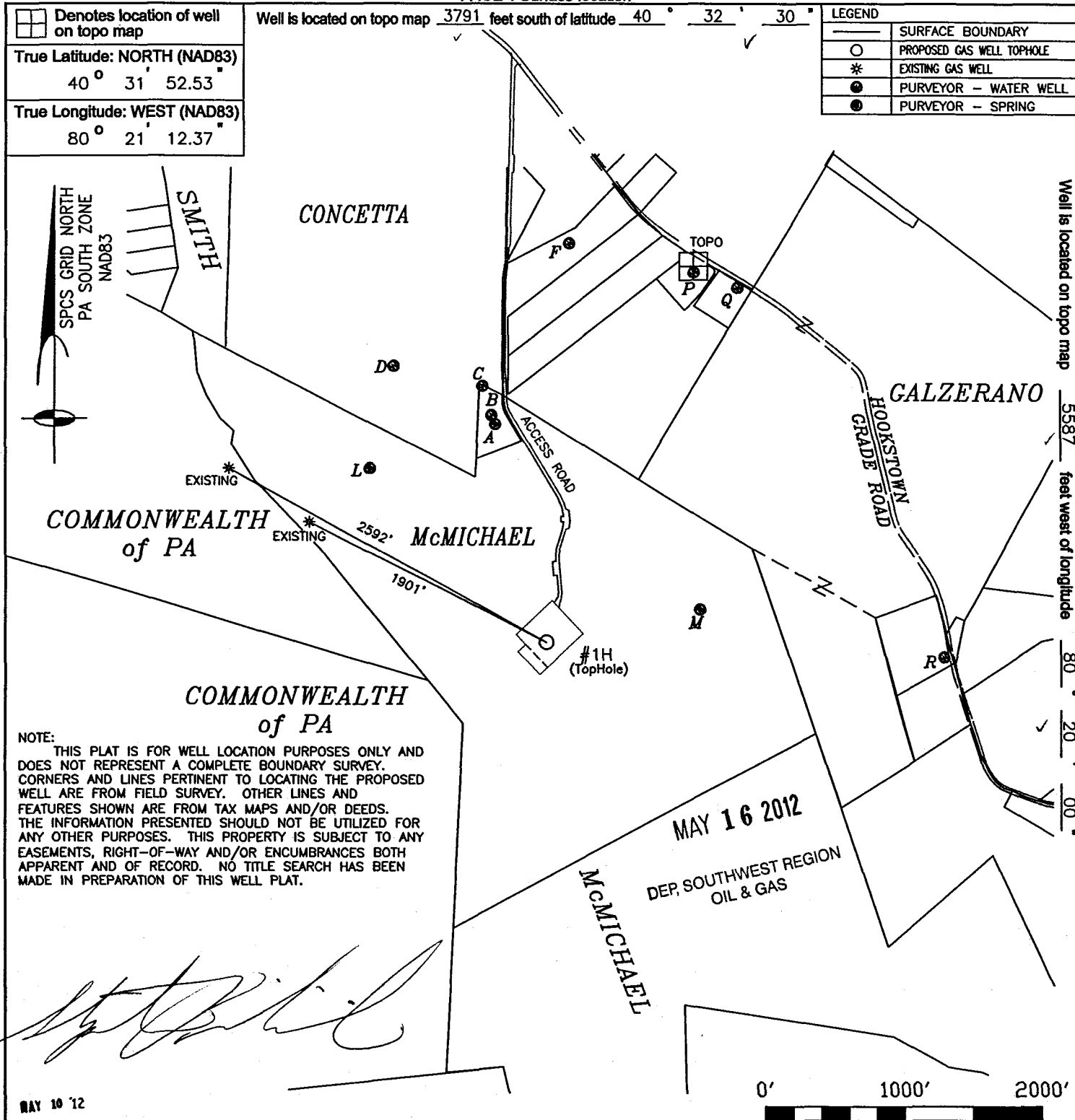


PAGE 1 Surface location



Applicant / Well Operator Name: RANGE RESOURCES-APPALACHIA, LLC ✓		DEP ID #: 141142	Well (Farm) Name: McMICHAEL UNIT ✓		Well #: 1H	Serial #:
Address: 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317 ✓			County: BEAVER - 4 ✓	Municipality: INDEPENDENCE TOWNSHIP ✓	Well Type: GAS	
911 Address of Well Site: 198X HOOKSTOWN GRADE ROAD, CLINTON, PA 15026			USGS 7 1/2' Quadrangle Map Name: ALIQUIPPA ✓	Map Section: 7 ✓	Surface Elevation: 1246 ✓	
Surveyor or Engineer: STEPHEN PILIPOVICH TRI-COUNTY ENGINEERING, LLC	Phone #: (724) 635-0210	Dwg. #: RRAOG1-51-1H	Date: 5/7/2012	Scale: 1" = 1000'	Tract Acreage: 1110.0759 ✓	
Lat. & Long Metadata Method: Direct GPS	Accuracy: SUB-METER	ft. Datum: NAD 83	Elevation Metadata Method: Direct GPS	Accuracy: 2'	ft. Datum: NAVD88	Survey Date: 11/08/11

WELL LOCATION PLAT

007-20355

PAGE 2 Notifications

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

Applicant / Well Operator Name: RANGE RESOURCES-APPALACHIA, LLC		DEP ID #: 141142	Well (Farm) Name: McMICHAEL UNIT		Well #: 1H	Serial #:
Surface Landowner / Lessor: PETER D & JANICE L McMICHAEL			Angle & Course of Deviation (Drilling): DEVIATED-SEE ATTACHED		Anticipated True Vertical Depth Feet (TVD): 5,089	Anticipated Total Measured Depth Feet (TMD): 10,412
Target Formation (s): RHINESTREET/BURKETT			Deepest Formation to be Penetrated: RHINESTREET/BURKETT		Number of laterals: 1	Total Wellbore Footage to be drilled all laterals: 10,412
Surface Owner/Water Purveyor w/Water Supply within 1000'/3000'			Latitude / Longitude of Water Supply			
A) FRANK D HARRISON (SPRING) ✓			N40°32'07.88" W80°21'17.71"			
B) FRANK D HARRISON (WELL) ✓			N40°32'08.51" W80°21'18.09"			
C) FRANK D HARRISON (WELL) ✓			N40°32'10.57" W80°21'19.03"			
D) GEORGE CONCETTA (WELL) ✓			N40°32'11.81" W80°21'27.29"			
F) ROBERT P JR & REBECCA L BARON (WELL) ✓			N40°32'20.95" W80°21'11.35"			
L) JAMES P & GHISLAINE G McMICHAEL (SPRING) ✓			N40°32'04.49" W80°21'29.17"			
M) JAMES P & GHISLAINE G McMICHAEL (SPRING) ✓			N40°31'55.17" W80°20'58.12"			
P) JAMES F JR & CONSTANCE IORIO (WELL) ✓			N40°32'19.13" W80°20'59.59"			
Q) ROY J JR & TRACY E ESTEL (WELL) ✓			N40°32'18.12" W80°20'55.55"			
R) FRED J WEINGARTZ JR (WELL) ✓			N40°31'52.31" W80°20'35.37"			
			MAY 16 2012			
			DEP, SOUTHWEST REGION OIL & GAS			
Municipality: where the well will be drilled, adjacent to the well, or within 3000 feet			Municipality: where the well will be drilled, adjacent to the well, or within 3000 feet			
INDEPENDENCE TOWNSHIP - BEAVER COUNTY ✓						
HANOVER TOWNSHIP - BEAVER COUNTY ✓						
RACCOON TOWNSHIP - BEAVER COUNTY ✓						
HOPEWELL TOWNSHIP - BEAVER COUNTY ✓			Coal related parties			
FINDLAY TOWNSHIP - ALLEGHENY COUNTY ✓			PETER D & JANICE L McMICHAEL (OWNER) ✓		PITTSBURGH SEAM - WORKABLE	
					UPPER FREEPORT SEAM - WORKABLE	
					LOWER KITTANNING SEAM - WORKABLE	
					ALL REMAINING SEAMS	

Applicant / Well Operator Name:	DEP ID #:	Well (Farm) Name:	Well #:	Serial #:
RANGE RESOURCES-APPALACHIA, LLC	141142	McMICHAEL UNIT	1H	







pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

3/5/12

DEP USE ONLY	DEP Application Tracking #	C-915208	G:	TD
	Permit #	007-20340		
	Project #			

Denotes location of well on topo map

True Latitude: NORTH (NAD83)

40° 31' 53.23"

True Longitude: WEST (NAD83)

80° 21' 12.19"

Projected bottom hole

Latitude: NORTH (NAD83)

40° 32' 43.42"

Longitude: WEST (NAD83)

80° 21' 41.01"

