**Regulatory Department** 



August 21, 2014

### VIA UPS NEXT DAY AIR

Mr. Gene Smith West Virginia Department of Environmental Protection Office of Oil & Gas 601 57<sup>th</sup> Street Charleston, WV 25304

Re: WR-35 - Van Aston MSH 5H

Dear Mr. Smith:

Chesapeake Appalachia, L.L.C. submits the *Operator's Interim Report of Well Work* in duplicate for the above captioned well(s) located in Marshall County.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person of persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete.

If you have any questions or require additional information please feel free to contact me at (405)935-4158 or marlene.williams@chk.com.

Sincerely,

Chesapeake Appalachia, L.L.C Marlone Williams

Marlene Williams Regulatory Analyst II

Enclosure(s) cc: West Virginia Geological and Economic Survey

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

| API <u>47</u> -051  | _ 01631   | <sub>County</sub> Marshal   | I ]  | <sub>District</sub> Came   | eron          |                 |               |
|---|---|---|--|--|---------------|-----------------|---------------|
| Quad Glen Easton  |   |   |  | Field/Pool Nar   | ne            |                 |               |
| Farm name Van Astor   | n MSH 5H  |   |  | Well Number  |               |                 |               |
| Operator (as registered   | with the OOG)   | Chesapeake Appa   | llachia, L.L.C.  |  |               |                 |               |
| Address P.O. Box 18   | 496   | City Okla   |  | StateOK  |               | _Zip_7          | /3154-0496    |
| Landing Point   | Fop holeNof CurveN  | Attach an as-drille<br>lorthing <u>493086.0</u><br>orthing <u>493130.8</u><br>orthing <u>493580.2</u> | Easti  | deviation surv<br>ing <u>1645511.3</u><br>ng <u>1646743.7</u><br>ng <u>1646524.5</u> | /ey           |                 |               |
| Elevation (ft) 1,152'   | GL  | Type of Well  | ∎New □ Existing  | Type of R  | eport ∎Int    | terim           | □Final        |
| Permit Type 🛛 Dev   | riated 🗆 Ho   | rizontal 🖪 Horizon  | tal 6A 🛛 Vertical  | Depth Ty   | pe 🗆 ]        | Deep            | □ Shallow     |
| Type of Operation □ C   | Convert □ De  | epen 🛢 Drill 🗆  | Plug Back  | ling 🗆 Rev   | ork 🗆 S       | timulat         | e             |
| Well Type 🗆 Brine Di  | sposal □ CBM  | ∎ Gas □ Oil □ Sec   | ondary Recovery 🗆 So   | lution Mining  | □ Storage     | □ Ot            | her           |
| Type of Completion  |   | ipie riulus riouu   |  | 🗆 NGL 🛛 🗆  |               | ther            |               |
| Drilling Media Surfac   | cehole Air<br>Mud A   | □ Mud ■Fresh Wat<br>Fresh Water □ Brine   |  | ole 🛚 Air 🗆  | 1 Mud 🔳 I     | Fresh V         | Vater □ Brine |
| Drilled with<br>Drilling Media Surfac<br>Production hole<br>Mud Type(s) and Addi<br>SOBM  | cehole Air<br>Mud A   |   |  | ole 🛚 Air 🗆  | 1 Mud 📲 I     | Fresh W         | Vater □ Brine |
