

# Geosteering Services

# Solid Experience and Technology

- Mudlogging Systems and Services
- Geosteering Services
- Experienced field and support personnel
- Experience in Most Major Basin Plays

# HSE and Quality Assurance

## ❖ ISNetworld

## ❖ Premier Safety

- 40 - Hour HSE/QA Training Program
- PEC School
- Pre-Job Job Safety Analysis
- Behavioral Based Safety Training & Rewards
- Routine & Random Drug Screening
- Mentoring
- Environmental Program
- Quality Control (Job Service & Equipment) Program

## ❖ Employee Job Training Programs

# Geosteering Service Options

## Off Location Services

- Geosteering only
- Geosteering with on-site mudlogging
- Single or multiple wells

## On Location Services

- Geosteering only
- Geosteering with on-site mudlogging
- Single or multiple wells

We offers multiple options for your convenience and needs.

# Strength and Reliability

## ❖ Degreed Geologist

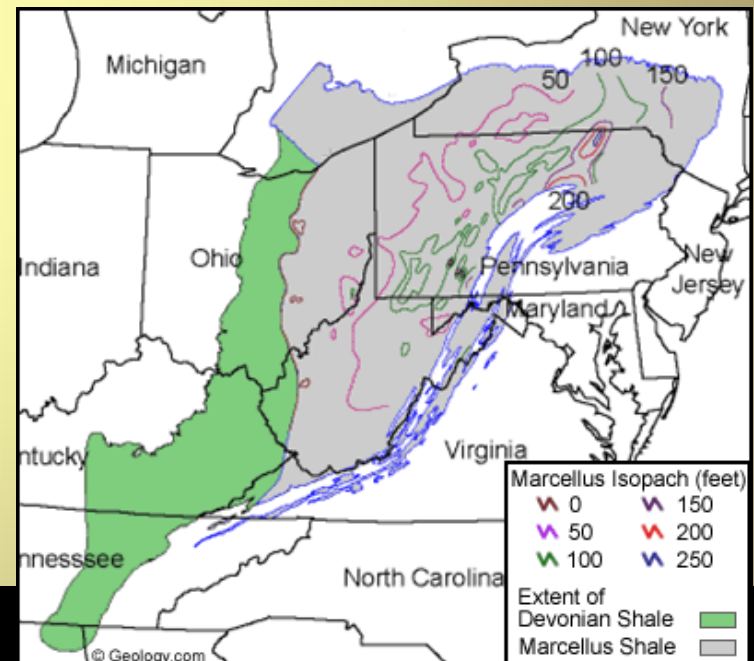
- Knowledge of geologic units and subsurface structures

## ❖ In-House Training Programs

## ❖ Rig Experience

## ❖ Experience Mudlogging

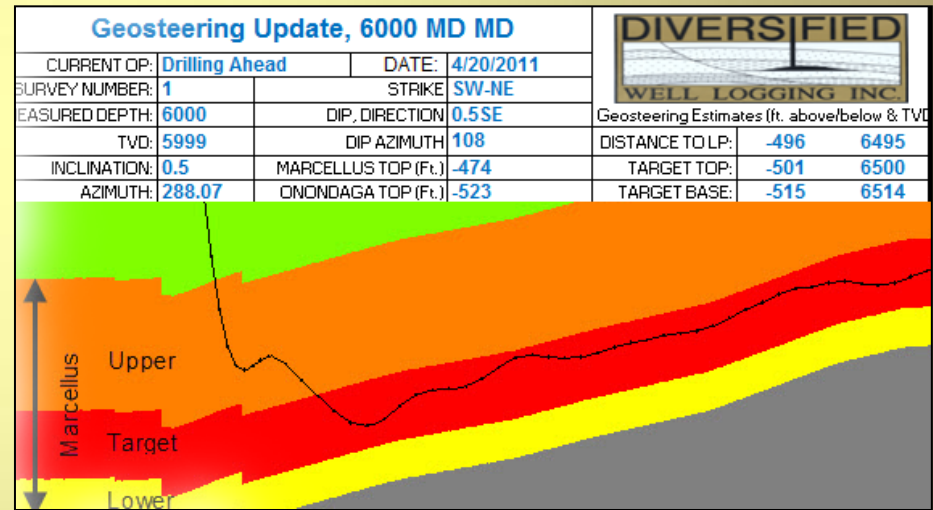
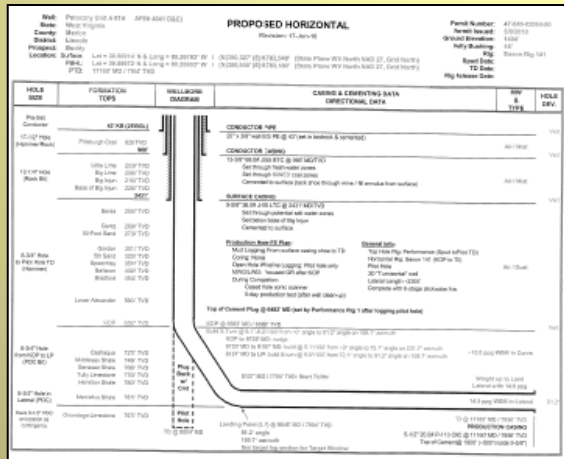
## ❖ Experience in Your Basin Play