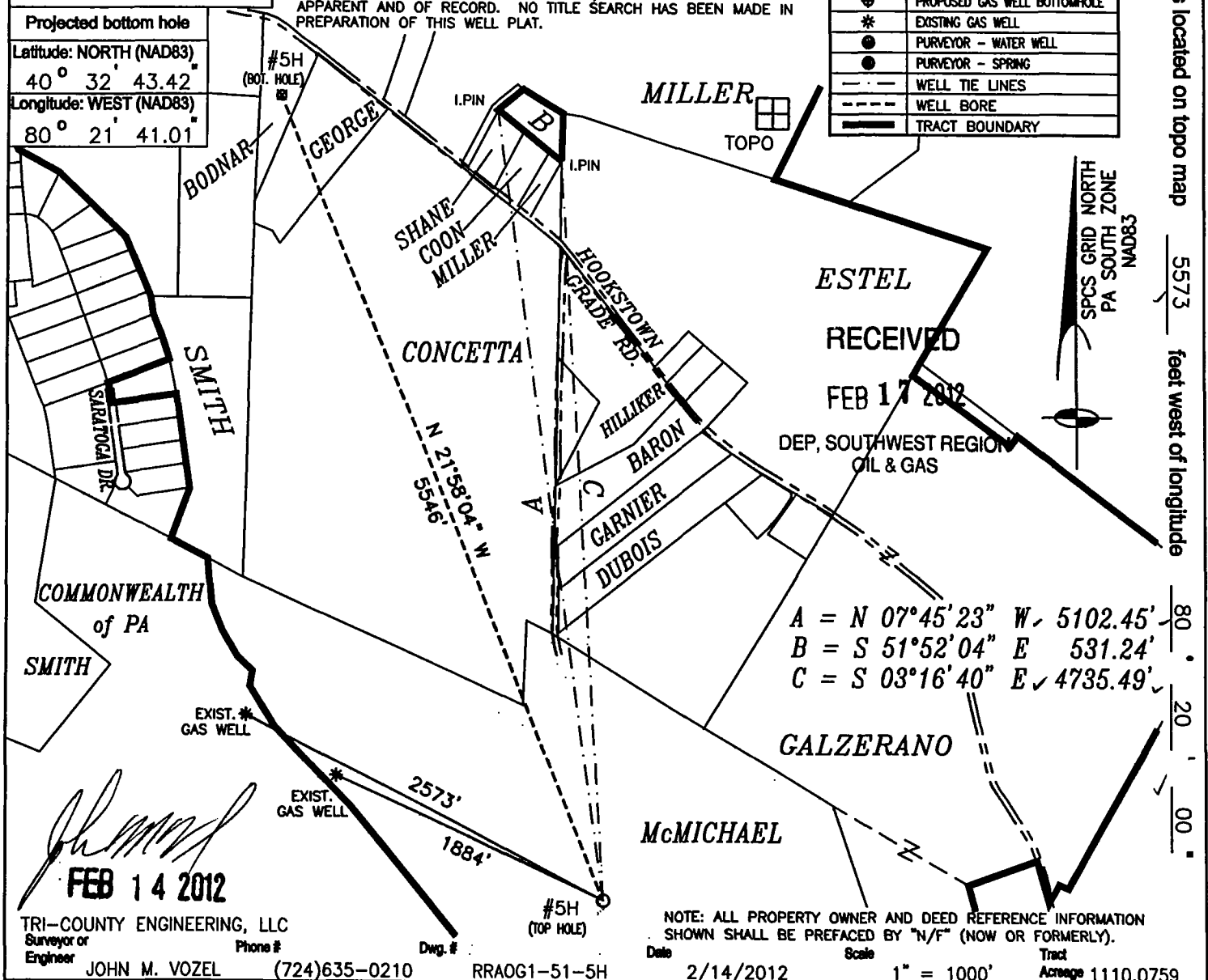
Well is located on topo map 3720 feet south of latitude 40° 32' 30" 0' 1000' 2000'

NOTE:

THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

LEGEND	
	SURFACE BOUNDARY
	PROPOSED GAS WELL TOPHOLE
	PROPOSED GAS WELL BOTTOMHOLE
	EXISTING GAS WELL
	PURVEYOR - WATER WELL
	PURVEYOR - SPRING
	WELL TIE LINES
	WELL BORE
	TRACT BOUNDARY

Well is located on topo map 5573 feet west of longitude



TRI-COUNTY ENGINEERING, LLC
Surveyor or Engineer

JOHN M. VOZEL

Phone #

(724)635-0210

Dwg. #

RRAOG1-51-5H

Date

2/14/2012

Scale

1" = 1000'

Tract

Acreage 1110.0759

Lat. & Long Metadata		Elevation Metadata		Survey Date	
Method	Direct GPS	Accuracy	SUB-METER	ft. Datum	NAD 83
Applicant / Well Operator Name		Method		Direct GPS	Accuracy 2'
RANGE RESOURCES - APPALACHIA LLC		Well(Farm) Name		McMICHAEL UNIT	Well # 5H
Address		County - Code		BEAVER-4	Municipality
3000 TOWN CENTER BLVD.		INDEPENDENCE TOWNSHIP		Well Type	GAS
CANONSBURG, PA 15317		USGS 71/2 Quadrangle Map Name		ALIQUIPPA	Map Section 7
Surface Landowner / Lessor		Anticipated Total Depth		TVD	5089 TMD 10388
PETER D. & JANICE L. McMICHAEL		Angle & Course of Deviation (Drilling)		DEVIATED-SEE ATTACHED	
Target Formation(s)		NONE		PITTSBURGH SEAM	
RHINESTREET/BURKETT		NONE		UPPER FREEPORT SEAM	
NONE		NONE		LOWER KITTANNING SEAM	
NONE		NONE		ONLY WORKABLE SEAMS	

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

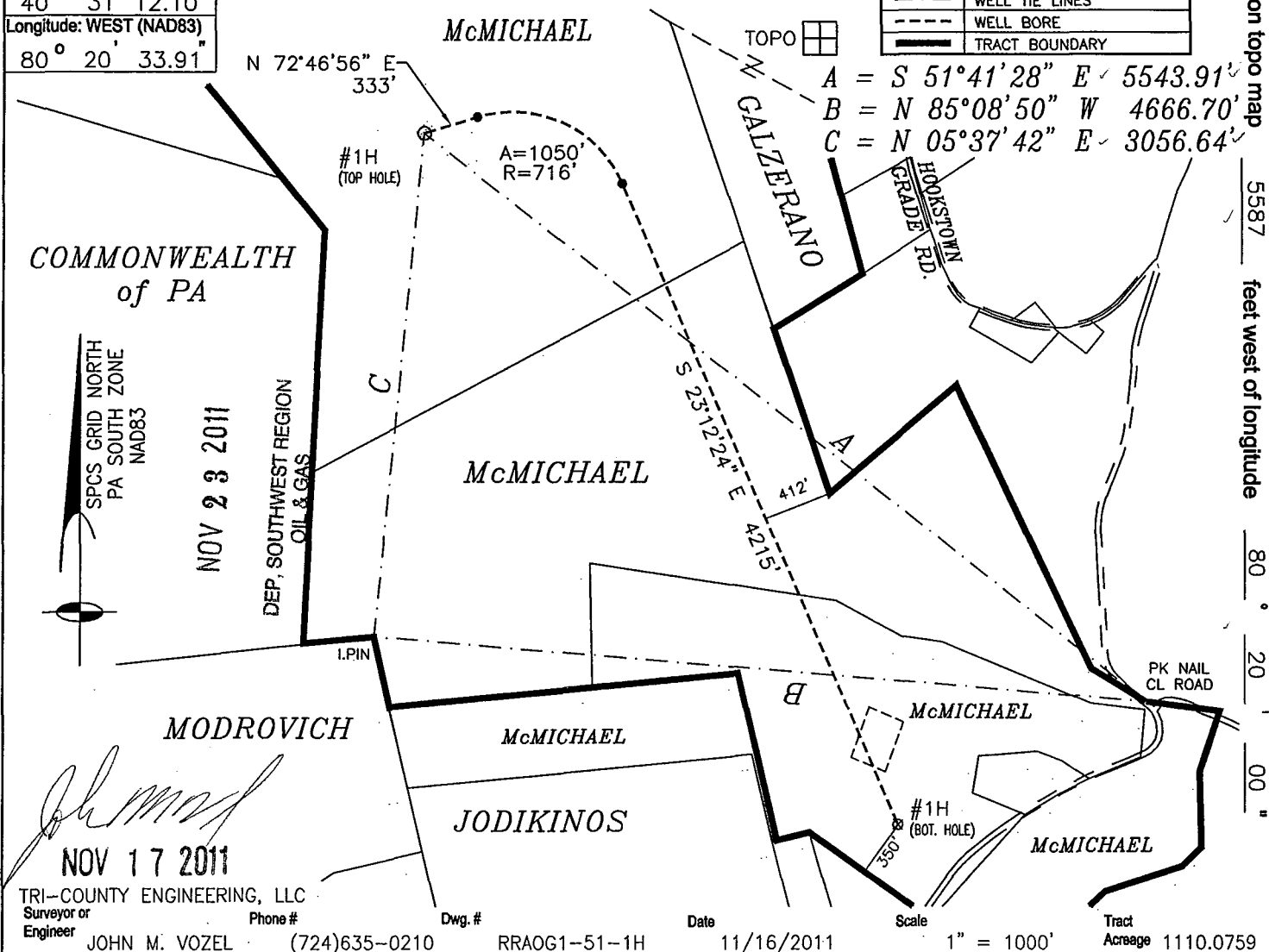
DEP USE ONLY	DEP Application Tracking #	C-904092	G:	TD
	Permit #	007-20320	C:	KP

Well is located on topo map 3791 feet south of latitude 40° 32' 30"
NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT 0' 1000' 2000'

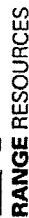
NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY; OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

LEGEND	
—	SURFACE BOUNDARY
○	PROPOSED GAS WELL TOPHOLE
⊕	PROPOSED GAS WELL BOTTOMHOLE
*	EXISTING GAS WELL
⊙	PURVEYOR - WATER WELL
⊛	PURVEYOR - SPRING
— — —	WELL TIE LINES
----	WELL BORE
=====	TRACT BOUNDARY



Lat. & Long Metadata Method Direct GPS Accuracy SUB-METER ft. Datum NAD 83			Elevation Metadata Method DIRECT GPS Accuracy 2' ft. Datum NAVD88			Survey Date 8/09/11	
Applicant / Well Operator Name RANGE RESOURCES - APPALACHIA LLC			Well(Farm) Name McMICHAEL UNIT			Well # 1H	
Address 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317			County - Code BEAVER-4		Municipality INDEPENDENCE TOWNSHIP		Well Type GAS
Surface Landowner / Lessor PETER D. & JANICE L. McMICHAEL			USGS 71/2 Quadrangle Map Name ALIQUIPPA			Map Section 7	Surface Elevation 1246 ft.
Target Formation(s) MARCELLUS			Angle & Course of Deviation (Drilling) DEVIATED-SEE ATTACHED			Anticipated Total Depth TVD 5670 TMD 10968	
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			Name of Coal Seam Owned, Leased, or Operated	
NONE ✓			PETER D. & JANICE L. McMICHAEL ✓			ALL SEAMS	