| Drilling Media Surfac<br>Production hole Ain<br>Mud Type(s) and Addi<br>SOBM<br>Date permit issued  | tive(s)<br>3/31/14  | Fresh Water □ Brine   | nenced12/20/13   | Date dri   | lling ceased  |                 | 1/23/14       |
| Drilling Media Surfac<br>Production hole Ain<br>Mud Type(s) and Addi<br>SOBM<br>Date permit issued  | tive(s)<br>3/31/14  | Fresh Water □ Brine   | nenced12/20/13   | Date dri   | lling ceased  |                 | 1/23/14       |
| Drilling Media Surfac<br>Production hole I Ain<br>Mud Type(s) and Addi  | e hole Air<br>Mud tive(s)<br>3/31/14<br>ies began   | Fresh Water □ Brine   | nenced12/20/13<br>Date completion activ  | Date dri<br>'ities ceased  | lling ceased  | d               | 1/23/14       |
| Drilling Media Surfac<br>Production hole Ain<br>Mud Type(s) and Addi<br>SOBM<br>Date permit issued<br>Date completion activit<br>Verbal plugging (Y/N)  | be hole       Air         Mud       Image: second sec | Fresh Water   | nenced12/20/13<br>Date completion activ  | Date dri<br>vities ceased<br>Granted by  | lling ceased  | d               | 1/23/14       |
| Drilling Media Surfac<br>Production hole Ain<br>Mud Type(s) and Addi<br>SOBM<br>Date permit issued<br>Date completion activit<br>Verbal plugging (Y/N)<br>Please note: Operator i                           | e hole Air<br>Mud tive(s)<br>3/31/14<br>ies began D<br>s required to sub  | Fresh Water   | nenced12/20/13<br>Date completion activ<br>1<br>ation within 5 days of ve                          | Date dri<br>vities ceased<br>Granted by<br>erbal permissio                           | ll ing ceased | d               | 1/23/14       |
| Drilling Media Surfac<br>Production hole Ain<br>Mud Type(s) and Addi<br>SOBM<br>Date permit issued<br>Date completion activit<br>Verbal plugging (Y/N)<br>Please note: Operator i<br>Freshwater depth(s) ft | e hole Air<br>Mud tive(s)<br>3/31/14<br>Aies began D<br>s required to sub   | Fresh Water □ Brine<br>Date drilling comn<br>ate permission grantec<br>mit a plugging applica         | nenced12/20/13<br>Date completion activ<br>1<br>ation within 5 days of ve<br>Open mine(s) (Y/N) de | Date dri<br>ities ceased<br>_ Granted by<br>erbal permissic                          | lling ceased  | d               | 1/23/14       |
| Drilling Media Surfac<br>Production hole Ain<br>Mud Type(s) and Addi<br>SOBM<br>Date permit issued<br>Date completion activit   | tive(s)<br>3/31/14<br>ies began D<br>s required to sub<br>1,(   | Fresh Water □ Brine Date drilling comn ate permission grantec mit a plugging applica 336' 060'        | nenced12/20/13<br>Date completion activ<br>1<br>ation within 5 days of ve                          | Date dri<br>vities ceased<br>Granted by<br>erbal permission<br>epths<br>(/N) depths  | lling ceased  | d<br>N<br>Y 77( | 1/23/14<br>   |

