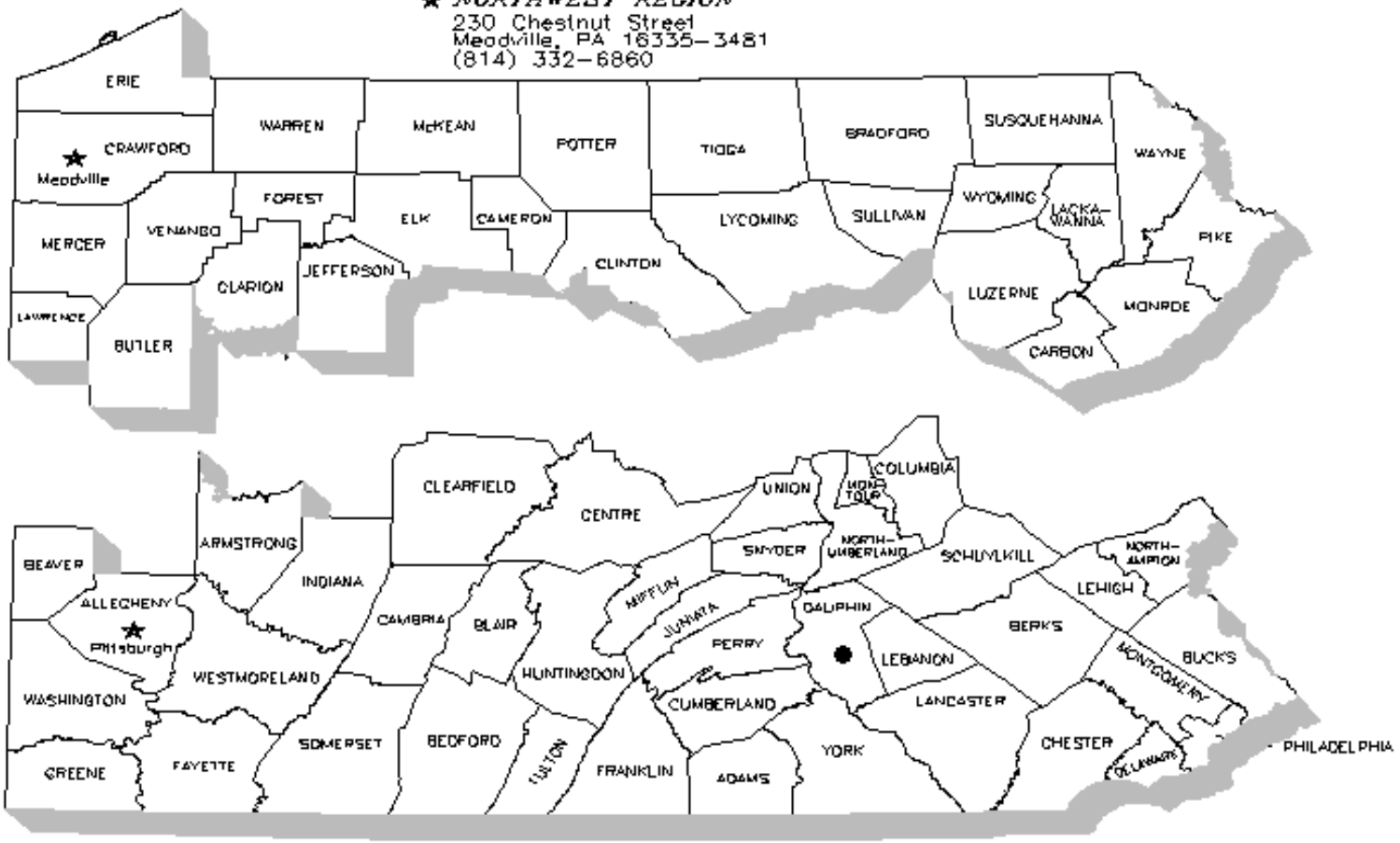
pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Craig Lobins, PG
District Manager
Oil & Gas Program

Erin Wells
Local Government Liaison
NW Regional Office

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL & GAS OFFICES



★ *NORTHWEST REGION*
230 Chestnut Street
Meadville, PA 16335-3481
(814) 332-6860

★ *SOUTHWEST REGION*
400 Waterfront Drive
Pittsburgh, PA 15222-4745
(412) 442-4024

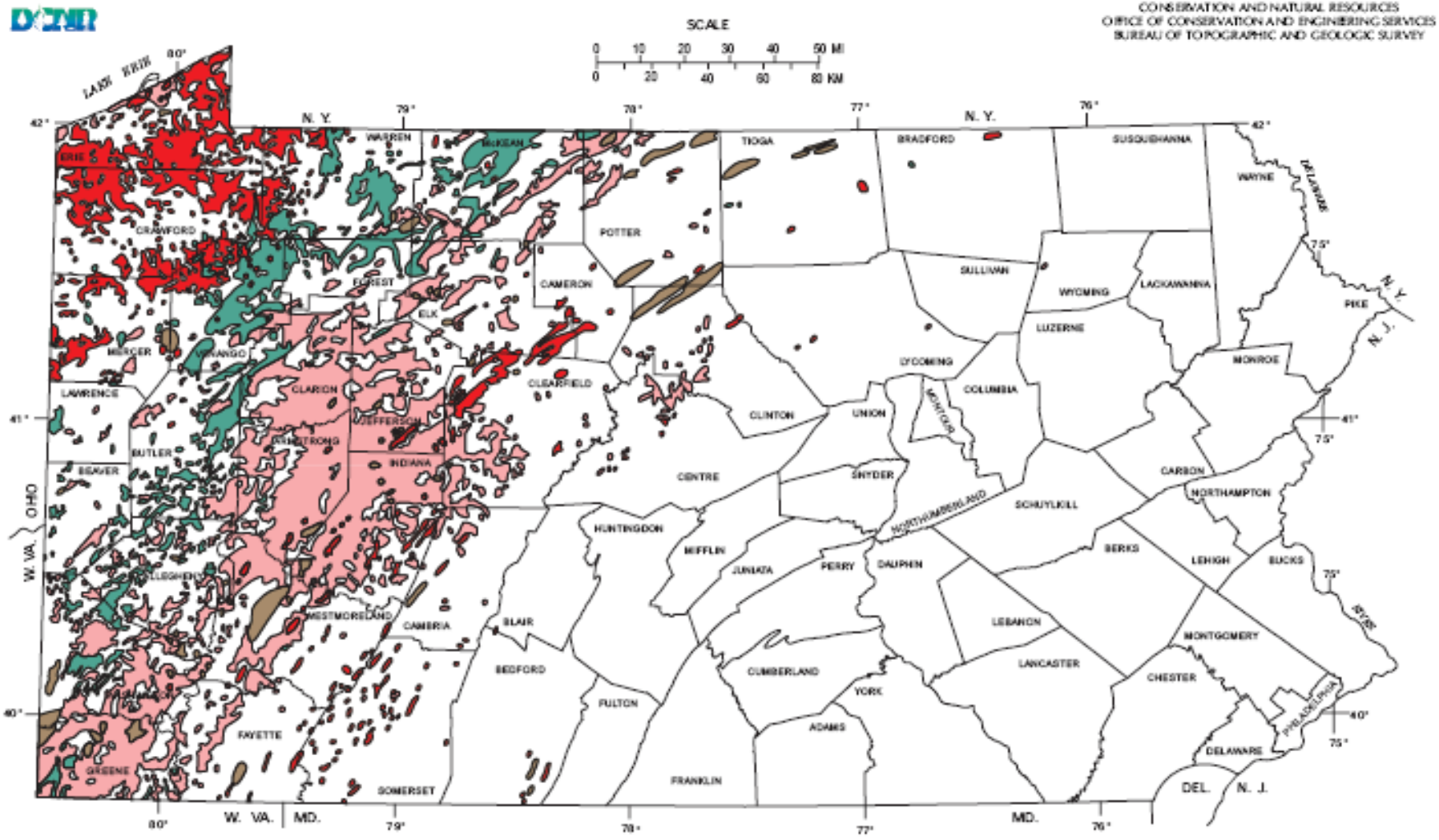
● *CENTRAL OFFICE*
Bureau of Oil & Gas Mgmt.
PO Box 8765
Harrisburg, PA 17105-8765
(717) 772-2199

LEGEND: ★ REGIONAL OFFICES
● CENTRAL OFFICE

MAP 10

OIL AND GAS FIELDS OF PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND ENGINEERING SERVICES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY



