

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



API 47-051-01654 County MARSHALL District FRANKLIN  
Quad NEW MARTINSVILLE 7.5' Pad Name HANSEN Field/Pool Name \_\_\_\_\_  
Farm name BAYER MATERIAL SCIENCES, LLC Well Number HANSEN NO. 7H  
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 4,397,460.2 Easting 515,918.8  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing 4,397,117.5 Easting 516,419.8

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 N/A  
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)  
N/A

Date permit issued 7/29/2013 Date drilling commenced 4/23/14 Date drilling ceased 5/3/14  
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 RECEIVED  
Coal depth(s) ft 757' and 852' Cavern(s) encountered (Y/N) depths Office of Oil and Gas  
Is coal being mined in area (Y/N) N

**APPROVED**  
NAME: JIM NICHOLSON  
3/16/17

MAR 07 2017  
Reviewed by: [Signature]  
WV Department of Environmental Protection  
05/26/2017

API 47-051 - 01654 Farm name BAYER MATERIAL SCIENCES, LLC Well number HANSEN NO. 7H

| CASING STRINGS            | Hole Size | Casing Size | Depth  | New or Used | Grade wt/ft | Basket Depth(s) | Did cement circulate (Y/N)<br>* Provide details below* |
|---------------------------|-----------|-------------|--------|-------------|-------------|-----------------|--|
| Conductor                 | 24"       | 20"         | 126'   | New         |             |                 |  |
| Surface                   | 17"       | 13-3/8"     | 1,263' | New         |             |                 |  |
| Coal                      | 17"       | 13-3/8"     | 1,263' | New         |             |                 |  |
| Intermediate 1            | 12-1/4"   | 9-5/8"      | 2,699' | New         |             |                 |  |
| Intermediate 2            |           |             |        |             |             |                 |  |
| Intermediate 3            |           |             |        |             |             |                 |  |
| Production                |           |             |        |             |             |                 |  |
| Tubing                    |           |             |        |             |             |                 |  |
| Packer type and depth set |           |             |        |             |             |                 |  |

Comment Details \*\*SEE ATTACHED WELL WORK SUMMARY

| CEMENT DATA    | Class/Type of Cement | Number of Sacks | Slurry wt (ppg) | Yield (ft <sup>3</sup> /sks) | Volume (ft <sup>3</sup> ) | Cement Top (MD) | WOC (hrs) |
|----------------|----------------------|-----------------|-----------------|------------------------------|---------------------------|-----------------|-----------|
| Conductor      | Class A              | 886             | 15.6            | 1.21                         |                           |                 |           |
| Surface        |                      |                 |                 |                              |                           |                 |           |
| Coal           |                      |                 |                 |                              |                           |                 |           |
| Intermediate 1 |                      |                 |                 |                              |                           |                 |           |
| Intermediate 2 |                      |                 |                 |                              |                           |                 |           |
| Intermediate 3 |                      |                 |                 |                              |                           |                 |           |
| Production     |                      |                 |                 |                              |                           |                 |           |
| Tubing         |                      |                 |                 |                              |                           |                 |           |

Drillers TD (ft) 6,411' Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated Alexander Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) 2,725'

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 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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 \_\_\_\_\_

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## ATTACHMENT TO WR-35 (CASING STRINGS – COMMENT DETAILS)

Hansen No. 7H – API 47-051-01654

**Well Work Summary:**

The Hansen No. 7H well had 20" conductor casing set at 120' TVD. The well was then drilled on air to 1263' MD utilizing a 17 ½" bit. 13 3/8" casing was set to a depth of 1210' MD. The well was then drilled on air to 2699' MD utilizing a 12 ¼" bit. 9 5/8" casing was set to a depth of 2628' MD. The well was then drilled on air to a depth of 6411' MD, 5760' TVD. The well was deviated starting at a depth of 2755' MD with the intent to prepare for the curve and lateral portion of lateral. Upon TD of the well at 6411' MD, in the Alexander 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 Gatar's ownership.

