

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-051-01647 County MARSHALL District FRANKLIN
Quad NEW MARTINSVILLE 7.5' Pad Name HANSEN Field/Pool Name _____
Farm name BAYER MATERIAL SCIENCES, LLC (d/b/a Convestro) Well Number HANSEN NO. 3H
Operator (as registered with the OOG) GASTAR EXPLORATION USA, INC.
Address 229 W MAIN STREET - STE 301 City CLARKSBURG State WV Zip 26301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,397,436.0 Easting 515,915.5
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,397,122.5 Easting 516,238.6

Elevation (ft) 1245' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary


Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)

Date permit issued 6/29/2013 Date drilling commenced 3/9/2014 Date drilling ceased 3/20/2014
Date completion activities began N/A Date completion activities ceased _____
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 55 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1590 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 760' and 852' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:


AX 05/26/2017
05/25/17

APPROVED
NAME: Jim Nicholson  3/16/17

API 47-051 - 01647 Farm name BAYER MATERIAL SCIENCES, LLC (d/b/a Convestro) Well number HANSEN NO. 3H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor		20"	120'	New			Y
Surface		13-3/8"	1,218.46	New	H-40, 48 #/ft.	80	Y
Coal		13-3/8"	1,218.46'	New	H-40, 48#/ft.	80	Y
Intermediate 1		9-5/8"	2,632'	New	J-55, 36 #/ft.	83	Y
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

Comment Details The Hansen No. 3H well had 20" conductor casing set at 120' TVD. The well was then drilled on air to 1251' MD utilizing a 17 1/2" bit. 13 3/8" casing was set to a depth of 1219' MD. The well was then drilled on air to 2671' MD utilizing a 12 1/2" bit. 9 5/8" casing was set to a depth of 2632' MD. The well was then drilled on air to a depth of 6409' MD, 6067' TVD. The well was deviated starting at a depth of 2740' MD with the intent to prepare for the curve and lateral portion of lateral. Upon TD of the well at 6409' MD, in the Rhinestreet Shale Formation, the well was loaded with 250 bbl of 9.5 # brine and temporarily abandoned. The original intent was to return to complete the curve and lateral, however, this never occurred under Gastar's ownership.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A Type 1	297	15.6	1.19	353	Sfc	8
Surface	Class A Type 1	876	15.6	1.21	1060	Sfc	8
Coal	Class A Type 1	876	15.6	1.21	1060	Sfc	8
Intermediate 1	Class A Type 1	813	15.2	1.27	1032	Sfc	8
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) 6,409' Loggers TD (ft) _____
 Deepest formation penetrated Rhinestreet Shale Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) _____

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Surface/Coal - 3 Centralizers at 300' Spacing
 Intermediate - 7 Centralizers at 300' Spacing

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

RECEIVED
 Office of Oil and Gas
 MAR 07 2017
 WV Department of
 Environmental Protection
 05/26/2017

API 47- 051 - 01647 Farm name BAYER MATERIAL SCIENCES, LLC (d/b/a Convestro) Well number HANSEN NO. 3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	N/A				

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	N/A							

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Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD
N/A		

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
**See Attached	0		0		

Please insert additional pages as applicable.

Drilling Contractor Noah Horn
Address 1070 Sandy Valley Lane City Oakwood State VA Zip 24631

Logging Company N/A
Address _____ City _____ State _____ Zip _____

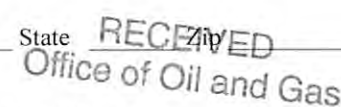
Cementing Company Baker Hughes
Address 17021 Aldine Westfield City Houston State TX Zip 77073

Stimulating Company N/A
Address _____ City _____ State _____ Zip _____

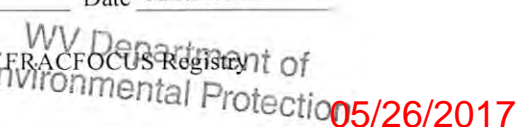
Please insert additional pages as applicable.