RANGE RESOURCES

Location: Beaver County, PA
Field: Beaver
Facility: McMichael Unit Pad

Slot: Slot #01
Well: McMichael Unit 1H
Wellbore: McMichael Unit 1H PWB



5

Location Information					
Facility Name			Gid North (US ft)	Latitude	Longitude
McKibbin Unit Pad			1244930.817	40°31'52.530"N	80°21'12.370"W
Slat	Local N (ft)	Local E (ft)	Gid East (US ft)	Latitude	Longitude
Slat #01	0.00	0.00	1244930.817	40°31'52.530"N	80°21'12.370"W
Rig on Slat #01 (RT) to Mud line (At Slat; Slat #01)					
Mean Sea Level to Mud line (At Slat; Slat #01)					
Rig on Slat #01 (RT) to Mean Sea Level					
				0ft	1246ft

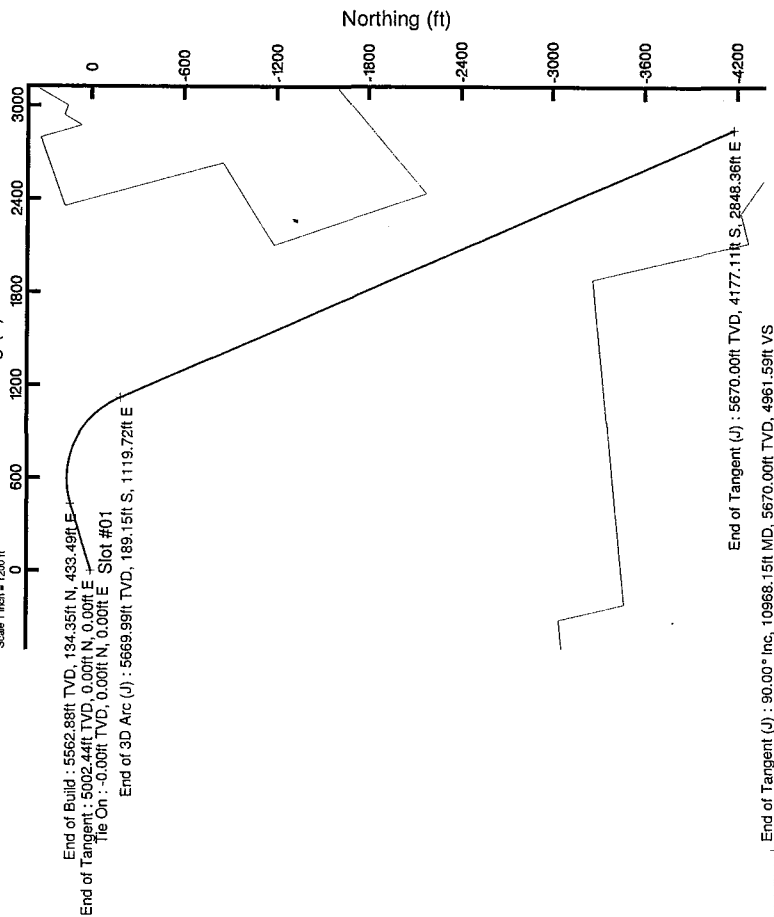
Targets									
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid Easting (ft)	Grid Northing (ft)	Latitude	Longitude	
McCluskey Vapors	5670.0	0.00	0.00	0.00	1244932.82	447056.56	40°31'12.00"N	80°21'12.370"W	
Midwestern Ute 1st Pk	10685.5	5870.00	-4777.11	2843.36	1244779.06	443875.82	40°31'12.10"N	80°20'29.31"W	
McCluskey Overdrifts	5700.00	0.00	0.00	0.00	1244932.82	447056.56	40°31'12.00"N	80°21'12.370"W	

Well Profile Data									
Design Comment	MD (ft)	Incl. (°)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (7100ft)	VS (ft)	
Tie On	0.00	0.000	72.780	0.00	0.00	0.00	0.00	0.00	
End of Tangent	5002.44	0.000	72.780	5002.44	0.00	0.00	0.00	0.00	
End of Build	5782.44	78.000	72.780	5952.88	134.35	433.49	10.00	47.36	
End of 3D Arc (J)	6621.65	90.000	156.565	5669.99	-189.15	1119.72	10.00	615.12	
End of Tangent (J)	10968.15	90.000	156.565	5670.00	-4177.11	2848.36	0.00	4961.59	

Scale 1 inch = 1200 ft

NOV 23 2011

DEP, SOUTHWEST REGION
OIL & GAS

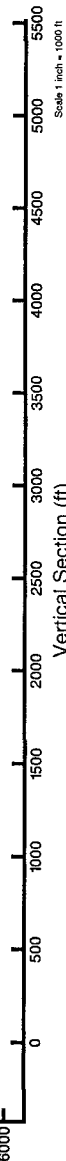


10.00%100ft

End of Build : 78.00° Inc. 5782.44ft MD. 5562.88ft TVD. 47.36ft VS

10.00%/100ft

End of 3D Arc (J) : 90.00° Inc, 6621.65ft MD, 5669.99ft TVD 615.12ft VS



Vertical Section (ft)

Azimuth 156.79° with reference 0.00 N. 0.00 E



BGGM (1845.0 to 2012.0) Dr: 47 03' Rad: 53 134.8 mY
Magnetic North is 9.04 degrees West of True North (at 1/17/2011)
Grid North is 1.86 degrees West of True North

To correct address from First to Girl add 1.89 degrees
To correct address from Magnetic to Grid subtract 7.36 degrees



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

DEP USE ONLY	DEP Application Tracking #	C-904098	G:	TD
	Permit #	007-20321	C:	TD
	Project #			

Denotes location of well on topo map

True Latitude: NORTH (NAD83)

40° 31' 52.32"

True Longitude: WEST (NAD83)

80° 21' 12.64"

Projected bottom hole

Latitude: NORTH (NAD83)

40° 31' 21.71"

Longitude: WEST (NAD83)

80° 20' 54.03"

Well is located on topo map 3813 feet south of latitude 40° 32' 30" 0' 1000' 2000'

NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

LEGEND	
	SURFACE BOUNDARY
	PROPOSED GAS WELL TOPHOLE
	PROPOSED GAS WELL BOTTOMHOLE
	EXISTING GAS WELL
	PURVEYOR - WATER WELL
	PURVEYOR - SPRING
	WELL TIE LINES
	WELL BORE
	TRACT BOUNDARY

Well is located on topo map

5608

feet west of longitude

80°

20'

00"

McMICHAEL

TOPO

A = S 51°59'52" E 5548.25'
B = N 85°08'50" W 4666.70'
C = N 05°15'28" E 3034.01'

#2H
(TOP. HOLE)

COMMONWEALTH
of PA

SPCS GRID NORTH
PA SOUTH ZONE
NAD83

NOV 23 2011

DEP, SOUTHWEST REGION
OIL & GAS

McMICHAEL

MODROVICH

McMICHAEL

JODIKINOS

McMICHAEL

McMICHAEL

PK NAIL
CL ROAD

NOV 17 2011

TRI-COUNTY ENGINEERING, LLC

Surveyor or Engineer

JOHN M. VOZEL

Phone #

(724)635-0210

Dwg. #

RRAOG1-51-2H

Date

11/16/2011

Scale

1" = 1000'

Tract

Acreage 1110.0759

Lat. & Long Metadata Method Direct GPS Accuracy SUB-METER ft. Datum NAD 83		Elevation Metadata Method DIRECT GPS Accuracy 2' ft. Datum NAVD88		Survey Date 8/09/11	
Applicant / Well Operator Name RANGE RESOURCES - APPALACHIA LLC		Well(Farm) Name McMICHAEL UNIT		Well # 2H	
Address 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317		County - Code BEAVER-4		Municipality INDEPENDENCE TOWNSHIP	
Surface Landowner / Lessor PETER D. & JANICE L. McMICHAEL		USGS 7 1/2 Quadrangle Map Name ALIQUIPPA		Map Section 7	
Target Formation(s) MARCELLUS		Angle & Course of Deviation (Drilling) DEVIATED-SEE ATTACHED		Anticipated Total Depth TVD 5670 TMD 8839	
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	
NONE				Name of Coal Seam Owned, Leased, or Operated	
				ALL SEAMS	



RANGE RESOURCES

RANGE RESOURCES

Location: Beaver County, PA
Field: Beaver
Facility: McMichael Unit Pad
Slot: Slot #02
Well: McMichael Unit 2H
Wellbore: McMichael Unit 2H PWB



True vertical depths are referenced to Rig on Slot #02 (RT)	
Measured depths are referenced to Rig on Slot #02 (RT)	
Rig on Slot #02 (RT) to Mean Sea Level, 1345.25 ft	
Mean Sea Level to Mud line (At Slot #02) 0 feet	
Coordinates are in feet referenced to Slot	