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| 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 | 3011     | 3061    | 3008     | 3058     |
| Shale                | 3061     | 3590    | 3058     | 3540     |
| Speechley Siltstone  | 3590     | 3615    | 3540     | 3565     |
| Shale                | 3615     | 5113    | 3565     | 4903     |
| Benson Sandstone     | 5324     | 5344    | 4903     | 4923     |
| Shale                | 5344     | 5521    | 4923     | 5269     |
| Alexander Siltstone  | 5792     | 6411    | 5269     | 5760     |
| TD                   | 6411 N/A |         | 5760 N/A |          |

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## Hansen 7H Cement Additives

Surface: Class A + 3% CaCl +  $\frac{1}{4}$  #per sack flake

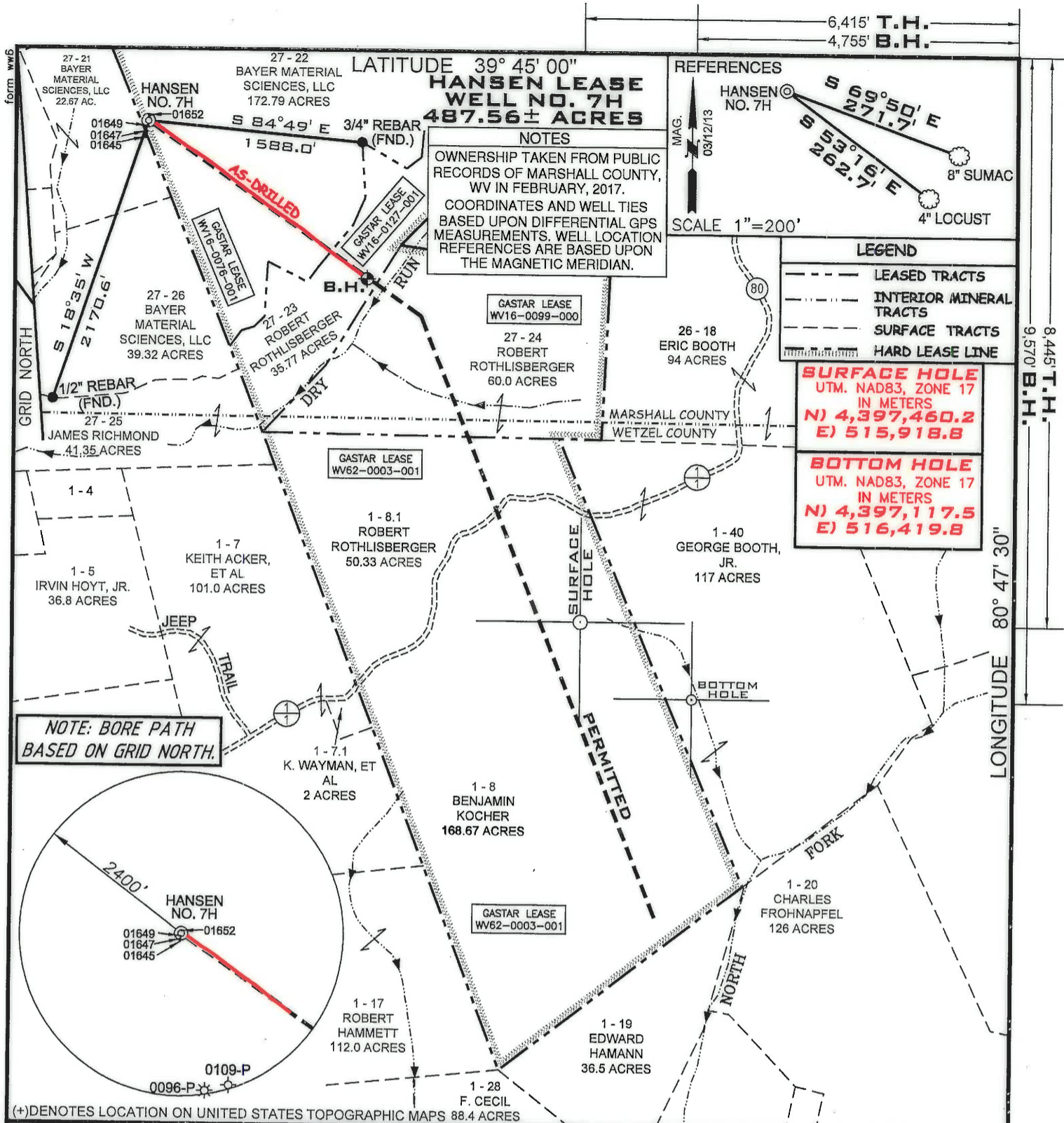
Coal: Class A + 3% CaCl +  $\frac{1}{4}$  #per sack flake

Intermediate: Class A + 1% EC-1 +  $\frac{1}{4}$  per sack flake + .5% SMS + .55% BA-10A

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LATITUDE 39° 45' 00"  
**HANSEN LEASE**  
**WELL NO. 7H**  
**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.