EXPLANATION

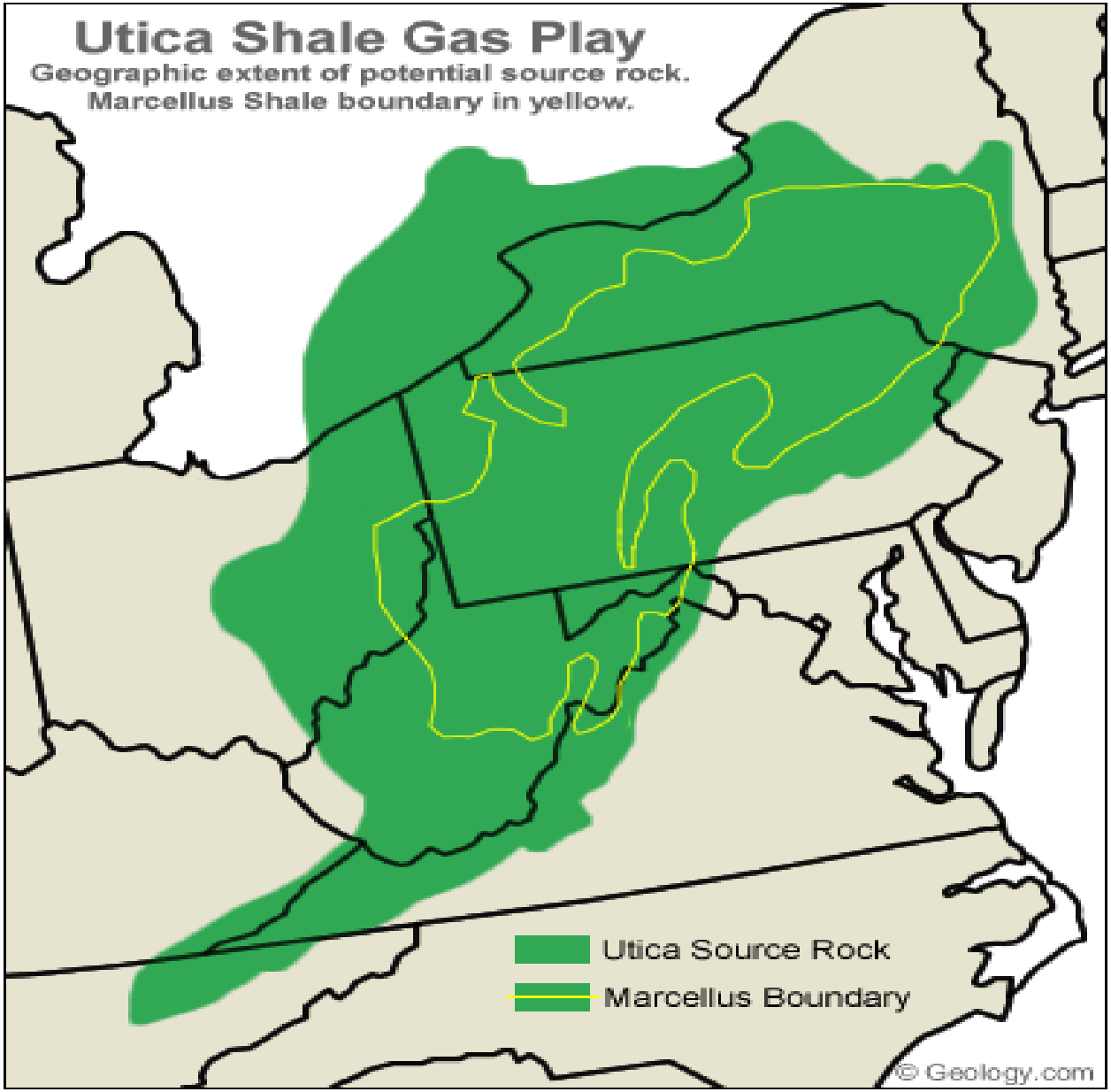
Shallow oil field

Shallow gas field

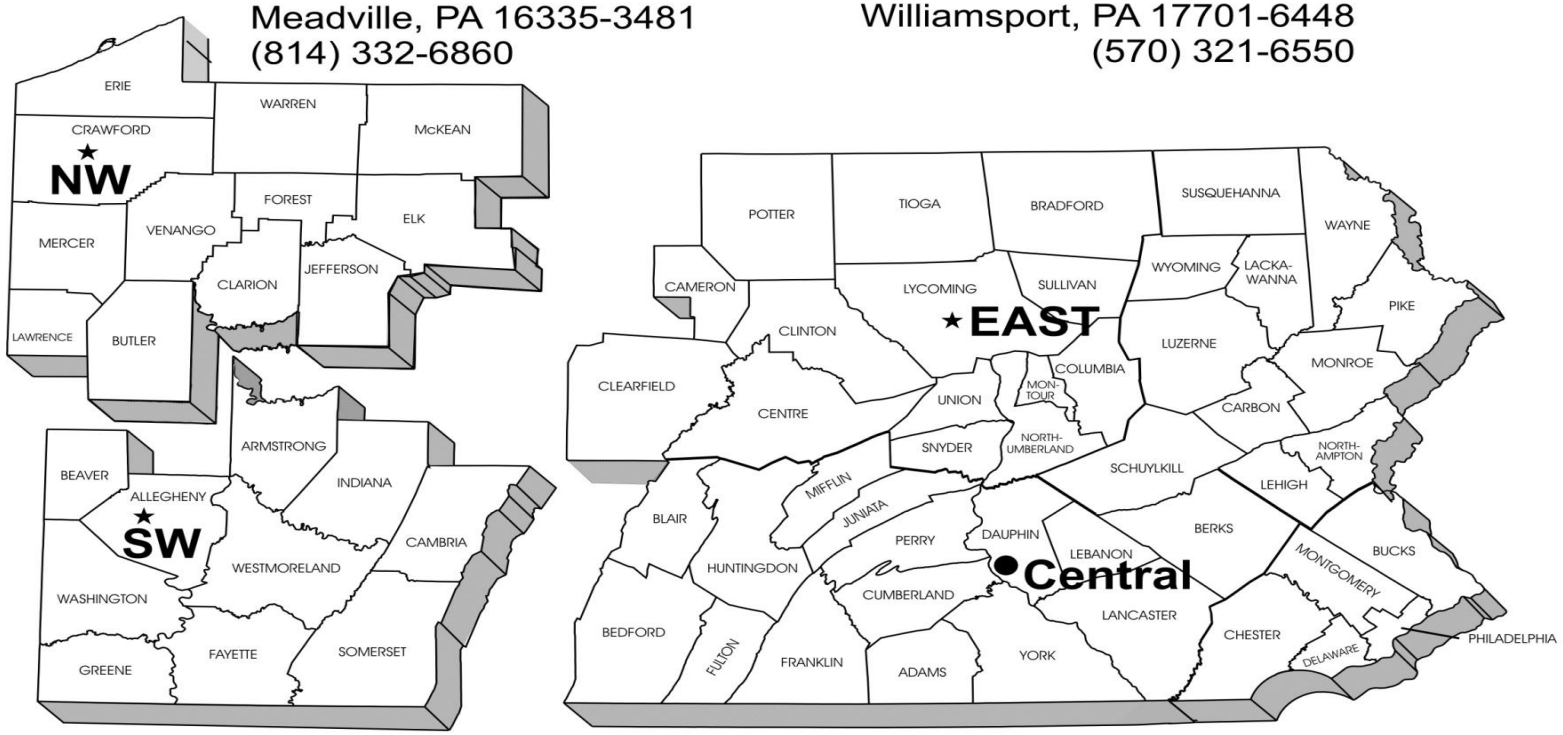
Deep gas field

Gas storage area

Third edition, 1993


Utica Shale Gas Play
Geographic extent of potential source rock.
Marcellus Shale boundary in yellow.
Utica Source Rock
Marcellus Boundary
© Geology.com

DEP Oil and Gas Program



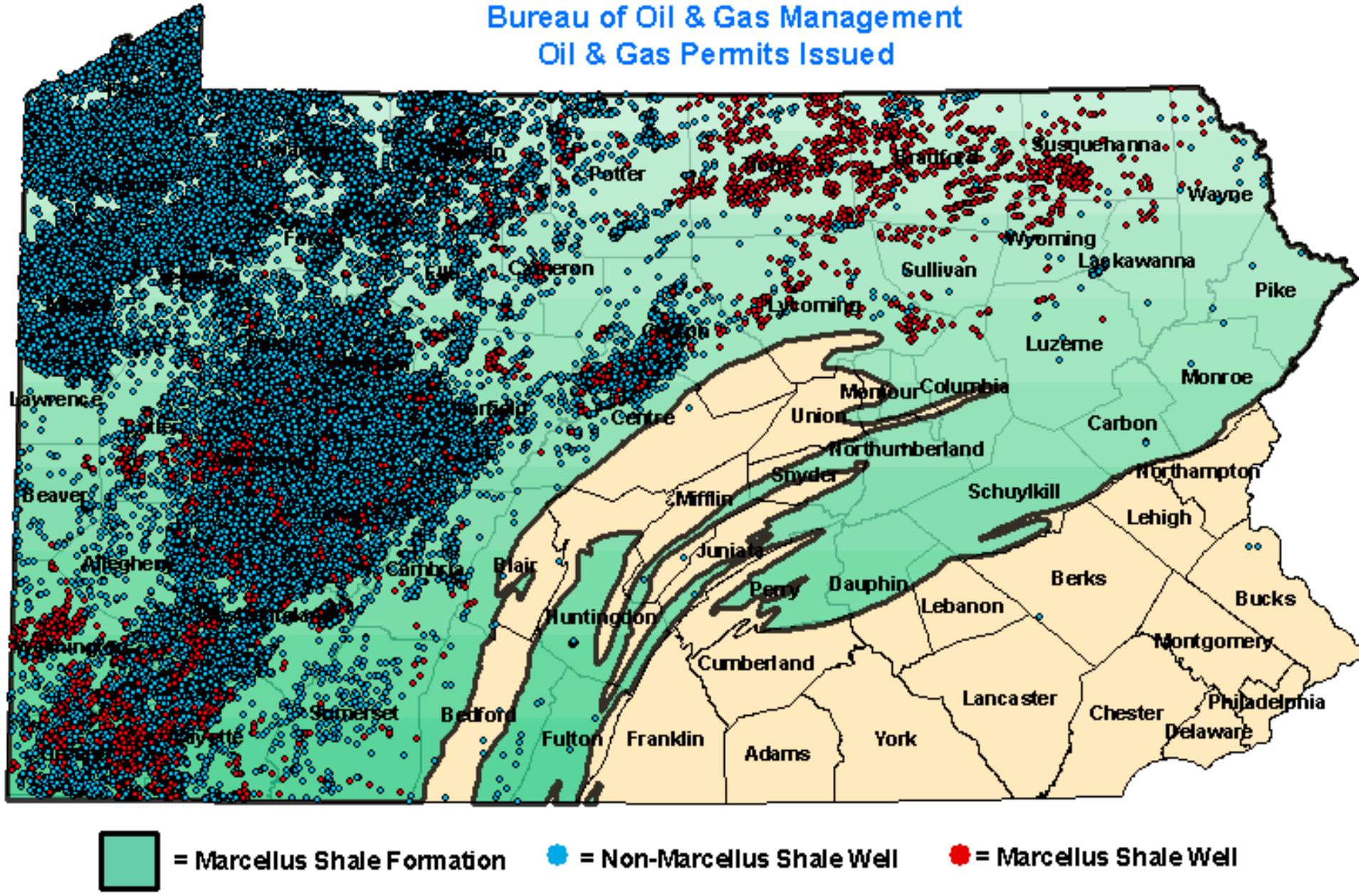
★ Northwest Region
230 Chestnut Street
Meadville, PA 16335-3481
(814) 332-6860

★ 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

Pennsylvania Department of Environmental Protection
Bureau of Oil & Gas Management
Oil & Gas Permits Issued



"Outlet of a Natural Gas Well, Near Pittsburgh," from Harper's Weekly, Nov. 7, 1885.

From the accompanying text: "A sight that can be seen in no other city in the world is what a stranger might mistake for flag-poles, from the tops of which there blow sheets of flame float, which at night give the city an appearance at a distance of a city on fire, except that they produce no smoke."

states in the Appalachian Basin about the promise of the Marcellus Shale to provide copious amounts of natural gas and to thereby reduce dependence on foreign oil, help control energy prices, create jobs and provide a financial windfall for the states where the deposits are located. These possibilities have created a natural gas boom in Pennsylvania. Before we run full steam into developing this gas, however, it would be useful to examine the history of past natural gas booms in the region to see if we could learn anything from it.

the fuel and thousands of jobs were created, although many local coal miners lost their jobs. Pittsburgh's skies became notably cleaner, but a number of explosions, some fatal, also accompanied the introduction of gas in the city.

By 1890 or so, in spite of predictions by boosters

coal as their primary fuel and by the 1890s Pittsburgh had regained its title as the "Smoky City."

Gas exploration in the region continued, however, and in 1878 two wildcat operations produced a number (the Snake Hollow Gusher) in North Versailles that at its peak produced 12 million cubic feet a day and made huge profits for investors. The well drew from the Speechley sand, a geological formation about 1,200 feet below the Pittsburgh coal seam. This discovery led to a wave of new drilling in an area of about nine square miles including Versailles, Port Vue, Lincoln and Elizabeth. It became known as the McKeesport gas boom.

In the expectation of large financial killings, 30 companies were formed within six months to exploit the field. Owners leased their land for large sums. A forest of derricks sprang up in the area.

A frenzy of gas well speculation swept over the towns. Ads in the Pittsburgh and McKeesport newspapers by gas exploration companies promised huge returns to investors.

One 1919 ad proclaimed that the "McKeesport Gas Fields are pronounced by experts the Great*est the world has ever known*," and claimed that "Sudden wealth has been thrust upon thousands of investors and the *Real Boom is just beginning*." "Fortune-making opportunities" were offered to investors at $100 a share.

optimism that ga

wells drilled and producers." Some companies sold their shares at $1 a share in order to attract the small investor.

Many residents earned leases for drilling on their lots. They bought and sold gas company stock on street corners and in hardware stores that had front-sign licenses. Houses were torn down and front yards uprooted. Hundreds, and even thousands, of wells were supposedly drilled in the 9-square-mile area.

Many of the wells, however, came in dry. By the end of 1920, while 441 wells were producing gas, 441 wells were dry and gas volumes from the producing wells had declined. A People's Natural Gas Co. spokesmen later ruefully commented that while $35 million had been invested in the field in less than a year, less than $2 million had been returned. The McKeesport gas field had become the "worse of the Pittsburgh district's biggest booms and loudest crash," and many of those who had invested money in gas stocks were heavy losers.

The history of gas booms in the region suggests several lessons for those concerned about the current Marcellus Shale boom. One is that even if it turns out that gas reserves will continue into the

be exhausted quickly. A second is that expenses for leases and drilling equipment can rapidly eat into profits as gas prices fall, as they recently have.

And finally — and most consequential for many of those concerned about the current gas boom — are the environmental impacts of natural gas development.

We have limited information about the environmental effects of the late 19th century gas boom, but we can be assured that considerable environmental damage had been done in an era of little environmental regulation, with frequent fires and explosions. More tangible evidence exists for the McKeesport boom where methane was recently found to be leaking into homes from abandoned and unsealed gas wells from the earlier boom period. Some homes had to be condemned while in others families had to vacate while the problem was corrected.

The development of the Marcellus Shale has also caused environmental problems in relation to water usage and wastewater disposal and damages to rural and wilderness areas by construction and transportation equipment.

Joel A. Tarr *is the Richard S. Caliguiri University Professor of History & Policy at Carnegie Mellon University (jtarr@andrew.cmu.edu).*

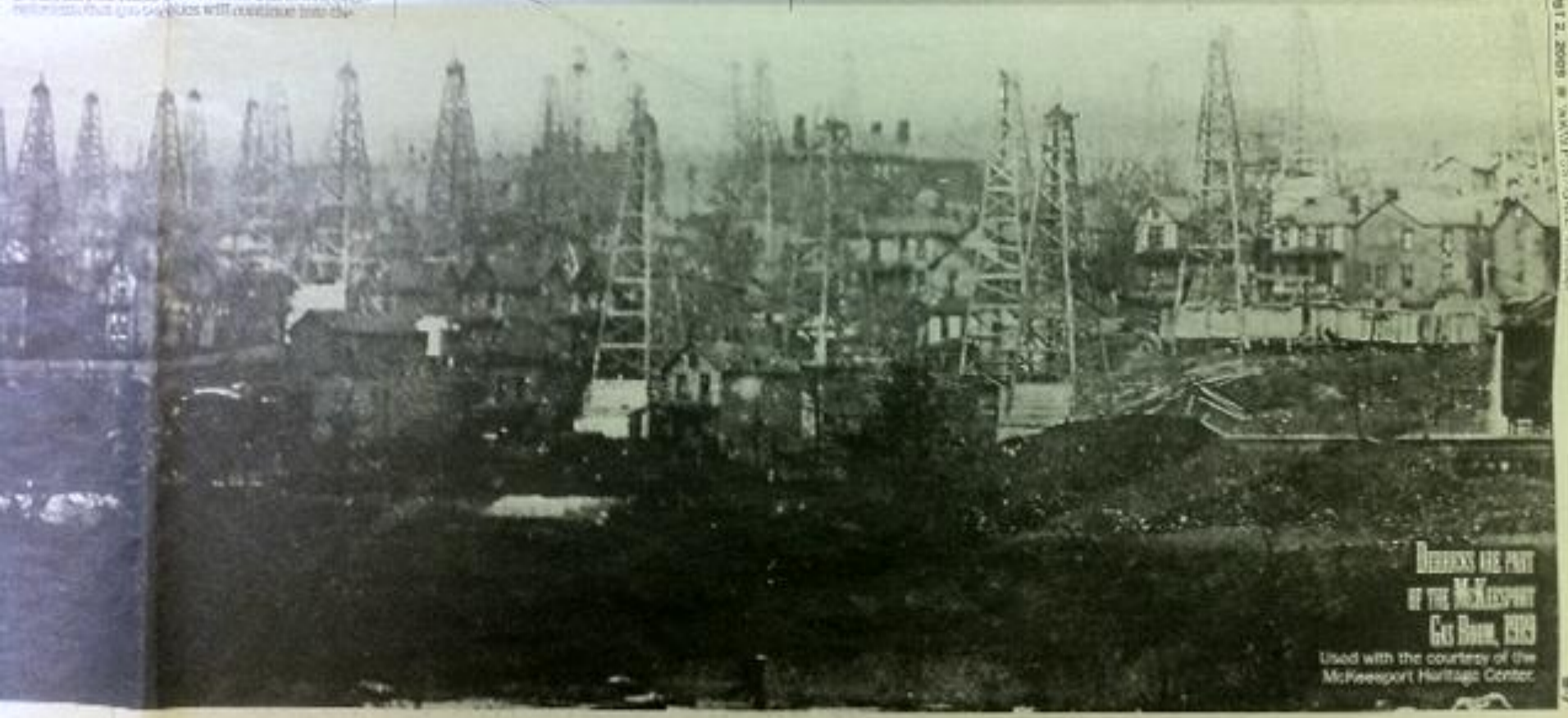
■ The Next Page *is different each week. Contact John Allison at* jallison@post-gazette.com *or 412-263-1265.*