Reviewed by:

| WR-35<br>Rev. 8/23/13       |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       | Page <u>2</u> of <u>4</u>                 |
|-----------------------------|---|-------------------------------------|-----------------------|--------------------|----------------------|----------------------------|---------------------------------------|-----------------------|-------------------|---------------------------------------|---|
| API 47- 051                 | 01631   | Farm na                             | <sub>me_</sub> Van A  | Aston M            | SH 5H                |                            | We                                    | ll numbe              | r8376             | 625                                   |   |
| CASING<br>STRINGS           | Hole<br>Size  | Casing<br>Size                      | Depth                 |                    | w or<br>sed          | Grade<br>wt/ft             |                                       | Basket<br>Depth(s)    |                   |                                       | ent circulate (Y/ N)<br>le details below* |
| Conductor                   | 26"   | 20"                                 | 122'                  | 1                  | Vew                  | K-5                        | 5 94#                                 |                       |                   |                                       | Y   |
| Surface                     | 17 1/2"   | 13 3/8"                             | 822'                  | 1                  | Vew                  | J-55                       | 5 54.5#                               |                       |                   |                                       | Y   |
| Coal                        |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       |   |
| Intermediate 1              | 12 1/4"   | 9 5/8"                              | 2,246'                | N                  | Vew                  | J-5                        | 5 40#                                 |                       |                   |                                       | Y   |
| Intermediate 2              |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       |   |
| Intermediate 3              |   |                                     |                       |                    |                      |                            |                                       |                       |                   | · · · · · · · · · · · · · · · · · · · |   |
| Production                  | 8 3/4" / 8 1/2"   | 5 1/2"                              | 15,486'               |                    | Vew                  | P-1*                       | 10 20#                                |                       |                   |                                       | Y   |
| Tubing                      | 00,110,12   | 0 112                               | 10,100                |                    |                      |                            |                                       |                       |                   |                                       | •   |
| Packer type and de          | epth set  |                                     |                       |                    | 1                    |                            |                                       | I                     |                   |                                       |   |
| Comment Details CEMENT DATA | Class/Type<br>of Cement   | Number<br>of Sacks                  |                       | Slurry<br>vt (ppg) |                      | ield<br><sup>3</sup> /sks) | Volume<br>(ft <sup>3</sup> )          | 2                     | Cement<br>Top (MI |                                       | WOC<br>(hrs)                              |
| Conductor                   | Class A   | 200                                 | 1                     | 15.60              | 1                    | .18                        | 236                                   |                       | Surface           |                                       | 8   |
| Surface                     | Class A   | 737                                 |                       | 15.60              | 1                    | .20                        | 884.4                                 |                       | Surface           | e                                     | 8   |
| Coal                        |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       |   |
| Intermediate 1              | Class A   | 783                                 |                       | 15.60              | 1                    | .19                        | 931.77                                | 7                     | Surface           | ə –                                   | 8   |
| Intermediate 2              |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       |   |
| Intermediate 3              |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       |   |
| Production                  | Class H   | 3,165                               |                       | 14.50              | 1                    | .18                        | 3,734.3                               | 7                     | 870'              |                                       | 8   |
| Tubing                      |   |                                     |                       |                    |                      |                            | · · · · · · · · · · · · · · · · · · · |                       |                   |                                       |   |
|                             | ) <u>15,486'</u><br>tion penetrated _<br>cedure                                 |                                     |                       | Log<br>Plu         | ggers TI<br>g back t | D (ft)<br>to (ft)          |                                       |                       |                   | <b>L</b>                              |   |
| Kick off depth              | (ft) <u>5,950'</u>  |                                     |                       |                    | -                    |                            |                                       |                       |                   |                                       |   |
| Check all wire              | line logs run   | □ caliper<br>□ neutron              | □ densit<br>□ resisti | •                  | deviate<br>gamma     | d/directi<br>ray           |                                       | induction<br>temperat | -                 | □sonic                                |   |
| Well cored                  | Yes 🛎 No  | Conventio                           | nal S                 | Sidewall           |                      | W                          | ere cutting                           | gs collecte           | ed 🗆 🗅            | Yes 🔳                                 | No  |
| Surface / Coal - Run cente  | HE CENTRALIZ<br>ralizers in the middle and top o<br>centralizer 3' from Shoe, 2 | f the first joint, top of the third | jt and every 4th jo   | int to surface.    |                      |                            | FRING _                               |                       |                   |                                       |   |
|                             |   |                                     |                       |                    |                      |                            |                                       |                       |                   |                                       |   |
| WAS WELL C                  | COMPLETED A   | S SHOT HOLE                         | 🗆 Yes                 | 🗆 No               | DE                   | TAILS                      |                                       |                       |                   |                                       |   |
| WAS WELL C                  | COMPLETED O   | PEN HOLE?                           | □ Yes □               | I No               | DETA                 | alls                       |                                       |                       |                   |                                       |   |
| WERE TRAC                   | ERS USED 🛛 '  | Yes 🗆 No                            | TYPE O                | F TRACI            | ER(S) U              | ISED                       |                                       |                       |                   |                                       |   |

| WR-35<br>Rev. 8/23/13 |           |             | Page <u>3</u> of <u>4</u> |
|-----------------------|-----------|-------------|---------------------------|
| API 47- 051 01631     | Farm name | Well number |                           |

#### PERFORATION RECORD

 
 Stage No.
 Perforation date
 Perforated from MD ft.
 Perforated to Perforations
 Number of Perforations

 Image: I

Please insert additional pages as applicable.

#### STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

| Stage<br>No. | Stimulations<br>Date | Ave Pump<br>Rate (BPM) | Ave Treatment<br>Pressure (PSI) | Max Breakdown<br>Pressure (PSI) | ISIP (PSI)                            | Amount of<br>Proppant (lbs) | Amount of<br>Water (bbls) | Amount of<br>Nitrogen/other (units)  |
|--------------|----------------------|------------------------|---------------------------------|---------------------------------|---------------------------------------|-----------------------------|---------------------------|--|
| 110.         | Date                 |                        |                                 |                                 |                                       |                             | Water (0013)              |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 | · · · · · · · · · · · · · · · · · · · |                             |                           |  |
|              |                      |                        |                                 |                                 | · · · · · · · · · · · · · · · · · · · |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           | (1999) (1997) (1 |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |
|              |                      |                        |                                 |                                 |                                       |                             |                           |  |

Please insert additional pages as applicable.

| WR-35<br>Rev. 8/23/13 |                    |               |                  |                 | Page <u>4</u> of <u>4</u>                             |
|-----------------------|--------------------|---------------|------------------|-----------------|---|
| API 47- 051           | _ 01631            | Farm          | name_Van Astor   | MSH 5H          | Well number   |
| PRODUCING             | FORMATION(         | S)            | <u>DEPTHS</u>    |                 |   |
|                       |                    |               |                  |                 |   |
| W/O Completion        | 1                  |               |                  | _TVD            | MD  |
|                       |                    |               |                  |                 |   |
|                       |                    |               |                  |                 |   |
|                       |                    |               |                  |                 |   |
| Please insert ad      | ditional pages a   | s applicable. |                  |                 |   |
| GAS TEST              | 🗆 Build up 🛛       | Drawdown      | □ Open Flow      | 0               | IL TEST □ Flow □ Pump                                 |
| SHUT-IN PRE           | SSURE Surf         | ace           | _psi Botto       | m Hole          | psi DURATION OF TEST hrs                              |
| OPEN FLOW             | Gas                | Oil           | NGL              | Ţ               | Vater GAS MEASURED BY                                 |
|                       | mcf                |               |                  |                 | bpd $\Box$ Estimated $\Box$ Orifice $\Box$ Pilot      |
|                       |                    |               |                  |                 | •   |
| LITHOLOGY/            | TOP                | BOTTOM        | TOP              | BOTTOM          |   |
| FORMATION             | DEPTH IN FT        | DEPTH IN FT   | DEPTH IN FT      | DEPTH IN FT     | DESCRIBE ROCK TYPE AND RECORD QUANTITYAND             |
|                       | NAME TVD           | TVD           | MD               | MD              | TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H2S, ETC) |
|                       | 0                  |               | 0                |                 |   |
| LS/Sh                 | 0                  | 770           | 0                | 770             | Predominately limestone with small amounts of shale   |
| Pittsburgh Coal       | 770                | 790           | 770              | 790             | Pittsburgh Coal                                       |
| LS                    | 790                | 1060          | 790              | 1060            | Limestone   |
| LS/Sh                 | 1060               | 1500          | 1060             | 1500            | Limestone and shale                                   |
| Sh/SS                 | 1500               | 1650          | 1500             | 1650            | Shale and stone                                       |
| Big Lime              | 1650               | 1820          | 1650             | 1820            | Sandstone   |
| Big Injun             | 1820               | 2085          | 1820             | 2085            | Big Injun Sandstone                                   |
| Sh                    | 2085               | 6420          | 2085             | 6420            | Shale   |
| Geneseo               | 6420               | 6458          | 6735             | 6773            | Geneseo Shale   |
| Tully                 | 6458               | 6487          | 6773             | 6832            | Tully Limestone                                       |
| Hamilton              | 6487<br>6576       | 6576<br>TD    | 6832<br>7104     | 7104<br>TD      | Hamilton Shale  |
| Marcellus<br>TD       | 0370               | 6615          | 7104             | 15,486          | Marcellus Shale<br>TD                                 |
| Please insert ad      | ditional pages a   |               |                  | 10,400          | ID ID   |
|                       |                    | ••            |                  |                 |   |
| Drilling Contra       | ctor Nomac Drill   | ing           |                  |                 |   |
| Address 171 Loc       | cust Ave Extension |               | City             | Mt. Morris      | State PAZip5349                                       |
| Logging Compa         | any Nomac Drilli   | ng            |                  |                 |   |
| Address 171 Loc       | cust Ave Extension |               | City             | Mt. Morris      | State PA Zip 15349                                    |
|                       |                    |               |                  |                 | =   |
| Cementing Con         |                    | erger         |                  |                 |   |
| Address 1080 U        | .8, 33             |               | City             | Weston          | StateZip _26452                                       |
| Stimulating Cor       | mnany              |               |                  |                 |   |
| Address               |                    |               | City             |                 | State Zip   |
| Please insert ad      |                    |               | Ony              |                 | Zip   |
|                       |                    | ••            |                  |                 |   |
| Completed by          | Marlene William    |               |                  |                 | Telephone 405-935-4158                                |
| Signature             | Jarlone            | Willia        | Title Re         | egulatory Analy | st II Date <u>8/18/14</u>                             |
| Submittal of Hy       | draulic Fracturi   | ng Chemical I | Disclosure Infor | mation A        | Attach copy of FRACFOCUS Registry                     |

