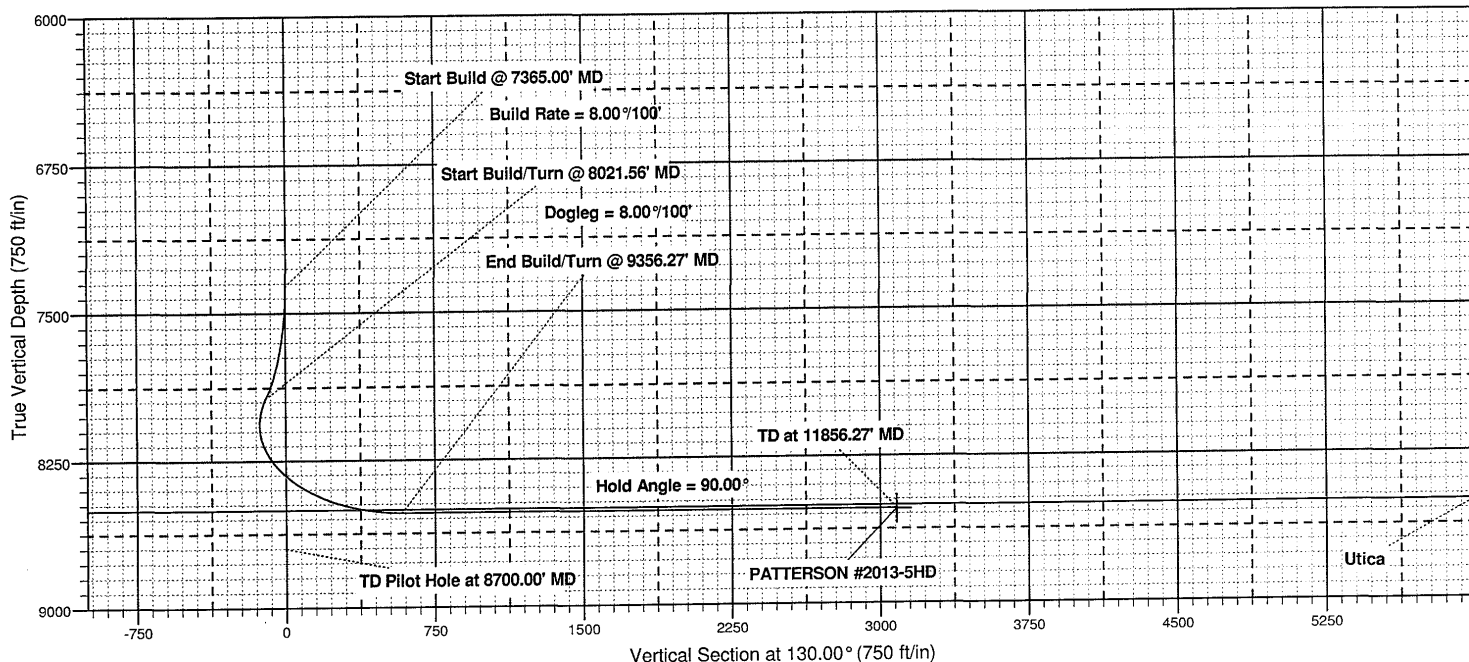
EPW NAD83
 NAD83 / Pennsylvania North [1188 2271]
 Elevation: GL 1091' + KB 22' @ 1113.00ft (TBD)
 Northing: 275943.60 Easting: 1232790.47 Latitude: 40° 53' 34.797 N Longitude: 80° 24' 41.093 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PATTERSON #2013-5HD	8520.00	-1236.78	2988.62	274706.83	1235779.09	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.29°

Magnetic Model: BGGM2011 Date: 07-Nov-11
 Azimuths to Grid North



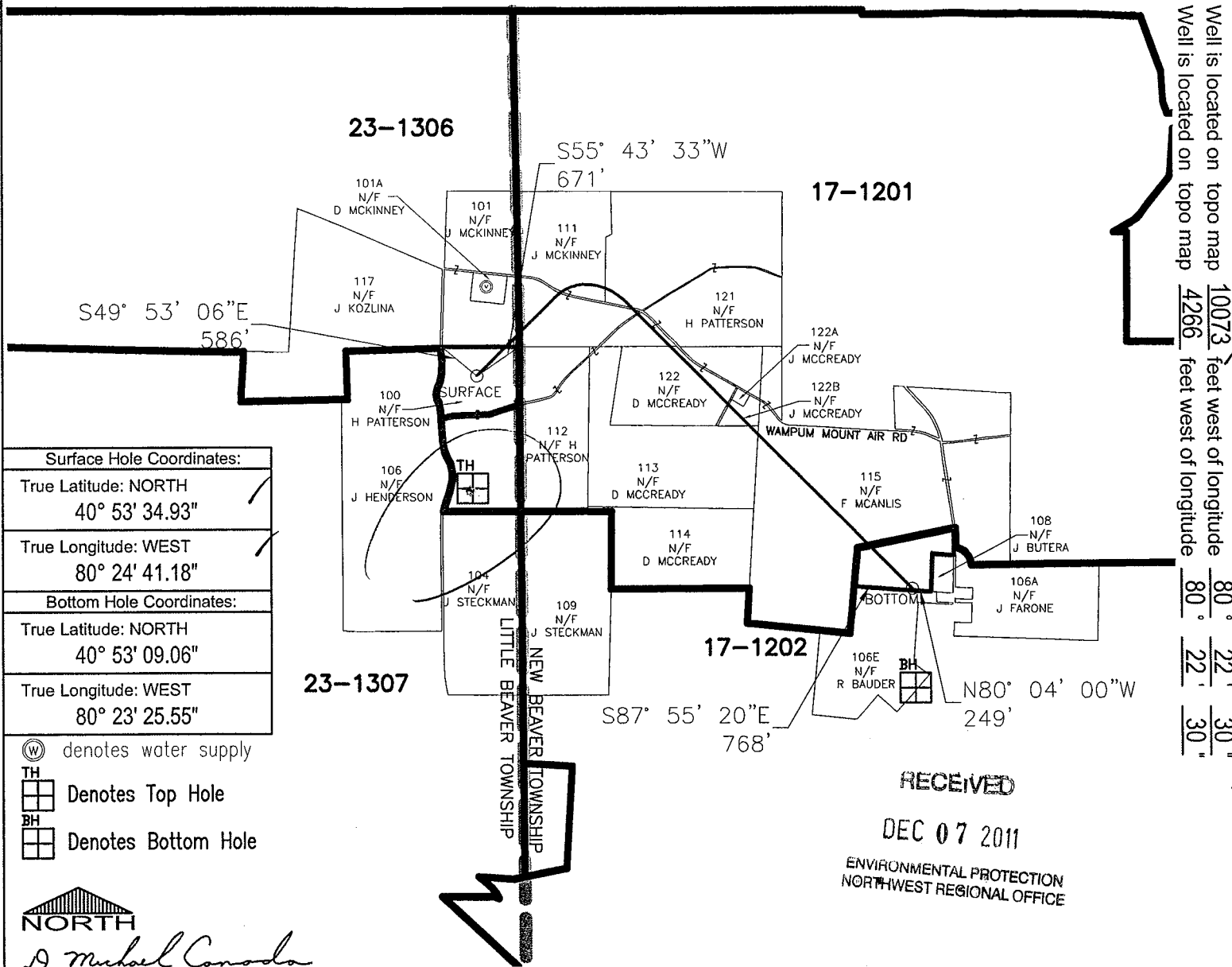


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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP USE ONLY	DEP Application Tracking #:	G: <i>MS 12/28/11</i>
	Permit #: <i>073-20353</i>	
	Project #:	

Top Hole Well is located on topo map 8609 feet south of latitude 40° 55' 00"
Bottom Hole Well is located on topo map 11227 feet south of latitude 40° 55' 00"
parcel lines taken from tax map information



Top Hole Well is located on topo map 10073 feet west of longitude 80° 22' 30"
Bottom Hole Well is located on topo map 4266 feet west of longitude 80° 22' 30"

Surface Hole Coordinates:	
True Latitude: NORTH	<u>40° 53' 34.93"</u>
True Longitude: WEST	<u>80° 24' 41.18"</u>
Bottom Hole Coordinates:	
True Latitude: NORTH	<u>40° 53' 09.06"</u>
True Longitude: WEST	<u>80° 23' 25.55"</u>

Ⓢ denotes water supply

TH Denotes Top Hole

BH Denotes Bottom Hole



D Michael Canada

Surveyor or D. Michael Canada Phone #: (716) 379-7918
Engineer: Pa. Lic. # SU029272 E

Dwg. #: 20101124 FRANK 2013 Date: NOV 10, 2011

Scale: 1" = 2000' Tract Acreage: 53

RECEIVED
DEC 07 2011
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

Lat. & Long Metadata Method: RTK GPS Accuracy: ± 5 ft. Datum: NAD 83		Elevation Metadata Method: GPS Accuracy: ± 5 ft. Datum: NAD 83		Survey Date: DEC 3, 2010	
Applicant / Well Operator Name: SWEPI LP		DEP ID#: 284309		Well(Farm) Name: PATTERSON, H	
Address: 190 Thorn Hill Road, Warrendale, PA 15086		County - Code: LAWRENCE		Municipality: LITTLE BEAVER	
Surface Landowner / Lessor: PATTERSON, H. JAY & NANCY		USGS 7 1/2 Quadrangle Map Name: BESSEMER		Map Section: 9	
Target Formation(s): Utica Shale		Angle & Course of Deviation (Drilling): S63° 59' 01"E 6372'		Anticipated Total Depth TVD: 8700 TMD: 15,357	
Surface Owner or Water Purveyor: MCKINNEY, DAVID F. & CHRISTINE M.		Approximate Course and Distance to Water Supply: N06° 16' 43.39"E 1170'		Owner, Lessee, or Operator: NONE	
Within Water Supply within 1000 ft.					