Natural gas and clean water: An update from ProPublica

On April 26, the Next Page published "**Gas, Gas Everywhere ... But Will Water Be Fit to Drink?**" by Abraham Lustgarten of ProPublica. He examined water contamination in Dimock, a town in Susquehanna County, town that is "ground zero for drilling the Marcellus Shale."

Continuing his investigation, Lustgarten reports that methane contamination in Dimock was not "an anomaly" as a state Department of Environmental Protection official called it. "In fact, methane related to the natural gas industry has contaminated water wells in at least eleven Pennsylvania counties since 2008," he writes, and at least some of the incidents might have been prevented with stricter state laws.

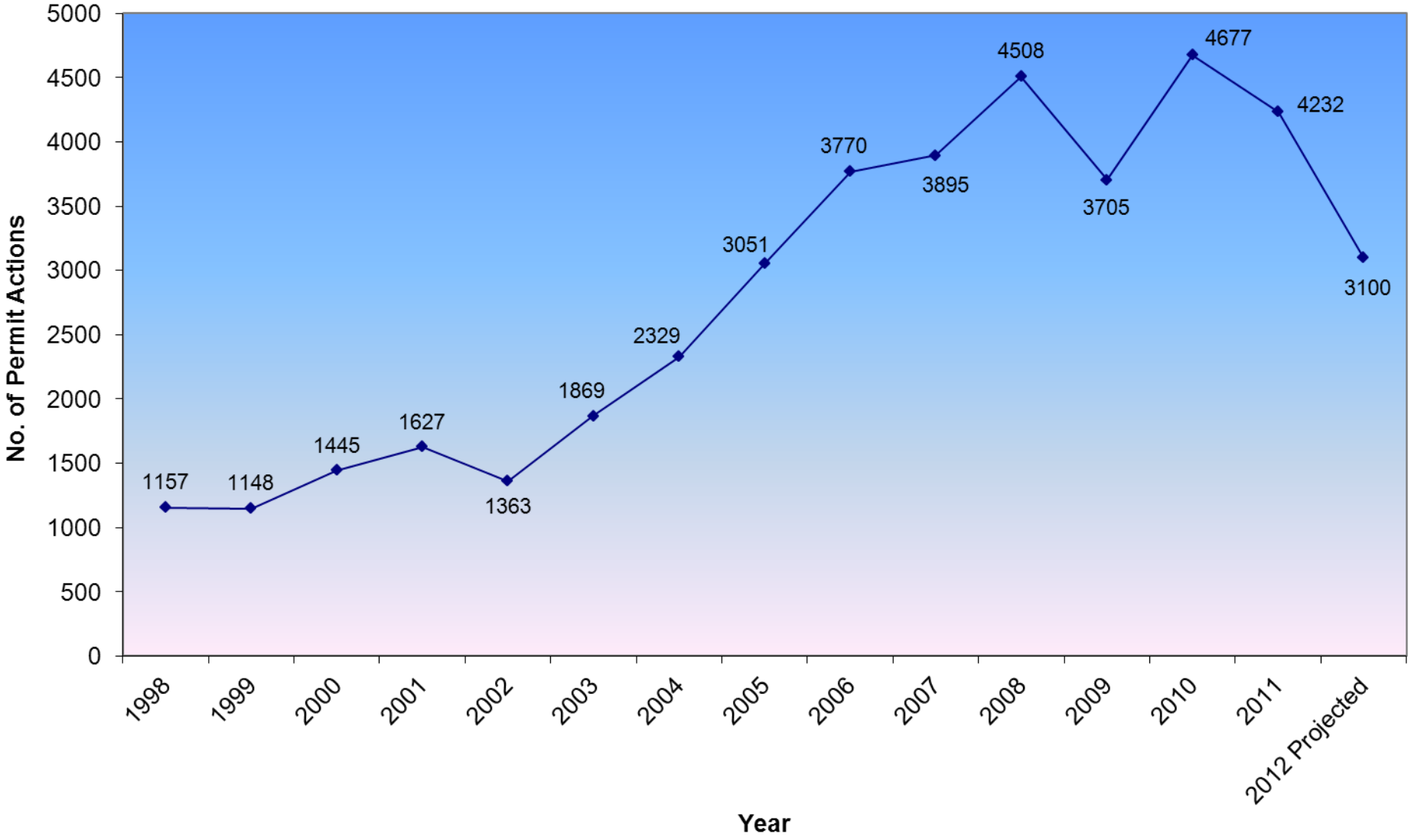
The article is published online at **www.propublica.org/methane**



Drillers at the post of the McKeesport Gas Boom, 1916

Used with the courtesy of the McKeesport Heritage Center.

Northwest Regional Office
Oil and Gas Program
Permit Actions
1998-2012



UNCONVENTIONAL PERMITS ISSUED

2005 – 5

2006 – 23

2007 – 76

2008 – 492

2009- 1592

2010 - 3314

2011 - 3063

2012 - 2013

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MARCELLUS, UTICA, SHALE DEVELOPMENT

ACT 13

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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

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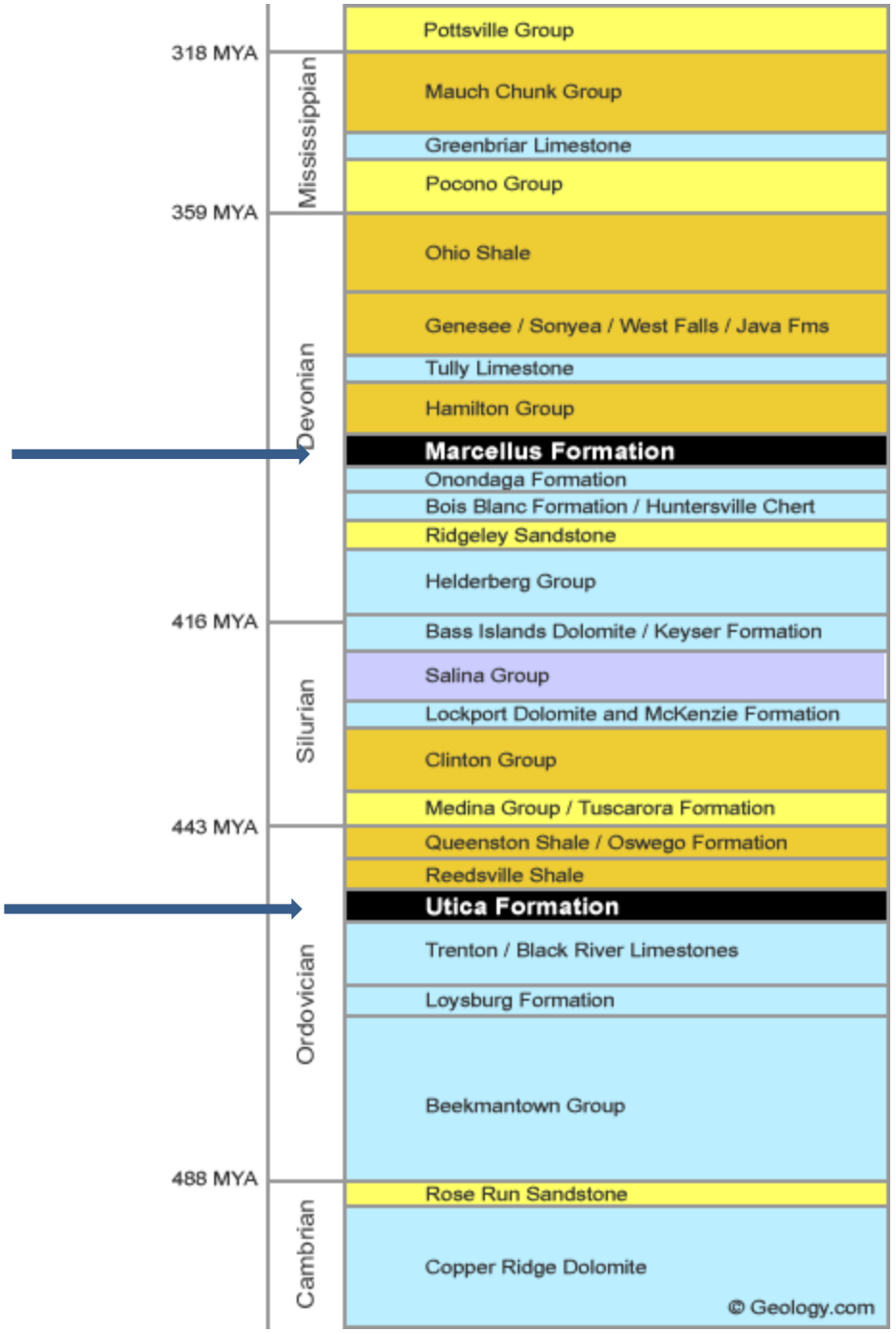
318 MYA
359 MYA
416 MYA
443 MYA
488 MYA
Mississippian
Devonian
Silurian
Ordovician
Cambrian
Pottsville Group
Mauch Chunk Group
Greenbriar Limestone
Pocono Group
Ohio Shale
Genesee / Sonyea / West Falls / Java Fms
Tully Limestone
Hamilton Group
Marcellus Formation
Onondaga Formation
Bois Blanc Formation / Huntersville Chert
Ridgeley Sandstone
Helderberg Group
Bass Islands Dolomite / Keyser Formation
Salina Group
Lockport Dolomite and McKenzie Formation
Clinton Group
Medina Group / Tuscarora Formation
Queenston Shale / Oswego Formation
Reedsville Shale
Utica Formation
Trenton / Black River Limestones
Loysburg Formation
Beekmantown Group
Rose Run Sandstone
Copper Ridge Dolomite
© Geology.com

LAWS/REGULATIONS

- **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**

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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**

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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 ???