# Readiness & Preparation

## ❖ Review of target goals and geosteering needs

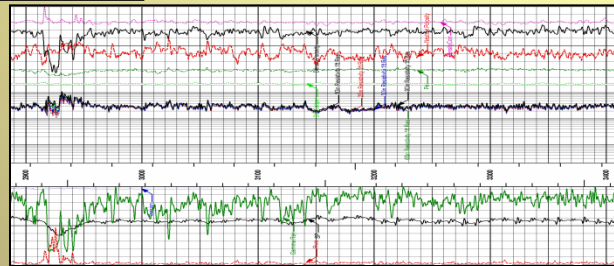
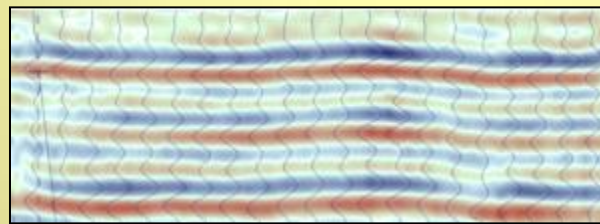
- Keep bit in zone
- Maximize Drilling
- Maximize Fracking



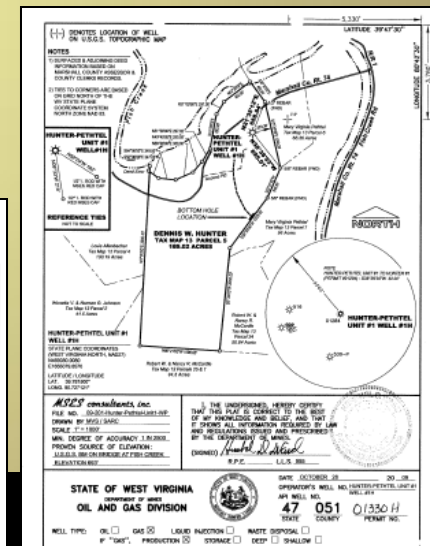
Personalized Geosteering Experience

# Readiness & Preparation

- 63 point setup, check and review
- Geologic maps, plats and drilling plan
- Wireline logs and subsurface data (seismic, structure maps)

