

**COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL & GAS MANAGEMENT**

**PERMIT APPLICATION TO DRILL AND OPERATE AN UNCONVENTIONAL WELL**

APPLICANT INFORMATION				
Applicant (Operator) Name RICE DRILLING B LLC	Legal Name RICE DRILLING B LLC	DEP Client ID# 268470	Phone 724-271-7200	FAX 724-749-5581
Mailing Address (Street or PO Box) 2200 RICE DRIVE	Address 2			
City CANONSBURG	State PA	Zip +4 15317		
Email Address erin.spine@riceenergy.com	24/7 Emergency Contact Name / Number MIKE LAUDERBAUGH 724-809-9897			

WELL INFORMATION			
(Well) Farm Name THUNDER 1			
Well # 20	Serial #	Project # (from DEP)	
County GREENE	Municipality CENTER TWP	911 Address of Well site (or nearest intersection) 466 TURKEY HOLLOW ROAD WAYNESBURG PA 15370	
Is this an Unconventional well? Y	Is this a Coal well? Y	Bond Agreement ID 11936 - BLANKET (#####)	Well Deepest Point (TVD) 8031

WELLBORE INFORMATION			
Wellbore Number 1	Wellbore Name WELLBORE SURFACE HOLE LOCATION	Type of Wellbore GAS	Wellbore Configuration Horizontal Well

WELL PAD INFORMATION			
Well Pad Name THUNDER 1			
Is this well covered under an ESCGP? Y	ESCGP Number 1092208	Will this well be built on a well pad? Y	Well Pad 154436-THUNDER 1

COORDINATION QUESTIONS	
Will the well be subject to the Oil and Gas Conservation Law?	N
Will either the edge of the disturbed area of any portion of the well site of the unconventional well be within 100 feet, or the vertical well bore be within 300 feet, from the edge of any solid blue lined stream, spring or body of water identified on the most current 7 1/2 topographic quadrangle map or wetland greater than one acre in size or in a wetland?	N
Will the well penetrate or be within 3,000 feet of an active gas storage reservoir boundary?	N
Is the proposed well location within the permitted perimeter of an active, abandoned or proposed landfill?	N
Will the vertical well bore of the unconventional well be drilled within 500 feet from any existing building or an existing water supply?"	Y
Will the vertical well bore of the unconventional well be drilled within 1,000 feet from any existing water well, surface water intake, reservoir or other water supply extraction point used by the water purveyor?	N
Is this permit application for a well that will be drilled on an existing well site that has an active permitted well, or currently valid permit on this well site, for a well that was permitted on or before April 16, 2012?	N
Will the well be located where it may impact a public resource as outlined in the 'Coordination of a Well Location with Public Resources' form 5500 PM-OG0076?	N
Will any portion of the well site be located within a Special Protection watershed?	Y
Special Protection Type:	HQ
Special Protection Watershed:	HARGUS CREEK
Is this well part of a development which disturbs more than 5 acres?	Y
Will the well or well site be located within a defined 100 year floodplain or where the floodplain is undefined, within 100 feet of the top of the bank of a perennial stream or within 50 feet of the top of the bank of an intermittent stream?	N
Is the well to be located within a 1-mile radius of a well drilled to or through the same formation where hydrogen sulfide (H2S) has been found while drilling?	N
Did you have a PNDI hit for the PA Department of Conservation and Natural Resources Bureaus of Forestry and Topographic and Geologic Survey?	N
Did you have a PNDI hit for the PA Fish and Boat Commission?	N
Did you have a PNDI hit for the PA Game Commission?	N
Did you have a PNDI hit for the U.S. Fish and Wildlife Service?	N