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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**

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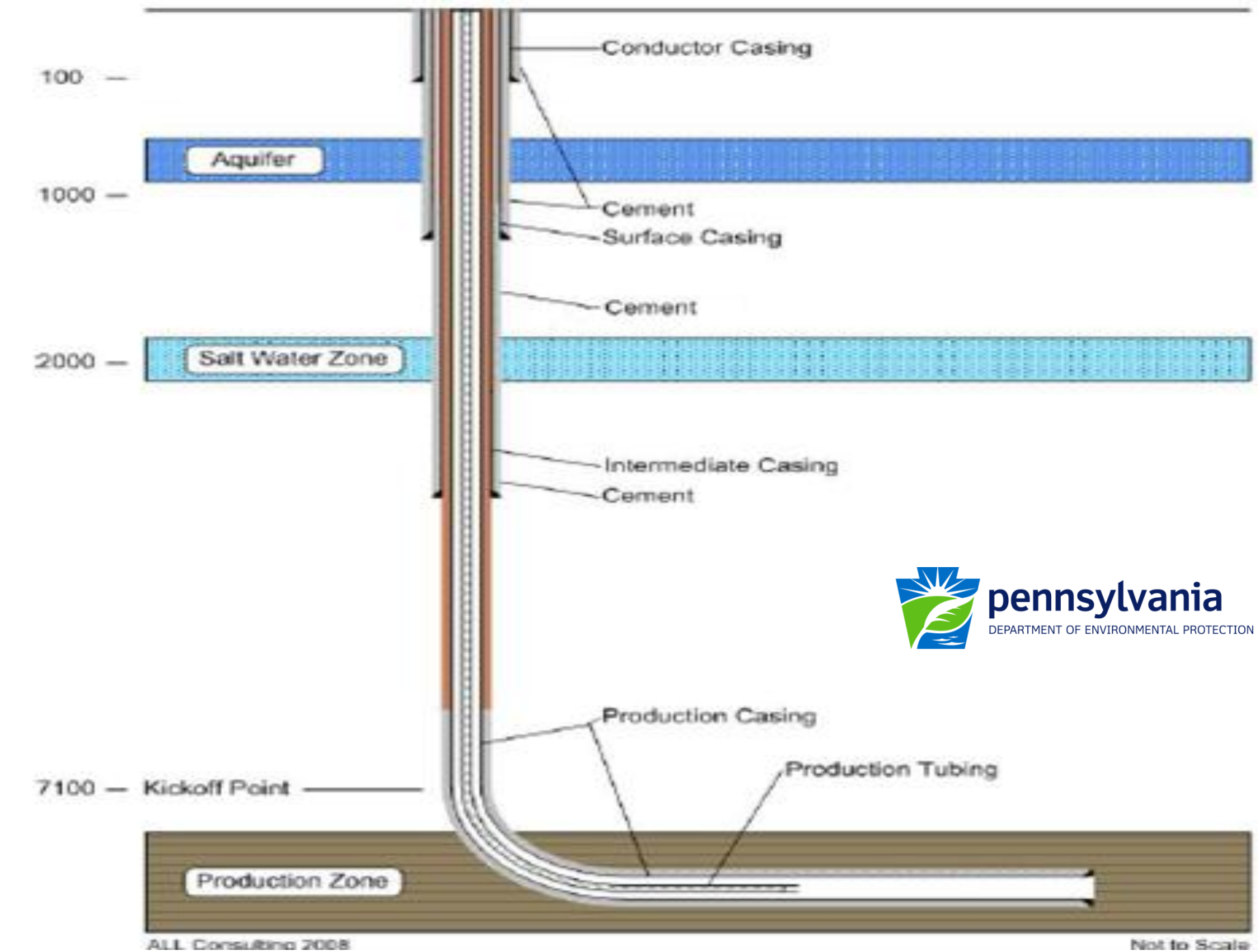
100
1000
2000
7100
Conductor Casing
Aquifer
Cement
Surface Casing
Cement
Salt Water Zone
Intermediate Casing
Cement
Production Casing
Production Tubing
Kickoff Point
Production Zone
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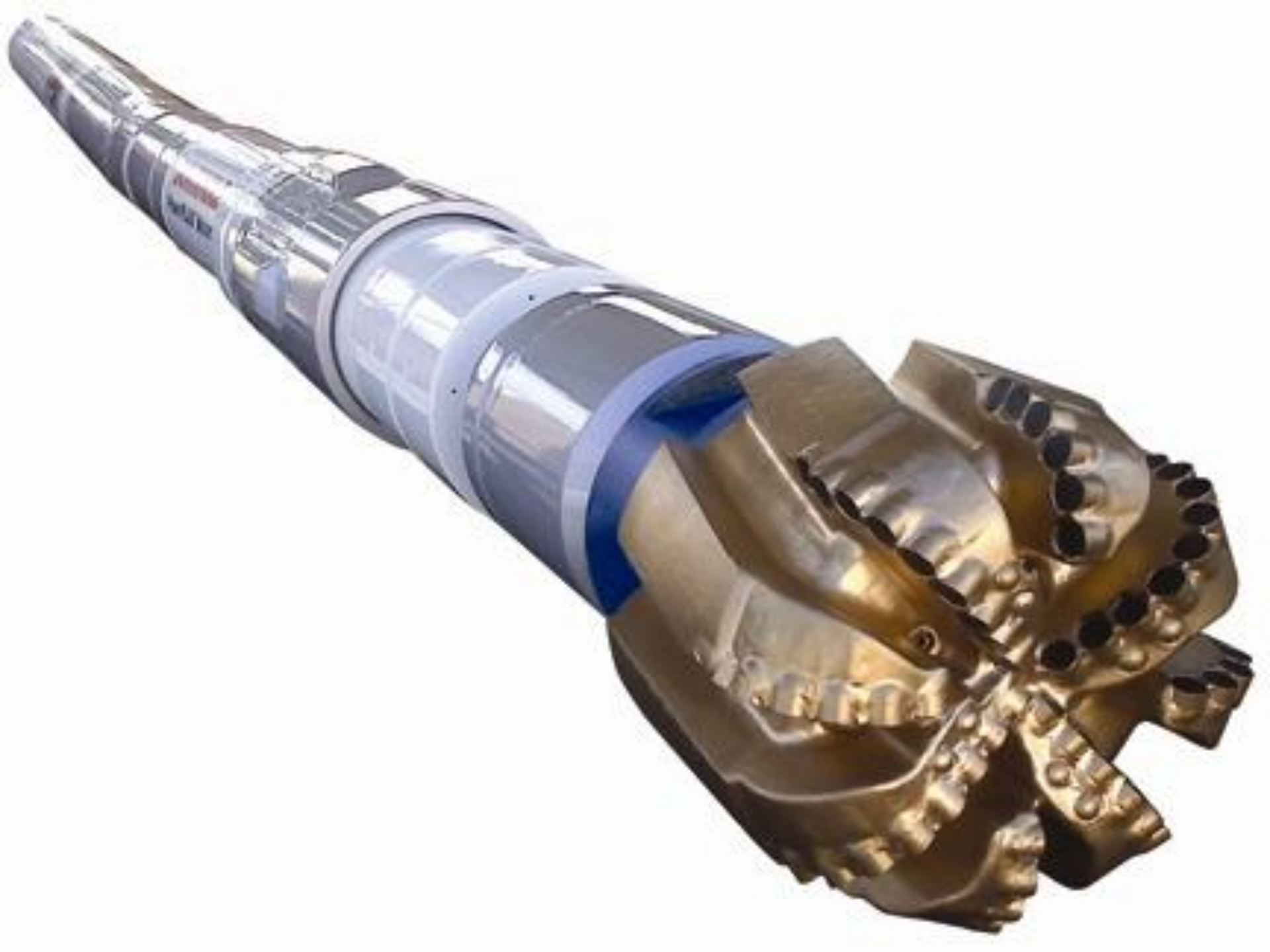
ALL Consulting 2008
Not to Scale



00-PM-OOGM0002 04/2012

115-20941

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 ⊗ and include the Coordinates in the provide 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	DEP ID#:	Well (Farm) Name:	Well #:	Scale:	Serial #:
WPX ENERGY APPALACHIA, LLC	276507	HSC	1-4H	1"=1000'	

Denotes location of top of Well on topo map.

True Latitude: NORTH (NAD 83)
41 ° 59 ' 36 . 27 "
True Longitude: WEST (NAD 83)
75 ° 48 ' 33 . 88 "

LINE TABLE		
LINE	BEARING	LENGTH
L1	S48°00'28"E	2574.46'
L2	N66°46'21"E	1779.57'
L3	N10°37'54"E	1213.86'
L4	N64°05'39"W	250.69'

SPCS Grid North
PA North Zone

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
- N/F Property Owner NON OIL & GAS LEASE LOTS

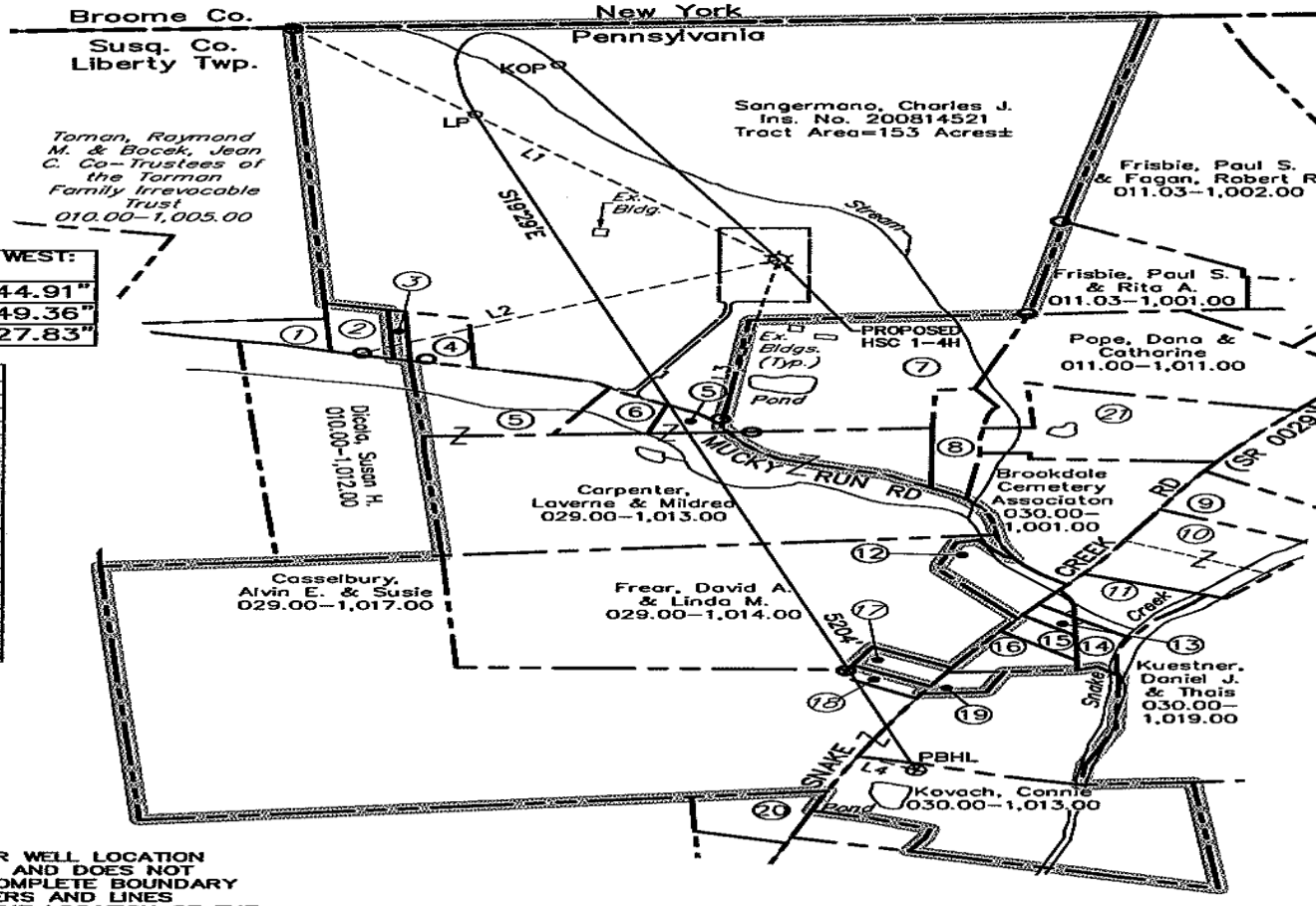
SURFACE HOLE LOCATION
Latitude NORTH: (NAD 27
41° 59' 35.99"
Longitude WEST: (NAD 27
75° 48' 35.20"

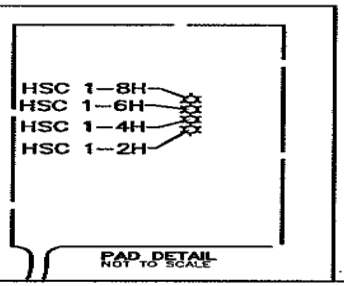
PROJECTED BOTTOM HOLE
Latitude NORTH: (NAD 27
41° 58' 58.12"
Longitude WEST: (NAD 27
75° 48' 29.15"

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TODD DANIEL AUNKST
LAND SURVEYOR
SU075010

PROJECTED TARGET POINT	Latitude NORTH: (NAD 83)	Longitude WEST: (NAD 83)
KOP	41° 59' 50.83"	75° 48' 44.91"
LP	41° 59' 47.23"	75° 48' 49.36"
BOTTOM HOLE	41° 58' 58.40"	75° 48' 27.83"

TRACT	N/F PROPERTY OWNER/LESSOR	PARCEL NUMBER
1	Vanvorce, Guy F. & Heidi	010.00-1,011.00
2	McCarthy, James P. & Susan M.	010.00-1,010.00
3	Abbott, Darla Jean	010.00-1,009.00
4	Garner, Robert E.	010.00-1,008.00
5	Carpenter, Laverne & Mildred	010.00-1,007.00
6	Sangermano, Charles J.	010.00-1,006.00
7	Clopper, William C. & Tammy L.	010.00-1,007.01
8	Hamernick, Donald E. & Mary E.	011.00-1,013.00
9	Goodrich, William & Phyllis	030.00-1,004.00
10	Wheeler, Matthew G., Scott, & Susan E.	030.00-1,005.00
11	Lawson, John Jr. & Rebekah	030.00-1,006.00
12	Martin, Roger L. & Norine	030.00-1,002.00
13	Valentine, James C. & Vickie L.	030.00-1,008.00
14	Frey, Kurt A. & Amanda J.	030.00-1,007.00
15	Heath, Steve & Carol	030.00-1,009.00
16	Sanders, Roy L. & Darleen	030.00-1,011.00
17	Whittenberg, Virginia L. & John	029.00-1,015.00
18	Robinson, Richard P. & Nina L.	029.00-1,059.00
19	Naylor, Richard F. & Michelle A.	030.00-1,012.00
20	Johnson, Martin C. & Terry Jo	029.00-1,018.00
21	Zahora, James R.	011.00-1,012.00





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.