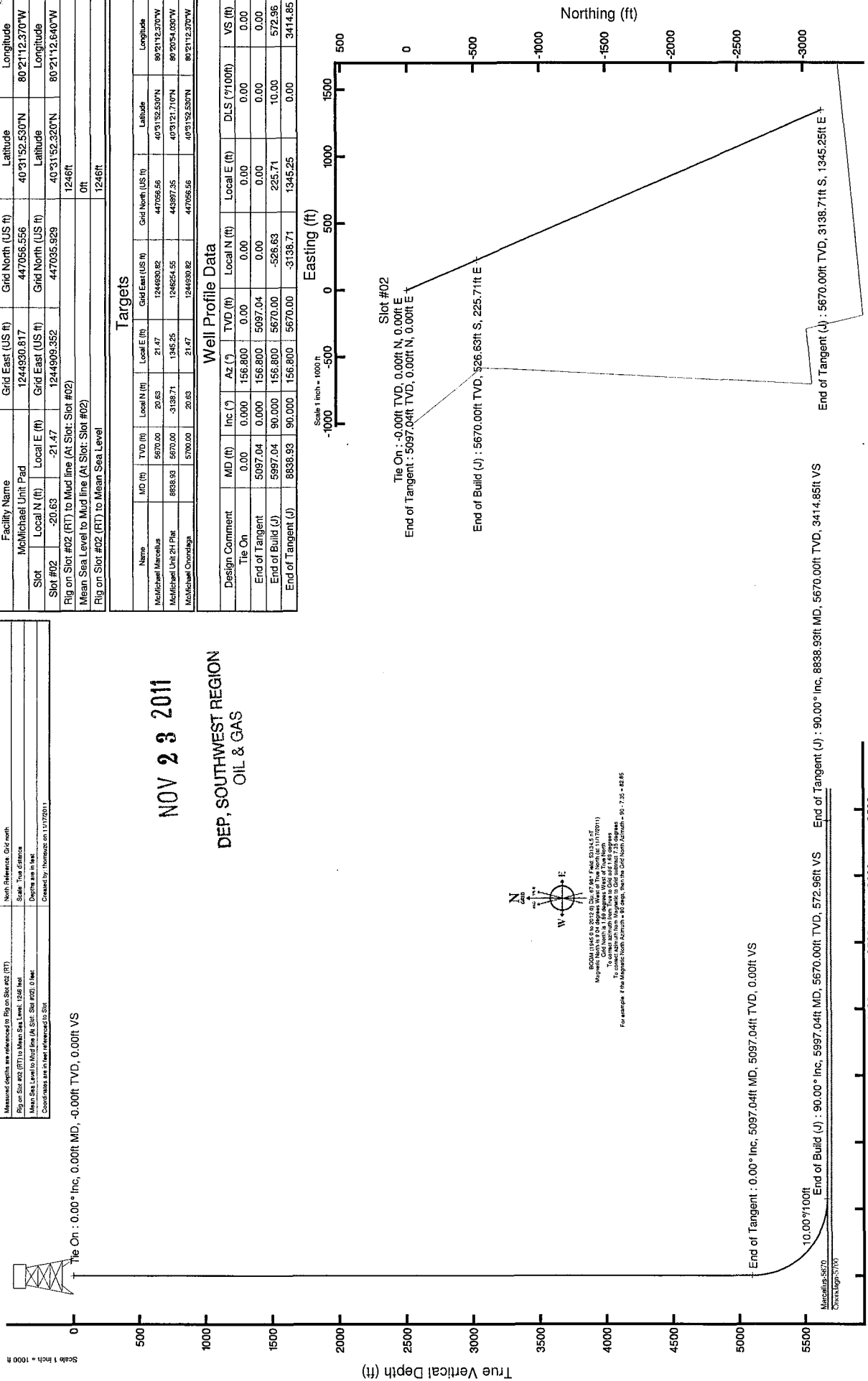
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
McMichael Unit Pad	1244930.817	447055.556	80°21'12.370"W
Slot	Local N (ft)	Grid East (US ft)	Longitude
Slot #02	-20.63	1244909.352	80°21'12.640"W
Rig on Slot #02 (RT) to Mud line (At Slot: Slot #02)			
Mean Sea Level to Mud line (At Slot: Slot #02)			
Rig on Slot #02 (RT) to Mean Sea Level			

Targets			
Name	MD (ft)	TVD (ft)	Local N (ft)
McMichael Macrobia	5670.00	20.63	1244930.82
McMichael Unit 2H Pad	8838.93	5670.00	1345.25
McMichael Overdip	5700.00	20.63	1244930.82

Well Profile Data			
Design Comment	MD (ft)	Inc (°)	Az (°)
Tie On	0.00	0.000	156.800
End of Tangent	5097.04	0.000	156.800
End of Build (J)	5997.04	90.000	156.800
End of Tangent (J)	8838.93	90.000	156.800

NOV 23 2011

DEP, SOUTHWEST REGION
OIL & GAS



Vertical Section (ft)
Azimuth 156.79° with reference 0.00 N, 0.00 E
Scale 1 inch = 1000 ft



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

DEP USE ONLY	DEP Application Tracking #	113011
	Permit #	007-20322
	Project #	

☐ Denotes location of well on topo map

True Latitude: NORTH (NAD83)

40° 31' 52.60"

True Longitude: WEST (NAD83)

80° 21' 13.01"

Projected bottom hole

Latitude: NORTH (NAD83)

40° 31' 21.41"

Longitude: WEST (NAD83)

80° 21' 08.25"

Well is located on topo map 3784 feet south of latitude 40° 32' 30" 0' 1000' 2000'

NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

LEGEND	
	SURFACE BOUNDARY
	PROPOSED GAS WELL TOPHOLE
	PROPOSED GAS WELL BOTTOMHOLE
	EXISTING GAS WELL
	PURVEYOR - WATER WELL
	PURVEYOR - SPRING
	WELL TIE LINES
	WELL BORE
	TRACT BOUNDARY

Well is located on topo map

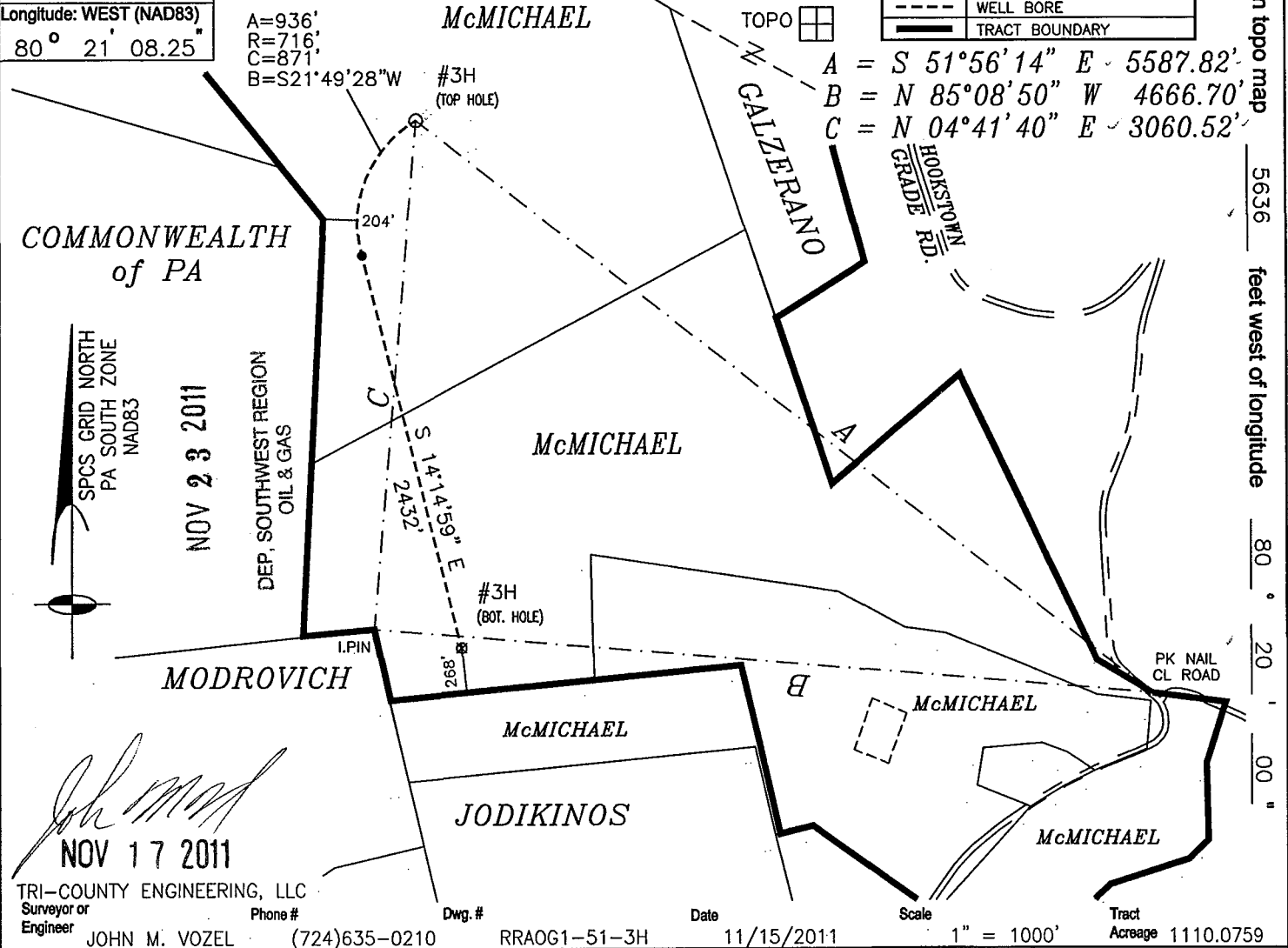
5636

feet west of longitude

80°

20'

00"



TRI-COUNTY ENGINEERING, LLC
Surveyor or Engineer
JOHN M. VOZEL

Phone #

(724)635-0210

Dwg. #

RRAOG1-51-3H

Date

11/15/2011

Scale

1" = 1000'