COAL MODULE
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**pennsylvania**  
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Will the well penetrate a workable coal seam?	Y
Have any coal rights been severed from the surface estate?	Y
If the coal rights been severed from the surface estate, have the owners of the workable and unworkable coal seams been notified?	Y
Is this a "non-conservation" gas well?	Y
If the well will penetrate a workable coal seam, and the well is a 'non-conservation' gas well, does the location comply with the distance requirements of Section 7 of the Coal and Gas Resource Coordination Act (at least 1,000 feet from all existing wells) and, if part of a well cluster, at least 2,000 feet from any other existing cluster, as measured from the center of the well bore of the nearest well?	Y
Will the well be part of a Well Cluster which is an area within a well pad intended to host multiple horizontal wells and which comprises an area no greater than 5,000 square feet?	Y
Will this well be part of a Well Cluster that already has an approved OG-57 waiver?	N
Will this well be drilled into solid coal or into an open underground void?	SC
Will the well be drilled through an operating coal mine, or within 1,000 feet of the boundary?	Y
Provide the names of Mine(s) and Operator(s):	FOUNDATION MINING LLC - FOUNDATION MINE CUMBERLAND CONTURA LLC - CUMBERLAND MINE
Does it meet the Gas Well Pillar Study?	Y
Has the surface landowner been notified and provided a copy of the Landowner Notification of Right to Participate in Alternative Dispute Resolution to Coal Bed Methane Wells (form 5500-FM-OG0053)?	N

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WELLBORE SURFACE-HOLE LOCATION	
Surface elevation (in ft.)	1410
Latitude/Longitude	39 49 36.9100 -80 16 45.2500
Metadata Method	GPS CARRIER PHASE KINEMATIC RELATIVE POSITION
Accuracy (in ft.)	4
Datum	North American Datum of 1983
Reference Elevation	1410
USGS Map Name	HOLBROOK
USGS Map Section #	6
Offset South (in feet)	2340
Offset West (in feet)	8220

WELLBORE LOCATION INFORMATION	
WELLBORE SURFACE HOLE LOCATION	
Type of Wellbore	GAS
Wellbore Configuration	Horizontal Well
Target Formation	MARCELLUS FORMATION(MARCF)
Producing Formation	MARCELLUS FORMATION(MARCF)
Oldest Formation Penetrated	MARCELLUS FORMATION(MARCF)
Wellbore Origin Point Lat/Long	39 49 36.9100 -80 16 45.2500
Wellbore Origin Point True Vertical Depth (TVD)	0
Wellbore Origin Point Total Measured Distance (TMD)	0
Wellbore Deepest Point Lat/Long	39 48 20.0700 -80 14 32.0300
Wellbore Deepest Point True Vertical Depth (TVD)	8031
Wellbore Deepest Point Total Measured Distance (TMD)	22899
Bottom Hole Lat/Long	39 48 20.0700 -80 14 32.0300
Bottom Hole True Vertical Depth (TVD)	8031
Bottom Hole Total Measured Distance (TMD)	22899

WELL PAD LOCATION INFORMATION		
Well Pad Corner 1 Lat/Long	39 49 36.5800 -80 16 48.2000	
Well Pad Corner 2 Lat/Long	39 49 39.3300 -80 16 42.8400	
Well Pad Corner 3 Lat/Long	39 49 37.1600 -80 16 42.4900	
Well Pad Corner 4 Lat/Long	39 49 34.9300 -80 16 45.5600	
Well Site GPS Location Lat/Long	39 49 36.9600 -80 16 45.0500	
Well Site Access Road GPS Lat/Long	39 49 54.6700 -80 16 43.3800	
Metadata Method	Accuracy (in ft.)	Datum
GPS CARRIER PHASE KINEMATIC RELATIVE POSITION	±3	North American Datum of 1983

SUBMISSION INFORMATION	
Pursuant to the Pennsylvania Electronic Transactions Act - Act 69, you are about to engage in an electronic transaction with the Commonwealth of Pennsylvania. You are submitting official information. Any false statement is subject to substantial civil and criminal penalties, including 18 P.S. section 4904 (relating to unsworn falsification to authorities).	
I hereby certify that, for all interested parties identified in this application for which written consent or an "Affidavit of Non-Delivery of Certified Mail" has not been uploaded, copies of the well plat have been sent via certified mail and I have received a return receipt verifying delivery.	
Submitted By	OLIVIA PISHIONERI
Document Generated	10/16/2017 01:05:32 PM

