DEP Oil and Gas Program

★ Northwest Region
230 Chestnut Street
Meadville, PA 16335-3481
(814) 332-6860

★ Eastern Region
208 West Third Street
Williamsport, PA 17701-6448
(570) 321-6550

★ Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
(412) 442-4024

● Central Office
Bureau of Oil and Gas Management
PO Box 8765
Harrisburg, PA 17105-8765
(717) 772-2199
VERSAILLES
FROM ACROSS THE YOUGH.
Natural gas and clean water: An update from ProPublica

On April 26, the New York Times published “Gas. Oil. Ejection... Will We Be Fit to Drink?” by [Name], illustrating the permissions to PennLive. Natural gas contamination in Dimock, Pa., is described as a county town that is “second only to spending the Marcellus Shale.”

Further information, according to [Name], is that methanol contamination in Dimock, Pa., has caused the same factor that led to the natural gas boom of the past. The contamination results in the current boom being the worst generation to replace. There is a need to make the natural gas boom of the past.

Joel A. Tury is the Richard N. Gillhard Professor of History & Policy at Carnegie-Mellon University.

If you have questions, please contact John Atkinson at 412-263-1015 or JohnAtkinson@pennlive.com.

Deerline Are Part Of The McKeesport Gas Boom, 1939
Used with the courtesy of the McKeesport Heritage Center.
UNCONVENTIONAL PERMITS ISSUED

2005 – 5
2006 – 23
2007 – 76
2008 – 492
2009- 1592
2010 - 3314
2011 - 3063
2012 - 2013
MARCELLUS, UTICA, SHALE DEVELOPMENT

ACT 13
Stronger Regulations for Drilling

- Increase bonding amounts from $2,500 to $10,000 and more for deeper wells.
- Up to $600,000 for blanket bond, Unconventional
- Triple well setback distance from streams, ponds, and other bodies of water from 100 to 300 feet.
- Increase setback distance from private water wells from 200 to 500 feet and to 1,000 feet for public water systems.
- Expand operator’s presumed liability for impairing water quality from 1,000 ft to 2,500 feet from a well, and extends the duration of presumed liability from 6 months to 12 months.
- Require minimum 24-hour notification before commencing certain well site activities.
- Post critical information online, including violations, penalties and remedial actions.
- Expand public disclosure and information through enhanced well production and completion reporting.
Tougher Penalties for Violators

• Double penalties for civil violations from $25,000 to $50,000.

• Double daily penalties from $1,000 to $2,000 a day.

• Make penalties for criminal violations consistent with other environmental statutes.

• Enhance DEP’s ability to suspend, revoke or deny drilling permits for failure to comply.
UNCONVENTIONAL WELLS

- SHALE
- BELOW THE ELK SANDSTONE
- EITHER VERTICAL OR HORIZONTAL
- HYDRAULIC FRACTURING
- MULTIPLE LATERALS PER PAD
Generalized stratigraphic sequence of rock units surrounding the Utica Shale and Marcellus Shale. The Utica and Marcellus are so geographically extensive that it is impossible to present a stratigraphic sequence that would be correct in all areas. This diagram presents a generalized sequence of rocks that might be present in the central portion of the Utica Shale Play. Image by Geology.com.
• ACT 13
  *Conventional Wells*
  *Unconventional Wells*
• CHAPTER 78
• OIL AND GAS CONSERVATION LAW
• COAL AND GAS COORDINATION LAW (ACT 214)
• CLEAN STREAMS LAW
• SOLID WASTE MANAGEMENT ACT
• DAM SAFETY & ENCROACHMENTS ACT
PERMIT NOTIFICATIONS

- SURFACE LANDOWNER, WATER SUPPLY OWNER (<1000’-conv.; <3000’-unconv.), COAL OWNER
- MUNICIPALITY

**SITE LOCATION**

< 3000’ FROM WELL (UNCONV.)

ADJACENT TO SITE MUNICIPALITY

24 HOURS PRIOR TO DRILL

- OBJECTIONS/RESPONSE DUE WITHIN 15 DAYS
SITING RESTRICTIONS

• WELL
  
  *Act 214 Spacing*
  *Building – 200’ (conv.); 500’ (unconv.)*
  *Water Supply – 200’(conv.); 500’ (unconv.)*
  *Public Water supply – 1000’ (unconv.)*
  *Streams, wetlands – 100’ (conv.); 300’ (unconv.)*

• LOCATION
  
  *Streams, wetlands – 100’ (conv. and unconv.)*

ALL RESTRICTIONS POTENTIALLY WAIVERABLE  ???