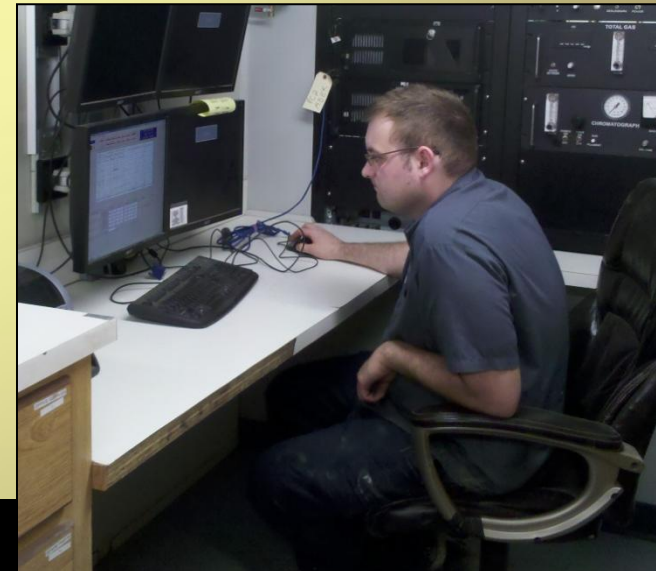


WELL	PROPOSED USE	REGULATORY CATEGORIES	CANNED & EXISTING DATA	DEPTH	WELL TYPE
WELL #1	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #1
WELL #2	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #2
WELL #3	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #3
WELL #4	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #4
WELL #5	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #5
WELL #6	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #6
WELL #7	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #7
WELL #8	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #8
WELL #9	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #9
WELL #10	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #10
WELL #11	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #11
WELL #12	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #12
WELL #13	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #13
WELL #14	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #14
WELL #15	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #15
WELL #16	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #16
WELL #17	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #17
WELL #18	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #18
WELL #19	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #19
WELL #20	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #20
WELL #21	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #21
WELL #22	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #22
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WELL #26	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #26
WELL #27	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #27
WELL #28	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #28
WELL #29	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #29
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WELL #32	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #32
WELL #33	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #33
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WELL #41	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #41
WELL #42	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #42
WELL #43	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #43
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WELL #48	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #48
WELL #49	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #49
WELL #50	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #50
WELL #51	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #51
WELL #52	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #52
WELL #53	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #53
WELL #54	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #54
WELL #55	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #55
WELL #56	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #56
WELL #57	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #57
WELL #58	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #58
WELL #59	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #59
WELL #60	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #60
WELL #61	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #61
WELL #62	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #62
WELL #63	WATER-PROTECTIVE	WATER-PROTECTIVE	CONCRETE PIPE	100'	WELL #63



# Keeping You Informed

- Effective, proactive communication
- 24/7 monitoring of well data
- Frequent reporting
- Courteous team members
- Establish early contact with geologist and on-site personnel





# Geosteering Analysis

**New Data Analysis**

MWD  
Rig Data  
Mudloggers  
Geologist  
Directional

**Data Communication**

Daily Reports  
& Frequent  
Updates

**Data Reanalysis**

Ensures  
validity of old  
data

# Quick Reporting

We provide the data you need to make *sound drilling decisions*.

**Instant Visual of Pertinent Data**

**Quick MWD Data**

**Bed Dip, Dip Direction**

**TVD to Important Targets/Tops**

**You Overview Every Correlation**

**Well Bore Position vs. Target**

**Quick LWD Data**

**Written Remarks**

**Our Contact Info**

<b>COMPANY:</b> Big Money, LTD		<b>Geosteering Update, 6000 MD</b>		
<b>WELL NAME:</b> Pakohalo #1H		<b>DATE:</b> 4/20/2011		
<b>LOCATION:</b> Same District		<b>CURRENT OP:</b> Drilling Ahead	<b>STRIKE:</b> SW-NE	
<b>STATE:</b> West Virginia	<b>SURVEY NUMBER:</b> 1	<b>MEASURED DEPTH:</b> 6000	<b>DIP DIRECTION:</b> 0.55E	<b>Geosteering Estimates [ft. above/below] TV</b>
<b>PIC NAME:</b> Rig 123	<b>TVD:</b> 5999	<b>DIP AZIMUTH:</b> 168	<b>DIP:</b> 0.55E	<b>DISTANCE TO LP:</b> -496 6495
<b>PROSPECT:</b> 0	<b>INCLINATION:</b> 0.5	<b>MARCELLUS TOP [ft.]:</b> -474	<b>TARGET TOP:</b> -501 6576	<b>TARGET BASE:</b> -515 6514
<b>API NUMBER:</b> 12-345-12345	<b>AZIMUTH:</b> 288.1	<b>ONONDAGA TOP [ft.]:</b> -523		