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-6HD
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6909.70	0.00	0.00	6909.70	0.00	0.00	0.00	0.00	0.00	Start Build(KOP)
7659.67	60.00	45.00	7529.93	253.18	253.22	8.00	45.00	0.03	End Build
8923.53	60.00	45.00	8161.90	1027.06	1027.21	0.00	0.00	0.11	Start Build/Turn
10048.48	90.00	135.00	8520.00	959.17	1972.17	8.00	90.00	716.30	End Build/Turn
15357.58	90.00	135.00	8520.00	-2794.93	5726.27	0.00	0.00	6025.40	TD

Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188 2271]
 Elevation: GL 1091' + KB 22' @ 1113.00ft (TBD)

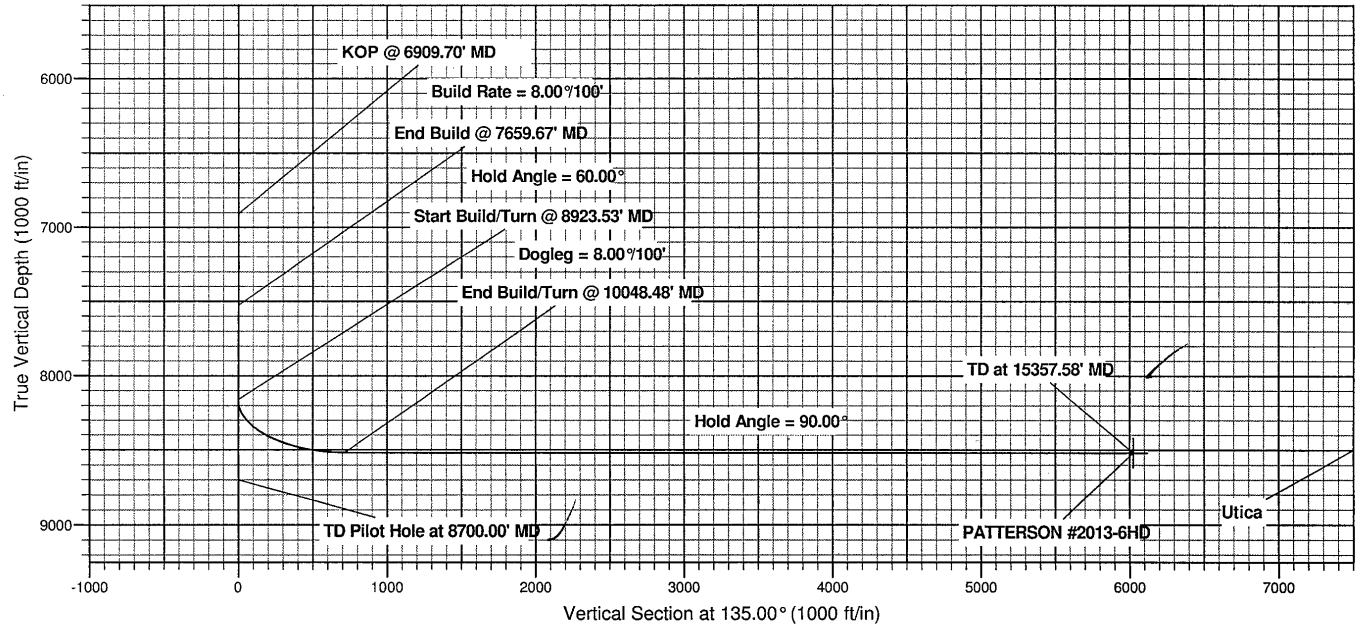
Northing	Easting	Latitude	Longitude
275957.19	1232784.12	40° 53' 34.929 N	80° 24' 41.181 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PATTERSON #2013-6HD	8520.00	-2794.93	5726.27	273162.26	1238510.38	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.29°

Magnetic Model: BGGM2011 Date: 07-Nov-11
 Azimuths to Grid North



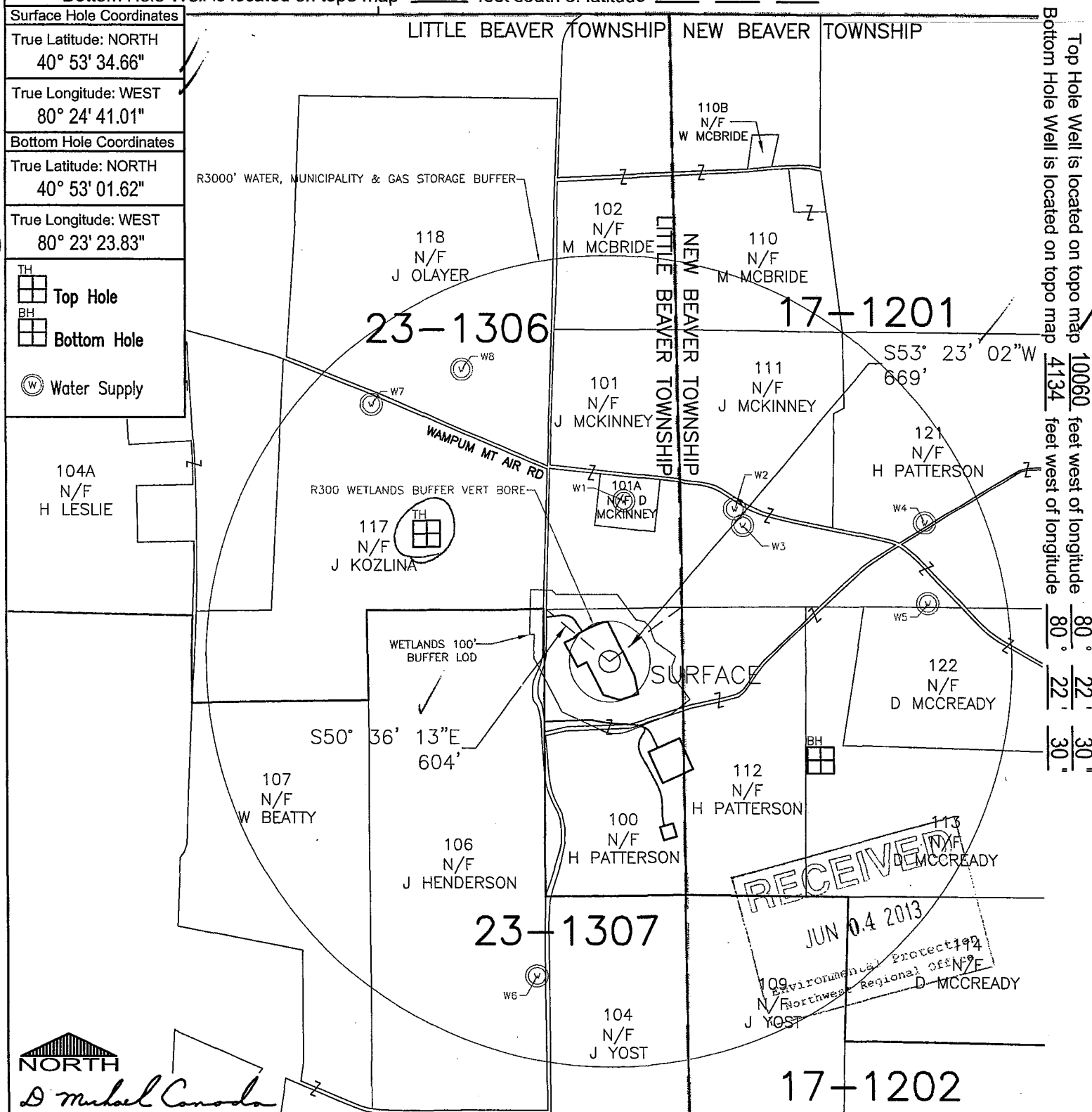


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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT
Page 1 Surface Location

DEP USE ONLY	Auth ID #:	G: <i>Acc</i>
	Permit #: <i>073-20399</i>	7/1/13
	Project #:	C:

Top Hole Well is located on topo map 8636 feet south of latitude 40° 55' 00" parcel lines taken from
Bottom Hole Well is located on topo map 11980 feet south of latitude 40° 55' 00" tax map information



Applicant / Well Operator Name: SWEPI LP		DEP ID#: 284309	Well (Farm) Name: PATTERSON		Well #: 2013-5HD
Address: 2100 Georgetown Drive, Suite 400, Sewickley, PA 15143			County: LAWRENCE	Municipality: LITTLE BEAVER	Well Type: Gas
911 Address of well site: 828 WALKER RD			USGS 71/2 Quadrangle Map Name: BESSEMER		Map Section: 9
Surveyor: Pa. Lic. # SU029272 E D. Michael Canada		Phone #: 716-379-7918	Dwg #: 20101124 F	Date: APRIL 23, 2013	Scale: 1" = 1000'
Lat. & Long Metadata Method: RTK GPS		Accuracy: ± 5 ft.	Datum: NAD 83	Elevation Metadata Method: GPS	Accuracy: ± 5 ft.
		Datum: NAD 83			Tract Acreage: 673.82
Survey Date: NOV 24, 2010					

WELL LOCATION PLAT
Page 2 Notifications

073-20399

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: PATTERSON	Well #: 2013-5HD
Surface Landowner: PATTERSON H JAY & NANCY	Angle & Course of Deviation (Drilling): S58° 48' 40"E 6806'	Anticipated True Vertical Depth Feet (TVD): 11335.83	Anticipated Total Measured Depth Feet (TMD): 15075.22
Target Formation(s): Utica Shale	Deepest Formation to be penetrated: Precambrian	Number of Laterals: 1	Total footage to be drilled - all laterals: 18291.95

Surface Owner or Water Purveyor
with a Water Supply within 3,000 ft.