Completed by Jonathan White Telephone 724-749-8388
Signature *Jonathan White* Title Regulatory Analyst Date 02/28/2017

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry



MAK 07 2017



ATTACHMENT TO WR-35

HANSEN NO. 3H

API 47-051-01647

Formations	Top MD	Base MD	Top TVD	Base TVD
Shale and Sandstone	0	757	0	757
Sewickley Coal	757	760	757	760
Shale	760	852	760	852
Pittsburgh Coal	852	856	852	856
Shale and Sandstone	856	1907	856	1907
Maxton	1907	2007	1907	2007
Big Lime	2007	2088	2007	2088
Big Injun	2088	2396	2088	2396
Weir Siltstone	2396	2586	2396	2586
Berea Siltstone	2586	2596	2586	2596
Shale	2596	2948	2596	2946
Gordon Sandstone	2948	2978	2946	2976
Shale and Siltstone	2978	3012	2976	3008
Fifty Foot Siltstone	3012	3062	3008	3058
Shale	3062	3592	3058	3540
Speechley Siltstone	3592	3617	3540	3565
Shale	3617	5113	3565	4903
Benson Sandstone	5113	5133	4903	4923
Shale	5133	5521	4923	5269
Alexander Siltstone	5521	6156	5269	5843
Rhinestreet Shale	6156	6281	5843	5968
Shale	6281	6338	5968	6005
TD	6338	N/A	6005	N/A

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Hansen 3H Cement Additives

Surface: Class A + 3% CaCl + ¼ #per sack flake

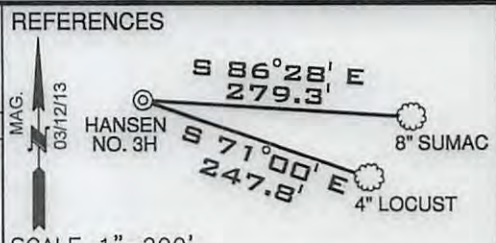
Coal: Class A + 3% CaCl + ¼ #per sack flake

Intermediate: Class A + 1% EC-1 + ¼ per sack flake + .5% SMS + .55% BA-10A

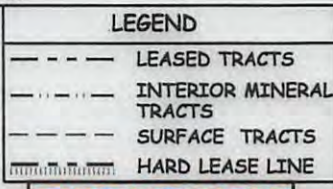
AS-DRILLED

6,425' T.H.
5,350' B.H.