Tract

Acreage 1110.0759

Lat. & Long Metadata Method Direct GPS Accuracy SUB-METER ft. Datum NAD 83		Elevation Metadata Method DIRECT GPS Accuracy 2' ft. Datum NAVD88		Survey Date 8/09/11	
Applicant / Well Operator Name RANGE RESOURCES - APPALACHIA LLC		Well(Farm) Name McMICHAEL UNIT 1-3.5-8H		Well # 3H	
Address 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317		County - Code BEAVER-4		Municipality INDEPENDENCE TOWNSHIP	
Surface Landowner / Lessor PETER D. & JANICE L. McMICHAEL		USGS 7 1/2 Quadrangle Map Name ALIQUIPPA		Map Section 7	
Target Formation(s) MARCELLUS		Angle & Course of Deviation (Drilling) DEVIATED-SEE ATTACHED		Anticipated Total Depth 5670 TMD 8704	
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	
NONE				PETER D. & JANICE L. McMICHAEL	
				ALL SEAMS	

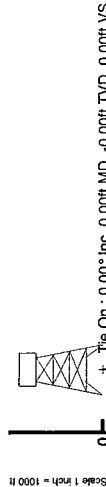


RANGE RESOURCES

RANGE RESOURCES

Location: Beaver County, PA
Field: Beaver
Facility: McMichael Unit Pad

Slot: Slot #03
Well: McMichael Unit 3H
Wellbore: McMichael Unit 3H PWB



For reference weights is McMichael Unit 3H PWB Permit
True vertical depths are referenced to Rig on Slot #03 (RT)
Measured depths are referenced to Rig on Slot #03 (RT)
Rig on Slot #03 (RT) to Mean Sea Level: 1246 ft
Mean Sea Level to Mud line (At Slot #03): 0 ft
Coordinates are in feet referenced to Slot
Created by: thomaz on 11/17/2011

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
McMichael Unit Pad	1244930.817	447056.556	80°21'12.370"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)
Slot #03	8.54	-49.19	447056.556
Rig on Slot #03 (RT) to Mud line (At Slot #03)			1246ft
Mean Sea Level to Mud line (At Slot #03)			0ft
Rig on Slot #03 (RT) to Mean Sea Level			1246ft

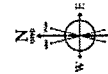
Targets			
Name	MD (ft)	TVD (ft)	Local N (ft)
McMichael Marcellus-5670	5670.00	5670.00	49.19
McMichael Unit 3H PWB	8704.05	5670.00	-3155.89
McMichael Chrono-5700		5700.00	-8.54
			1244930.82
			447056.56

Well Profile Data			
Design Comment	MD (ft)	Inc. (°)	Az. (°)
Tie On	0.00	0.000	220.000
End of Build	5017.05	0.000	220.000
End of 3D Arc (J)	6245.15	90.000	165.001
End of Tangent (J)	8704.05	90.000	165.001



NOV 23 2011

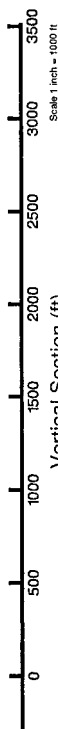
DEP, SOUTHWEST REGION
OIL & GAS



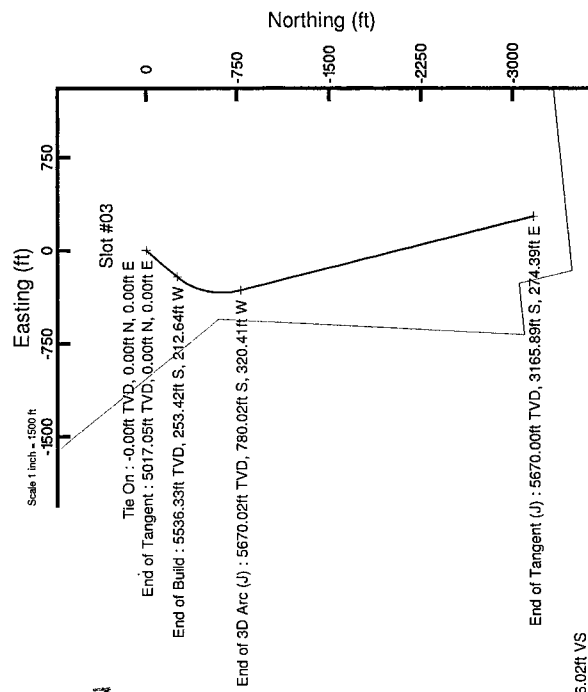
MD (ft) / TVD (ft) / Inc. (°) / Az. (°)
Tie On : 0.00ft TVD, 0.00ft N, 0.00ft E
End of Build : 5017.05ft TVD, 0.00ft N, 0.00ft E
End of 3D Arc (J) : 6245.15ft TVD, 90.00ft S, 212.64ft W
End of Tangent (J) : 8704.05ft TVD, 90.00ft S, 320.41ft W

End of Tangent : 0.00° Inc, 5017.05ft MD, 5017.05ft TVD, 0.00ft VS

End of Build : 65.00° Inc, 5667.05ft MD, 5536.33ft TVD, 193.28ft VS
10.00°/100ft
End of 3D Arc (J) : 90.00° Inc, 6245.15ft MD, 5670.02ft TVD, 677.41ft S



Azimuth 165.75° with reference 0.00 N, 0.00 E



End of Tangent (J) : 5670.00ft TVD, 3165.89ft S, 274.39ft E

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

DEP USE ONLY	DEP Application Tracking #	C-904115	G:	TD
	Permit #	007-20323	C:	RP
	Project #			

☐ Denotes location of well on topo map

True Latitude: NORTH (NAD83)

40° 31' 53.23"

True Longitude: WEST (NAD83)

80° 21' 12.19"

Projected bottom hole

Latitude: NORTH (NAD83)

40° 32' 43.42"

Longitude: WEST (NAD83)

80° 21' 41.01"

Well is located on topo map 3720 feet south of latitude 40° 32' 30" 0' 1000' 2000'

NOTE:

THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

LEGEND	
	SURFACE BOUNDARY
	PROPOSED GAS WELL TOPHOLE
	PROPOSED GAS WELL BOTTOMHOLE
	EXISTING GAS WELL
	PURVEYOR - WATER WELL
	PURVEYOR - SPRING
	WELL TIE LINES
	WELL BORE
	TRACT BOUNDARY

Well is located on topo map

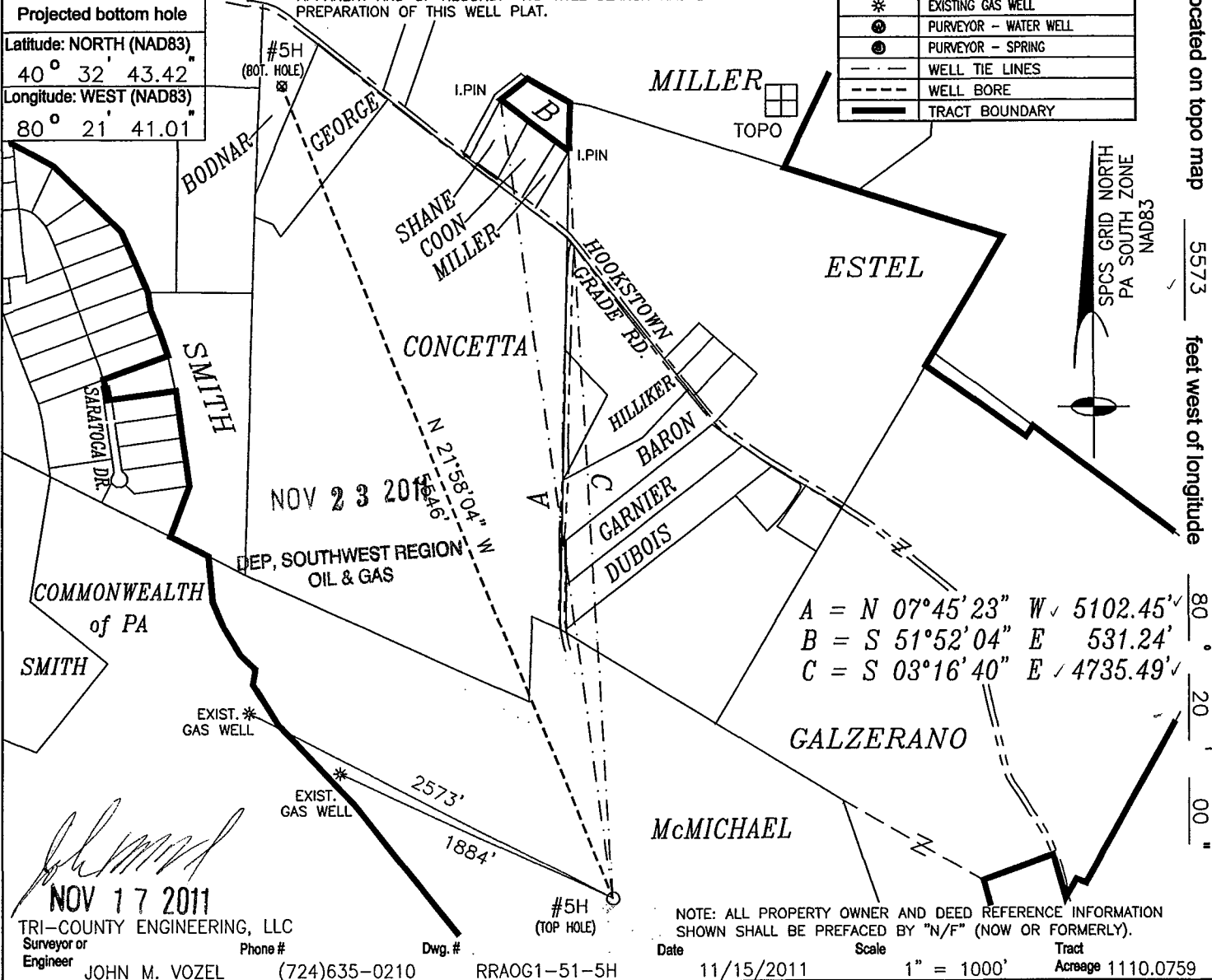
5573

feet west of longitude

80°

20'