Latitude/Longitude of Water Supply

PIN	OWNER	LAT	LONG
23-1306-101A	MCKINNEY DAVID F & CHRISTINE M	40D 53' 46.43"	80D 24' 40.01"
17-1201-111	MCKINNEY JANE A	40D 53' 46.08"	80D 24' 29.28"
17-1201-111	MCKINNEY JANE A	40D 53' 44.88"	80D 24' 28.48"
17-1201-121	PATTERSON H JAY & NANCY A	40D 53' 45.52"	80D 24' 10.74"
17-1201-121	PATTERSON H JAY & NANCY A	40D 53' 39.65"	80D 24' 10.24"
23-1307-106	HENDERSON JORDAN LANCE	40D 53' 11.53"	80D 24' 47.26"
23-1306-117	KOZLINA JOSEPH & ELIZABETH ANN	40D 53' 52.89"	80D 25' 04.72"
23-1306-118	OLAYER JAMES S & SANDRA R	40D 53' 55.63"	80D 24' 56.06"

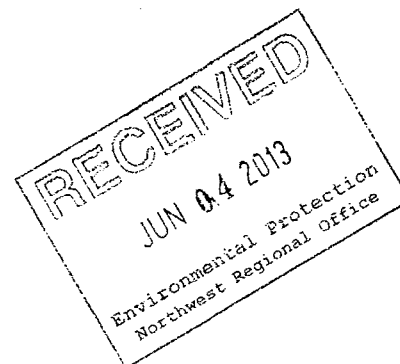
BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
W1	N5° 25' 10.32"E	1193'
W2	N39° 41' 58.72"E	1465'
W3	N44° 41' 08.60"E	1412'
W4	N66° 27' 12.38"E	2571'
W5	N79° 42' 39.43"E	2416'
W6	S13° 21' 40.94"W	2390'
W7	N42° 52' 11.56"W	2592'
W8	N26° 48' 40.27"W	2417'

Municipality: where the well will be drilled,
adjacent to the well, or within 3000 feet

DRILLED IN - ☒ LITTLE BEAVER TWP-LAWRENCE CO
 ADJACENT TO - ☒ ENON VALLEY BORO-LAWRENCE CO
☒ NEW BEAVER BORO-LAWRENCE CO
☒ BIG BEAVER TWP-BEAVER CO
☒ DARLINGTON TWP-BEAVER CO
☒ NORTH BEAVER TWP-LAWRENCE CO

Coal related parties

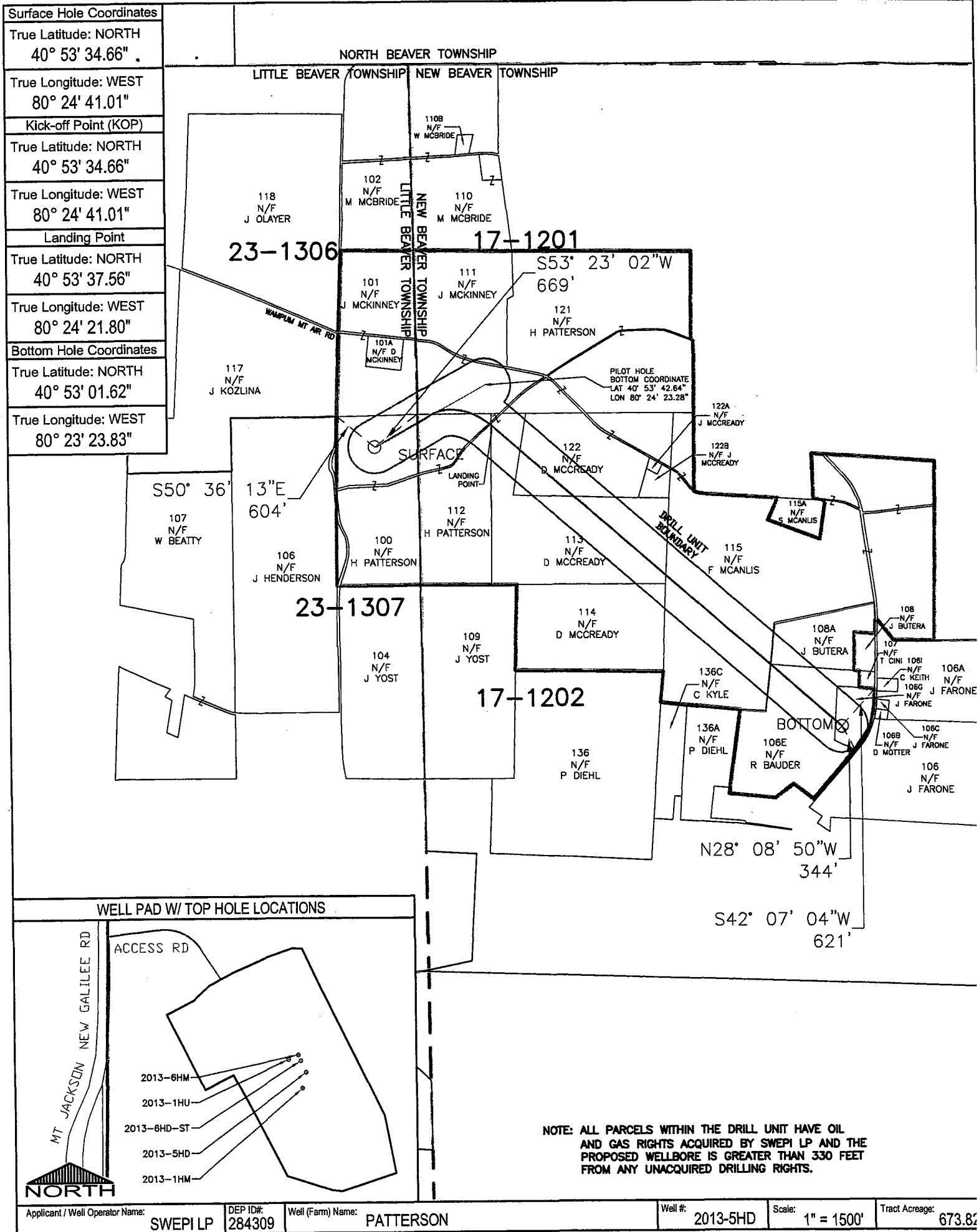
NONE



WELL LOCATION PLAT

Page 3 Plan View of Deviated Well Bore

073-20399



073-20399

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: PATTERSON	Well #: 2013-5HD
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DEP Use Only	Permit #
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WELL PLAN

Operator Name: SWEPI LPWell / Farm Name: PATTERSON /

			Latitude:	Longitude:
KOP:	TVD: <u>8119.1</u>	TMD: <u>8119.1</u>	<u>40° 53' 34.66"</u>	<u>80° 24' 41.01"</u>
Landing Point:	TVD: <u>8524.49</u>	TMD: <u>9325.22</u>	<u>40° 53' 37.56"</u>	<u>80° 24' 21.80"</u>

*FOR CLARITY PURPOSES, SEE THE
FOLLOWING ATTACHED WELL PLAN AND
SECTION VIEWS

APPALACHIA

073-20399



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-5HD
Wellbore: PATTERSON #2013-5HD ST01
Design: Design #1
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
8119.10	30.00	61.09	7961.41	305.67	553.57	0.00	0.00	217.25	Start Build
8371.08	50.07	58.05	8153.36	388.11	692.13	8.00	-6.79	267.74	Start Build/Turn
9325.22	89.00	131.00	8524.49	247.30	1483.22	8.00	79.64	957.16	End Build/Turn
15075.22	89.00	131.00	8624.84	-3524.47	5822.14	0.00	0.00	6706.28	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Patterson #2013-5HD	8624.84	-3524.47	5822.14	272405.56	1238618.96	Point

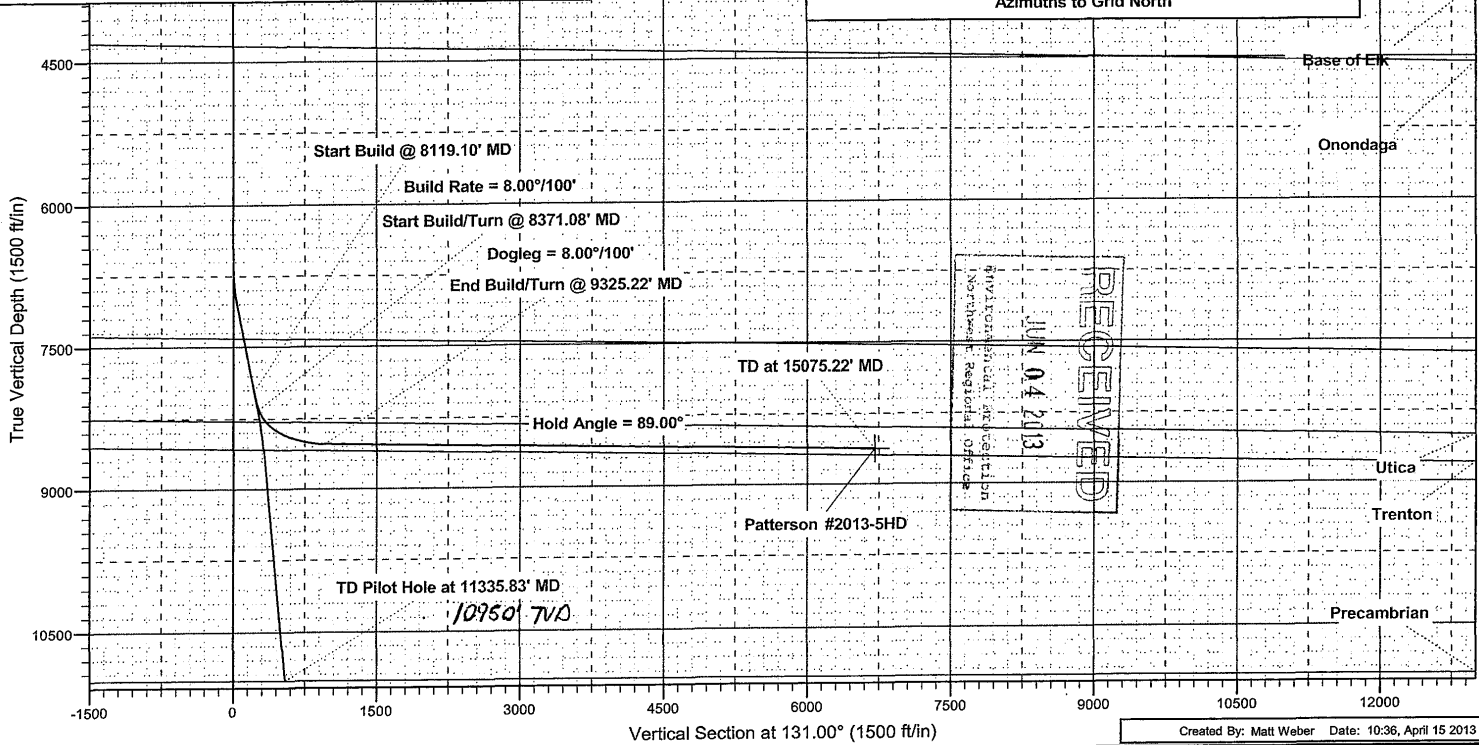
Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188, 2271]
 Elevation: DFE @ 1104.00ft (TBD)

Northing 275930.02 **Easting** 1232796.83 **Latitude** 40° 53' 34.665 N **Longitude** 80° 24' 41.005 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.26°

Magnetic Model: BGGM2012 Date: 03-Apr-13
 Azimuths to Grid North



APPALACHIA

073-20399



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-5HD
Wellbore: PATTERSON #2013-5HD ST01
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83
NAD83 / Pennsylvania North [1188, 2271]
Elevation: DFE @ 1104.00ft (TBD)