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INTERESTED PARTIES			
Interested Party <b>CARL S RABER ET UX</b>	Address 366 IRON ROCK ROAD WAYNESBURG, PA 15370	Notifications WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 10.8100 -80 16 46.3100 Water Well - Private Supply 39 49 17.7000 -80 16 29.2000 Surface Water Body - Private Supply 39 49 19.2000 -80 16 32.4000 Surface Water Body - Private Supply 39 49 19.4000 -80 16 40.7000 Surface Water Body - Private Supply 39 49 22.6000 -80 16 33.4000 Water Well - Private Supply 39 49 24.0000 -80 16 40.8000 Surface Water Body - Private Supply 39 49 24.2000 -80 16 35.9000 Water Well - Private Supply 39 49 25.0000 -80 16 36.8000 Surface Water Body - Private Supply 39 49 25.6000 -80 16 35.8000 Surface Water Body - Private Supply 39 49 27.2300 -80 16 38.3200 Surface Water Body - Private Supply			
Interested Party <b>CATHY S EDDY REVOCABLE TRUST</b>	Address 285 IRON ROCK ROAD WAYNESBURG, PA 15370	Notifications WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 25.8200 -80 17 01.5400 Surface Water Body - Private Supply			
Interested Party <b>CENTER TOWNSHIP</b>	Address PO BOX 435 100 MUNICIPAL DRIVE ROGERSVILLE, PA 15356	Notifications MU - Municipalities	
Municipality <b>CENTER TOWNSHIP</b>	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/12/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party <b>CONTURA PENNSYLVANIA LAND LLC</b>	Address 158 PORTAL ROAD PO BOX 1020 WAYNESBURG, PA 15370	Notifications CL - Coal Lessee	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party <b>CUMBERLAND CONTURA LLC</b>	Address 158 PORTAL ROAD PO BOX 1020 WAYNESBURG, PA 15370	Notifications CL - Coal Lessee CMO - Coal Mine Operator within 1000 ft	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party <b>FOUNDATION MINING LLC</b>	Address 158 PORTAL ROAD PO BOX 1020 WAYNESBURG, PA 15370	Notifications CM - Operator of Operating Coal Mine	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party <b>FRANKLIN TOWNSHIP</b>	Address 568 ROLLING MEADOWS ROAD WAYNESBURG, PA 15370	Notifications MU - Municipalities	
Municipality <b>FRANKLIN TOWNSHIP</b>	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017

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Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party GRAY TOWNSHIP	Address 193 STRINGTOWN ROAD GRAYSVILLE, PA 15337	Notifications MU - Municipalities	
Municipality GRAY TOWNSHIP	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party JACKSON TOWNSHIP	Address 104 TUNNEL ROAD HOLBROOK, PA 15341	Notifications MU - Municipalities	
Municipality JACKSON TOWNSHIP	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party JEFFRY N GRIMES ET UX	Address 292 IRON ROCK ROAD WAYNESBURG, PA 15370	Notifications WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/17/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 07.0200 -80 16 48.0400 Water Well - Private Supply			
Interested Party LUKE J KIGER ET UX	Address 295 IRON ROCK ROAD WAYNESBURG, PA 15370	Notifications WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 19.3000 -80 16 54.0000 Surface Water Body - Private Supply 39 49 20.4100 -80 16 50.1900 Water Well - Private Supply			
Interested Party MARK A. AND LISA MAIN	Address 297 IRON ROAD ROAD WAYNESBURG, PA 15370	Notifications SL - Surface Landowner WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft CO - Coal Owner WWU - Water Supply within 1000 ft	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent Y	Notification Acknowledgement Date	Uploaded Files Thunder 1 South_LO Permission to Drill 5.16.2017.pdf
Water Source Locations 39 49 27.4000 -80 16 59.8000 Surface Water Body - Private Supply 39 49 32.4000 -80 16 58.8000 Water Well - Private Supply 39 49 34.8900 -80 16 55.8200 Water Well - Private Supply 39 49 37.2000 -80 16 40.9000 Surface Water Body - Private Supply 39 49 37.5000 -80 17 00.5000 Surface Water Body - Private Supply			
Interested Party MORRIS TOWNSHIP	Address 1317 BROWNS CREEK ROAD SYCAMORE, PA 15364	Notifications MU - Municipalities	
Municipality MORRIS TOWNSHIP	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/11/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party REALTY COMPANY OF PENNSYLVANIA	Address 2 N 9TH STREET ALLENTOWN, PA 18101	Notifications CO - Coal Owner	
Municipality	Notified MAIL	Certified Mail Sent Date 05/09/2017	Certified Mail Delivery Date 05/12/2017
Address Affidavit N	Written Consent N	Notification Acknowledgement Date	Uploaded Files