00"

SPCS GRID NORTH
PA SOUTH ZONE
NAD83

NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

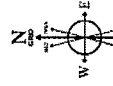
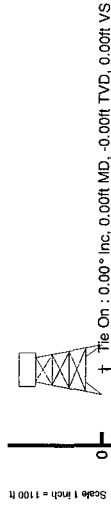
Date 11/15/2011 Scale 1" = 1000' Tract Acreege 1110.0759

Lat. & Long Metadata Method Direct GPS Accuracy SUB-METER ft. Datum NAD 83		Elevation Metadata Method DIRECT GPS Accuracy 2' ft. Datum NAVD88		Survey Date 8/09/11	
Applicant / Well Operator Name RANGE RESOURCES - APPALACHIA LLC		Well (Farm) Name McMICHAEL UNIT		Well # 5H	
Address 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317		County - Code BEAVER-4		Municipality INDEPENDENCE TOWNSHIP	
Surface Landowner / Lessor PETER D. & JANICE L. McMICHAEL		USGS 71/2 Quadrangle Map Name ALIQUIPPA		Map Section 7	
Target Formation(s) MARCELLUS		Angle & Course of Deviation (Drilling) DEVIATED-SEE ATTACHED		Anticipated Total Depth 5670 TMD	
Surface Owner or Water Purveyor with a Water Supply within 1,000 ft.		Approximate Course and Distance to Water Supply		Name of Coal Seam Owned, Leased, or Operated	
NONE				ALL SEAMS	

RANGE RESOURCES

Location: Beaver County, PA
 Field: Beaver
 Facility: McMichael Unit Pad
 Slot: Slot #05
 Well: McMichael Unit 5H
 Wellbore: McMichael Unit 5H PWB

Plot reference wellpath is McMichael Unit 5H PWB Permit
True vertical depths are referenced to RIG on Slot #05 (RT)
North Reference: Grid north
Scale: True distance
Depths are in feet
Created by: Thompson on 11/17/2011



SDGM (NAD83) to 2011 US State Plane (NAD83) Conversion
 Magnetic North is the direction of the Earth's magnetic field.
 To convert between True North, Magnetic North, and Grid North, use the following formula:
 True North = Magnetic North + Magnetic Declination
 Grid North = True North + Grid Convergence
 For example, if the Magnetic Declination is 10 degrees East and the Grid Convergence is 10 degrees West, then the Grid North is 0 degrees from True North.

True Vertical Depth (ft)

NOV 23 2011
 DEP, SOUTHWEST REGION
 OIL & GAS

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
McMichael Unit Pad	1244930.817	447058.556	40°15'52.530"N	80°21'12.370"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)	Grid East (US ft)
Slot #05	70.40	15.98	1244946.797	447126.953
Rig on Slot #05 (RT) to Mud line (At Slot: Slot #05)			1246ft	
Mean Sea Level to Mud line (At Slot: Slot #05)			0ft	
Rig on Slot #05 (RT) to Mean Sea Level			1246ft	

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
McMichael Microseis-570	5670.00	-70.40	-15.98	1244930.82	447058.56	40°15'52.530"N	80°21'12.370"W	
McMichael Unit 5H PWB	10969.35	5670.00	5142.72	-2074.24	472289.45	40°15'43.400"N	80°21'12.370"W	
McMichael ChronoSeis-5700	5700.00	-70.40	-15.98	1244930.82	447058.56	40°15'52.530"N	80°21'12.370"W	

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (ft/100ft)	VS (ft)
Tie On	0.00	0.000	338.034	0.00	0.00	0.00	0.00	0.00
End of Tangent	5097.04	0.000	338.034	5097.04	0.00	0.00	0.00	0.00
End of Build (J)	5997.04	90.000	338.034	5670.00	531.36	-214.32	10.00	572.96
End of Tangent (J)	10969.35	90.000	338.034	5670.00	5142.72	-2074.24	0.00	5545.27

Scale 1 inch = 1500 ft

Easting (ft)

North (ft)

End of Tangent (J) : 5670.00ft TVD, 5142.72ft N, 2074.24ft W

End of Build (J) : 5670.00ft TVD, 531.36ft N, 214.32ft W

End of Tangent : 5097.04ft TVD, 0.00ft N, 0.00ft E

Tie On : -0.00ft TVD, 0.00ft N, 0.00ft E

Slot #05

Scale 1 inch = 1100 ft

Vertical Section (ft)

End of Tangent (J) : 90.00° Inc, 10969.35ft MD, 5670.00ft TVD, 5545.27ft VS

End of Build (J) : 90.00° Inc, 5997.04ft MD, 5670.00ft TVD, 572.96ft VS

End of Tangent : 0.00° Inc, 5097.04ft MD, 5097.04ft TVD, 0.00ft VS

10.00°/100ft

Microseis 5700

ChronoSeis-5700

Asimuth 338.03° with reference 0.00 N, 0.00 E



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

DEP USE ONLY	DEP Application Tracking #	C-904120	G:	TD
	Permit #	007-20324	C:	RP
	Project #			

Denotes location of well on topo map

True Latitude: NORTH (NAD83)
40° 31' 52.95"

True Longitude: WEST (NAD83)
80° 21' 11.82"

Projected bottom hole
Latitude: NORTH (NAD83)
40° 32' 44.38"
Longitude: WEST (NAD83)
80° 21' 26.65"

Well is located on topo map 3749 feet south of latitude 40° 32' 30"

NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

LEGEND

- SURFACE BOUNDARY
- PROPOSED GAS WELL TOPHOLE
- PROPOSED GAS WELL BOTTOMHOLE
- EXISTING GAS WELL
- PURVEYOR - WATER WELL
- PURVEYOR - SPRING
- WELL TIE LINES
- WELL BORE
- TRACT BOUNDARY

TOPO

Well is located on topo map 5544 feet west of longitude 80° 20' 00"

SPCS GRID NORTH
PA SOUTH ZONE
NAD83

SHANE
#6H (BOT. HOLE)
I.PIN
198'

MILLER
COON MILLER
HILLIKER
BARON
CARNIER
DUBOIS
A = N 08°01'00" W 5134.95'
B = S 51°52'04" E 531.24'
C = S 03°35'17" E 4766.08'

ESTEL
GALZERANO
McMICHAEL

CONCETTA
NOV 23 2011
DEP, SOUTHWEST REGION OIL & GAS

SMITH
SMITH
COMMONWEALTH of PA

EXIST. GAS WELL
2611'
1922'

#6H (TOP HOLE)
N 72°46'56" E 277'
A=1186'
R=716'

NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

Scale 1" = 1000'

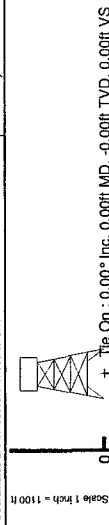
Tract Acreage 1110.0759

NOV 17 2011
TRI-COUNTY ENGINEERING, LLC
Surveyor or Engineer JOHN M. VOZEL (724)635-0210 RRAOG1-51-6H 11/15/2011

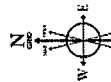
Lat. & Long Metadata				Elevation Metadata				Survey Date				
Method	Direct GPS	Accuracy	SUB-METER	ft. Datum	NAD 83	Method	DIRECT GPS	Accuracy	2'	ft. Datum	NAVD88	8/09/11
Applicant / Well Operator Name				Well(Farm) Name				Well #	Serial #			
RANGE RESOURCES - APPALACHIA LLC				McMICHAEL UNIT				6H				
Address 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317				County - Code		Municipality		Well Type				
				BEAVER-4		INDEPENDENCE TOWNSHIP		GAS				
Surface Landowner / Lessor				USGS 71/2 Quadrangle Map Name				Map Section	Surface Elevation			
PETER D. & JANICE L. McMICHAEL				ALIQUIPPA				7	1246		ft.	
Target Formation(s)				Angle & Course of Deviation (Drilling)				Anticipated Total Depth				
MARCELLUS				DEVIATED-SEE ATTACHED				TVD		5670 TMD 11348		
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		Name of Coal Seam Owned, Leased, or Operated						
NONE				PETER D. & JANICE L. McMICHAEL		ALL SEAMS						

Location:	Beaver County, PA	Slot:	Slot #06
Field:	Beaver	Well:	McMichael Unit 6H
Facility:	McMichael Unit Pad	Wellbore:	McMichael Unit 6H PWB

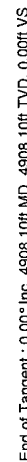
Plot reference wellpath is McDougal Unit GH PWP Permit.	
True vertical depths are referenced to Rig on Slot #06 (RT)	Grid System: NAD83 / Lambert Pennsylvania SP, Southern Zone (3702), US feet
Measured depths are referenced to Rig on Slot #06 (RT)	North Reference: Grid north
Rig on Slot #06 (RT) to Mean Sea Level: 1245 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot #06): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: Thompson on 11/17/2011



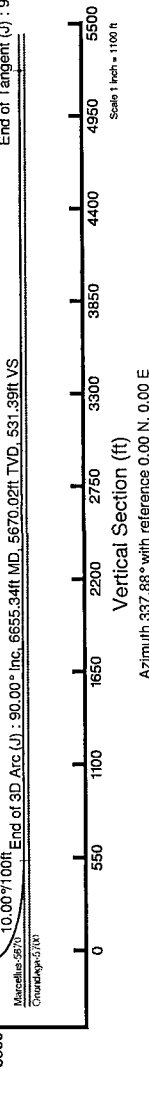
RANGE RESOURCES



BGGW (1945.0 to 2012.0) Dip: 67.98 ° Field: 53134.5 nT
Magnetic North is 9.04 degrees West of True North (at 11/17/2011)
Grid North is 1.69 degrees West of True North
To correct azimuth from True to Grid add 1.69 degrees
To correct azimuth from Magnetic to Grid subtract 7.35 degrees
The Magnetic North is about 80 degrees from the Grid North is about 7.35 = 87.65