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

| API 051                       | _ 01631          | County Marshal                           | 1                                | Distr                 | <sub>ict</sub> Came | eron        |         |             |
|-------------------------------|------------------|--|----------------------------------|-----------------------|---------------------|-------------|---------|-------------|
| Quad Glen Easton              |                  |  | ston MSH                         |                       |                     |             |         |             |
| Farm name Van Astor           |                  |  |                                  |                       |                     | 837625      |         |             |
| Operator (as registered       | with the OOG     | Chesapeake Appa                          | lachia, L.L.C.                   |                       |                     |             | -       |             |
| Address P.O. Box 18           | 496              | Okl                                      | ahoma City                       | 5                     | State OK            |             | _Zip_   | 73154-0496  |
| As Drilled location N         |                  | Attach an as-drille<br>Northing_493086.0 | d plat, profile view             | v, and dev<br>Easting |                     | /ey         |         |             |
| Landing Point                 |                  | Northing <u>493130.8</u>                 |                                  | Easting _1            |                     |             |         |             |
| Bott                          | om Hole          | Northing <u>493580.2</u>                 |                                  | Easting _1            | 646524.5            |             |         |             |
| Elevation (ft) 1,152'         | GL               | Type of Well                             | ∎New □ Existing                  | 5                     | Type of R           | eport ∎In   | terim   | □Final      |
| Permit Type 🛛 Dev             | iated □ H        | orizontal 📕 Horizon                      | tal 6A 🛛 Vertic                  | cal                   | Depth Ty            | pe 🗆        | Deep    | □ Shalle    |
| Type of Operation □ C         | convert □ I      | Deepen 🛎 Drill 🗆                         | Plug Back 🗆 R                    | Redrilling            | □ Rew               | vork □ S    | timula  | ite         |
| Well Type 🗆 Brine Dis         | sposal 🗆 CBN     | 4 ∎Gas □Oil □Sec                         | ondary Recovery                  | □ Solutio             | n Mining            | □ Storage   | : 🗆 C   | )ther       |
|                               | -                |  |                                  |                       |                     |             |         |             |
| Type of Completion            |                  | Itiple Fluids Produ                      | ced □Brine ■                     | Gas □]                | NGL 🗆               |             | ther _  |             |
| Drilled with  □ Cable         | 📕 Rotary         |  |                                  |                       |                     |             |         |             |
| Drilling Media Surfac         | e hole 🔳 Aiı     | r □ Mud ■Fresh Wa                        | ter Intermedi                    | iate hole             | ∎Air ⊏              | Mud 🔳       | Fresh ` | Water 🗆 Bri |
| Production hole Air           |                  |  |                                  |                       |                     |             |         |             |
| Mud Type(s) and Addin<br>SOBM |                  |  |                                  |                       |                     |             |         |             |
|                               |                  |  |                                  |                       |                     |             |         |             |
| Date permit issued            | 3/31/14          | Date drilling comm                       | nenced 12/20                     | )/13                  | Date dri            | lling cease | d       | 1/23/14     |
| Date completion activiti      | es began         |  | _ Date completion                | activities            | ceased              |             |         |             |
| Verbal plugging (Y/N)         |                  | Date permission granted                  | 1                                | G                     | ranted by_          |             |         |             |
|                               |                  |  |                                  |                       |                     |             |         |             |
| Please note: Operator is      | s required to su | ıbmit a plugging applica                 | ation within 5 days              | of verbal             | permissio           | n to plug   |         |             |
| Freshwater depth(s) ft        |                  | 336'                                     | Open mine(s) (Y/                 | 'N) depths            | i                   |             | N       |             |
| Salt water depth(s) ft        |                  | ,060'                                    | Void(s) encountered (Y/N) depths |                       |                     |             | Y 77    | '0'         |
| Coal depth(s) ft              |                  | 70'                                      | Cavern(s) encoun                 |                       |                     |             | Ν       | 1           |
| Is coal being mined in a      |                  | Y  |                                  |                       | · · · -             |             |         |             |
|                               |                  |  |                                  |                       |                     |             | Revie   | wed by:     |