Colored overlay shows correlation to pilot

Current well gamma values

Pilot hole gamma values

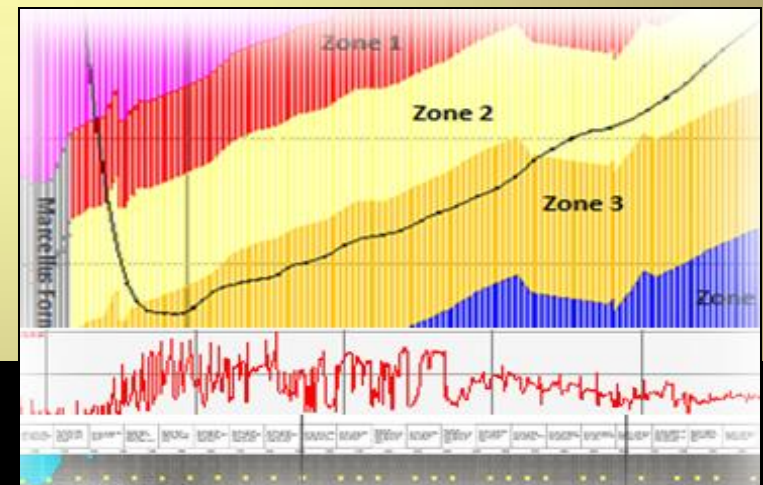
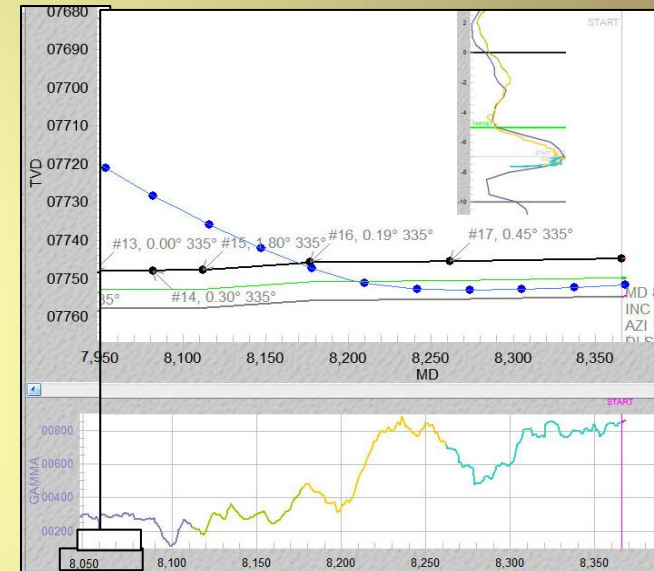
REMARKS: type your remarks here. You may have to break remarks over overall lines

Engineer	Your Name
Engineer	Their Name
Contact	###-###-####
Analyst	YourNameHere



# Keeping You Informed

- Improved landing in target
- Informed changes to drill path
- Increase communication between drilling, geology and engineering
- Constant due diligence
- Anomalies reported and analyzed
- Extensive analysis of gamma, mud log samples & geologic data



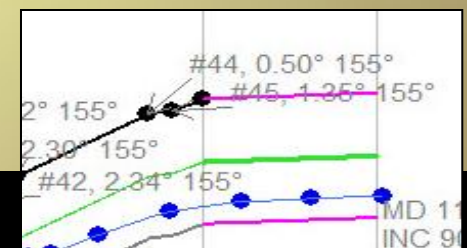
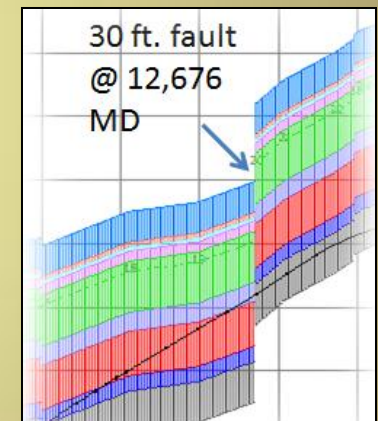
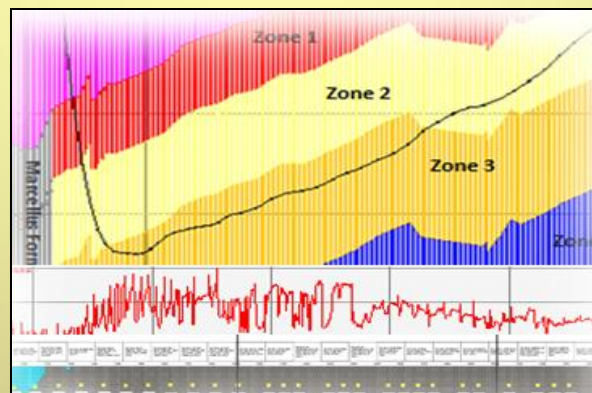
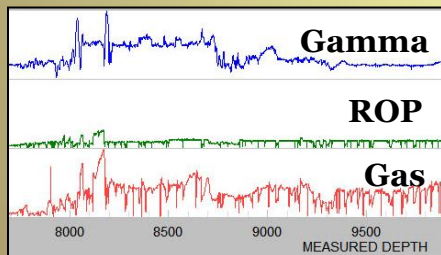
# Available Data

## ❖ Cross Sections (MD & Vertical Section)

- Provide overview of well path along well bore
- Enables high resolution mapping of formation tops
- Comparison of MWD w/ Total Gas and ROP to geology & structures
- Output of TVD and coordinates along well bore

## ❖ Gamma Correlation and Structures

- View all correlations & features along well path



# End of Well Package

- ❖ Export all data to the client
- ❖ Improved planning for future wells
  - Map structurally complex zones
  - Decrease risk on multiple well pads
- ❖ Increase production and profitability
  - Map high gas zones against geology/structures
  - Provide knowledge of fracture zones