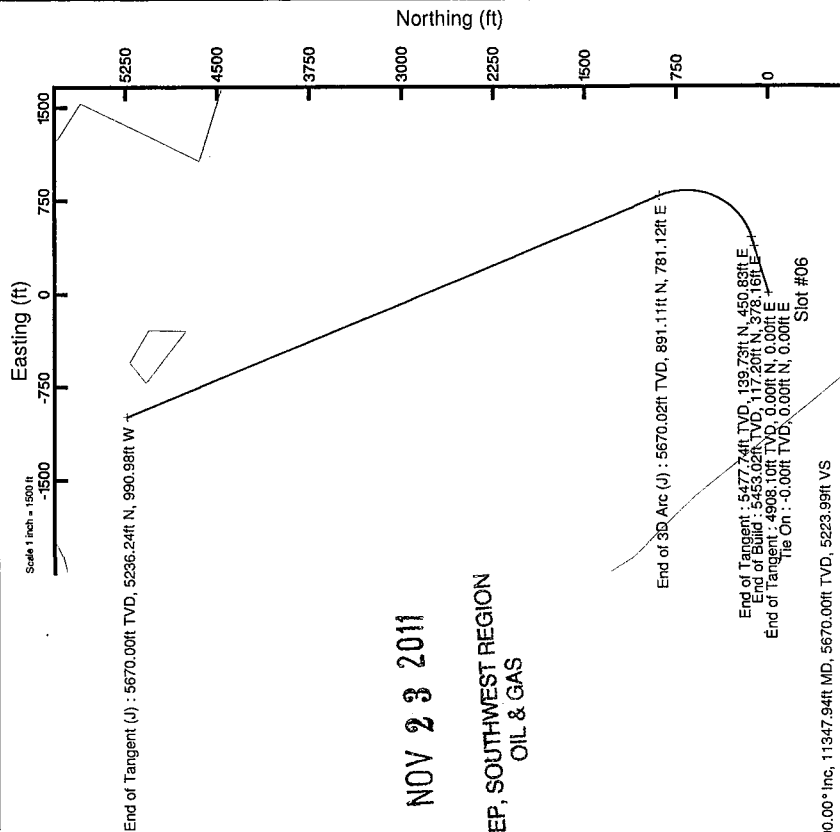
10.00°/100ft
End of Build : 72.00° Inc, 5628.10ft MD, 5453.02ft TVD, -33.82ft VS
End of Tangent : 72.00° Inc, 5708.10ft MD, 5477.74ft TVD, -40.32ft VS
10.00°/100ft
End of 3D Arc (1) : 90.00° Inc, 6655.34ft MD, 5670.02ft TVD, -40.32ft VS



Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
McMichael Unit Pad	1244930.817	447056.556	40°1'52.530"N	80°21'12.370"W	
Slot	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #06	43.70	1244974.519	447097.789	40°31'52.950"N	80°21'11.820"W
Rig on Slot #06 (RT) to Mud line (At Slot: Slot #06)					1246ft
Mean Sea Level to Mud line (At Slot: Slot #06)					0ft
Rig on Slot #06 (RT) to Mean Sea Level					1246ft

Targets							
Name	MD (ft)	TVD (ft)	Local N (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
McMichael Meridals-5700		5670.00	-41.29	-43.70	1244900.82	447056.56	80°21'12.370"W
McMichael Unit B-1 Pda	1147.94	5670.00	5296.94	-990.98	1245093.99	452633.81	80°21'22.650"W
McMichael Grondags-5700		5700.00	-41.29	-43.70	1244900.82	447056.56	80°21'12.370"W

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°100ft)	VS (ft)
Tie On	0.00	0.000	72.760	0.00	0.00	0.00	0.00	0.00
End of Tangent	4908.10	0.000	72.760	4908.10	0.00	0.00	0.00	0.00
End of Build	5628.10	72.000	72.760	5453.02	117.20	378.16	10.00	-33.82
End of Tangent	5708.10	72.000	72.760	5477.74	139.73	450.83	0.00	-40.32
End of 3D Arc (J)	6655.34	90.000	337.813	5670.02	891.11	781.12	10.00	531.39
End of Tangent (J)	11347.94	90.000	337.813	5670.00	5236.24	-990.98	0.00	5223.99



NOV 23 2011

DEP, SOUTHWEST REGION
OIL & GAS

End of Tangent (I) : 90 00° Inc 11347 94ft MD. 5670 00ft TVD. 5223.99ft VS



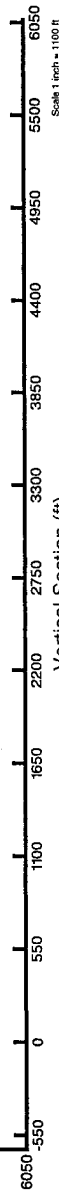
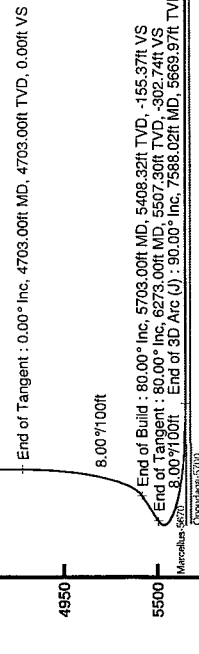
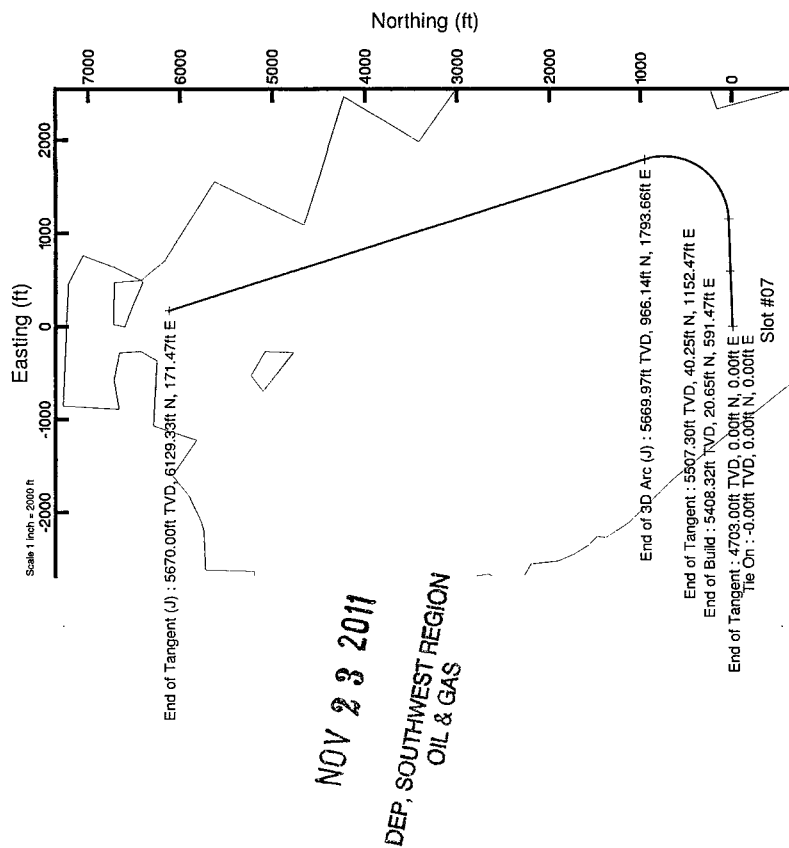
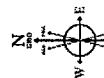
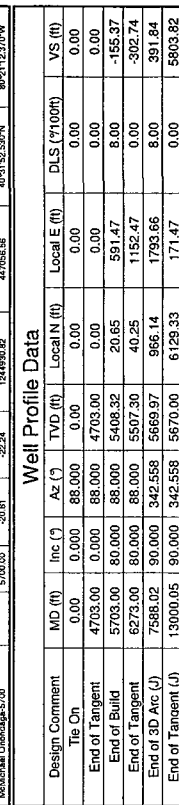
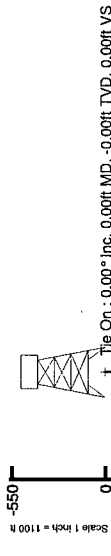
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP USE ONLY	DEP Application Tracking #	7-904123	G:	TD
	Permit #	607-20325	C:	RP
	Project #			