Northing 275930.02 Easting 1232796.83 Latitude 40° 53' 34.665 N Longitude 80° 24' 41.005 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.26°

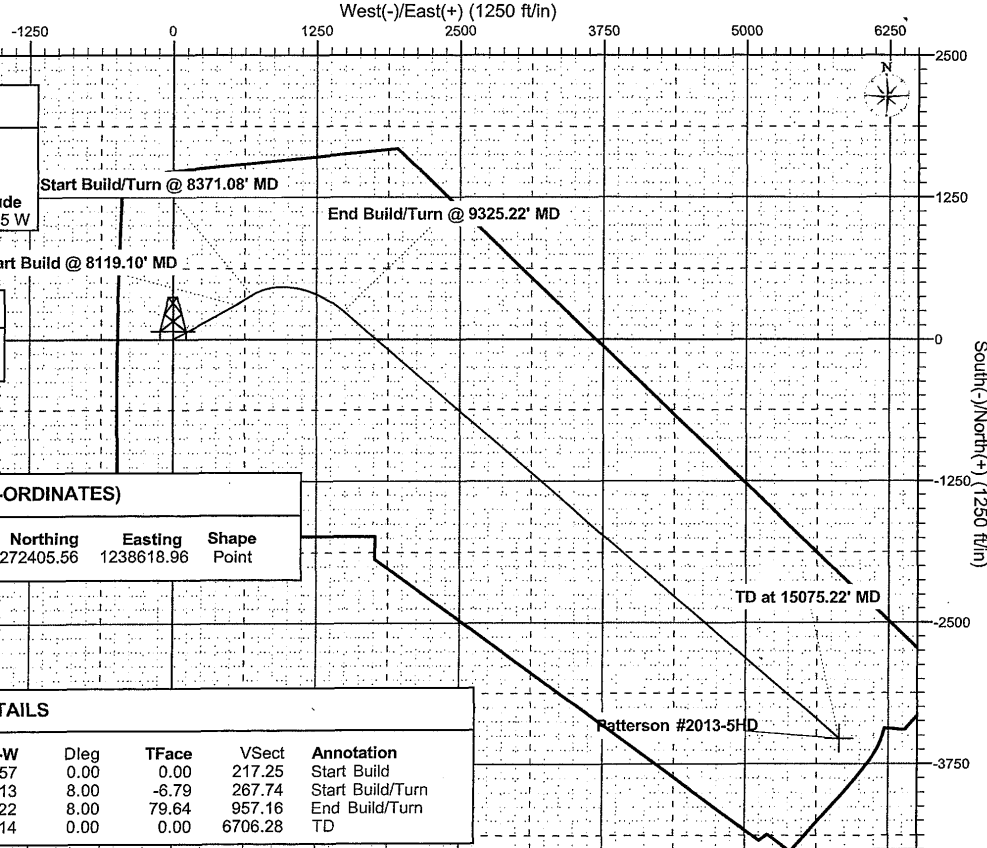
Magnetic Model: BGGM2012 Date: 03-Apr-13
Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Patterson #2013-5HD	8624.84	-3524.47	5822.14	272405.56	1238618.96	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
8119.10	30.00	61.09	7961.41	305.67	553.57	0.00	0.00	217.25	Start Build
8371.08	50.07	58.05	8153.36	388.11	692.13	8.00	-6.79	267.74	Start Build/Turn
9325.22	89.00	131.00	8524.49	247.30	1483.22	8.00	79.64	957.16	End Build/Turn
15075.22	89.00	131.00	8624.84	-3524.47	5822.14	0.00	0.00	6706.28	TD



Created By: Matt Weber Date: 10:05, April 15 2013



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT
Page 1 Surface Location

DEP USE ONLY	Auth ID #:	G: SGP
	Permit #:	111313
	Project #:	213-20399

Top Hole Well is located on topo map <u>8636</u> feet south of latitude <u>40° 55' 00"</u> parcel lines taken from	
Bottom Hole Well is located on topo map <u>7894</u> feet south of latitude <u>40° 55' 00"</u> tax map information	
Surface Hole Coordinates	
True Latitude: NORTH 40° 53' 34.66"	
True Longitude: WEST 80° 24' 41.01"	
Bottom Hole Coordinates	
True Latitude: NORTH 40° 53' 41.99"	
True Longitude: WEST 80° 26' 20.53"	
TH ☐ Top Hole BH ☐ Bottom Hole Bessemer quad sect 8 W ☐ Water Supply	
NORTH BEAVER TOWNSHIP LITTLE BEAVER TOWNSHIP NEW BEAVER TOWNSHIP 23-1306 17-1201 23-1307 17-1202	
R3000' WATER, MUNICIPALITY & GAS STORAGE BUFFER S53° 23' 02"W 669' 118 N/F J OLAYER 102 N/F M MCBRIDE 110 N/F M MCBRIDE 101 N/F J MCKINNEY 111 N/F J MCKINNEY 121 N/F H PATTERSON 104A N/F H LESLIE 104C N/F G LESLIE 104D N/F H LESLIE 108A N/F D MOON 108 N/F D MOON 108D N/F M VOGEL 107 N/F W BEATTY 106 N/F J HENDERSON 100 N/F H PATTERSON 112 N/F H PATTERSON 113 N/F D MCCREADY 109 N/F J YOST 114 N/F D MCCREADY 104 N/F J YOST 117 N/F J KOZLINA 101A N/F D MCKINNEY 122 N/F D MCCREADY WETLANDS 100' BUFFER LOD R300' WETLANDS BUFFER VERT BORE WAMPUM MT AIR RD SURFACE W1, W2, W3, W4, W5, W6, W7, W8	
RECEIVED OCT 31 2013 Environmental Protection Northwest Regional Office	
Top Hole Wells located on topo map 10060 feet west of longitude 80° 22' 30" / Bottom Hole Wells located on topo map 6183 feet west of longitude 80° 25' 00" /	
Applicant / Well Operator Name: SWEPI LP Address: 2100 Georgetown Drive, Suite 400, Sewickley, PA 15143 911 Address of well site: 828 WALKER RD Surveyor: Pa. Lic. # SU029272 E D. Michael Canada Lat. & Long Metadata Method: RTK GPS Phone #: 716-379-7918 Dwg #: 20101124 F Date: OCT 8, 2013 Scale: 1" = 1000' Tract Acreage: 889.72	
Well (Farm) Name: PATTERSON County: LAWRENCE Municipality: LITTLE BEAVER Well #: 2013-5HD Well Type: Gas USGS 71/2 Quadrangle Map Name: BESSEMER 1102 Map Section: 9 Surface Elevation: 1084 ft. Accuracy: ± 5 ft. Datum: NAD 83 Elevation Metadata Method: GPS Survey Date: NOV 24, 2010	



D. Michael Canada

WELL LOCATION PLAT

Page 2 Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: PATTERSON	Well #: 2013-5HD
Surface Landowner: PATTERSON H JAY & NANCY	Angle & Course of Deviation (Drilling): N82° 41' 27"W 7679'	Anticipated True Vertical Depth Feet (TVD): 9955	Anticipated Total Measured Depth Feet (TMD): 16316.6
Target Formation(s): Black River	Deepest Formation to be penetrated: Chazy	Number of Laterals: 1	Total footage to be drilled - all laterals: 18655.35

Surface Owner or Water Purveyor
with a Water Supply within 3,000 ft.

Latitude/Longitude of Water Supply

PIN	OWNER	LAT	LONG
23-1306-101A	MCKINNEY DAVID F & CHRISTINE M	40D 53' 46.43"	80D 24' 40.01"
17-1201-111	MCKINNEY JANE A	40D 53' 46.08"	80D 24' 29.28"
17-1201-111	MCKINNEY JANE A	40D 53' 44.88"	80D 24' 28.48"
17-1201-121	PATTERSON H JAY & NANCY A	40D 53' 45.52"	80D 24' 10.74"
17-1201-121	PATTERSON H JAY & NANCY A	40D 53' 39.65"	80D 24' 10.24"
23-1307-106	HENDERSON JORDAN LANCE	40D 53' 11.53"	80D 24' 47.26"
23-1306-117	KOZLINA JOSEPH & ELIZABETH ANN	40D 53' 52.89"	80D 25' 04.72"
23-1306-118	OLAYER JAMES S & SANDRA R	40D 53' 55.63"	80D 24' 56.06"

BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
W1	N5° 25' 10.32"E	1193'
W2	N39° 41' 58.72"E	1465'
W3	N44° 41' 08.60"E	1412'
W4	N66° 27' 12.38"E	2571'
W5	N79° 42' 39.43"E	2416'
W6	S13° 21' 40.94"W	2390'
W7	N42° 52' 11.56"W	2592'
W8	N26° 48' 40.27"W	2417'

Municipality: where the well will be drilled,
adjacent to the well, or within 3000 feet