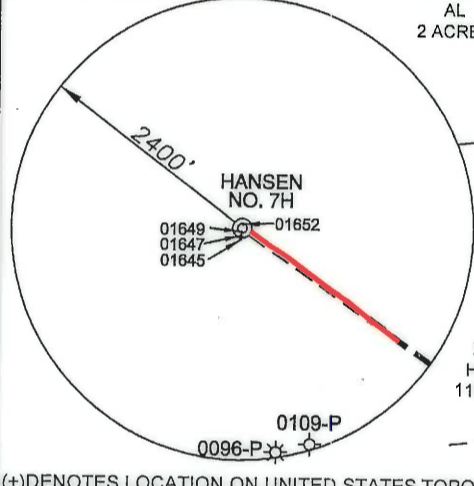
**REFERENCES**  
 HANSEN NO. 7H  
 S 69° 50' E 271.7'  
 S 53° 16' E 262.7'  
 8" SUMAC  
 4" LOCUST  
 SCALE 1" = 200'

**LEGEND**  
 - - - - - LEASED TRACTS  
 - - - - - INTERIOR MINERAL TRACTS  
 - - - - - SURFACE TRACTS  
 - - - - - HARD LEASE LINE

**SURFACE HOLE**  
 UTM. NAD83, ZONE 17  
 IN METERS  
**N) 4,397,460.2**  
**E) 515,918.8**

**BOTTOM HOLE**  
 UTM. NAD83, ZONE 17  
 IN METERS  
**N) 4,397,117.5**  
**E) 516,419.8**

NOTE: BORE PATH BASED ON GRID NORTH.

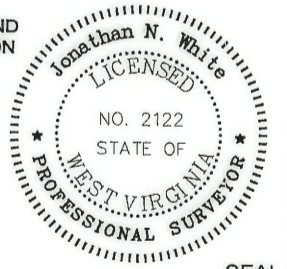


(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

FILE NUMBER W0120318 (WB1-62)  
 DRAWING NUMBER HANSEN\_WP\_7H-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