Denotes location of well on topo map True Latitude: NORTH (NAD83) 40° 31' 52.74" True Longitude: WEST (NAD83) 80° 21' 12.09" Projected bottom hole Latitude: NORTH (NAD83) 40° 32' 53.33" Longitude: WEST (NAD83) 80° 21' 12.21"		Well is located on topo map 3770 feet south of latitude 40° 32' 30"	
		NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.	
Well is located on topo map 5565 feet west of longitude 80° 20' 00"		NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).	
A = N 07°44'44" W 5152.44' B = S 51°52'04" E 531.24' C = S 03°18'47" E 4785.41'		LEGEND — SURFACE BOUNDARY ○ PROPOSED GAS WELL TOPHOLE ⊕ PROPOSED GAS WELL BOTTOMHOLE * EXISTING GAS WELL ⊗ PURVEYOR - WATER WELL ⊙ PURVEYOR - SPRING --- WELL TIE LINES - - - WELL BORE = TRACT BOUNDARY	
NOV 23 2011 DEP, SOUTHWEST REGION OIL & GAS		Scale 1" = 1000' Tract Acreage 1110.0759	
COMMONWEALTH of PA NOV 17 2011 TRI-COUNTY ENGINEERING, LLC Surveyor or Engineer JOHN M. VOZEL (724)635-0210		Date 11/15/2011 RRAOG1-51-7H	
Lat. & Long Metadata Method Direct GPS Accuracy SUB-METER ft. Datum NAD 83		Elevation Metadata Method DIRECT GPS Accuracy 2' ft. Datum NAVD88	
Survey Date 8/09/11		Well # 7H	
Applicant / Well Operator Name RANGE RESOURCES - APPALACHIA LLC		Well (Farm) Name McMICHAEL UNIT	
Address 3000 TOWN CENTER BLVD. CANONSBURG, PA 15317		County - Code BEAVER-4 Municipality INDEPENDENCE TOWNSHIP	
Surface Landowner / Lessor PETER D. & JANICE L. McMICHAEL		Well Type GAS	
Target Formation(s) MARCELLUS		USGS 712 Quadrangle Map Name ALIQUIPPA	
Angle & Course of Deviation (Drilling) DEVIATED-SEE ATTACHED		Map Section 7 Surface Elevation 1246 ft.	
Surface Owner or Water Purveyor with a Water Supply within 1,000 ft. NONE		Anticipated Total Depth 5670 TMD 3000	
Approximate Course and Distance to Water Supply		Owner, Lessee, or Operator of Workable Coal Seam PETER D. & JANICE L. McMICHAEL	
Name of Coal Seam Owned, Leased, or Operated ALL SEAMS			

Location:	Beaver County, PA	Slot:	Slot #07
Field:	Beaver	Well:	McMichael Unit 7H
Facility:	McMichael Unit Pad	Wellbore:	McMichael Unit 7H PWB

Plot reference weight(s) is McMichael Unit 7H PWP Permit	Grid System: NAD83 / Lambert Pennsylvania SP, Southern Zone (3702), US feet
True vertical depths are referenced to Rig on Slot #07 (RT)	North Reference: Grid north
Measured depths are referenced to Rig on Slot #07 (RT)	Scale: True distance
Rig on Slot #07 (RT) to Mean Sea Level: 1246 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot #07): 0 feet	Coordinates are in feet referenced to Slot
Created by: thomsauz on 11/7/2011	



Azimuth 342.78° with reference 0.00 N 0.00 E

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



DEP USE ONLY	DEP Application Tracking #	C-904124	G:	TD
	Permit #	007-203240	C:	RD
	Project #			

☐ Denotes location of well on topo map

True Latitude: NORTH (NAD83)

40° 31' 53.02"

True Longitude: WEST (NAD83)

80° 21' 12.46"

Projected bottom hole

Latitude: NORTH (NAD83)

40° 32' 39.12"

Longitude: WEST (NAD83)

80° 21' 52.68"

Well is located on topo map 3742 feet south of latitude 40° 32' 30" 0' 1000' 2000'

NOTE:

THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. CORNERS AND LINES PERTINENT TO LOCATING THE PROPOSED WELL ARE FROM FIELD SURVEY. OTHER LINES AND FEATURES SHOWN ARE FROM TAX MAPS AND/OR DEEDS. THE INFORMATION PRESENTED SHOULD NOT BE UTILIZED FOR ANY OTHER PURPOSES. THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, RIGHT-OF-WAY AND/OR ENCUMBRANCES BOTH APPARENT AND OF RECORD. NO TITLE SEARCH HAS BEEN MADE IN PREPARATION OF THIS WELL PLAT.

LEGEND	
—	SURFACE BOUNDARY
○	PROPOSED GAS WELL TOPHOLE
⊕	PROPOSED GAS WELL BOTTOMHOLE
*	EXISTING GAS WELL
⊙	PURVEYOR - WATER WELL
⊙	PURVEYOR - SPRING
---	WELL TIE LINES
---	WELL BORE
---	TRACT BOUNDARY

Well is located on topo map

5594

feet west of longitude

80° 21' 00"

80° 21' 00"

80° 21' 00"

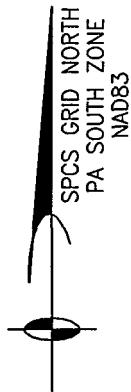
80° 21' 00"

80° 21' 00"

80° 21' 00"

80° 21' 00"

80° 21' 00"



A = N 07°29'02" W 5120.04'
B = S 51°52'04" E 531.24'
C = S 03°00'07" E 4754.92'

NOTE: ALL PROPERTY OWNER AND DEED REFERENCE INFORMATION SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

SMITH

COMMONWEALTH
of PA

EXIST.
GAS WELL

EXIST.
GAS WELL

McMICHAEL

GALZERANO

ESTEL

CONCETTA

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DEP, SOUTHWEST REGION
OIL & GAS

HILLIKER

BARON

GARNIER

DUBOIS

McMICHAEL

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RANGE RESOURCES

RANGE RESOURCES

Location: Beaver County, PA
 Slot: Slot #08
 Well: McMichael Unit 8H
 Facility: McMichael Unit Pad
 Wellbore: McMichael Unit 8H PWB



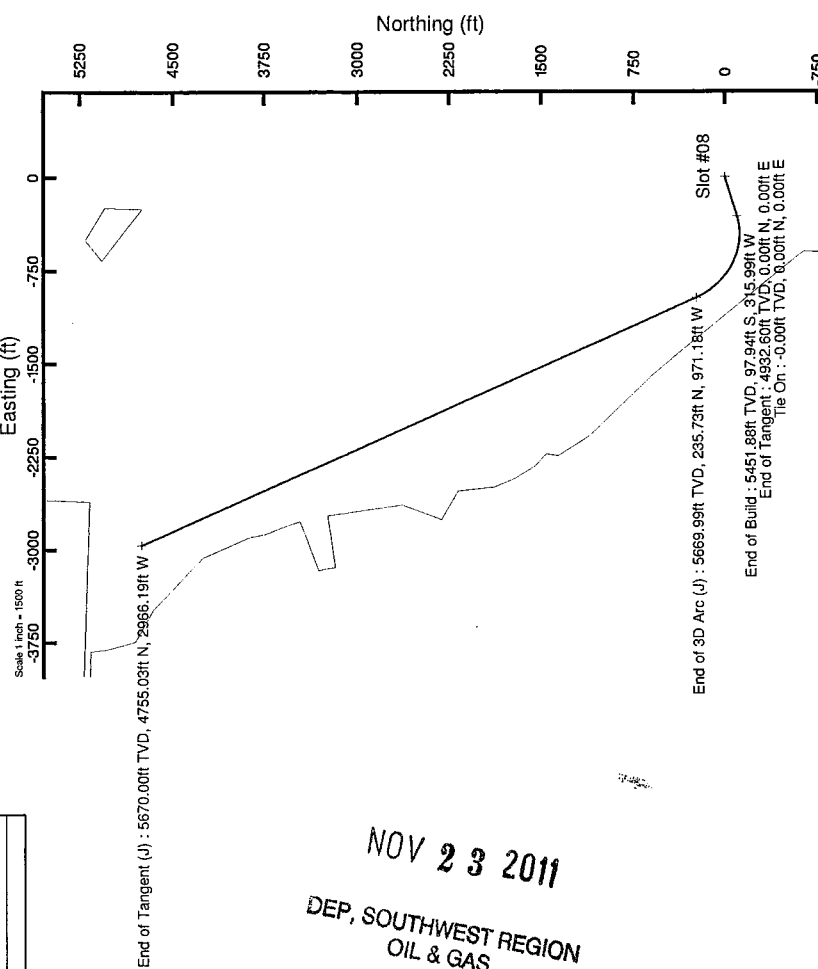
Plot reference wellbore is McMichael Unit 8H PWB (RT).	Grid System: NAD83 / Lambert Pennsylvania SP, Southern Zone (7200, US feet)
True vertical depths are referenced to Rig on Slot #08 (RT).	North Reference: Grid North
Measured depths are referenced to Rig on Slot #08 (RT).	Scale: True distance
Rig on Slot #08 (RT) to Mean Sea Level: 1246 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot #08) 0 feet	Created by: formuza on 11/17/2011
Coordinates are in feet referenced to Slot	

Tie On : 0.00° Inc, 0.00ft MD, -0.00ft TVD, 0.00ft VS

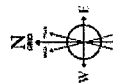
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
McMichael Unit Pad	1244930.817	447056.556	80°21'12.370"W
Slot	Local N (ft)	Local E (ft)	Local N (US ft)
Slot #08	49.77	-5.48	447106.326
Rig on Slot #08 (RT) to Mud line (At Slot #08)			1246ft
Mean Sea Level to Mud line (At Slot #08)			0ft
Rig on Slot #08 (RT) to Mean Sea Level			1246ft

Targets					
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Longitude
McMichael Marcellus-5670	11362.87	5670.00	49.77	5.48	80°21'12.370"W
McMichael Unit 8H Pad	11362.87	5670.00	49.77	5.48	80°21'12.370"W
McMichael Groundage-5700	5700.00	5700.00	49.77	5.48	80°21'12.370"W

Well Profile Data					
Design Comment	MD (ft)	Inc (°)	TVD (ft)	Local N (ft)	Local E (ft)
Tie On	0.00	0.00	252.780	0.00	0.00
End of Tangent	4932.60	0.00	252.780	4932.60	0.00
End of Build	5582.60	65.00	252.780	5451.88	-315.99
End of 3D Arc (J)	6422.82	90.00	336.181	5669.99	-235.73
End of Tangent (J)	11362.87	90.00	336.181	5670.00	-2966.19



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BDGM 11545 is 252.20' Oil, 67.49' Field, 53134.5 ft
 Magnetic North is 8.15° East of True North (on 11/17/2011)
 To convert azimuth from True to Grid add 8.15 degrees
 To convert azimuth from Grid to True subtract 8.15 degrees
 For example if the Magnetic North Azimuth = 90° True North Azimuth = 90° - 8.15 = 81.85