LATITUDE 39° 45' 00"
**HANSEN LEASE
WELL NO. 3H
487.56± ACRES**

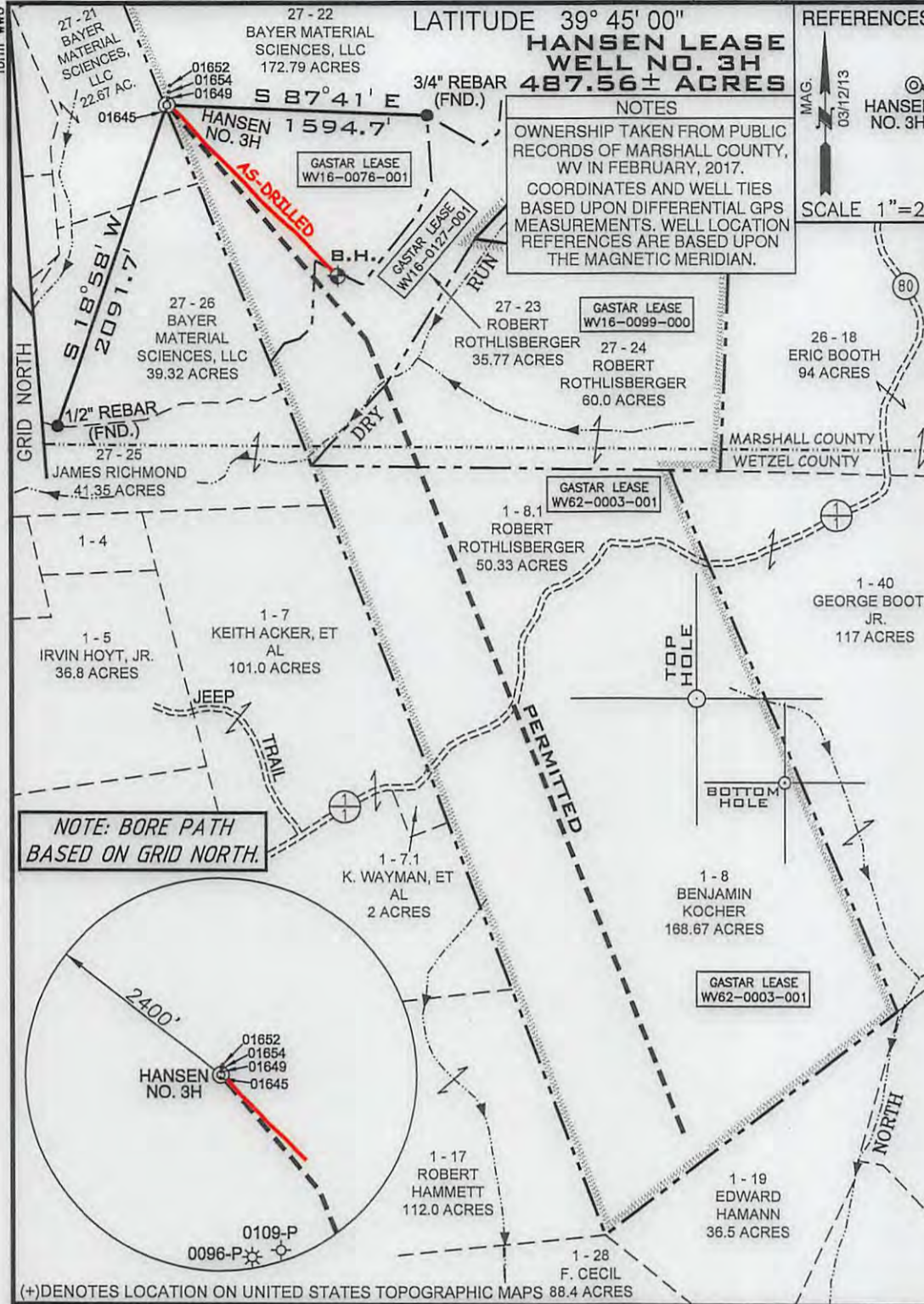


NOTES
OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN FEBRUARY, 2017.
COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.

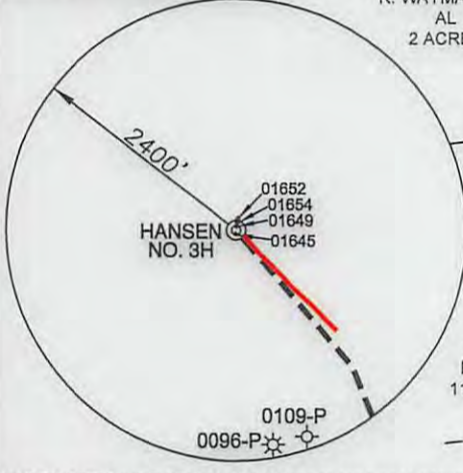


SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,397,436.0
E) 515,915.5

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,397,122.5
E) 516,238.6



NOTE: BORE PATH BASED ON GRID NORTH.

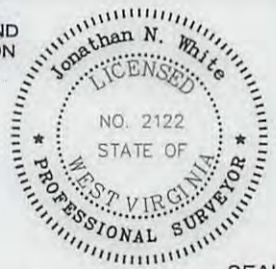


(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS 88.4 ACRES

FILE NUMBER W0120318 (WB1-62)
DRAWING NUMBER HANSEN_WP_3H-WR35
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY 1/200
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.S. 2122 *Jonathan N. White*



WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: FEBRUARY 28, 2017

OPERATORS WELL NO. HANSEN NO. 3H AS-DRILLED

API WELL NO. 47-051-01647
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
LOCATION ELEVATION 1245' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER (0503020110)

DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER WV16-0099-000, WV62-0003-001, WV16-0076-001, WV16-0127-001

SURFACE OWNER BAYER MATERIAL SCIENCES, LLC ACREAGE 172.79

OIL & GAS ROYALTY OWNER PPG INDUSTRIES, INC., et al LEASE ACREAGE 487.56

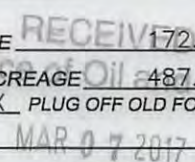
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY)

TARGET FORMATION RHINESTREET SHALE FORMATION ESTIMATED DEPTH TVD: 6067' TMD: 6409'