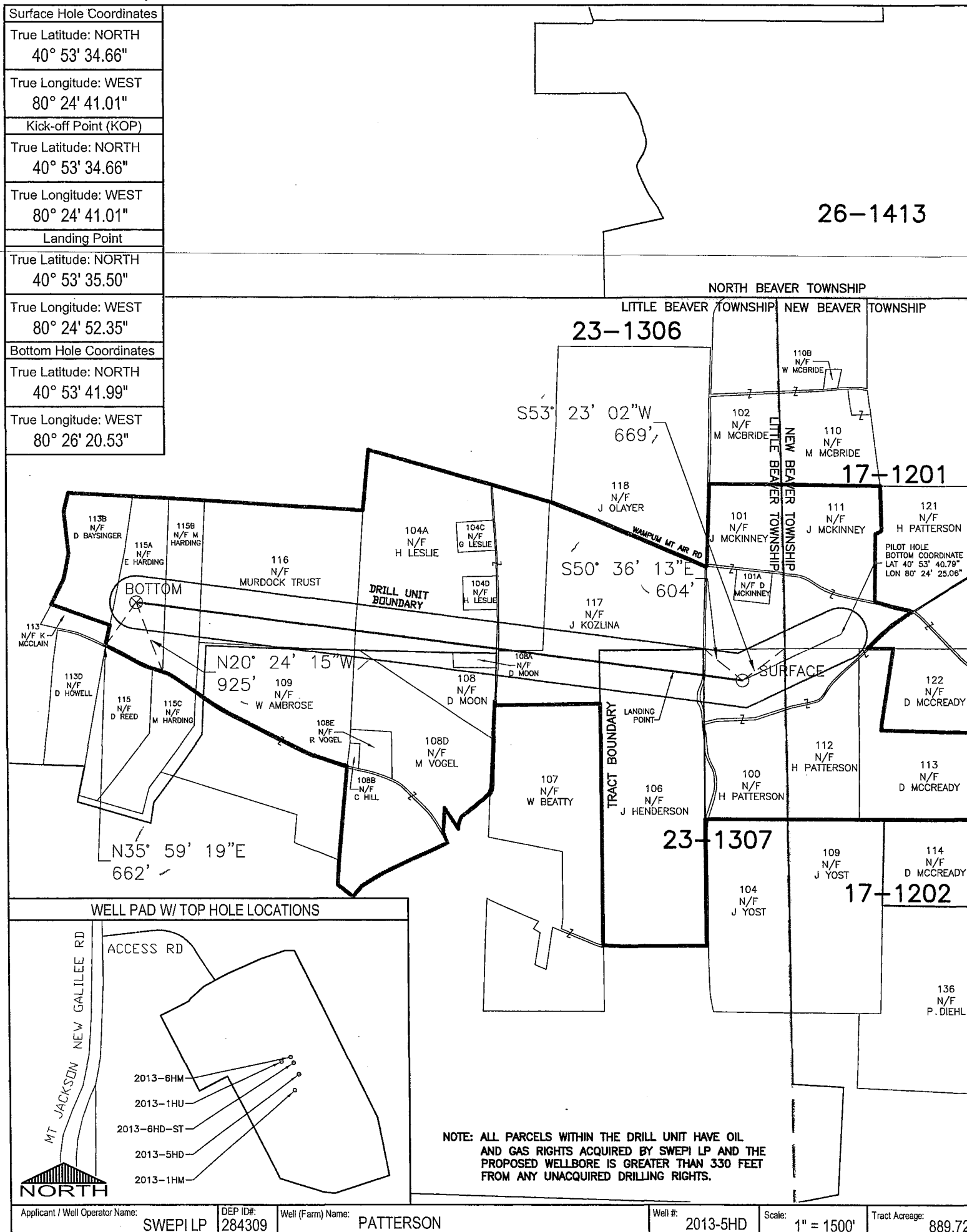
DRILLED IN - LITTLE BEAVER TWP-LAWRENCE CO
 ADJACENT TO - ENON VALLEY BORO-LAWRENCE CO
 NEW BEAVER BORO-LAWRENCE CO
 BIG BEAVER TWP-BEAVER CO
 DARLINGTON TWP-BEAVER CO
 NORTH BEAVER TWP-LAWRENCE CO

Coal related parties

NONE

WELL LOCATION PLAT

Page 3 Plan View of Deviated Well Bore



WELL LOCATION PLAT
Page 4 Cross Section

Applicant / Well Operator Name:	SWEPI LP	DEP ID#:	284309	Well (Farm) Name:	PATTERSON	Well #:	2013-5HD
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DEP Use Only	Permit #
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WELL PLAN

Operator Name: SWEPI LPWell / Farm Name: PATTERSON

			Latitude:	Longitude:
KOP:	TVD: <u>8134.05</u>	TMD: <u>8134.05</u>	<u>40° 53' 34.66"</u>	<u>80° 24' 41.01"</u>
Landing Point:	TVD: <u>9015.5</u>	TMD: <u>9512.51</u>	<u>40° 53' 35.50"</u>	<u>80° 24' 52.35"</u>

*FOR CLARITY PURPOSES, SEE THE
FOLLOWING ATTACHED WELL PLAN AND
SECTION VIEWS

APPALACHIA

PILOT



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-5HD
Wellbore: PATTERSON #2013-5HD
Design: Design #2 (5PD)
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8183.00	0.00	0.00	8183.00	0.00	0.00	0.00	0.00	0.00	Start Build
8842.94	45.00	64.72	8777.16	105.09	222.55	6.82	64.72	246.11	Start Drop/Turn
8861.92	43.72	64.96	8790.72	110.73	234.56	6.82	172.83	259.38	End Drop/Turn
8961.92	43.72	64.96	8863.00	139.98	297.17	0.00	0.00	328.49	
10472.80	43.72	64.96	9955.00	581.99	1243.17	0.00	0.00	1372.66	TD

Surface Location:

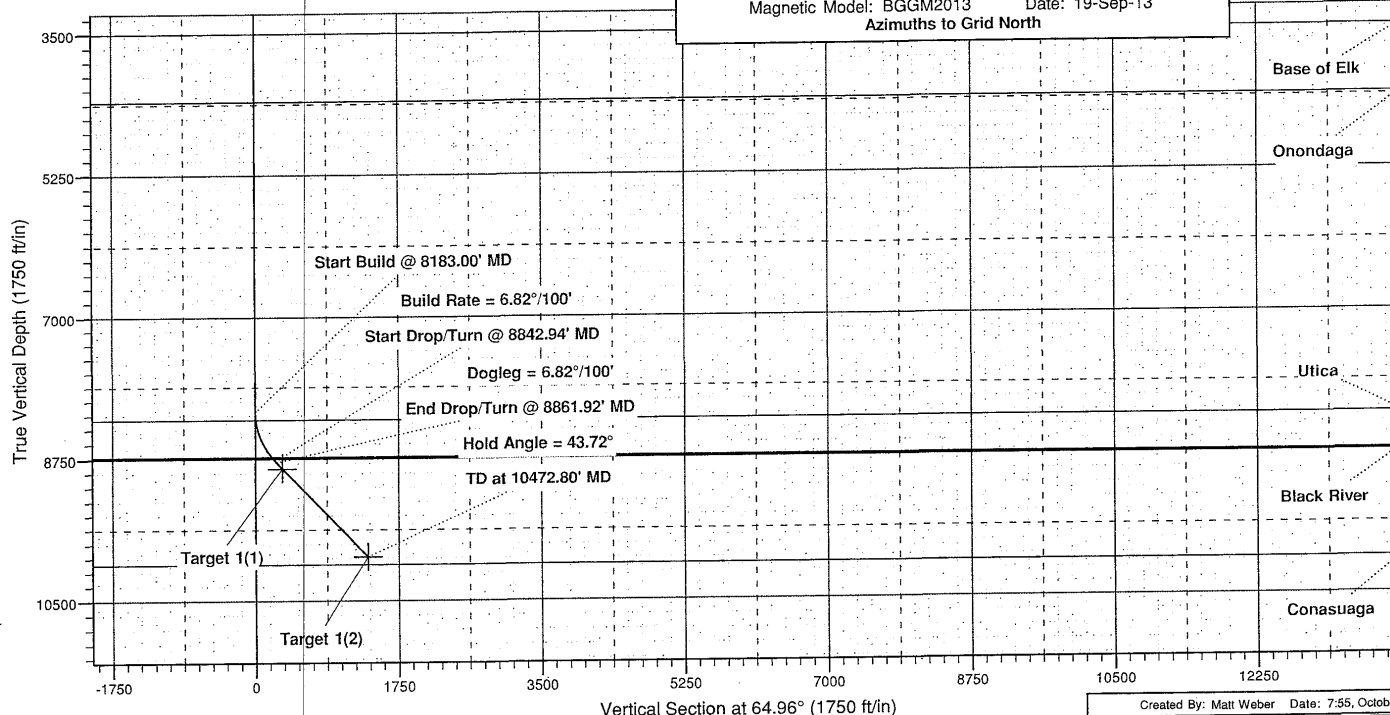
EPW NAD83
NAD83 / Pennsylvania North [1188, 2271]
Elevation: DFE @ 1104.00ft (TBD)
Northing 275930.02 Easting 1232796.83 Latitude 40° 53' 34.665 N Longitude 80° 24' 41.005 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Target 1(1)	8863.00	139.98	297.17	276070.00	1233094.00	Point
Target 1(2)	9955.00	581.99	1243.17	276512.00	1234040.00	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.31°

Magnetic Model: BGGM2013 Date: 19-Sep-13
Azimuths to Grid North



Created By: Matt Weber Date: 7:55, October 08 2013



Project: SLIPPERY ROCK
 Site: PATTERSON #2013
 Well: PATTERSON #2013-5HD
 Wellbore: PATTERSON #2013-5HD
 Design: Design #2 (5PD)
 Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8183.00	0.00	0.00	8183.00	0.00	0.00	0.00	0.00	0.00	Start Build
8842.94	45.00	64.72	8777.16	105.09	222.55	6.82	64.72	246.11	Start Drop/Turn
8861.92	43.72	64.96	8790.72	110.73	234.56	6.82	172.83	259.38	End Drop/Turn
8961.92	43.72	64.96	8863.00	139.98	297.17	0.00	0.00	328.49	
10472.80	43.72	64.96	9955.00	581.99	1243.17	0.00	0.00	1372.66	TD

Surface Location:

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

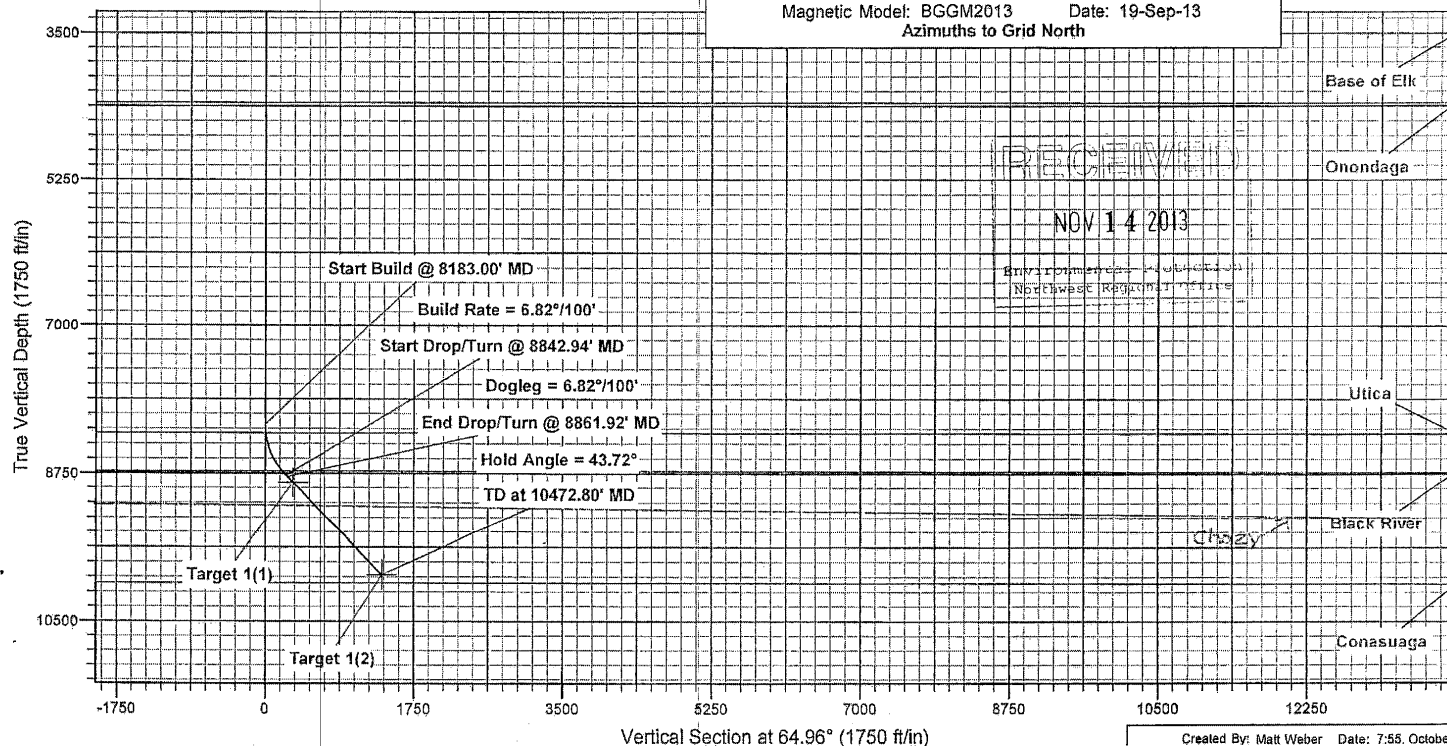
Name	TVD	+N-S	+E-W	Northing	Easting	Shape
Target 1(1)	8863.00	139.98	297.17	276070.00	1233094.00	Point
Target 1(2)	9955.00	581.99	1243.17	276512.00	1234040.00	Point

EPW NAD83
 NAD83 / Pennsylvania North [1188_2271]
 Elevation: DFE @ 1104.00ft (TBD)

Northing: 275930.02 Easting: 1232796.83 Latitude: 40° 53' 34.665 N Longitude: 80° 24' 41.005 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.31°

Magnetic Model: BGM2013 Date: 19-Sep-13
 Azimuths to Grid North



APPALACHIA

LATERAL



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-5HD
Wellbore: PATTERSON #2013-5HD ST02
Design: Design #2 (SPD)
Rig: TBD

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8134.05	0.00	0.00	8134.05	0.00	0.00	0.00	0.00	0.00	Start Build
9512.51	89.60	277.31	9015.50	111.36	-868.21	6.50	277.31	875.32	End Build
16316.60	89.60	277.31	9063.00	976.99	-7616.85	0.00	0.00	7679.25	TD

Surface Location:

EPW NAD83
NAD83 / Pennsylvania North [1188, 2271]
Elevation: DFE @ 1104.00ft (TBD)

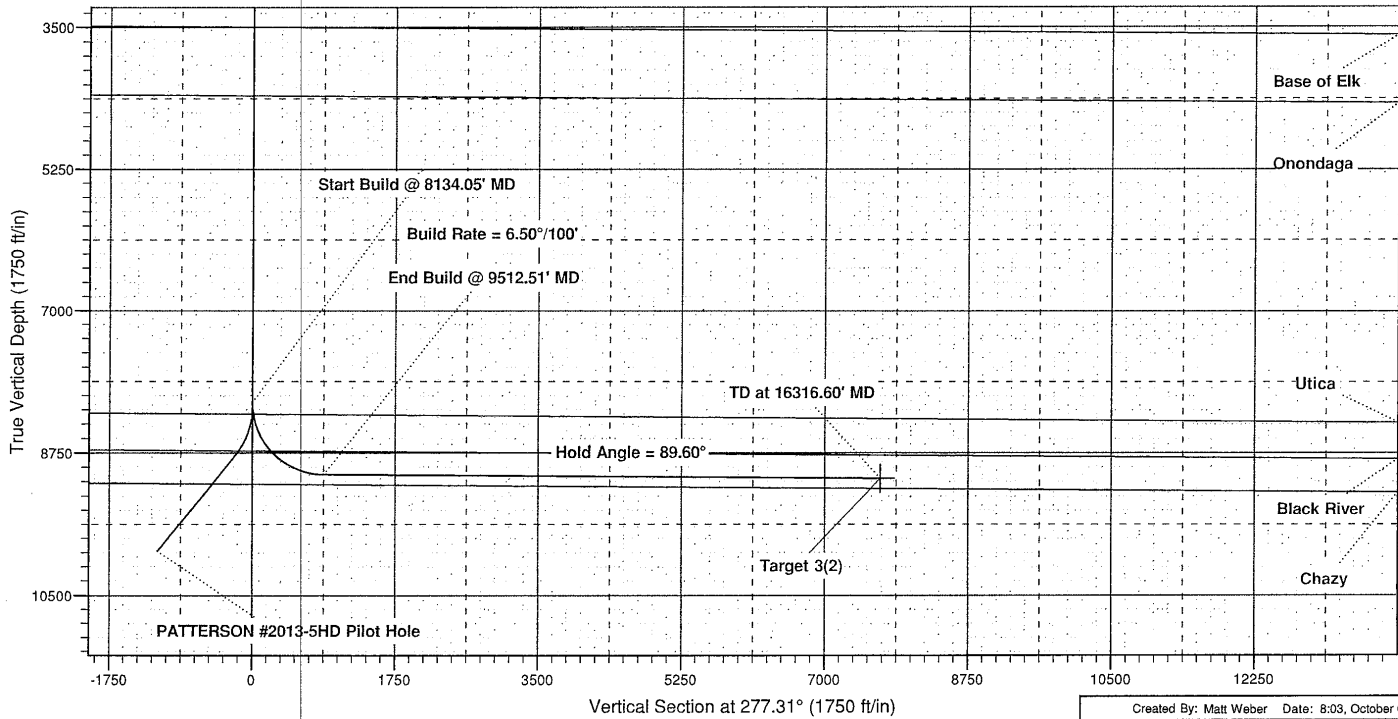
Northing 275930.02
Easting 1232796.83
Latitude 40° 53' 34.665 N
Longitude 80° 24' 41.005 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Target 3(2)	9063.00	976.99	-7616.85	276907.00	1225180.00	Point

To convert a Magnetic Direction to a Grid Direction, Subtract 7.26°

Magnetic Model: BGGM2012 Date: 03-Apr-13
Azimuths to Grid North



Created By: Matt Weber Date: 8:03, October 08 2013

APPALACHIA

LATERAL



Project: SLIPPERY ROCK
 Site: PATTERSON #2013
 Well: PATTERSON #2013-5HD
 Wellbore: PATTERSON #2013-5HD ST02
 Design: Design #2 (5PD)
 Rig: TBD

Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188 2271]
 Elevation: DFE @ 1104.00ft (TBD)

Northing	Easting	Latitude	Longitude
275930.02	1232796.83	40° 53' 34.665 N	80° 24' 41.005 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.26°

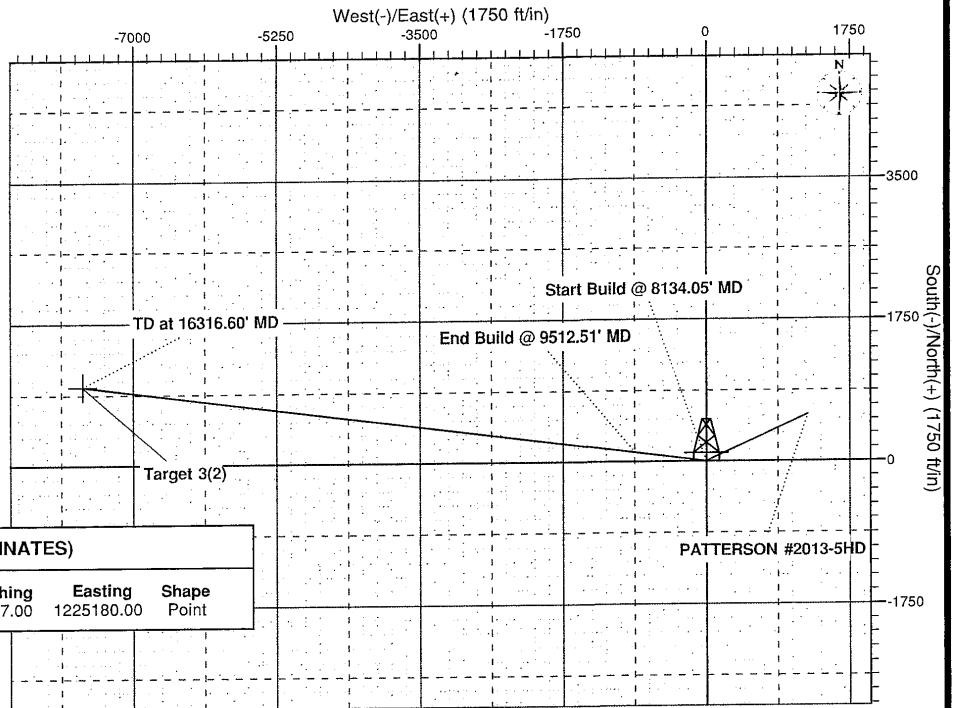
Magnetic Model: BGGM2012 Date: 03-Apr-13
 Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Target 3(2)	9063.00	976.99	-7616.85	276907.00	1225180.00	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8134.05	0.00	0.00	8134.05	0.00	0.00	0.00	0.00	0.00	Start Build
9512.51	89.60	277.31	9015.50	111.36	-868.21	6.50	277.31	875.32	End Build
16316.60	89.60	277.31	9063.00	976.99	-7616.85	0.00	0.00	7679.25	TD



APPALACHIA

PILOT



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-5HD
Wellbore: PATTERSON #2013-5HD
Design: Design #2 (5PD)
Rig: TBD

Surface Location:

EPW NAD83
NAD83 / Pennsylvania North [1188, 2271]
Elevation: DFE @ 1104.00ft (TBD)

Northing	Easting	Latitude	Longitude
275930.02	1232796.83	40° 53' 34.665 N	80° 24' 41.005 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.31°