115-20941

WPXENERGY

DEP ID# 276507

Well Name: HSC 1-4H
Surface Location: HSC
NAD 1927 (NADCON CONUS) , US State Plane 1927 (Exact solution), Pennsylvania North 3701
Ground Elevation: 1170.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
-15.01	0.00	671461.309	2527419.877	41.993331	-75.809777	1-4H

WELL @ 1194.00usft (Original Well Elev)

Azimuths to Grid North
True North: -1.28°
Magnetic North: -13.69°

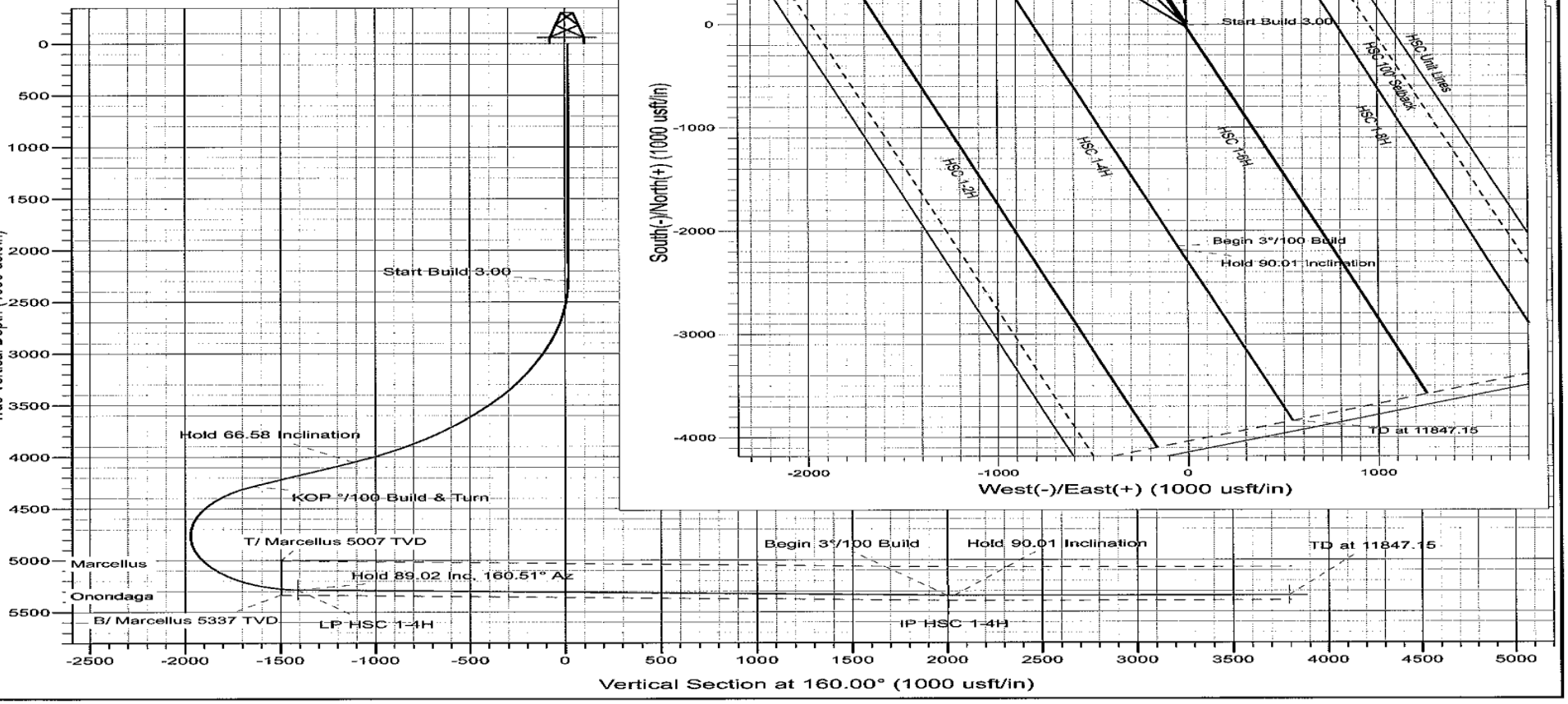
Magnetic Field
Strength: 53213.9snT
Dip Angle: 68.34°
Date: 3/8/2012
Model: IGRF2010

Project: Susquehanna County, PA
Site: HSC
Well: HSC 1-4H
Design #1 08Mar12 kjs

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
2300.00	0.00	0.00	2300.00	-15.01	0.00	14.11	0.00	Start Build 3.00
4519.44	66.58	329.24	4052.56	973.89	-588.67	-1116.49	1150.85	Hold 66.58 Inclination
5110.45	66.58	329.24	4287.44	1439.90	-866.08	-1649.28	1693.18	KOP °/100 Build & Turn
6642.94	89.02	160.51	5286.42	1068.68	-1193.30	-1412.36	2750.96	Hold 89.02 Inc, 160.51° Az
10055.94	89.02	160.51	5345.00	-2148.29	-54.79	1999.99	6163.45	Begin 3°/100 Build
10089.02	90.01	160.51	5345.28	-2179.48	-43.76	2033.08	6196.53	Hold 90.01 Inclination
11847.15	90.01	160.51	5345.00-	-3836.88	542.80	3791.14	7954.66	TD at 11847.15

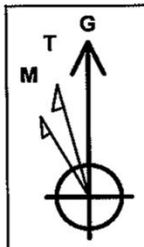
	TVD	TMD	Lat (NAD 83)	Long (NAD 83)
KOP	4287.44	5110.45	41 59 50.82748 N	75 48 44.91444 W
Landing Point	5286.42	6642.94	41 59 47.23463 N	75 48 49.35709 W



PHOENIX
TECHNOLOGY SERVICES USA INC.

EQT Production - Marcellus

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

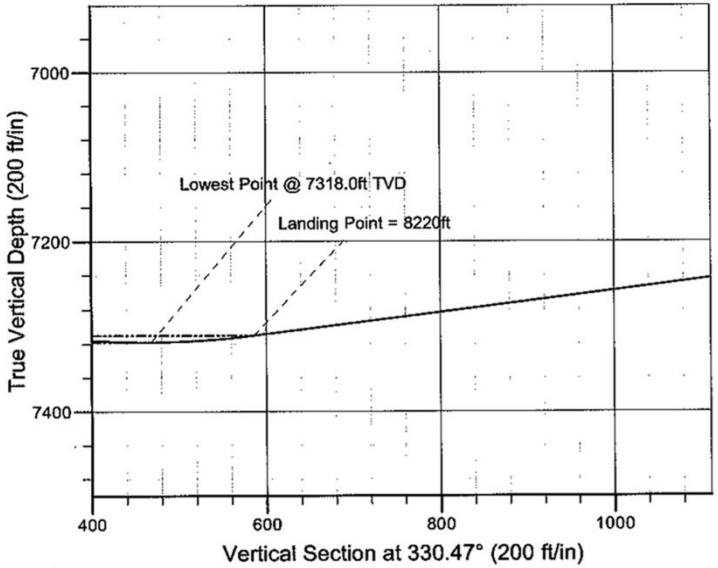


Azimuths to Grid North
True North: -0.30°
Magnetic North: -11.69°

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

ANNOTATIONS

TVD	MD	Annotation
6375.0	6375.0	KOP = 6375ft
6864.2	6961.3	Start Turn
7318.0	8100.0	Lowest Point @ 7318ft TVD
7310.4	8219.7	Landing Point = 8220ft
6893.0	11633.7	TD = 11634ft



Company: Williams
Site: Depue
Well: 7H
Project: Susquehanna County, Pennsylvania
Rig Name: H&P 287

MS Energy Services
WWW.MSENERGYSERVICES.COM
Main: 724.484.7550 Fax: 724.484.0326

ANNOTATIONS

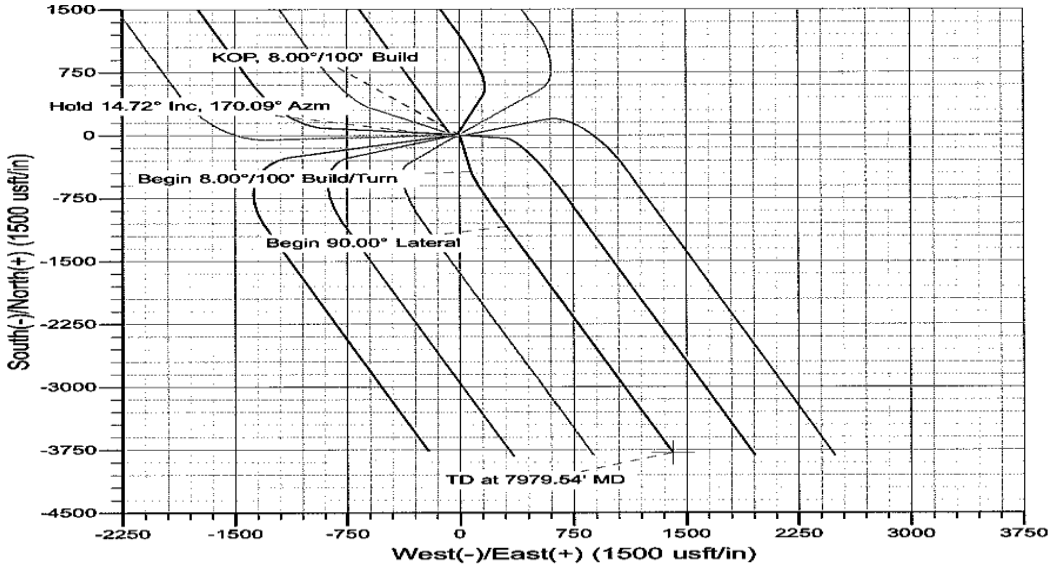
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	KOP, 8.00°/100' Build
2484.01	14.72	170.09	2481.99	-23.16	4.05	22.98	23.51	Hold 14.72° Inc, 170.09° Azm
4122.30	14.72	170.09	4066.51	-433.25	75.71	429.87	439.81	Begin 8.00°/100' Build/Turn
5067.54	90.00	157.88	4604.00	-1087.18	309.28	1123.62	1134.78	Begin 90.00° Lateral
7979.54	90.00	157.88	4604.00	-3784.85	1405.79	4035.62	4046.78	TD at 7979.54' MD

Azimuths to Grid North
True North: -1.24°
Magnetic North: -13.61°

Magnetic Field
Strength: 53363.7snT
Dip Angle: 68.45°
Date: 8/30/2010
Model: WMM_2010