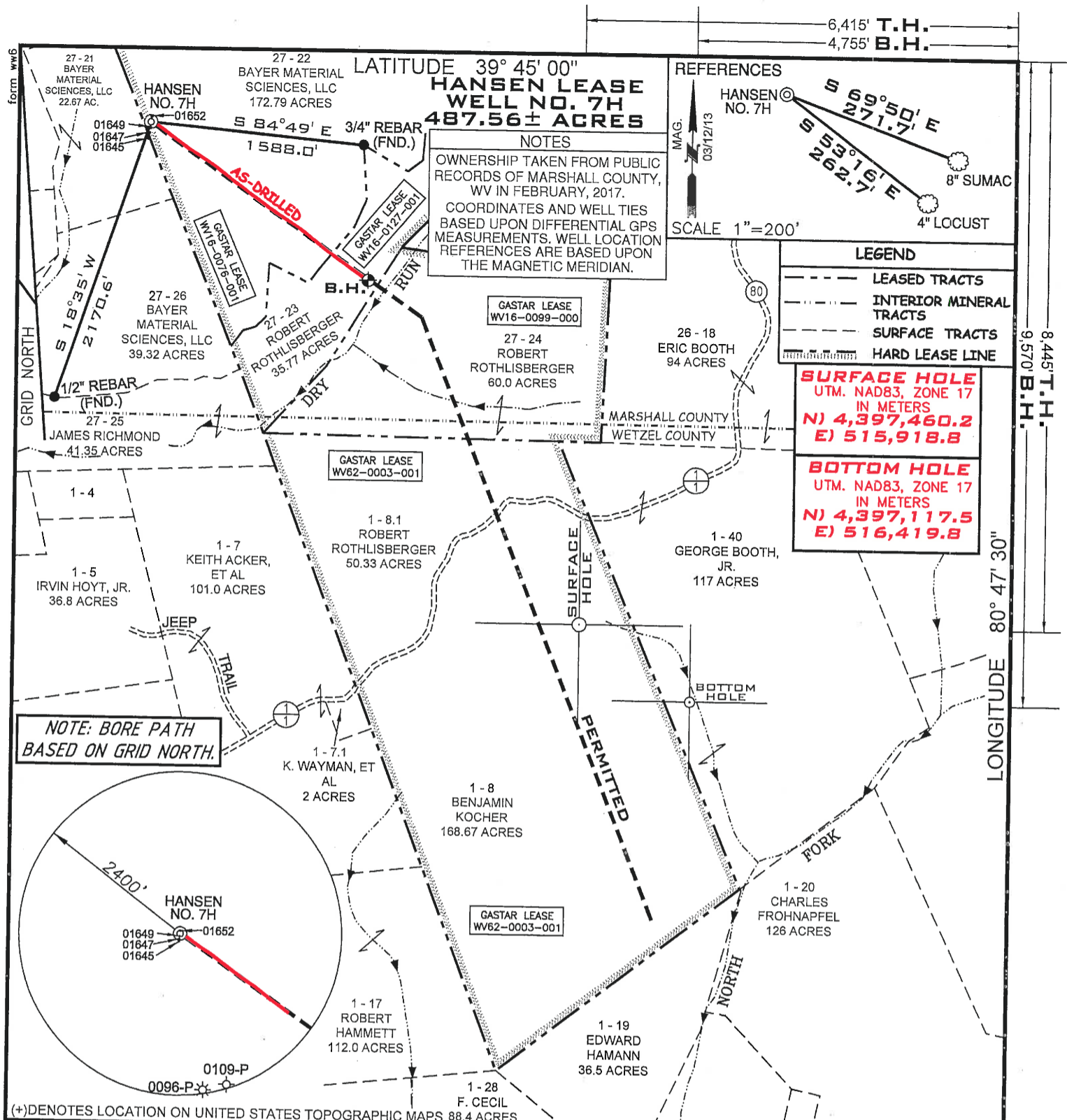
DATE: FEBRUARY 28, 2017  
 OPERATORS WELL NO. HANSEN NO. 7H AS-DRILLED  
 API WELL NO. 47-051-01654  
 STATE COUNTY PERMIT  
 LOCATION ELEVATION 1245' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER (0503020110)  
 DISTRICT FRANKLIN COUNTY MARSHALL  
 QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER WV16-0099-000, 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 ALEXANDER ESTIMATED DEPTH TVD: 5760' TMD: 6411'  
 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

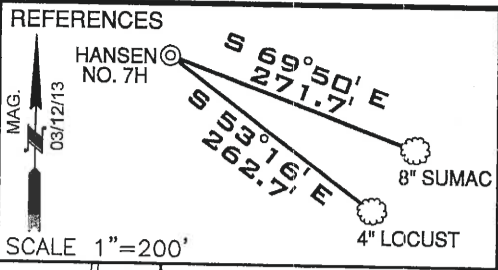
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LATITUDE 39° 45' 00"  
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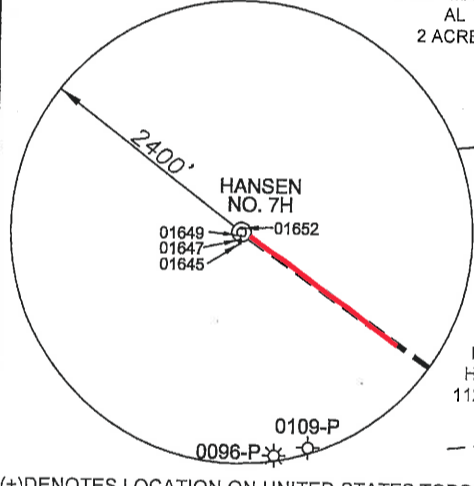
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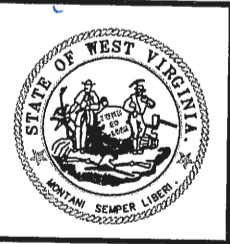
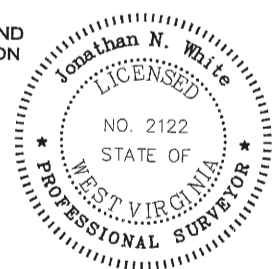


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 2122



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

DATE: FEBRUARY 28, 2017  
 OPERATORS WELL NO. HANSEN NO. 7H AS-DRILLED  
 API WELL NO. 47-051-01654  
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS  LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION X 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  
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TARGET FORMATION ALEXANDER PLUG & ABANDON CLEAN OUT & REPLUG  
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