[Logo: Pennsylvania Department of Environmental Protection]
GENERAL FACTS ON PERMITS

• NEW PERMIT FORMS (ACT 13)
• FEE
• ISSUED OR DENIED WITHIN 45 DAYS
• PROVISION FOR DEFIENCIES (BUCKSLIPPING)
• OBJECTIONS
• CONFERENCES
• DRILLING MUST COMMENCE WITHIN 1 YEAR
• PRESUMPTIVE LIABILITY
WELL LOCATION PLAT
PAGE 3 Plan View of Deviated Well Bore

If well has a lateral other than vertical show the bottom hole location on the plat drawing as "X" and include the Coordinates in the provided section at the bottom of the drawing area. The top hole and bottom hole locations are to be connected by a bolded line this is to depict the proposed courses of the actual wellbore to be drilled.

Applicant / Well Operator Name: WPX ENERGY APPALACHIA, LLC

DEPT ID#: 276507
Well (Farm) Name: HSC
Well #: 1-4H
Scale: 1"=1000'
Serial #: 

LEGEND

- Existing Gas Well
- Proposed Gas Well
- Existing Iron Pin (FND.)
- Existing Water Well
- Proposed Bore
- Property Corner Tie Line
- Surface Parcel Line
- Oil & Gas Lease Boundary
- N/F Property Owner
- Oil & Gas Lease Lots
- NON OIL & GAS LEASE LOTS

PROJECTED HOLE LOCATION

Latitude NORTH: (NAD 83)
LP 41° 59’ 50.83” 75° 48’ 44.91”
LP 41° 59’ 47.23” 75° 48’ 49.56”

BOTTOM HOLE 41° 58’ 58.40” 75° 48’ 27.83”

SURFACE HOLE LOCATION

Latitude NORTH: (NAD 83)
41° 59’ 35.99”
Longitude WEST: (NAD 83)
75° 49’ 35.20”

PROJECTED BOTTOM HOLE

Latitude NORTH: (NAD 83)
LP 41° 59’ 50.83”
LP 41° 59’ 47.23”
LP 41° 58’ 58.40”

BOTTOM HOLE 41° 58’ 58.40”

NOTE:
This map is for well location purposes only and does not represent a complete boundary survey, corners and lines important to the location of the well were located by actual survey; other lines are from tax maps.
EQT Production - Marcellus

Project: Tioga County, PA
Site: Tioga County 590925
Well: Well #590925
Wellbore: Main Wellbore
Design: 590925 Plan3

Azimuths to Grid North
True North: -0.30°
Magnetic North: -11.69°

Magnetic Field
Strength: 53450.8nT
Dip Angle: 68.49°
Date: 8/18/2010
Model: IGRF2010_14

ANNOTATIONS

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<th>MD</th>
<th>Annotation</th>
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<td>6961.3</td>
<td>Start Turn</td>
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<tr>
<td>7318.0</td>
<td>8100.0</td>
<td>Lowest Point @ 7318ft TVD</td>
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<tr>
<td>7310.4</td>
<td>8219.7</td>
<td>Landing Point = 8220ft</td>
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<tr>
<td>6893.0</td>
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<td>TD = 11634ft</td>
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Vertical Section at 330.47° (200 ft/in)

Vertical Section at 330.47° (500 ft/in)
Marcellus Drill Site
Fresh Ground Water

Conductor

Well Bore

Gas/Oil Formations
Cement

Fresh Ground Water

Gas/Oil Formations
Cement Returns from the annular space
Fresh Ground Water

Gas/Oil Formations
Well-Name: Abell Living Trust (05-082-01) 1H
Formation: Marcellus Shale
AFI Number: 0
API Number: 0
Drilling Engineer: Chris Lowman
Geologist: 0
Date: 11/5/10

County, State: Bradford Co., PA
Surf. Location: 41.95672 Lat and -76.16539 Long
BH Location: 41.96641 Lat and -76.17856 Long
Build Location: 41.95626 Lat and -76.16566 Long
Build/Turn Location: 41.95699 Lat and -76.16972 Long
KB Elevation: 1671'
Ground Elevation: 1658'

SET COND. IN BED ROCK - GROUT
FRESH WATER
TOC on 13 3/8" @ Surface
FRESH WATER
TOC on 9 5/8" @ Surface
TOC on 5 1/2 Lead Slurry @ 2000

GAS CHECK
TBD

Wellhead Details:
| Casing Spool | 13 3/8" x 16 3/4" 3K |
| Casing Spool | 9 5/8" 9K x 11" 5K |
| Tubing Spool | 11" 5K x 4 1/16" 10K |