US State Plane 1927 (Exact solution)
Pennsylvania North 3701

Created By: Bianca LaCombe
Date: 11:45, December 09 2010
Plan: Design #3



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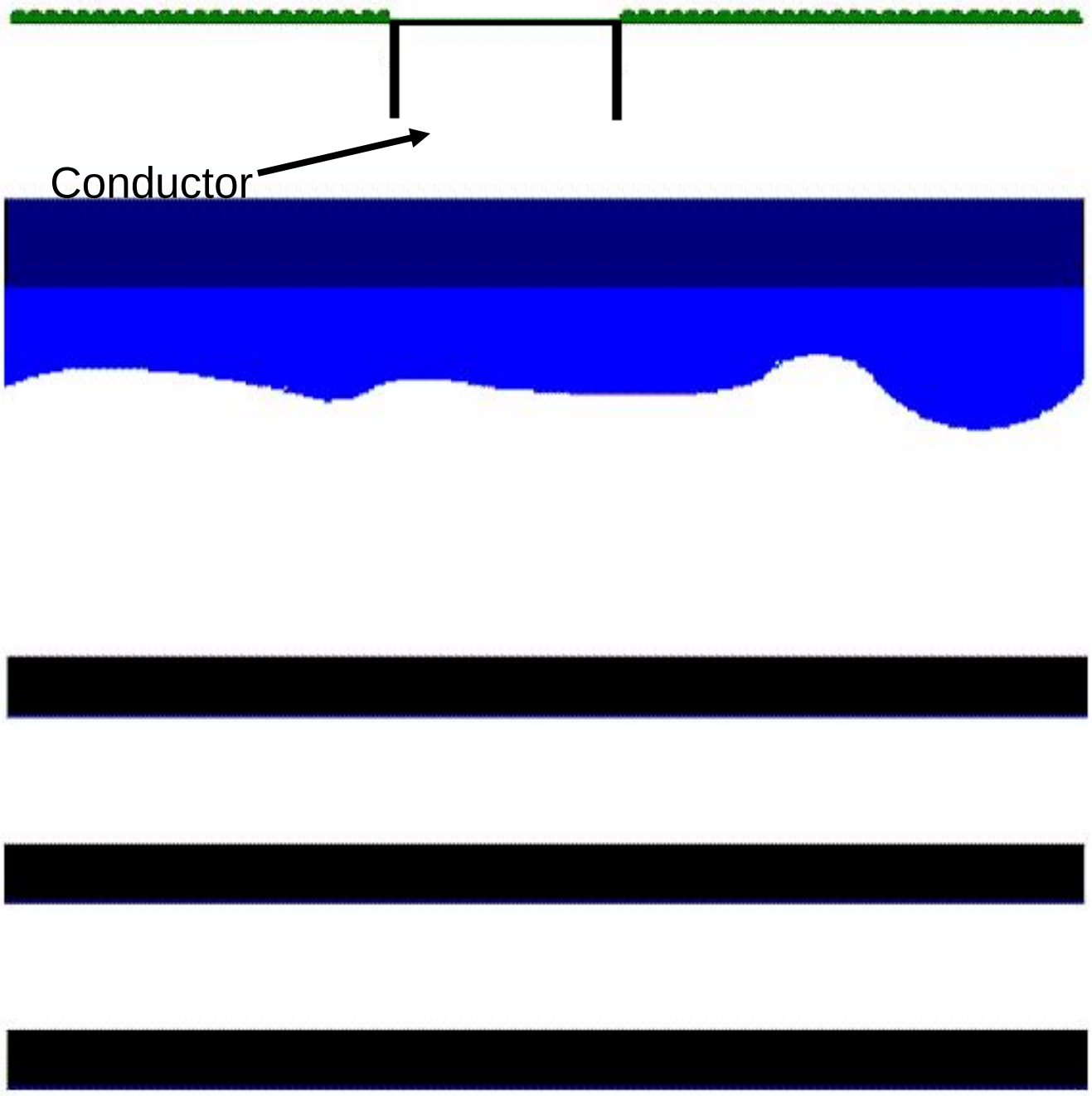
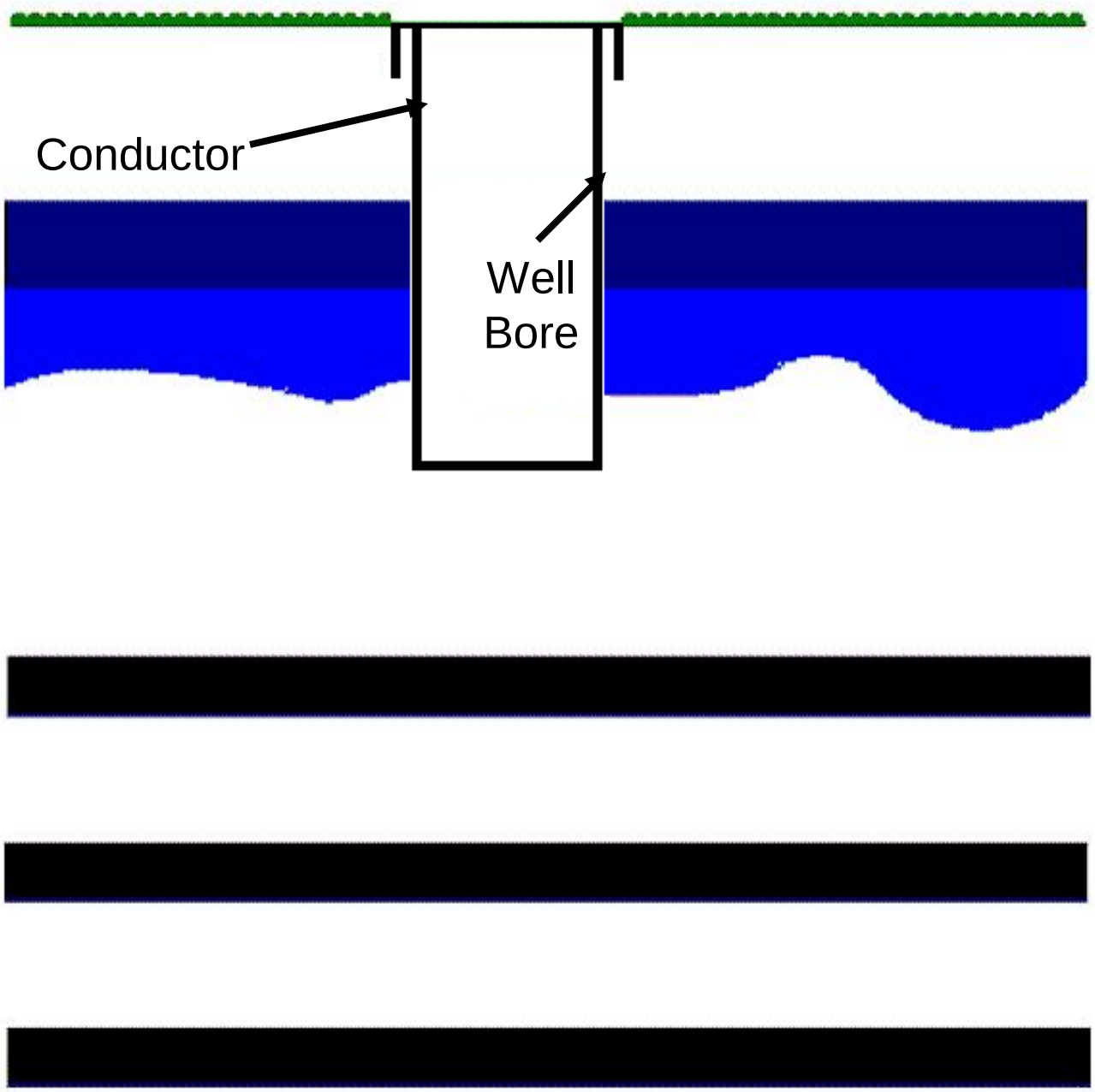
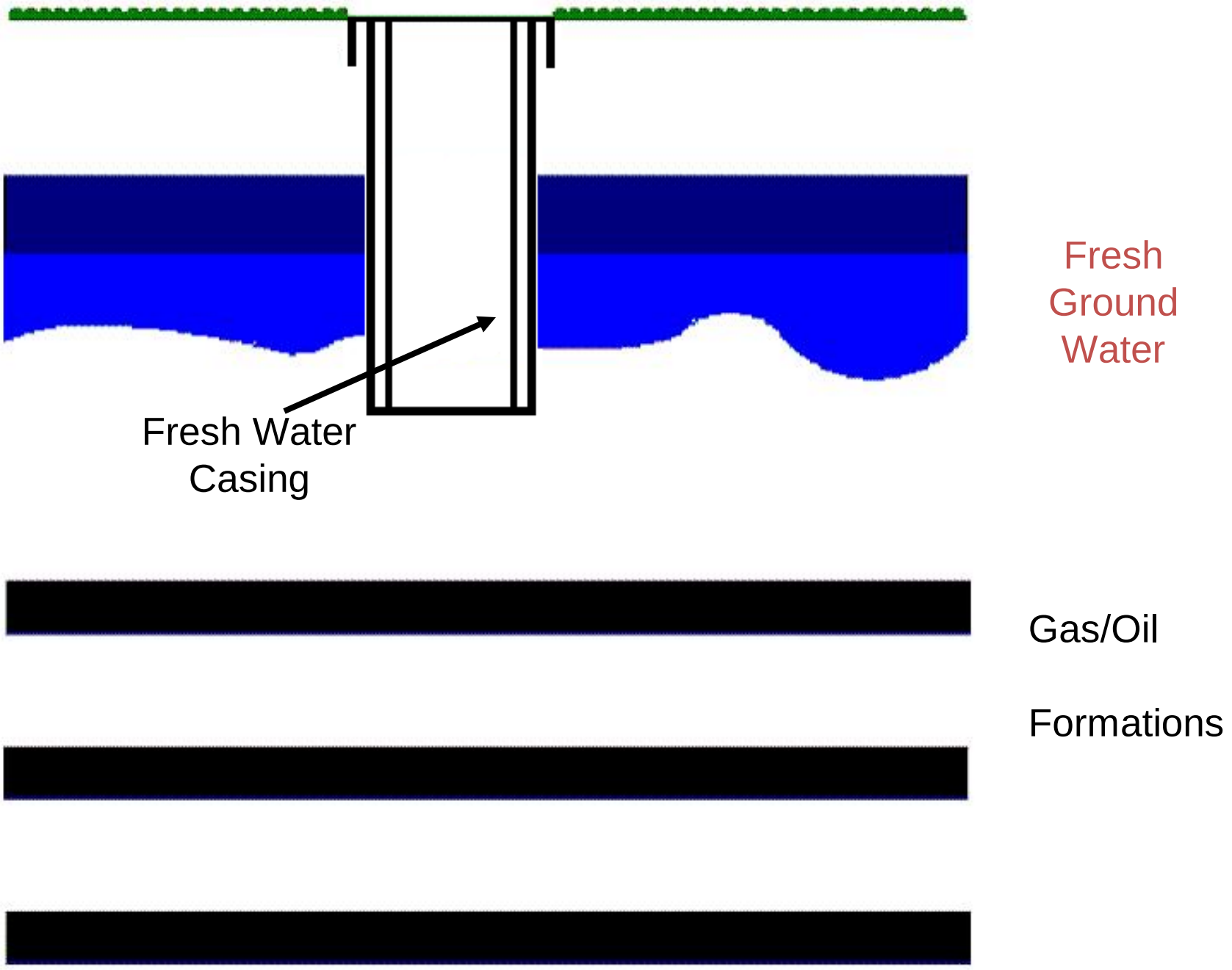
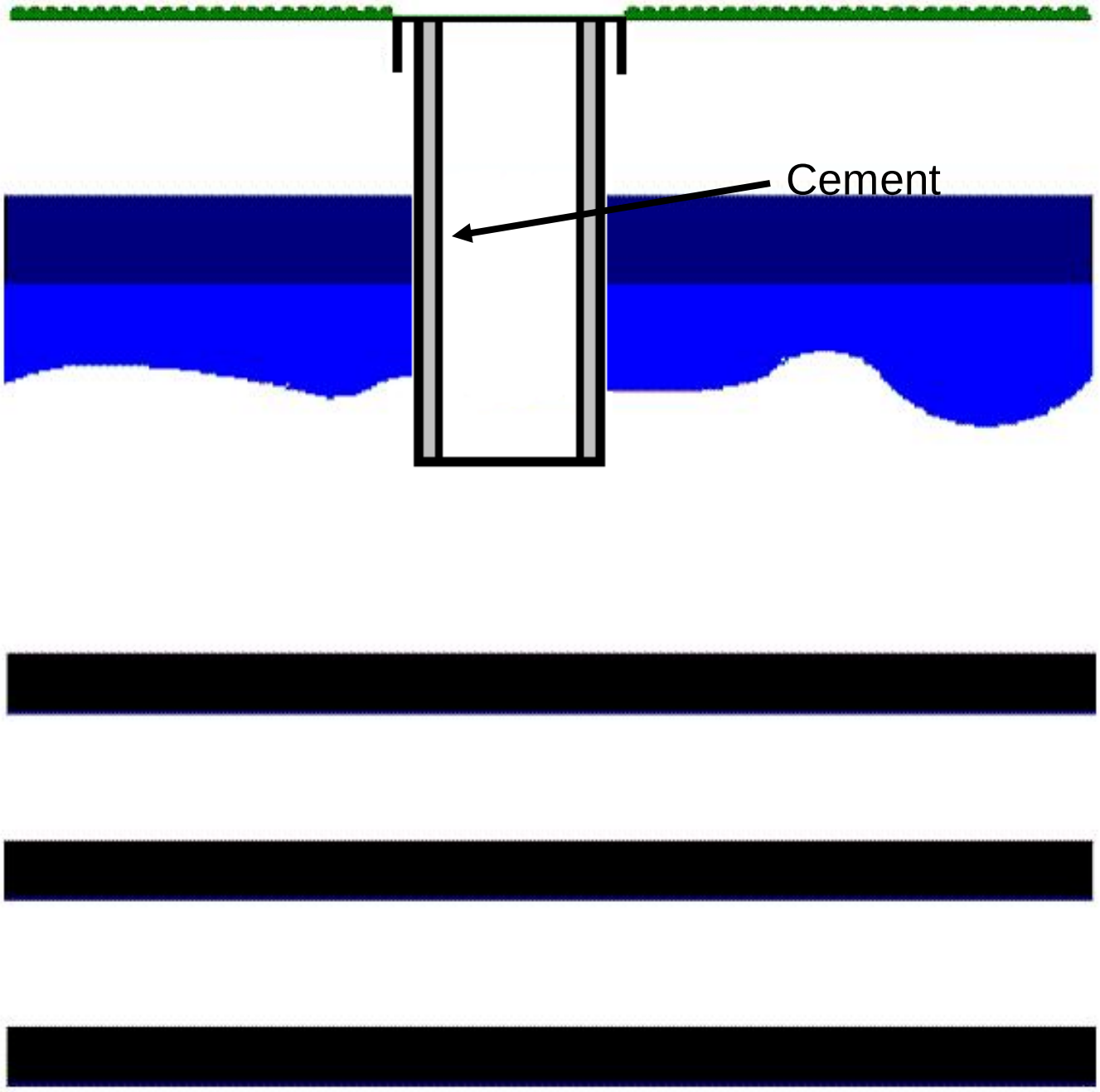
JAN 06 2011
ENVIRONMENTAL PROTECTION
NORTHWEST REGIONAL OFFICE