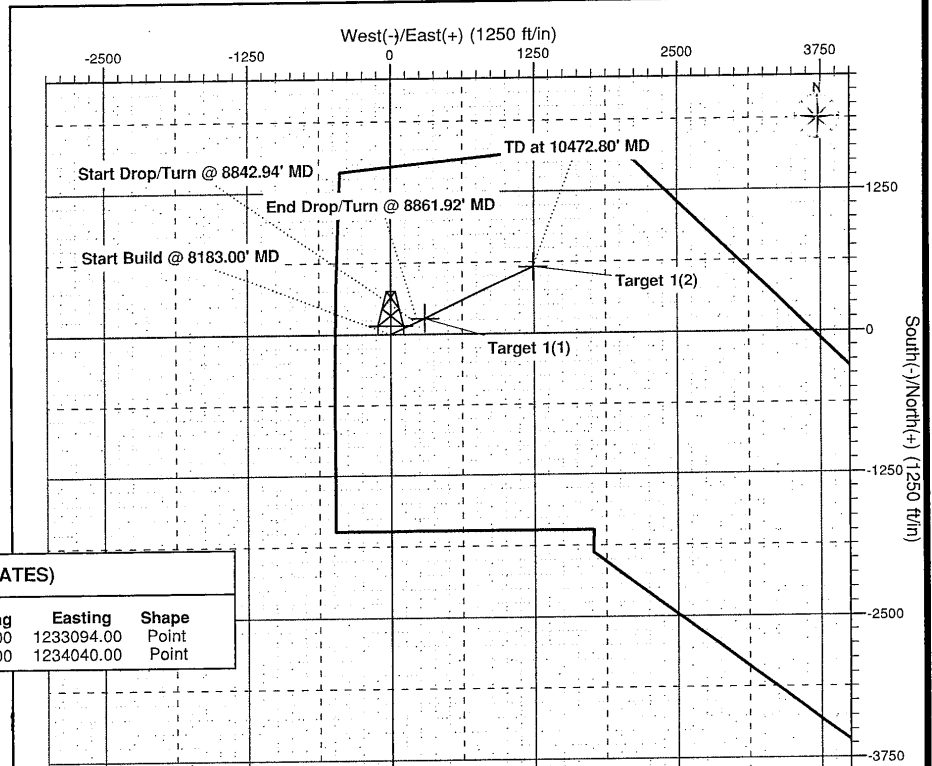
Magnetic Model: BGGM2013 Date: 19-Sep-13
Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Target 1(1)	8863.00	139.98	297.17	276070.00	1233094.00	Point
Target 1(2)	9955.00	581.99	1243.17	276512.00	1234040.00	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8183.00	0.00	0.00	8183.00	0.00	0.00	0.00	0.00	0.00	Start Build
8842.94	45.00	64.72	8777.16	105.09	222.55	6.82	64.72	246.11	Start Drop/Turn
8861.92	43.72	64.96	8790.72	110.73	234.56	6.82	172.83	259.38	End Drop/Turn
8961.92	43.72	64.96	8863.00	139.98	297.17	0.00	0.00	328.49	
10472.80	43.72	64.96	9955.00	581.99	1243.17	0.00	0.00	1372.66	TD



Created By: Matt Weber Date: 7:54, October 08 2013

WELL LOCATION PLAT
Page 2 Notifications

073 - 20402

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: PATTERSON	Well #: 2013-1V
Surface Landowner: PATTERSON H JAY & NANCY	Angle & Course of Deviation (Drilling): N 05° 00' 00" W 830'	Anticipated True Vertical Depth Feet (TVD): 11422	Anticipated Total Measured Depth Feet (TMD): 11549.47
Target Formation(s): See Page 2A	Deepest Formation to be penetrated: Potsdam	Number of Laterals: 1	Total footage to be drilled - all laterals: 11549.47

Surface Owner or Water Purveyor
with a Water Supply within 3,000 ft.

Latitude/Longitude of Water Supply

PIN	OWNER	LAT	LONG
23-1306-101A	MCKINNEY DAVID F & CHRISTINE M	40D 53' 46.43"	80D 24' 40.01"
17-1201-111	MCKINNEY JANE A	40D 53' 46.08"	80D 24' 29.28"
17-1201-111	MCKINNEY JANE A	40D 53' 44.88"	80D 24' 28.48"
17-1201-121	PATTERSON H JAY & NANCY A	40D 53' 45.52"	80D 24' 10.74"
17-1201-121	PATTERSON H JAY & NANCY A	40D 53' 39.65"	80D 24' 10.24"
23-1307-106	HENDERSON JORDAN LANCE	40D 53' 11.53"	80D 24' 47.26"
23-1306-117	KOZLINA JOSEPH & ELIZABETH ANN	40D 53' 52.89"	80D 25' 04.72"
23-1306-118	OLAYER JAMES S & SANDRA R	40D 53' 55.63"	80D 24' 56.06"

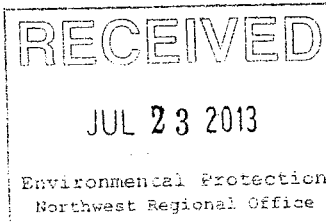
BEARING/DISTANCE FROM TH TO WATER WELL		
Water Well Number	Direction	Length
W1	N4° 02' 37.28"E	1274'
W2	N37° 01' 50.60"E	1515'
W3	N41° 45' 08.41"E	1457'
W4	N64° 33' 54.30"E	2584'
W5	N77° 40' 24.93"E	2410'
W6	S14° 23' 11.00"W	2315'
W7	N42° 01' 05.86"W	2669'
W8	N26° 25' 18.38"W	2501'

Municipality: where the well will be drilled,
adjacent to the well, or within 3000 feet

DRILLED IN -	LITTLE BEAVER TWP-LAWRENCE CO
ADJACENT TO -	ENON VALLEY BORO-LAWRENCE CO
	NEW BEAVER TWP-LAWRENCE CO
	BIG BEAVER TWP-BEAVER CO
	DARLINGTON TWP-BEAVER CO
	NORTH BEAVER TWP-LAWRENCE CO

Coal related parties

NONE



WELL LOCATION PLAT
Page 2A Notifications

073 - 20402

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: Patterson	Well #: 2013-1V
Surface Landowner:	Angle & Course of Deviation (Drilling):	Anticipated True Vertical Depth Feet (TVD):	Anticipated Total Measured Depth Feet (TMD):
Target Formation(s): SEE BELOW	Deepest Formation to be penetrated:	Number of Laterals:	Total footage to be drilled - all laterals:

TARGET FORMATIONS

RHINESTREET
MIDDLESEX
BURKET
TULLY
HAMILTON
MARCELLUS
ORISKANY
HELDERBERG
SALINA
VERNON
LOCKPORT
ROCHESTER
CLINTON—MEDINA
WHIRLPOOL
QUEENSTON
REEDVILLE
UTICA
TRENTON
BLACK RIVER
CHAZY
GLENWOOD
BEEKMANTOWN
ROSE RUN
GATESBURG
CONASAUGA
POTSDAM

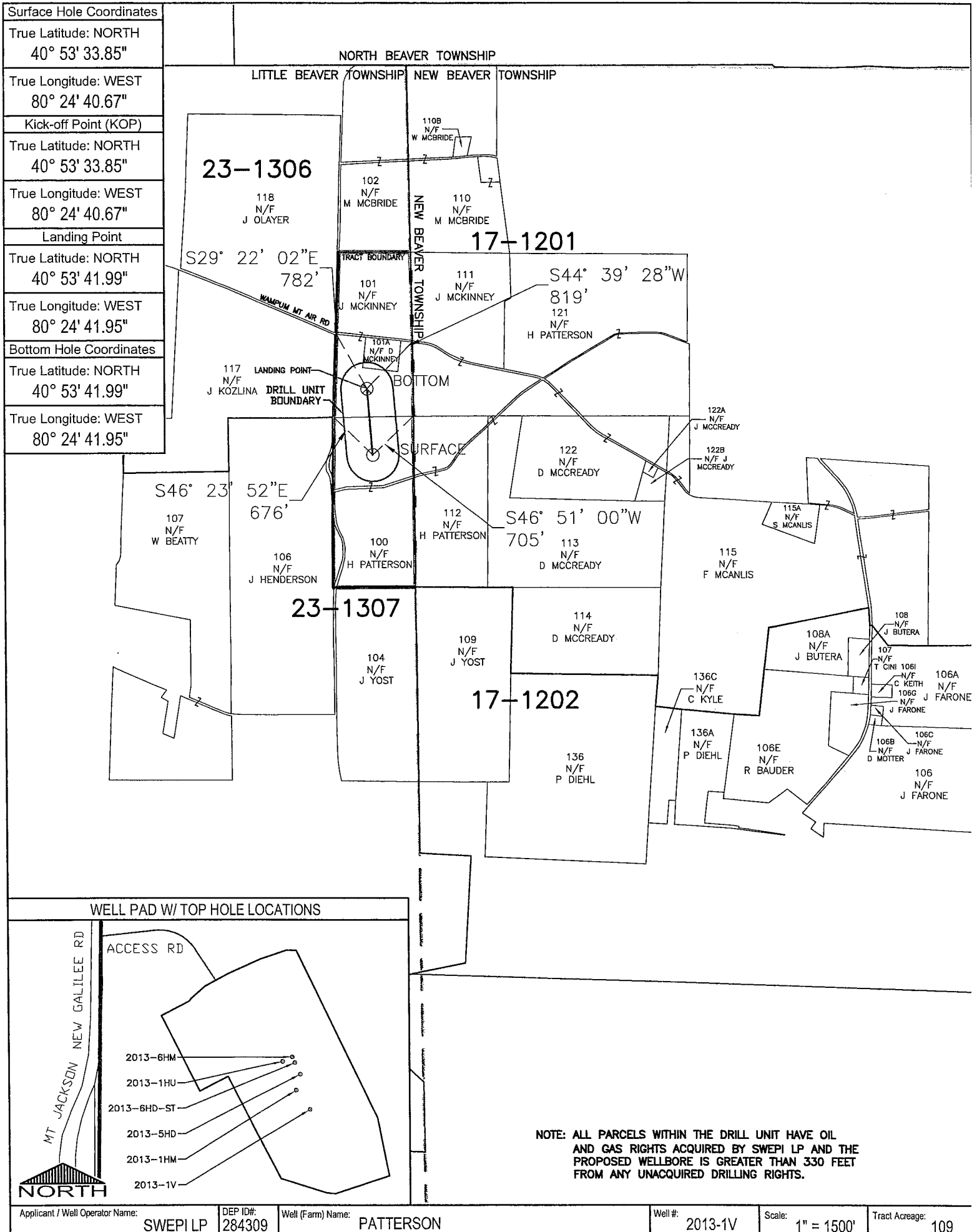
Patterson 2013-1V Formations TVDs
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<u>Formation</u>	<u>Anticipated Target Top TVD</u>	<u>Anticipated Targeted Bottom TVD</u>
Rhinestreet	2759	2975
Middlesex	2975	3030
Burket	3030	3040
Tully	3040	3054
Hamilton Group Shale	3054	3189
Marcellus Shale	3189	3303
Oriskany	3303	3383
Helderberg	3383	3562
Salina	3562	4283
Vernon	4283	4463
Lockport	4463	4763
Rochester	4763	4913
Clinton-Medina	4913	5033
Whirlpool	5033	5183
Queenston	5183	6098
Reedville	6098	7052
Utica	7052	7356
Trenton	7356	7506
Black River	7506	7,906
Chazy	7,906	7,966
Glenwood	7,966	8,066
Beekmantown	8,066	8,266
Rose Run	8,266	8,416
Gatesburg	8,416	8,759
Conasauga	8,759	9,516