Directional Drilling Details:

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<th>Section</th>
<th>TMD</th>
<th>Inc.</th>
<th>Azimuth</th>
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<th>DLS</th>
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Formation Depths (TVD):

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<th>Grade</th>
<th>Connection</th>
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<td>20</td>
<td>20</td>
<td>76 ppi</td>
<td>LS</td>
<td>WELD</td>
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<td>13 3/8</td>
<td>17 1/2</td>
<td>54.5 ppi</td>
<td>J-65</td>
<td>STC</td>
<td>500</td>
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<td>Intermediate</td>
<td>9 5/8</td>
<td>12 1/4</td>
<td>40 ppi</td>
<td>N-30</td>
<td>STC</td>
<td>1,000</td>
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<tr>
<td>Production</td>
<td>5 1/2</td>
<td>6 3/4</td>
<td>20 ppi</td>
<td>P-110</td>
<td>LTC</td>
<td>11,718</td>
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Gas Gradient (0.67 psi/ft):

<table>
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<th>Depth</th>
<th>Gas Gradient</th>
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<tbody>
<tr>
<td>1,000'</td>
<td>2,000'</td>
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<tr>
<td>870 psi</td>
<td>1340 psi</td>
</tr>
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</table>

Run marker at 100' above KOP
The Marcellus Shale is more than a mile below the Earth's surface. It would take 17 Statues of Liberty on top of one another to reach the formation.

- 24” conductor casing (30-60 feet)
- 20” casing (200-500 feet) cemented to surface
- 13 3/8” casing (up to 1,000 feet) cemented to surface
- 9 5/8” casing (if necessary to seal off shallow oil, gas or brine bearing zones)
- Casing for vertical and horizontal wells identical to this point
- 5 1/2” casing 500 feet above Marcellus
ESCGP-1

• > 5 ACRE DISTURBANCE

• PNHP (Penna Natural Heritage Program)

• MUNICIPAL NOTIFICATION

• E&S PLAN

• POSTCONSTRUCTION STORMWATER PLAN
GP’s (GENERAL 105 PERMITS)

- STREAM, WETLAND CROSSINGS
- PIPELINES – GP5
- ROADS
  - GP7 – Permanent
  - GP8 - Temporary
- BORING – INADEVERTENT RETURNS
- COORDINATION WITH ACOE
- NO MUNICIPAL NOTIFICATION
DEP INSPECTION SCHEDULE

• SITE INSPECTION PRIOR TO DRILLING (§3258)
• 4 TIMES DURING SITING, DRILLING, FRAC’ING
• 24 HOUR NOTIFICATION PRIOR TO DRILLING & CEMENTING ALL CASING
• SITE RESTORATION (9 MONTHS)
• ROUTINE INSPECTIONS
• PLUGGINGS – BOND RELEASE INSPECTIONS
• COMPLAINT RESPONSE
What goes into the well?

Disclosure of hydraulic fracturing additives by well required under new Chapter 78 regulations.

99.9% Water & Sand

0.1% Additives
(0.023% hazardous in concentrated form)

- Interstate O&G Compact Commission / Groundwater Protection Council have established [www.fracfocus.org](http://www.fracfocus.org) frac chemical registration site
- Several states have imposed frac chemical disclosure regulations
Act 13 of 2012
• Consolidates the Oil and Gas Act (Act 223 of 1984) into 58 Pa.C.S. (Oil and Gas)

• Creates six chapters within 58 Pa.C.S.
  – Ch 23 – Unconventional Gas Well Fee
  – Ch 25 – Oil and Gas Lease Fund
  – Ch 27 – Natural Gas Energy Development Program
  – Ch 32 – Development
  – Ch 33 – Local Ordinances Relating to Oil and Gas Operation
  – Ch 35 – Responsibility for Fee
• Authorizes counties to enact ordinances imposing fee

• 2012:
  – Counties have 60 days from Feb. 14th to adopt ordinance (April 14)
  – If county fails to adopt fee by April 14, municipalities have 60 days to adopt fee
    • At least 50% of municipalities, or municipalities representing at least 50% of the county’s population, must adopt resolutions for fee to be imposed
Chapter 23- Unconventional Gas Well Fee

- $205 Million collected 2012
  - Based wells drilled prior to January 2012
- Counties should receive funds by early December 2012
Chapter 23-Unconventional Gas Well Fee

ANNUAL AGENCY DISTRIBUTION ($38M)