Marcellus Drill Site

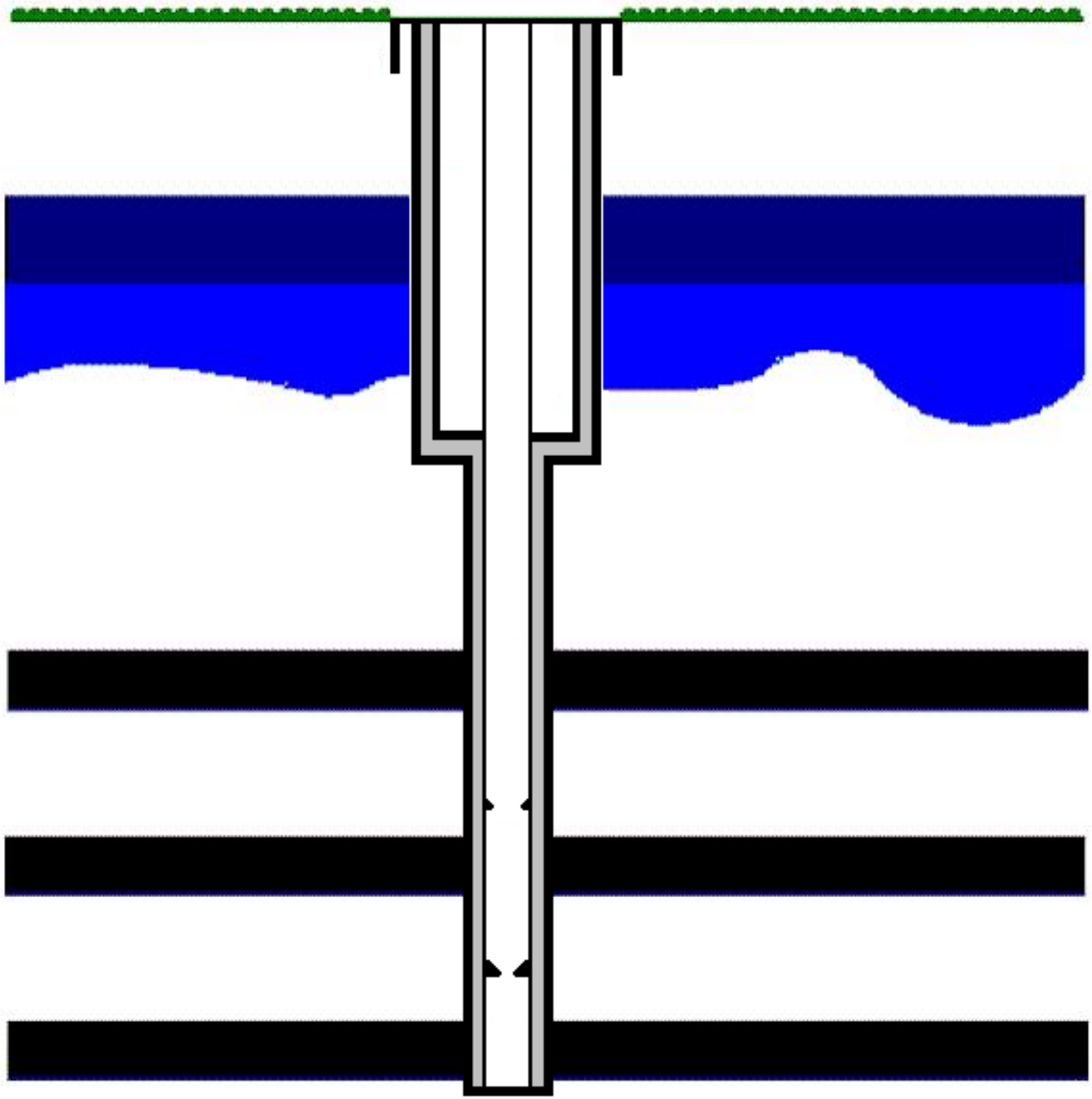

Conductor
Fresh
Ground
Water
Gas/Oil
Formations


Conductor
Well
Bore
Fresh
Ground
Water
Gas/Oil
Formations

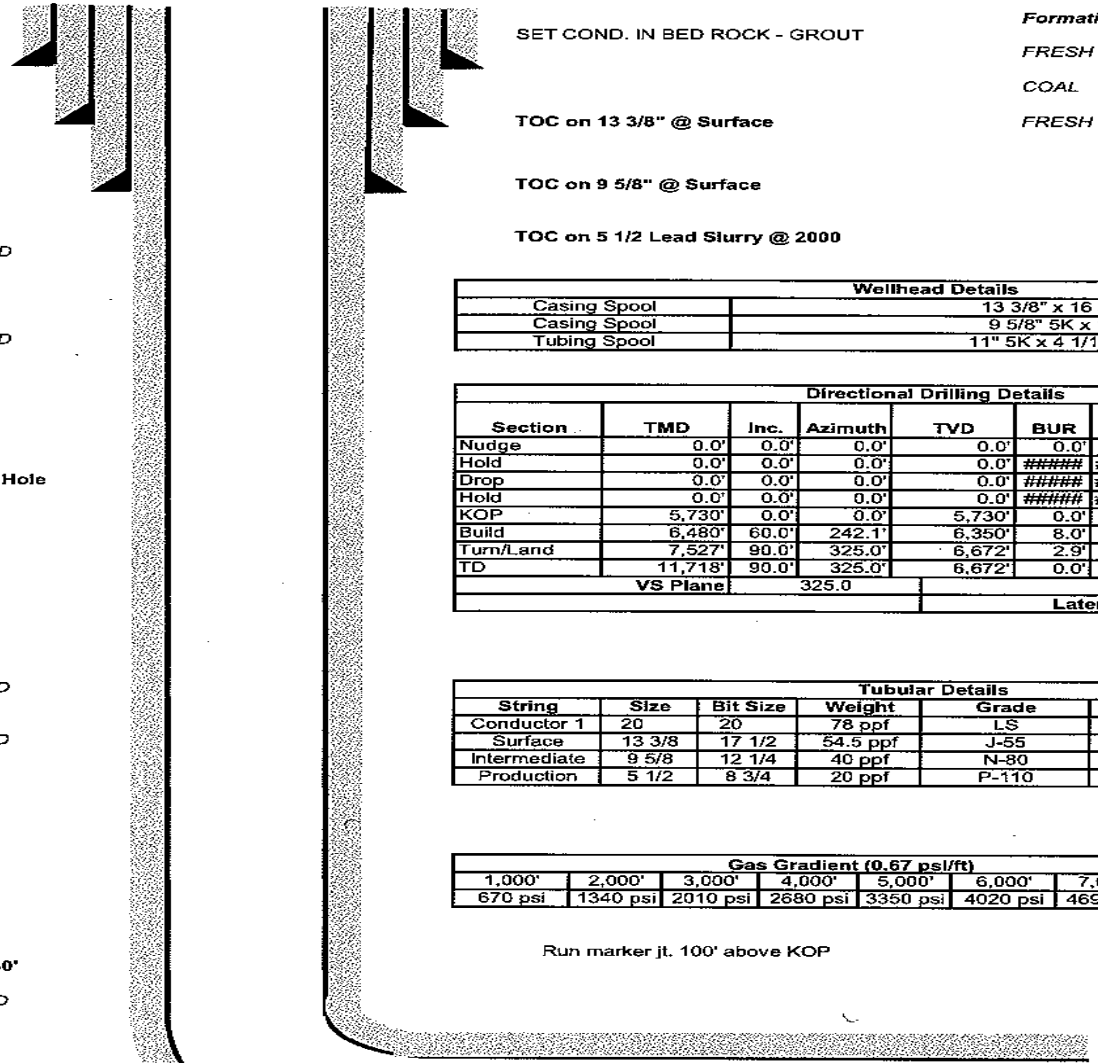

Fresh Water
Casing
Fresh
Ground
Water
Gas/Oil
Formations


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	**County, State:**	Bradford Co., PA
Formation:	Marcellus Shale	**Surf. Location:**	41.95672 Lat and -76.16539 Long
AFE Number:	0	**BH Location:**	41.96641 Lat and -76.17856 Long
API Number:	0	**Build Location:**	41.95626 Lat and -76.16656 Long
Drilling Engineer	Chris Lowman	**Build/Turn Location:**	41.95699 Lat and -76.16972 Long
Geologist:	0	**KB Elevation:**	1671'
Date:	11/5/10	**Ground Elevation:**	1658'



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

Directional Drilling Details

Section	TMD	Inc.	Azimuth	TVD	BUR	DLS	+N/-S	+E/-W
Nudge	0.0'	0.0'	0.0'	0.0'	0.0'	0.0'	0.0'	0.0'
Hold	0.0'	0.0'	0.0'	0.0'	######	######	0.0'	0.0'
Drop	0.0'	0.0'	0.0'	0.0'	######	######	0.0'	0.0'
Hold	0.0'	0.0'	0.0'	0.0'	######	######	0.0'	0.0'
KOP	5,730'	0.0'	0.0'	5,730'	0.0'	0.0'	0.0'	0.0'
Build	6,480'	60.0'	242.1'	6,350'	8.0'	8.0'	-167.3'	-316.4'
Turn/Land	7,527'	90.0'	325.0'	6,672'	2.9'	8.0'	98.9'	-1,176.9'
TD	11,718'	90.0'	325.0'	6,672'	0.0'	0.0'	3,532.1'	-3,580.8'
	VS Plane		325.0			VS Length		4947.2'
						Lateral Length		4191.1'

Tubular Details

String	Size	Bit Size	Weight	Grade	Connection	Depth
Conductor 1	20	20	78 ppf	LS	WELD	60'
Surface	13 3/8	17 1/2	54.5 ppf	J-55	STC	500'
Intermediate	9 5/8	12 1/4	40 ppf	N-80	STC	1,000'
Production	5 1/2	8 3/4	20 ppf	P-110	LTC	11,718'

Gas Gradient (0.67 psi/ft)

1,000'	2,000'	3,000'	4,000'	5,000'	6,000'	7,000'	8,000'
670 psi	1340 psi	2010 psi	2680 psi	3350 psi	4020 psi	4690 psi	5360 psi

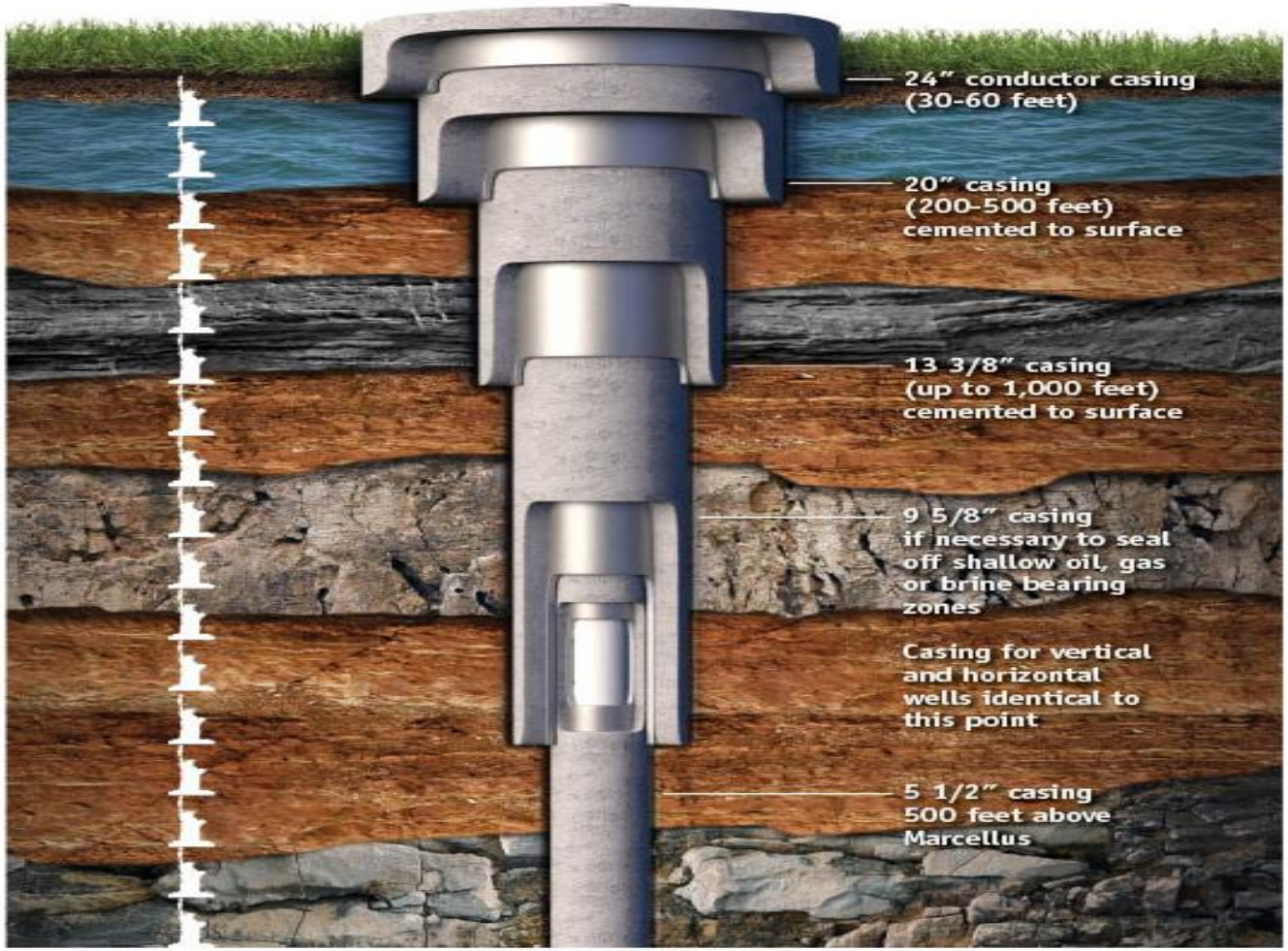
Run marker jt. 100' above KOP

PBHL
TMD: 11,718'
TVD: 6,671'
Inclination: 90 degrees

MARCELLUS
SHALE COALITION

General Casing Design for a Marcellus Shale Well

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.