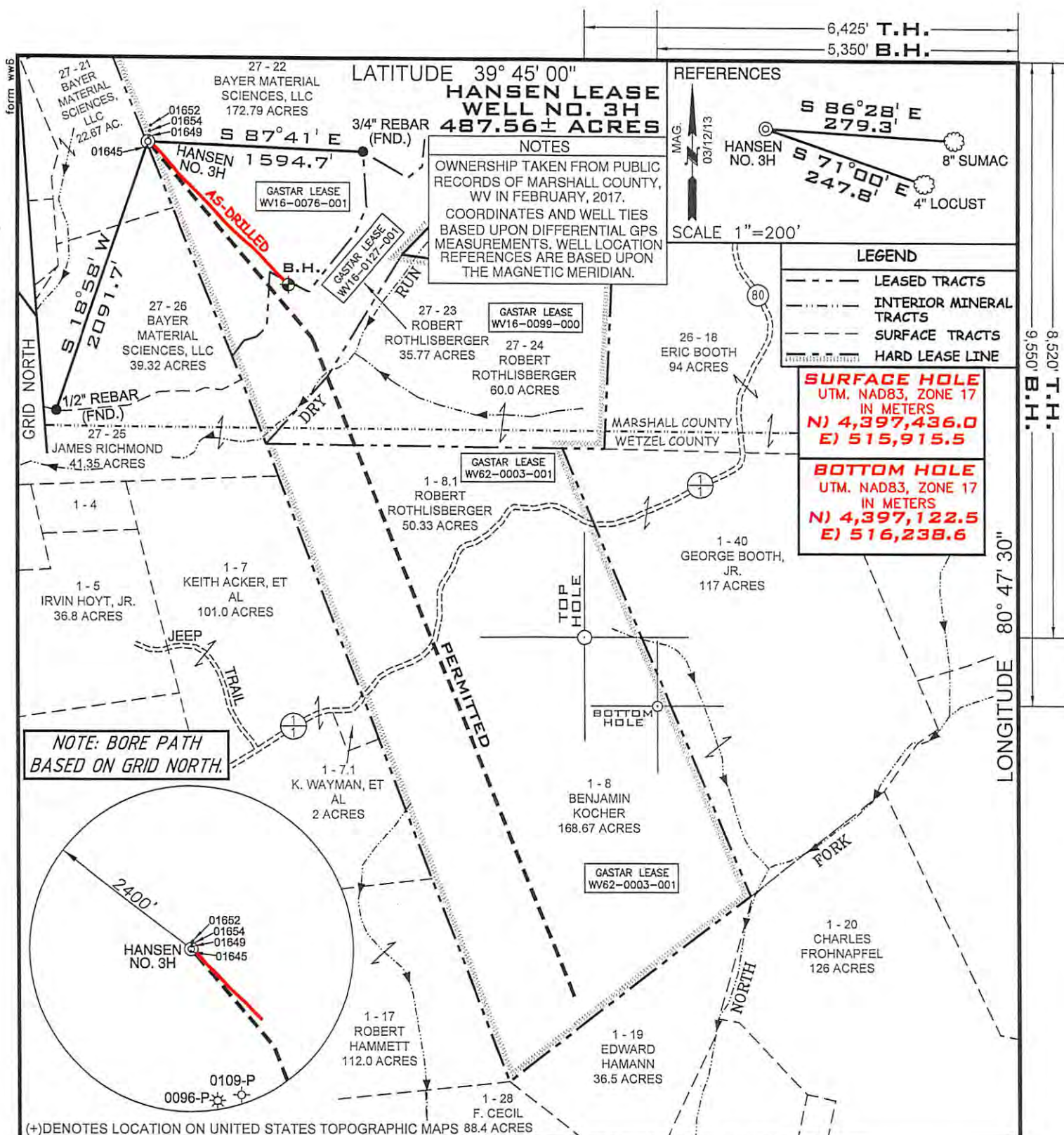
WELL OPERATOR GASTAR EXPLORATION USA, INC. DESIGNATED AGENT MICHAEL McCOWN

ADDRESS 229 W MAIN STREET, SUITE 301 CLARKSBURG WV, 26301 ADDRESS 229 W MAIN STREET, SUITE 301 CLARKSBURG WV, 26301

05/26/2017



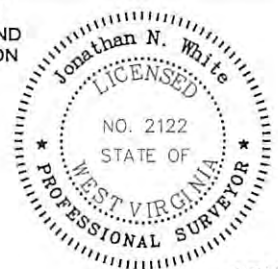
COUNTY NAME PERMIT



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 MINIMUM DEGREE OF ACCURACY 1/200
 PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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P.S. Jonathan N. White
 2122



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 601 5TH STREET
 CHARLESTON, WV 25304

DATE: FEBRUARY 28, 2017

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 STATE COUNTY PERMIT

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 OIL & GAS ROYALTY OWNER PPG INDUSTRIES, INC., et al LEASE ACREAGE 487.56
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) _____
 PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION RHINESTREET SHALE FORMATION ESTIMATED DEPTH TVD: 6067' TMD: 6409'
 WELL OPERATOR GASTAR EXPLORATION USA, INC. DESIGNATED AGENT MICHAEL McCOWN
 ADDRESS 229 W MAIN STREET, SUITE 301 CLARKSBURG WV, 26301 ADDRESS 229 W MAIN STREET, SUITE 301 CLARKSBURG WV, 26301

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