| WR-35<br>Rev. 8/23/13     |   |                                     |            |                         |                        |                            |                              |               |                 |                                       | Page <u>2</u> of <u>4</u>                  |
|---------------------------|---|-------------------------------------|------------|-------------------------|------------------------|----------------------------|------------------------------|---------------|-----------------|---------------------------------------|--|
| API 47- 051               | 01631   | Farm na                             | me_V       | an Aston                | MSH 5H                 |                            | We                           | ell nu        | mber            | 625                                   |  |
| CASING<br>STRINGS         | Hole<br>Size  | Casing<br>Size                      | D          | epth                    | New or<br>Used         | Grade<br>wt/ft             |                              | Basl<br>Dept  |                 |                                       | nent circulate (Y/ N)<br>de details below* |
| Conductor                 | 26"   | 20"                                 | 1          | 22'                     | New                    | K-5                        | 55 94#                       |               | _3.4.           |                                       | Y  |
| Surface                   | 17 1/2"   | 13 3/8"                             | 8          | 22'                     | New                    | J-55                       | 5 54.5#                      | 1             |                 |                                       | Y  |
| Coal                      |   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| Intermediate 1            | 12 1/4"   | 9 5/8"                              | 2,         | 246'                    | New                    | J-5                        | 5 40#                        |               |                 |                                       | Y  |
| Intermediate 2            |   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| Intermediate 3            |   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| Production                | 8 3/4" / 8 1/2"   | 5 1/2"                              | 15         | ,486'                   | New                    | <br>P-1'                   | 10 20#                       |               |                 |                                       | Y  |
| Tubing                    |   |                                     |            | ,                       |                        | ·····                      |                              |               |                 |                                       |  |
| Packer type and d         | lepth set   | I.                                  |            |                         |                        |                            |                              | 1             |                 | L                                     |  |
| Comment Details           |   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| CEMENT<br>DATA            | Class/Type<br>of Cement   | Number<br>of Sacks                  |            | Sluпy<br>wt (ppg)       |                        | ield<br><sup>3</sup> /sks) | Volume<br>(ft <sup>3</sup> ) | e             | Cemer<br>Top (M |                                       | WOC  |
| Conductor                 | Class A   | 200                                 |            | 15.60                   |                        | .18                        | 236                          |               | Surfac          |                                       | (hrs)<br>8                                 |
| Surface                   | Class A   | 737                                 |            | 15.60                   |                        | .20                        | 884.4                        |               | Surfa           |                                       |  |
| Coal                      |   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| Intermediate 1            | Class A   | 783                                 |            | 15.60                   | 1                      | .19                        | 931.7                        | 7             | Surfac          | e.                                    | 8  |
| Intermediate 2            |   | · · · · · ·                         |            |                         |                        |                            |                              |               |                 |                                       |  |
| Intermediate 3            |   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| Production                | Class H   | 3,165                               |            | 14.50                   | 1                      | .18                        | 3,734.                       | 7             | 870             | · · · · · · · · · · · · · · · · · · · |  |
| Tubing                    |   |                                     |            |                         |                        |                            | 0,101.                       | ·             |                 |                                       |  |
|                           | ) <u>15,486</u><br>tion penetrated _<br>cedure                                  |                                     |            | I                       | Loggers T<br>Plug back | D (ft)<br>to (ft)          |                              |               |                 | 1                                     |  |
| Kick off depth            | (ft) 5,950'   |                                     |            |                         |                        |                            |                              |               |                 |                                       |  |
| Check all wire            | line logs run   | □ caliper<br>□ neutron              |            | ensity<br>esistivity    | □ deviate<br>□ gamma   |                            |                              | induc<br>temp | tion<br>erature | ⊐sonie                                | 0  |
| Well cored                | Yes 📕 No  | Conventio                           | nal        | Sidewal                 | 11                     | W                          | ere cutting                  | gs col        | lected 🗆        | Yes 🔳                                 | No   |
| Surface / Coal - Run cent | HE CENTRALIZ<br>ralizers in the mkldle and top o<br>centralizer 3' from Shoe, 2 | f the first joint, top of the third | jt and eve | ry 4th Joint to surface | 9.                     | SING ST                    | FRING _                      |               |                 |                                       |  |
| WAS WELL O                | COMPLETED A   | S SHOT HOLE                         | `          | Yes 🗆 N                 | o DE                   | TAILS                      |                              |               |                 |                                       |  |
| WAS WELL (                | COMPLETED O   | PEN HOLE?                           | 🗆 Ye       | s 🗆 No                  | DETA                   | LILS                       |                              |               |                 |                                       |  |
| WERE TRAC                 | ERS USED  | ζes □ No                            | TYF        | PE OF TRA               | CER(S) U               | ISED                       |                              |               |                 |                                       |  |