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PIONEER PUMP

NWRO Water Management Plans As of 10/12/2012

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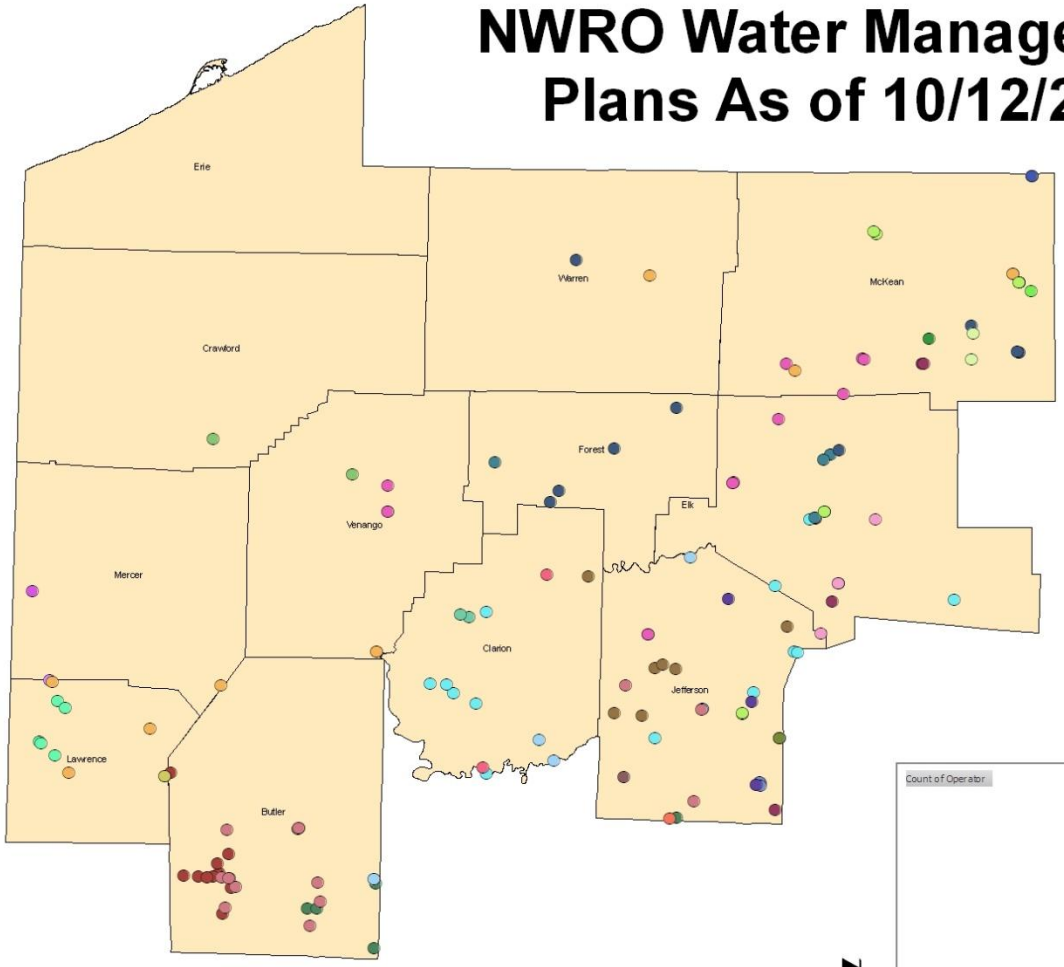

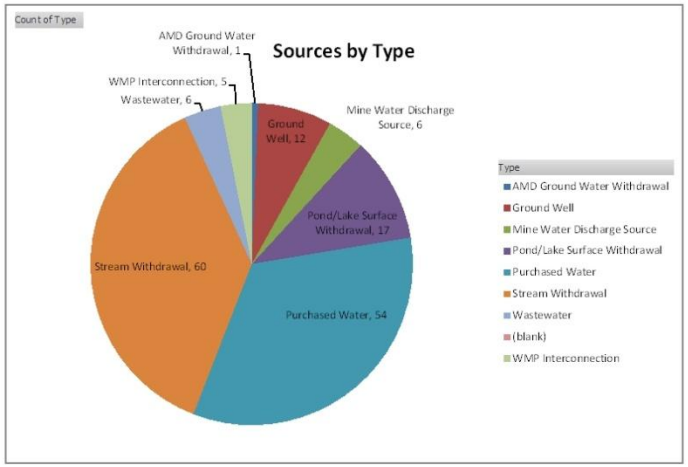

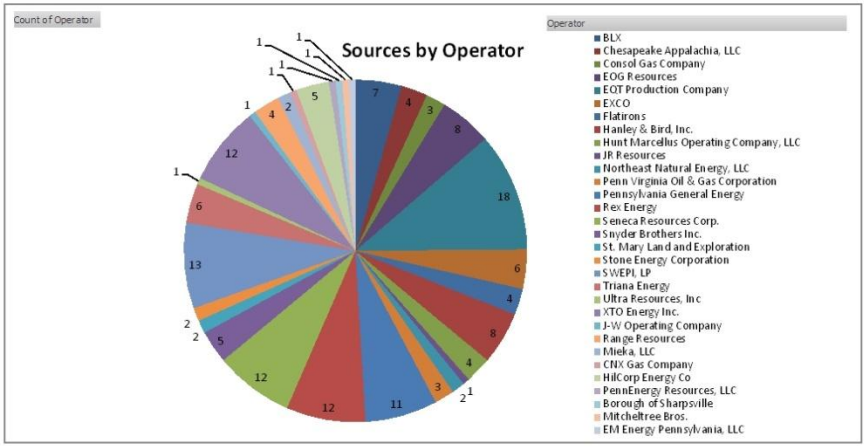

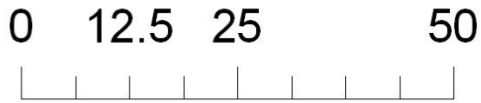


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ESCGP-1

- **> 5 ACRE DISTURBANCE**
- **PNHP (Penna Natural Heritage Program)**
- **MUNICIPAL NOTIFICATION**
- **E&S PLAN**
- **POSTCONSTRUCTION STORMWATER PLAN**

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GP's (GENERAL 105 PERMITS)

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

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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

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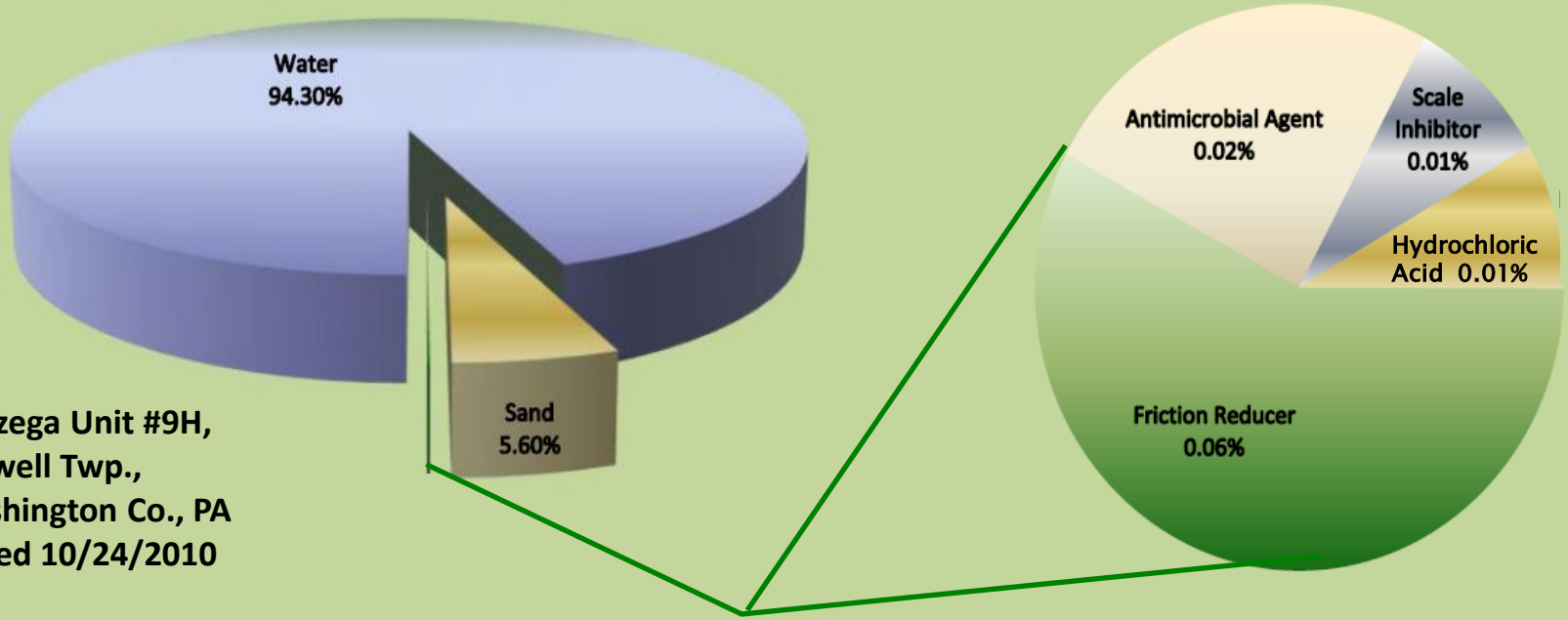
08 28 2009

What goes into the well?

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



Sierzega Unit #9H,
Amwell Twp.,
Washington Co., PA
fraced 10/24/2010

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 frac chemical registration site
- Several states have imposed frac chemical disclosure regulations


Office of External Affairs

Act 13 of 2012

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

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Chapter 23-Unconventional Gas Well 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

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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

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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*)

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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

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Chapter 23-Unconventional Gas Well Fee

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

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Chapter 23-Unconventional Gas Well Fee

Year	$0-2.25	$2.26-2.99	$3.00-4.99	$5-5.99	$6 or higher
1	$40,000	$45,000	$50,000	$55,000	$60,000
2	$30,000	$35,000	$40,000	$45,000	$55,000
3	$25,000	$30,000	$30,000	$40,000	$50,000
4	$10,000	$15,000	$20,000	$20,000	$20,000
5	$10,000	$15,000	$20,000	$20,000	$20,000
6	$10,000	$15,000	$20,000	$20,000	$20,000
7	$10,000	$15,000	$20,000	$20,000	$20,000
8	$10,000	$15,000	$20,000	$20,000	$20,000
9	$10,000	$15,000	$20,000	$20,000	$20,000
10	$10,000	$15,000	$20,000	$20,000	$20,000
11	$5,000	$5,000	$10,000	$10,000	$10,000
12	$5,000	$5,000	$10,000	$10,000	$10,000
13	$5,000	$5,000	$10,000	$10,000	$10,000
14	$5,000	$5,000	$10,000	$10,000	$10,000
15	$5,000	$5,000	$10,000	$10,000	$10,000



Office of External Affairs

Pennsylvania's Natural Gas Vehicle Grant Program

Pa. NGV 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

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Pa. NGV Grant Program

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

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Pa. NGV Grant Program

The Basics

- Grant awards capped at 50 percent of incremental purchase or retrofit cost per vehicle
- Grant awards capped at $25,000 per vehicle

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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

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Pa. NGV Grant Program

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

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Pa. NGV Grant Program

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

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Pa. NGV Grant Program

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

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Pa. NGV Grant Program

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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

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Pa. NGV Grant Program

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

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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

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Pa. NGV Grant Program

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


Office of External Affairs

Questions?