WELL LOCATION PLAT

Page 3 Plan View of Deviated Well Bore

073-20402



WELL LOCATION PLAT
Page 4 Cross Section

073-20402

Applicant / Well Operator Name: SWEPI LP	DEP ID#: 284309	Well (Farm) Name: PATTERSON	Well #: 2013-1V
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DEP Use Only	Permit #
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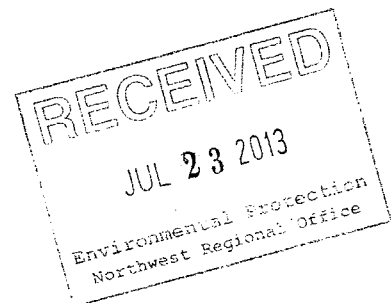
WELL PLAN

Operator Name: SWEPI LP

Well / Farm Name: PATTERSON

KOP:	TVD: <u>2800</u>	TMD: <u>2800</u>	Latitude: <u>40° 53' 33.85"</u>	Longitude: <u>80° 24' 40.67"</u>
Landing Point:	TVD: <u>11422</u>	TMD: <u>11549.47</u>	<u>40° 53' 41.99"</u>	<u>80° 24' 41.95"</u>

*FOR CLARITY PURPOSES, SEE THE
FOLLOWING ATTACHED WELL PLAN AND
SECTION VIEWS



APPALACHIA

073-20402



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-1V
Wellbore: PATTERSON #2013-1V
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83
NAD83 / Pennsylvania North [1188, 2271]
Elevation: DFE @ 1106.00ft (TBD)

Northing 275847.09 Easting 1232819.70 Latitude 40° 53' 33.853 N Longitude 80° 24' 40.674 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.30°

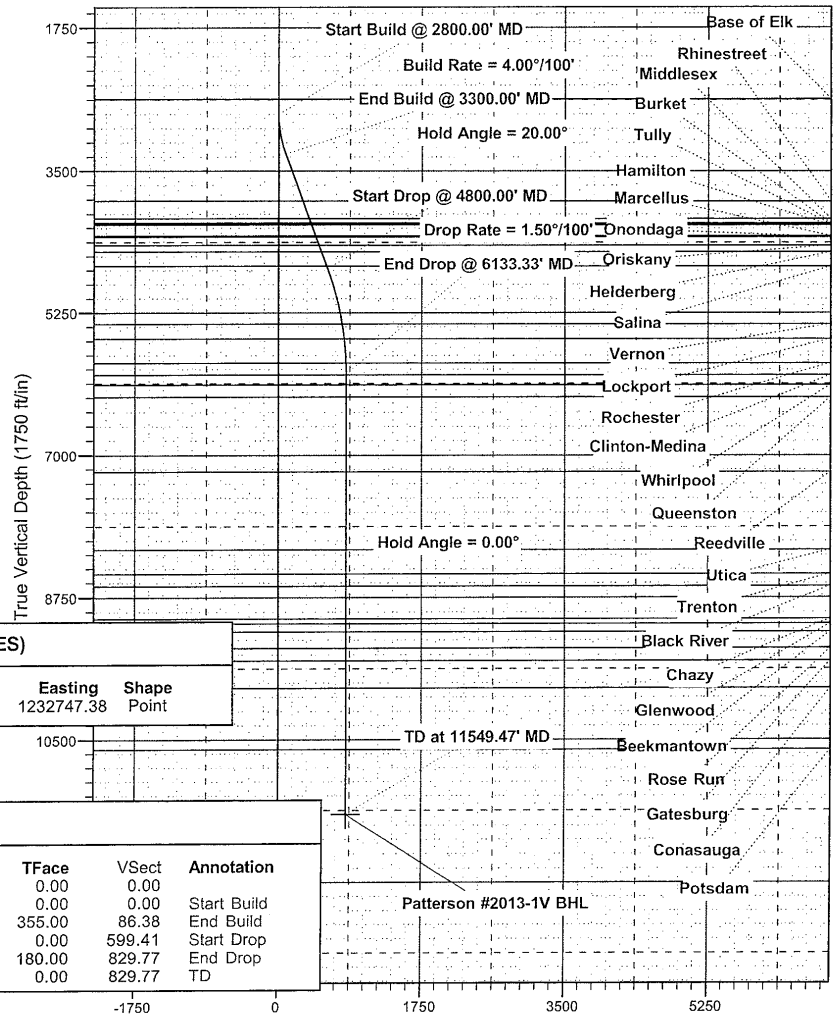
Magnetic Model: BGGM2013 Date: 17-May-13
Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Patterson #2013-1V BHL	11422.00	826.61	-72.32	276673.70	1232747.38	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	0.00	Start Build
3300.00	20.00	355.00	3289.91	86.06	-7.53	4.00	355.00	86.38	End Build
4800.00	20.00	355.00	4699.45	597.13	-52.24	0.00	0.00	599.41	Start Drop
6133.33	0.00	0.00	6005.87	826.61	-72.32	1.50	180.00	829.77	End Drop
11549.47	0.00	0.00	11422.00	826.61	-72.32	0.00	0.00	829.77	TD



APPALACHIA

073-20402



Project: SLIPPERY ROCK
Site: PATTERSON #2013
Well: PATTERSON #2013-1V
Wellbore: PATTERSON #2013-1V
Design: Design #1
Rig: TBD

Surface Location:

EPW NAD83
 NAD83 / Pennsylvania North [1188, 2271]
 Elevation: DFE @ 1106.00ft (TBD)

Northing	Easting	Latitude	Longitude
275847.09	1232819.70	40° 53' 33.853 N	80° 24' 40.674 W

To convert a Magnetic Direction to a Grid Direction, Subtract 7.30°

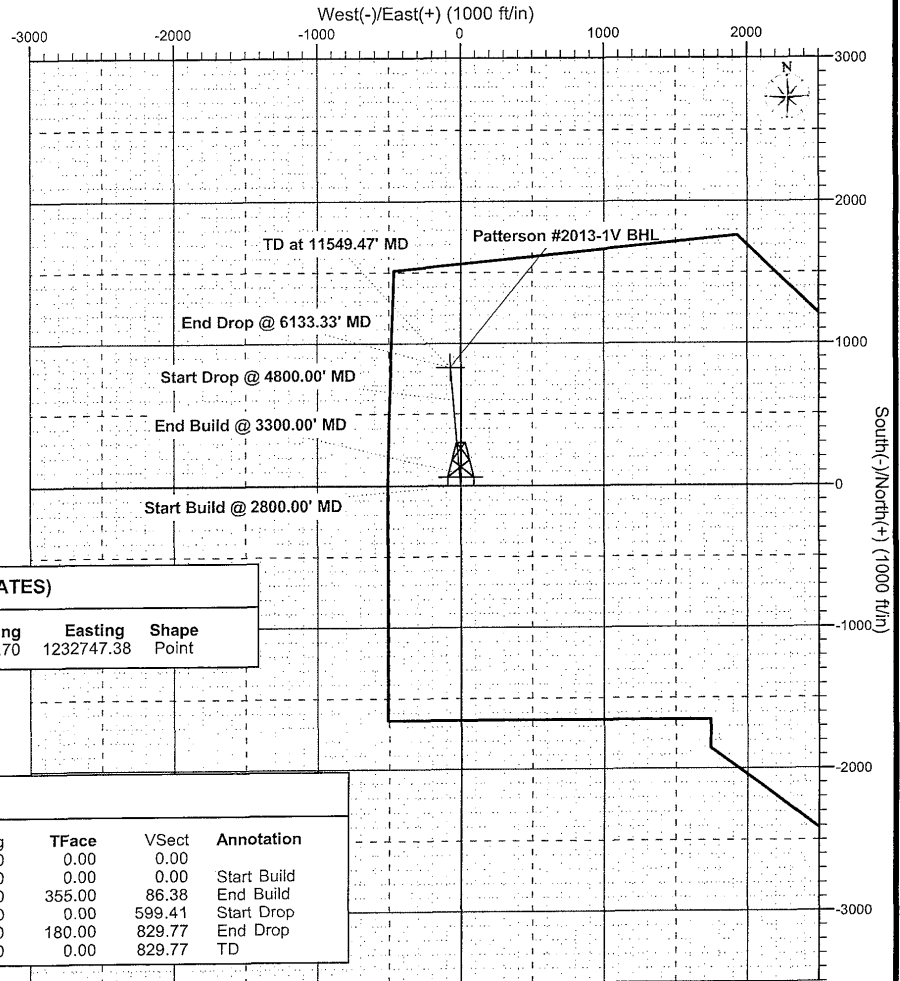
Magnetic Model: BGGM2013 Date: 17-May-13
 Azimuths to Grid North

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
Patterson #2013-1V BHL	11422.00	826.61	-72.32	276673.70	1232747.38	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	0.00	Start Build
3300.00	20.00	355.00	3289.91	86.06	-7.53	4.00	355.00	86.38	End Build
4800.00	20.00	355.00	4699.45	597.13	-52.24	0.00	0.00	599.41	Start Drop
6133.33	0.00	0.00	6005.87	826.61	-72.32	1.50	180.00	829.77	End Drop
11549.47	0.00	0.00	11422.00	826.61	-72.32	0.00	0.00	829.77	TD



Created By: Matt Weber Date: 8:08, May 22 2013