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|-------------------|------------------|------------------------|----------------------|---------------------------|-------------------|-----------------------------------|
| API 47            | , 051 01631      | Farm nam               | e Van Aston M        | SH 5H                     | 837625Well number |                                   |
|                   |                  |                        | PERFORATI            | ON RECORD                 |                   |                                   |
| Stage<br>No.      | Perforation date | Perforated from MD ft. | Perforated to MD ft. | Number of<br>Perforations | Formation(s)      |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           | -                 |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           |                   |                                   |
|                   |                  |                        |                      |                           |                   | · · · · · · · · · · · · · · · · · |

Please insert additional pages as applicable.

### STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

| Stage<br>No. | Stimulations<br>Date | Ave Pump<br>Rate (BPM) | Ave Treatment<br>Pressure (PSI) | Max Breakdown<br>Pressure (PSI) | ISIP (PSI) | Amount of<br>Proppant (lbs) | Amount of<br>Water (bbls) | Amount of<br>Nitrogen/other (units) |
|--------------|----------------------|------------------------|---------------------------------|---------------------------------|------------|-----------------------------|---------------------------|-------------------------------------|
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
| ļ            |                      |                        |                                 |                                 |            |                             |                           |                                     |
| ļ            |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |
|              |                      |                        |                                 |                                 |            |                             |                           |                                     |

Please insert additional pages as applicable.