- $6 m to DEP
- $1 m to Public Utility Commission
- $1 m to Fish & Boat Commission
- $1 m for Rail Freight Assistance
- $750 k to PEMA
- $750 k to Office of State Fire Commissioner
- $20 m natural gas vehicle incentives (3 year total)
- $7.5 m to Conservation Districts (budget offset)
Chapter 23-Unconventional Gas Well Fee

DIRECT LOCAL SHARE ($100M)

• 60% distributed as follows:
  • $5 million annually to affordable housing
  • 36% of balance to counties with wells
  • 37% of balance to municipalities with wells
  • 27% of balance to all municipalities in counties with wells
INDIRECT LOCAL SHARE ($67M)

- 40% to Marcellus Legacy Fund
- Combined with transfers from Oil & Gas Lease Fund and distributed as follows:
  - 25% to local bridge improvement fund
  - 25% split between PENNVEST and H2O
  - 20% to Commonwealth Financing Authority
  - 15% counties for parks, recreation and open space
  - 10% to Environmental Stewardship Fund
  - 5% for refinery assistance and ethane processing for three years; thereafter to HSCA
## Chapter 23: Unconventional Gas Well Fee

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Pennsylvania’s Natural Gas Vehicle Grant Program
The Basics

• Authorized by Act 13 of 2012
  – Competitive reimbursement grant for purchase or retrofit of vehicles to run on natural gas

• Up to $20 million over 3 years
  – $10 million in FY ‘12-’13
  – $7.5 million in ’13-’14
  – $2.5 million in ‘14-’15
The Basics

• Eligible costs:
  – Incremental purchase costs for new NGVs
  – Retrofit costs for existing vehicles
  – Equipment & installation costs only

• Ineligible costs:
  – Project development (engineering/FS/design)
  – Fueling infrastructure
The Basics

• Grant awards capped at 50 percent of incremental purchase or retrofit cost per vehicle

• Grant awards capped at $25,000 per vehicle
Pa. NGV Grant Program

The Basics

• Eligible applicants:
  – For-profit companies
  – Non-profit organizations
  – Commonwealth or municipal authorities
  – Pa. Turnpike Commission
  – State owned or state related universities
  – Local transportation organizations
The Basics

- Eligible applicants - Local Transportation Organizations (LTO)
  - Political subdivisions
  - Non-profits providing public transportation service
  - Public transportation, port, and redevelopment authorities

- Year 1: $5 million to LTO
- Year 2: 50% to LTO
The Basics

• Eligible vehicles:
  – Dedicated CNG vehicles
  – Dedicated LNG vehicles
  – Bi-fuel vehicles
    • Fueled in part by NG and in part by diesel or gasoline
  – 14,000 lb. or greater GVW
The Basics

• Examples of eligible vehicles:
  – Medium Duty Vehicles (Class 4, 5, 6)
    • Ford F-450, RAM 4500, GMC 5500...
    • Utility vehicle, bucket trucks, delivery trucks, shuttle buses, school buses...
  – Heavy Duty Vehicles (Class 7, 8)
    • Semis, refuse trucks, large buses
Pa. NGV Grant Program
Key Considerations

- Minimum vehicles per project application is 5
- All vehicles must be registered in PA
- All NGVs must meet EPA requirements
- Applicant must identify intent to use federal funds, if available
Key Considerations

• $300,000 grant award limit for projects using existing fueling infrastructure
• $500,000 grant award limit for projects that include construction of new fueling infrastructure
• 18 month project completion period
• Grant is not retroactive
Pa. NGV Grant Program

Proposed Timeline

• Grant application period open: 12/1/12
• Grant applications due: 2/1/13
• Grant awarded late March 2013
• Grant period is 18 months from award date
Grant Program Seminars

- **Tuesday, Oct. 16**, at the Bayfront Convention Center in Erie
- **Wednesday, Oct. 17**, at the Pennsylvania College of Technology in Williamsport, Lycoming County;
- **Wednesday, Oct. 24**, at the Radisson Hotel in Valley Forge, Montgomery County;
- **Tuesday, Oct. 30**, at the Lackawanna County Center for Public Safety in Jessup; and
- **Thursday, Nov. 1**, at the Towanda Fire Hall in Bradford County.
DEP Resources

www.dep.state.pa.us/dep/deputate/minres/oilgas/oilgas.htm

e NOTICE:  www.dep.state.pa.us/enotice
e map:  www.emappa.dep.state.pa.us

Service Representative
Kim Yeakle  (814) 332-6839

Local Government Liaison
Erin Wells  (814) 332-6928

Oil & Gas Program
Craig Lobins  (814) 332-6860
Questions?