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Water Source Locations			
Interested Party <b>RICHHILL TOWNSHIP</b>	Address <b>109 MUNICIPAL LANE WIND RIDGE, PA 15380</b>	Notifications <b>MU - Municipalities</b>	
Municipality <b>RICHHILL TOWNSHIP</b>	Notified <b>MAIL</b>	Certified Mail Sent Date <b>05/09/2017</b>	Certified Mail Delivery Date <b>05/11/2017</b>
Address Affidavit <b>N</b>	Written Consent <b>N</b>	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party <b>ROBERT C HOOVER ET UX</b>	Address <b>161 IRON ROCK ROAD WAYNESBURG, PA 15370</b>	Notifications <b>WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft</b>	
Municipality	Notified <b>MAIL</b>	Certified Mail Sent Date <b>05/09/2017</b>	Certified Mail Delivery Date <b>05/11/2017</b>
Address Affidavit <b>N</b>	Written Consent <b>N</b>	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 28.6000 -80 17 20.4000 Water Well - Private Supply 39 49 28.9000 -80 17 08.7000 Surface Water Body - Private Supply 39 49 30.9000 -80 17 18.8000 Surface Water Body - Private Supply 39 49 31.3000 -80 17 20.3000 Surface Water Body - Private Supply 39 49 33.2000 -80 17 18.0000 Surface Water Body - Private Supply 39 49 42.0000 -80 17 23.8000 Surface Water Body - Private Supply 39 49 42.5000 -80 17 08.2000 Surface Water Body - Private Supply 39 49 44.4000 -80 17 23.4000 Surface Water Body - Private Supply 39 49 47.4900 -80 16 47.2100 Surface Water Body - Private Supply 39 49 52.6000 -80 16 45.6000 Surface Water Body - Private Supply 39 49 57.4000 -80 16 50.9000 Surface Water Body - Private Supply 39 49 58.1000 -80 16 48.8000 Surface Water Body - Private Supply			
Interested Party <b>ROBERT W REED ET UX</b>	Address <b>113 IRON ROCK ROAD WAYNESBURG, PA 15370</b>	Notifications <b>WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft</b>	
Municipality	Notified <b>MAIL</b>	Certified Mail Sent Date <b>05/09/2017</b>	Certified Mail Delivery Date <b>05/11/2017</b>
Address Affidavit <b>N</b>	Written Consent <b>N</b>	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 32.8000 -80 16 18.5000 Surface Water Body - Private Supply 39 49 33.0000 -80 16 18.7000 Surface Water Body - Private Supply 39 49 44.8000 -80 16 42.3000 Surface Water Body - Private Supply			
Interested Party <b>WAYNE TOWNSHIP</b>	Address <b>132 SPRAGGS ROAD SPRAGGS, PA 15362</b>	Notifications <b>MU - Municipalities</b>	
Municipality <b>WAYNE TOWNSHIP</b>	Notified <b>MAIL</b>	Certified Mail Sent Date <b>05/09/2017</b>	Certified Mail Delivery Date <b>05/11/2017</b>
Address Affidavit <b>N</b>	Written Consent <b>N</b>	Notification Acknowledgement Date	Uploaded Files
Water Source Locations			
Interested Party <b>WILLIAM JERDAN SIMMS</b>	Address <b>198 IRON ROCK ROAD WAYNESBURG, PA 15370</b>	Notifications <b>WPU - Surface Landowners and Water Purveyors with water supplies less than 3000 ft</b>	
Municipality	Notified <b>MAIL</b>	Certified Mail Sent Date <b>05/09/2017</b>	Certified Mail Delivery Date <b>05/11/2017</b>
Address Affidavit <b>N</b>	Written Consent <b>N</b>	Notification Acknowledgement Date	Uploaded Files
Water Source Locations 39 49 17.0800 -80 17 07.7500 Surface Water Body - Private Supply 39 49 20.8900 -80 17 11.2900 Surface Water Body - Private Supply 39 49 22.6000 -80 17 10.7500 Water Well - Private Supply			