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|--|--------------------------------|------------------------------|--------------------------|-----------------------------|--|
| API 47- 051                                | _ 01631                        | Farm 1                       | name_Van Astor           | n MSH 5H                    | Well number  |
| PRODUCING 3                                | •                              | <u>S)</u>                    | <u>DEPTHS</u>            | TVD                         | MD   |
|  |                                |                              |                          |                             |  |
| Please insert ad                           | ditional pages a               | s applicable.                | · · · · ·                |                             |  |
| GAS TEST                                   | 🗆 Build up 🗆                   | Drawdown                     | □ Open Flow              | 0                           | IL TEST □ Flow □ Pump  |
| SHUT-IN PRES                               | SSURE Surf                     | ace                          | _psi Botto               | m Hole                      | psi DURATION OF TEST hrs   |
| OPEN FLOW                                  | Gas<br>mcf                     | Oil<br>pd ł                  | NGL                      |                             | Vater GAS MEASURED BY<br>bpd   |
| LITHOLOGY/<br>FORMATION                    | TOP<br>DEPTH IN FT<br>NAME TVD | BOTTOM<br>DEPTH IN FT<br>TVD | TOP<br>DEPTH IN FT<br>MD | BOTTOM<br>DEPTH IN FT<br>MD | DESCRIBE ROCK TYPE AND RECORD QUANTITYAND<br>TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H2S, ETC) |
| LS/Sh                                      | 0                              | 770                          | 0                        | 770                         | Predominately limestone with small amounts of shale  |
| Pittsburgh Coal                            | 770                            | 790                          | 770                      | 790                         | Pittsburgh Coal  |
| LS   | 790                            | 1060                         | 790                      | 1060                        | Limestone  |
| LS/Sh                                      | 1060                           | 1500                         | 1060                     | 1500                        | Limestone and shale  |
| Sh/SS                                      | 1500                           | 1650                         | 1500                     | 1650                        | Shale and stone  |
| Big Lime                                   | 1650                           | 1820                         | 1650                     | 1820                        | Sandstone  |
| Big Injun                                  | 1820                           | 2085                         | 1820                     | 2085                        | Big Injun Sandstone  |
| Sh   | 2085                           | 6420                         | 2085                     | 6420                        | Shale  |
| Geneseo                                    | 6420                           | 6458                         | 6735                     | 6773                        | Geneseo Shale  |
| Tully                                      | 6458                           | 6487                         | 6773                     | 6832                        | Tully Limestone  |
| Hamilton                                   | 6487                           | 6576                         | 6832                     | 7104                        | Hamilton Shale   |
| Marcellus                                  | 6576                           | TD                           | 7104                     | TD                          | Marcellus Shale  |
| TD   |                                | 6615                         |                          | 15,486                      | TD   |
| Please insert ad                           | ditional pages a               | s applicable.                |                          |                             |  |
| Drilling Contrac<br>Address <u>171 Loc</u> |                                |                              | City                     | Mt. Morris                  | State PA Zip 15349   |
| Logging Compa<br>Address 171 Log           |                                |                              | City                     | Mt. Morris                  | State PAZip  |
|  | Schlumbe                       | arger                        |                          |                             |  |
| Cementing Con<br>Address 1080 U.           | S. 33                          | agei                         | City                     | Weston                      | State WV Zip 26452   |
| Stimulating Cor<br>Address                 | npany                          |                              |                          |                             | State Zip  |
| Please insert ad                           |                                | s applicable.                | City                     |                             | baacbap  |
| Completed by                               |                                | S                            |                          |                             | Telephone 405-935-4158   |
| Signature                                  | Jarlone                        | Millia                       | My Title Re              | egulatory Analys            | st II Date 8/18/14   |

.

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of

Attach copy of FRACFOCUS Registry

| UPS   | Request ID: 00093614  |  |  |  |  |
|---|---|--|--|--|--|
| Carrier Information                             |   |  |  |  |  |
| Carrier   | UPS   |  |  |  |  |
| Destination                                     | Domestic  |  |  |  |  |
| Addressee                                       |   |  |  |  |  |
| Company Shipping To                             | WV DEP  |  |  |  |  |
| Attention To                                    | Mr. Gene Smith  |  |  |  |  |
| Address: Office of Oil & Gas<br>601 57th Street |   |  |  |  |  |
| City  | Charleston  |  |  |  |  |
| State   | WV  |  |  |  |  |
| Country   | US  |  |  |  |  |
| Postal Code                                     | 25304   |  |  |  |  |
| Phone   | 3049260499  |  |  |  |  |
| Email   |   |  |  |  |  |
| Service Type                                    |   |  |  |  |  |
| Next Day Air                                    |   |  |  |  |  |
| Delivery typically by 10:30 a                   | ı.m.  |  |  |  |  |
|   | guaranteed next-business-day delivery fro<br>9 US 50 and Puerto Rico, with some limitat |  |  |  |  |
| Shipment Details                                | •   |  |  |  |  |
| •<br>Package Reference 1                        | Interim completion  |  |  |  |  |
| Signature Required                              | · · · · · · · · · · · · · · · · · · ·   |  |  |  |  |
|   |   |  |  |  |  |
| Sender Info                                     |   |  |  |  |  |
| Sender Info Sender Name                         | Marlene Williams  |  |  |  |  |