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UPLOADED FILES		
Attachment Location Plat	File Name Thunder 1 20 PG1_FINAL SIGNED DWG 5.18.2017.dwg	File Upload Date 05/19/2017
Cryptographic Hash Value of File (SHA-512) FA156E0D9997D3B65DA92C020A5840154FD87A68E03C953DF01D25037B6089219B26F771B6B5CBD21564BE9D462E273BF14A45CA64497BB79800FF3BD9E7AC6B		
Attachment Pennsylvania Natural Diversity Inventory Form	File Name Thunder 1 PNDI 6.1.2015.pdf	File Upload Date 05/19/2017
Cryptographic Hash Value of File (SHA-512) C97D2103D6E8CB596DB7D43BE9544F60B6BFF9435DDC7AEFE108787626A924E656E795F2BDD46742EEF7DC04B3AEB3169BD659B35C36614A71500CDDFFABED128		
Attachment Underground Mine Workings Map	File Name Thunder 1 Coal Approvals and Mine Maps 5.23.2017.pdf	File Upload Date 05/23/2017
Cryptographic Hash Value of File (SHA-512) 83E70E1F2ABDD4BF1CE50E168E75AA616D0AA68F84A4F91B06EACDF4D975D33B2C93E2C8FED8CAC27341285E6BEE52EC0C3E20A3463A5AE5FB25C048BD7BAB0		
Attachment Location Plat	File Name THUNDER 1 20 PG2_FINAL SIGNED DWG 10.6.2017.dwg	File Upload Date 10/16/2017
Cryptographic Hash Value of File (SHA-512) D9A3C500DE65EF321329BDAD4DB47C37DA9B56C3B561CF3C59CFB3CC719486C65CDBB677C0F5F1FB795C570E3532A13C62A316B83EB4B46D985126C38AF8F229		
Attachment Location Plat	File Name Thunder 1 20 PG3_FINAL SIGNED DWG 5.18.2017.dwg	File Upload Date 05/19/2017
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Attachment Location Plat	File Name Thunder 1 20 PG4_FINAL SIGNED DWG 5.18.2017.dwg	File Upload Date 05/19/2017
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Attachment Operator Ownership and Control Information	File Name SIGNED RDB Oil and Gas Operator Ownership and Control Information_8000-F....pdf	File Upload Date 05/12/2017
Cryptographic Hash Value of File (SHA-512) 7AA470855838797ACAA716F7AE61AD34A7C1B4C0CD6BD3833BA8B9B9AF94B533F6A0B201E5B9C885070BAFB40044D035BFFB1E1B65575A59565F4EFDAC2D8C95		
Attachment Well Cross-Section Diagram	File Name Thunder 1 20_Pg4 Cross Section.pdf	File Upload Date 05/19/2017
Cryptographic Hash Value of File (SHA-512) 22892CE4F4D092113CEAF4D62A4AE9DA1CED8538102FACBBD5A6FD428FF48DC51350EEDEF81FFAF3F72EF65D8028DCBA2DB827D6784FDB88088F49EFFC5FFA4		
Attachment MARK A. AND LISA MAIN	File Name Thunder 1 South_LO Permission to Drill 5.16.2017.pdf	File Upload Date 05/19/2017
Cryptographic Hash Value of File (SHA-512) E11A8362F23BD39F029A06A71E16CB9C77F55C6B832FB99F8A446612D8EFADA6CB9997783F5FC0D501DE9BFD54BD424F8B1F3A7AA76A6F9F42B0B8924ABF43F0		